

UNIVERSITY OF PORT HARCOURT, NIGERIA



SCHOOL OF GRADUATE STUDIES (SGS) General Regulations for Graduate Programmes

The purpose of this prospectus is to provide general information for the guidance of graduate students who may wish to undertake training and research at the University of Port Harcourt. Although this edition is accurate and up to date at the time of publication, the contents are subject to changes from time to time. The University Senate reserves the right to modify or cancel any statement in the prospectus and accepts no responsibility for any consequence(s) arising there from.

2023/2024 EDITION

Reviewed and Compiled by

Mrs. Rosemary C. Victor-Ochonma (PAR)
Head, Associate Dean's Unit

Directed by the Dean, the Associate Dean and the GSO; School of Graduate Studies

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UNIVERSITY ADDRESS

UNIVERSITY OF PORT HARCOURT
(FOUNDED 1975 AS UNIVERSITY COLLEGE, PORT HARCOURT)
GRANTED FULL UNIVERSITY STATUS
OCTOBER 1, 1977

POSTAL ADDRESS:

P.M.B. 5323, Port Harcourt, Rivers State, Nigeria, West Africa

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Mobile: 0803-6010070, 0805-7755257

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Tel: 202-223-9300 |
| 2. | C/o The Nigerian High Commission
295 Metcalfe Street
Ottawa. Ontario K2P 1R9
Canada | 4. | C/o Embassy of the Federal
Rep. of Nigeria
13 Sharia Gaba Laya
Zamalek, Cairo
Arab Republic of Egypt |



THE NATIONAL ANTHEM

*Arise, O compatriots, Nigeria's call obey
To serve our fatherland
With love and strength and faith
The labor of our heroes past
Shall never be in vain
To serve with heart and might
One nation bound in freedom, peace, and unity.*

*Oh God of creation, direct our noble cause
Guide our leaders right
Help our youth the truth to know
In love and honesty to grow
And living just and true
Great lofty heights attain
To build a nation where peace and justice shall reign.*

THE NATIONAL PLEDGE

*I pledge to Nigeria, my country
To be faithful, loyal, and honest
To serve Nigeria with all my strength
To defend her unity
And uphold her honor and glory
So help me God.*



UNIVERSITY OF PORT HARCOURT ANTHEM

*On the green low lands and swampy plains
of the New Calabar River stands
The University of Port Harcourt;
A citadel of learning and excellent education
A home of academic enthusiasts,
Searching, searching for knowledge and wisdom.
Enlightenment and self- reliance, our mission,
Our hope in the future is rooted in God alone;
The vision of our fathers shinning in the stars,
Opportunities, unlimited and equal,
Our progenies citizens of the universe,
From far and near: the pride of Uniport echoes.*

Refrain:

*Unique, Unique. Unique, Uniport
Unique, Unique, Unique Uniport*

PRINCIPAL OFFICERS OF THE UNIVERSITY

VISITOR

His Excellency, President Asuwaju Ahmed Bola Tinubu, GCFR
President & Commander-in-Chief of the Armed Forces of the
Federal Republic of Nigeria

CHANCELLOR

HRH, Muhammadu Iyasu Bashir, CFR, mni
(Emir of Gwandu)

ACTING EXECUTIVE SECRETARY, NATIONAL UNIVERSITIES COMMISSION

Dr. Christopher J. Maiyaki, mni, MFR

VICE-CHANCELLOR

Professor Owunari A. Georgewill
B.Med.Sc., MBBS, M.Sc., MD (UPH), MNMA, FRSB (London), FIIA, FWASOT,
FWASOP, FFS, FCSI, FECRMI, FIARSA, FIHSC

DEPUTY VICE-CHANCELLOR (Administration)

Professor Clifford O. Ofurum
B.Ed (Benin), PGD, MBA (UNN), M.Sc, Ph.D (FUTO) ACA, ACIL, ACN

DEPUTY VICE-CHANCELLOR (Academic)

Professor Kingsley I. Owete
BA (UPH), MA (JOS), Ph.D (UPH)

DEPUTY VICE-CHANCELLOR (Research and Development)

Professor Iyeopu M. Siminialayi
B.MedSc.MBBS(UPH),M.Sc.(Lag), MD(UPH) FWASP

REGISTRAR

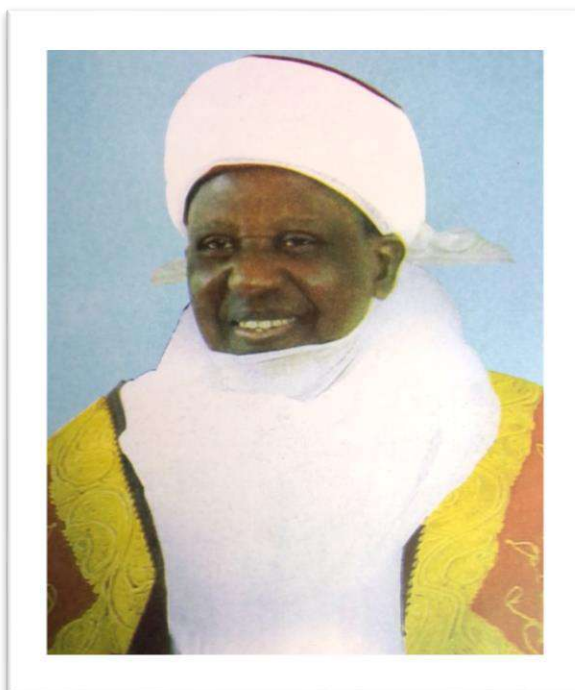
Dr. Gloria O. Chindah
B.Ed (Ibadan), M.Ed., Ph.D (UPH), FCIA

ACTING BURSAR

Dr. Godpower W. Obah
B.Sc (UPH), M.Sc.,(UPH) Ph.D (IAU), FCNA, ACTI, AMNAA

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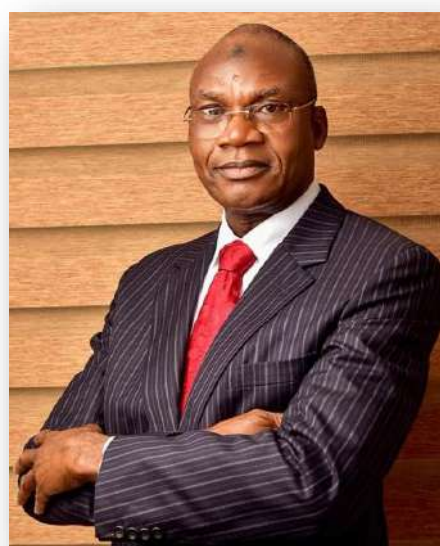
Dr. Helen U. Emasealu
B.A, MLS, Ph.D (Ibadan), CLN



**HIS ROYAL HIGHNESS
GEN. MUHAMMADU ILYASU BASHAR, CFR, mni**
EMIR OF GWANDU
Chancellor



DR. CHRISTOPHER J. MAIYAKI, mni, MFR
Acting Executive Secretary,
National Universities Commission



PROFESSOR TAHIR MAMMAN
OON, SAN
Minister of Education

PRINCIPAL OFFICERS OF THE UNIVERSITY



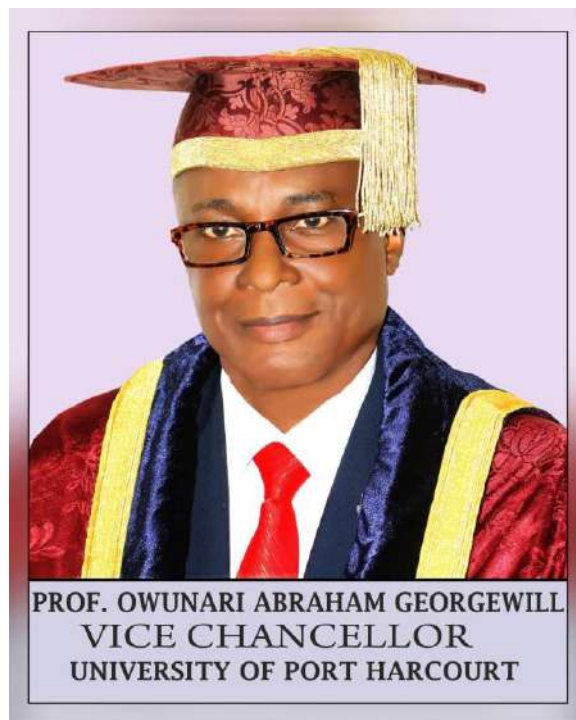
PROF. CLIFFORD O. OFURUM
DEPUTY VICE CHANCELLOR (Admin.)



PROF. KINGLEY I. OWETE
DEPUTY VICE CHANCELLOR (Academic)



PROF. I. M. SIMINIALAYE
DEPUTY VICE CHANCELLOR
(Research & Development)



DR. GLORIA CHINDAH
REGISTRAR

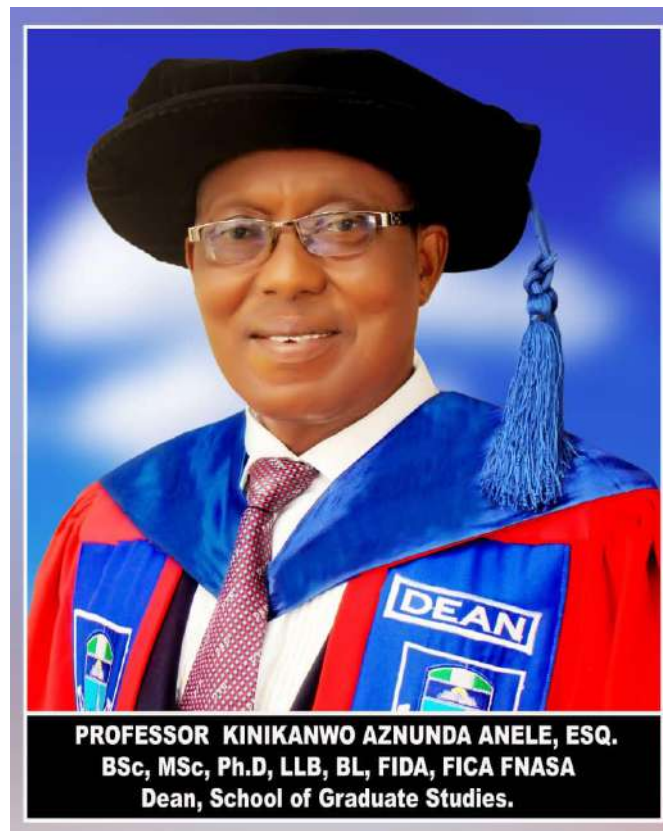


DR. GODPOWER W. OBAH
Ag. BURSAR



DR. HELEN U. EMASEALU
LIBRARIAN

OFFICERS OF THE SCHOOL



PROF. CHINEDU N. OGBUJI
B.Sc., MBA, M.Sc., Ph.D, SMAWB,
MAMN
Associate Dean



MRS. FLORA F. IYAGBA,
B.Sc., M.Sc. (Econs), M.Sc. (SOC), FLNIM
Director/GSO



MR. KINGSLEY M. OTEBA
NCE, B.Sc, MBA, CNA
Deputy Bursar/SGS Accountant

-*

LIST OF STAFF AND DESIGNATION

S/NO	NAME OF STAFF	DESIGNATION
1	Anele, K. A	Professor/Dean
2	Ogbuji , C.N.	Professor/Associate Dean
3	Iyagba, Flora F.	Director/Graduate Studies Officer
4	Adegbesan, Ekwi	Deputy Registrar/Admission Officer
5	Oteba, Menenaalor Kingsley	Deputy Bursar/SGS Accountant
6	Victor-Ochonma, Rosemary C.	Principal Assistant Registrar (Unit Head, Assoc. Dean's Office)
7	Akem, Georgina T.	Principal Assistant Registrar (Unit Head, Exams & Board)
8	Igwe, Chika Chimzi	Principal Assistant Registrar (Unit Head, Documentation)
9	Obanye, Joyce Uzoma	Principal Assistant Registrar
10	Baridoo, Ledor Lah	Principal Assistant Registrar
11	Offiong ,Vivian	Principal Assistant Registrar
12	Mary Imabong Onukwufor	Asst Chief Executive Officer (Sec)
13	Juliet Achi	Asst Chief Executive Officer
14	Grace Agbo	Personal Secretary 1
15	Zoragha, Leesi Charity	Personal Secretary 1
16	Cookey Gogo F	Principal Executive Officer I
17	Okwudiri, Onisoya Margaret	Senior Assistant Registrar
18	Macdonald Dorathy	Senior Assistant Registrar
19	Gonee Godwin	Senior Assistant Registrar
20	Ekpo, Samuel Thompson	Senior Assistant Registrar
21	Woko, Patience Ihuoma	Principal Executive Officer
22	Woke Elsie	Assistant Registrar
23	Braide, Furo Opuene	Assistant Registrar
24	Orlu, George	Assistant Registrar
25	Collins Onuchuku	Senior Accountant
26	J. N. Ejim	Principal Executive Officer
27	Wabali, Priscilia Ekwutosi	Assistant Registrar
28	Aliezi Chiyakabi	Administrative Officer
29	Nnadi, Christiana Ngozi	Chief Secretarial Assistant
30	Oti Christian	Chief Secretarial Assistant
31	Umobong Iniobong A.	Chief Accountant
32	Goodness Oporum	Administrative Officer
33	Victor Iriso	System Analyst I
34	Ogbuihi Chizoma N.	Principal Executive officer (Acct)
35	Ozuru Ngozi	Administrative Assistant
36	Obia, Nadum Mbara	Administrative Assistant
37	Atangsi, Kpegah Dumale	Administrative Assistant
38	Lede Nziadam	Higher Executive Officer
39	Ukwuoma, Police Toli	Higher Executive Officer
40	Zeteh, Grant Kadilobara	System Analyst
41	Charity Job	Chief Clerical Officer
42	Perfect Leton	Chief Clerical Officer
43	Beauty Celestine Nkwo	Chief Clerical Officer
44	Damkwa, Ndaagbara	Chief Clerical Officer
45	Samuel Gonee	Supervisor Library Assistant
46	Ogbuiche, Asele D.	Clerical Officer 1
47	Anachor Igwe	Head Driver
48	Obinda Patience	Caretaker
49	Isiah Maria	Caretaker
50	Abigail Amesi	Caretaker
51	Eze Chinyere	Caretaker
52	ThankGod Nyeche	Clerical Officer II
53	Woke Blessing	Clerical Officer
54	Amadi, Michael	Chief Driver
55	Obuoforibo Elizabeth	Principal Executive Officer 1
56	Chima Kpalukwu	Administrative Assitant
57	Chinwendu Ruhuchi	Computer Operation 1
58	Monday Isreal	Caretaker

FOREWORD

The School of Graduate Studies has produced quality graduates with serious minded Academics ready to impart unique world standard knowledge into the students. The University was operating a “School” system at the time it was established. Schools of Humanities and Biological Sciences were the pioneer beneficiaries of post-graduate programme. Students were admitted into the M.A. Comparative Literature and M. Sc Plant Physiology and Fisheries Biology Programme.

Professor E.J. Alagoa (1982-1983 & 1985 -1987) became the pioneer Dean in 1982 when the Graduate School was established as an entity with eight students graduating in that year. Other Deans that have contributed to the growth of the School include Professor Francis Onofeghara (Late; 1983-1985) Professor T.J.T. Princwill (1987-1990), Professor Kay Williamson (Late; 1990-1991), Professor A.T. Salau (Late; 1991-1994), Professor E.O. Anosike (1994-1996) Professor William Ogionwo (Late; 1996-1999), Professor E.A. Elechi (Late; 1999-2006), Professor Winston Bell-Gam (2003-2005), Professor(Mrs.) Bene Willie-Abbey (2005-2011), Professor (Mrs.) Roseline S. Konya JP, (2011-2015 who was Dean and the Pioneer Provost of the School of Graduate Studies, until it reverted to the School) Professor Regina E. Ogali, Professor Anthonia A. Okerengwo, Professor Barisua F. Nwinee and Professor Kinikanwo A. Anele the current Dean. The Graduate

Studies Officers who were responsible for the administrative duties of the School were Mr. I.A.T. Allison (the pioneer Graduate Studies Officer), Mrs. S.O. Mengot, Mr. Finor K. Puene, Ms. O.E. Alabukun (Worika) Mrs. N.V. Dimkpa, Mrs. May Amaewhule, Mr. Abiye S. Kiri, Mr. L.C. Okere (Late), Mr. K.C. Alerechi, Mr. D.C. Amadi (Late), Mrs. Flora F. Iyagba, Dr. (Mrs.) D.I. Charles Granville, Dr. (Mrs) A.O. Ataga and Mrs. Christy U. Nworu (Late) and Mrs. Flora F. Iyagba, the current GSO.

There is no doubt that the School of Graduate Studies has contributed immensely to National Development. The Alumni of the School include people in positions of authority ranging from Chief Executives of Companies, to Governors and even a former President of the Federal Republic of Nigeria Dr. Goodluck Ebele Jonathan GCFR who graduates with an M.Sc degree in 1985 and Ph.D in 1995.

This prospectus is expected to be a graduate student’s companion and also to provide relevant information for intending students.

The National Universities Commission (NUC) Core Curriculum and Minimum Academic Standards (CCMAS) for Postgraduate Programmes are incorporated in this edition.

Prof. Kinikanwo A. Anele
Dean

Winner of Nigeria Universities' Doctoral Theses Award Scheme (NUDTAS)

In 3 Categories

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Best Thesis in Biological Science (2010)

Best Thesis in Social Science (2011)

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SCHOOL OF GRADUATE STUDIES

UNIVERSITY OF PORT HARCOURT

1.0 BACKGROUND

1.1 History of the School of Graduate Studies

At its 12th Meeting held on Wednesday, 19th July, 1978, Senate considered and approved Paper No. SP 77-78/060 titled “The General Regulations for Graduate Studies”. This paved the way for the take-off of graduate training in the 1979/80 academic year. The then School of Humanities and Biological Sciences gave admission to candidates in the programmes of M.A. Comparative Literature and M.Sc. Plant Physiology and Fisheries Biology.

Initially, the graduate programmes were administered by the School (now Faculties) and the Registry. In October 1982, the School of Graduate Studies was formally established with Professor E. J. Alagoa as the first Dean, and it became necessary to streamline the procedures for the operation of graduate programmes. The General Regulations approved by Senate required each Faculty to set up Departmental Graduate Studies Committees to make recommendations regarding all matters concerning graduate programmes to its Faculty Board. Senate also established the “Higher Degrees Committee” (a Committee of the School of Graduate Studies) to “advise Senate on all matters relating to higher degrees”.

Further in 1984, the Higher Degrees Committee recommended for the approval of Senate a paper entitled “Proposals for Amendment/Streamlining of the School of Graduate Studies” initiated by the then Dean Professor Francis A. Onofeghara. At its 68th Meeting held on 23rd May, 1984, Senate considered and approved the paper No. SP/83- 84/134, which among other things, established the Board of

the School of Graduate Studies to replace the Higher Degrees Committee, and a new organizational structure for the School of Graduate Studies with effect from October 1984.

Due to the expansion in the scope of activities of the School, the Senate of the University, at its 386th meeting held on 29th August, 2012, upgraded the status of the School of Graduate Studies to College of Graduate Studies with four Graduate Schools.

In 2015, at the 411th Senate meeting held on the 26th August 2015 the College reverted back to School of Graduates Studies.

1.2 Vision of the School

To be ranked among the best Graduate Schools in Africa, in the provision of quality staff, programmes and facilities and renowned for its teaching, research, innovation and knowledge transfer.

1.3 Mission of the School

To pursue academic excellence, advancement of knowledge and community service through capability development, promotion of scholarship and policy relevant researches that address the challenges of contemporary society.

1.4 Objective

To implement Senate Policy and Guidelines for the initiation, consolidation and co-ordination of innovative research, provide quality administrative support for graduate programmes, equip research laboratories in the academic departments and ensure availability of data for national development.

THE BOARD OF THE SCHOOL OF GRADUATE STUDIES

The composition of the Board of the School and its terms of reference are as approved by Senate.

2.2 Terms of Reference of the Board

The Board, School of Graduate Studies, which meets on the 2nd Tuesday of every month on behalf of Senate is to consider and approve all matters relating to higher degrees and report to Senate. These shall include:

- (i) The award of University Scholarships and Research and Teaching Assistantship to graduate students.
- (ii) The formulation of Strategies for supervision of graduate students.
- (iii) The promotion of active graduate research and training in the University, including soliciting and securing outside grants.
- (iv) Fostering and development of group multidisciplinary research in the University.
- (v) The admission of Graduate Faculty Members.
- (vi) The disbursement of funds allocated for graduate work

2.3 The Functions of the Board

- (i) Admission and registration of students for graduate work.
- (ii) Approval of general fields of study and nomination of supervisors.
- (iii) Approval of title of theses and dissertations.
- (iv) Approval of appointment of internal and external examiners.
- (v) Co-ordination of all graduate programmes in the University.
- (vi) Regulation and enhancement of the quality of graduate instruction and research in the University.
- (vii) Monitoring and evaluation of the progress of graduate work in all academic departments.
- (viii) Preparation of estimates for the capital and recurrent expenditure of the school
- (ix) Making recommendations on provision of appropriate facilities for graduate work
- (x) Encouragement of the publication of the outcome of Graduate Studies in the form of journal articles, monographs and books.
- (xi) Publication of prospectus of Graduate Studies and annual reports on graduate work including titles and abstracts of theses and dissertations accepted for higher degrees.
- (xii) Publishing the graduate programmes and graduate research activities of the University extensively in order to attract good candidates and financial support.

- (xiii) Annual review and report to Senate on the development of Graduate Studies in the University.

2.4 Frequency of Board Meetings and Quorum

The Board of the School of Graduate Studies is made up of the Dean, the Associate Dean, Provost, College of Health Sciences, all Deans of Faculties, two representatives of Senate, Director, Centre for Research Management and Development.

- (iv) An emergency meeting may be summoned following written request to the Dean by at least five members of the Board drawn from two Faculties. The purpose of such a meeting shall be specified and such business be the only business of the day.
- (v) The quorum for the transaction of any business at a meeting of the Board shall be one third (or the nearest whole number) of the total membership.
- (vi) If a quorum is not formed one hour after the scheduled time of the meeting, that meeting shall stand adjourned *sine die*.

While undergraduates have two levels in which matters concerning them are considered before presenting to Senate, the graduate student has 3 levels of consideration before presentation is made to Senate. The Board monitors and regulates the programmes in line with the regulation and guidelines approved by Senate.

2.5 Channel of Communication with the School of Graduate Studies

The implication of the organizational structure of the School of Graduate Studies is that all matters concerning the Graduate School, even those originating from students should be addressed to the Dean of School of Graduate Studies. However, such matters should first be discussed at the Departmental Graduate Studies Committee and the minutes containing the recommendation forwarded to Faculty Graduate Studies Committee who in turn should do same and forward the final recommendation to the School of Graduate Studies.

3.0 FACULTY GRADUATE STUDIES COMMITTEE

3.1 Membership

- Dean of the Faculty (Chairman)
- Professors in the Faculty
- All Heads of Departments in the Faculty
- Two Representatives from each Department not below the Rank of Senior Lecturer

- Chairmen, Departmental Graduate Studies Committee
- Co-ordinators of Inter-disciplinary Programmes
- Faculty Officer (Secretary)

3.2 Terms of Reference

- Co-ordinate and control the quality of all graduate work in the Faculty;
- Recommend to the Board of the School of Graduate Studies the appointment of supervisors;
- Recommend new graduate programmes originating from Departments;
- Require the study or further study of any language or languages prescribed by the Department and make recommendations to the Board, School of Graduate Studies;
- Receive annual progress reports from the candidates and comments by their supervisors and forward them with recommendations to the Board School of Graduate Studies;
- Make recommendations of candidates for the award of grants and fellowships and the award of higher degrees and graduate diplomas, to the Board of the School of Graduate Studies;
- Recommend to the Board, School of Graduate Studies the extension of graduate scholarships and those who need to undertake part of their works in other institutions in Nigeria or abroad;
- Recommend external examiners and Board of Examiners to the Board of the School of Graduate Studies;
- Recommend candidates for admission to the Board, School of Graduate Studies;
- Approve course work results from Departments and forward such results to the Board of School of Graduate Studies;
- Deal initially with all matters involving examination malpractices and make recommendations to the Board;
- Approve all corrected theses/dissertations;
- Periodically review all Faculty graduate programmes;
- Promote group and multi-disciplinary research programmes in the Faculty;
- Carry out any other functions assigned to it by the Board, School of Graduate Studies.

4.0 DEPARTMENTAL GRADUATE STUDIES COMMITTEE

4.1 Membership

- The membership shall consist of all academic staff involved in the graduate programmes in the department. Staff who are postgraduate students cannot be members.

- There shall be a Chairman elected by the membership from the senior members of academic staff who shall not be below the rank of Senior Lecturer. However, leadership by seniority is encouraged. The tenure of the Chairman shall follow the university's established tenure system.
- The Office of the Head of Department shall provide the Departmental Graduate Studies Committee with secretarial services and other needed support.

4.2 Terms of Reference

The Departmental Graduate Studies Committee shall:

- Co-ordinate and control the quality of graduate teaching and research in the Department;
- Ensure regular attendance by students at the graduate research seminars;
- Review applications for graduate admission and. make recommendations to the Faculty Committee;
- Promote group and multi-disciplinary research programmes in the Department
- Recommend the appointment of supervisors to the Board, School of Graduate Studies through the Faculty Committee;
- Recommend the appointment of members of the Board of Examiners to the Board, School of Graduate Studies through the Faculty Committee;
- Recommend External Examiners to the Faculty Committee
- Carry out any other functions assigned to it by the Board, School of Graduate Studies.

Some Decisions Taken by the Board School of Graduate Studies and the Senate Yearly Student Academic Progress Report

In its bid of ensuring that students leave the School at the expiration of their approved study period, the School has re-activated its erstwhile yearly Academic Progress Report on each student. The Report which is to be completed by individual student supervisors would pass through the Chairman, Departmental Graduate Studies Committee/HOD and Dean of the Faculty before being sent to the Graduate School.

With the report, the Graduate School can easily access the academic standing of every student and determine what judgment to pass on such student at the appropriate time. With this in place, the era of permanent residency for students is over.

Seminar for All Final Year PhD Students

The Board of Graduate School has instituted the concept of Public Seminar for all final year PhD students. The students are expected to deliver a Public Seminar on the subject of their respective Theses before Senior academics, prior to their being allowed to appear before their External Examiners. The aim is to present and expose the potential philosophers to defend their works before the public which is expected to make inputs where necessary.

Admission into Ph.D and Masters (MA, MSc) programmes

Senate considered and approved the following recommendations from the Board, School of Graduate Studies.

- i. That a candidate with a recognized University first degree, who also scores 3.5 CGPA in his/ her PGD programme would be eligible for admission into University of Port Harcourt Masters Degree programme in the relevant field.
- ii. That a candidate with an Upper Credit HND could be admitted into departments that admit HND holders into their PGD programme:
- iii. That a candidate with an Upper Credit HND who scores an aggregate of 3.5 CGPA in the PGD programme, would be eligible for admission into the Masters Degree programme in the same field with effect from 2006/2007 session.
- iv. That a candidate who scores 3.50 CGPA in his/her Masters degree programme would be eligible for admission into the University of Port Harcourt Doctorate (Ph.D) degree programme except otherwise stated by the National Universities Commission (NUC).

4.3 Date of Completion of Programme.

The Board decided and approved the following:

- i. That a student is said to have completed his programme when he/she had defended his/her thesis, carried out the Minor or Major corrections as directed, have the work certified by the appropriate officers and submitted to the department for submission to Graduate School.
- ii. That from the date the corrected, certified and bound project was submitted to the department, the student would no longer be liable to any further payment of school fees.

B) Effective Date of Award of Degree/Result

THE EFFECTIVE DATE OF ANY RESULT OR CERTIFICATE REMAINS THE DATE ON WHICH SENATE APPROVES/RATIFIES THE RESULT.

5.0 GENERAL REGULATIONS GOVERNING THE SCHOOL OF GRADUATE STUDIES

5.1 ADMISSION

5.1.1 Types of Admission

There are two types of admission, full time (FT) and part-time (PT).

5.1.2 Full Time Admission

Full-time admission can be offered only to candidates who can satisfy the School of Graduate Studies that they are not in employment, or that they have been relieved by their employers to undertake full time studies. Candidates found to have made a false declaration in this respect shall be asked to withdraw from the University.

5.1.3 Part-Time Admission

Candidates may be admitted to part-time registration if they are members of the staff of the University. All part-time candidates shall be engaged in approved employment and submit evidence that they can devote a good proportion of their normal working year to their studies and satisfy the Departmental Graduate Studies Committee that they will be available for attendance at courses and for regular consultation with their supervisors.

5.1.4 Application for Admission

A. Application Forms

Advertisements for admission normally appear in two Nigerian Daily newspapers with details in the University of Port Harcourt's website.

B. METHOD OF APPLICATION

Candidates should visit the School www.cgs.uniport.edu.ng and click on application procedure.

6.1.5 Procedure for Admission

- (i) Eligible candidates wishing to be admitted into the higher degree programmes of the University of Port Harcourt shall purchase an application form. The completed form should be accompanied by a validated transcript and be submitted in duplicate to the Faculty Representative in the School of Graduate Studies
- (ii) The candidates forms accompanied by the validated transcripts shall be sent to the Head of the Department into which the candidate is seeking admission for processing and recommendation following School of Graduate Studies criteria for admission
- (iii) The Head of Department in consultation with the Departmental Graduate Studies Committee using the eligibility criteria form

of Graduate School shall recommend the candidates to be admitted.

- (iv) The Departmental recommended admission list endorsed by the Head of Department and the Chairman of the Departmental Graduate Studies Committee shall be forwarded to the Faculty Graduate Studies Committee which shall have the responsibility of rejecting candidates if they fail to meet the eligibility criteria.

The Faculty Graduate Studies Committee shall submit to the School of Graduate Studies vetted recommendation list with covering letter only signed by the Chairman of the Faculty Graduate Studies Committee. Recommended list not endorsed by the Faculty Chairman, Faculty Graduate Studies Committee shall not be accepted by the Graduate School.

- (v) The recommended list shall follow the format given by the School of Graduate Studies.
- (vi) The School of Graduate Studies shall vet the submissions from the Faculties. The criteria used by the School of Graduate Studies amongst others shall be as follows:

- (1) Authenticity of the credentials submitted by the candidate
- (2) Compliance with the set CGPA for admission
- (3) Incomplete information on the recommended list sent from the Department/Faculty to School of Graduate Studies
- (4) Recommendation of candidates who have not successfully completed one programme of POD but listed for higher level programme (M.Sc). Such recommendation shall be disqualified.
- (5) Availability of academic staff to supervise the candidates.
- (6) The recommendations shall hereafter be presented to the Board who has been vested with the authority by Senate to admit candidates into higher degree programmes.

No candidate shall be admitted to a programme unless his application has been approved by the Board.

5.1.6 Admission Requirements

(1) O'LEVEL

All candidates require a credit pass in English Language and Mathematics for all the courses. However, candidates who obtained their O'Level Certificates before 2012 without a credit pass in Mathematics and wish to gain admission into the following Departments are eligible to apply:

Faculty of Humanities

All the Departments in the Faculty of Humanities.

Faculty of Education

All the Departments in the Faculty of Education.

Faculty of Social Sciences

All the Departments in the Faculty of Social Sciences except the Department of Economics.

(2) Post-graduate Diploma Programmes

An applicant should be a graduate of University of Port Harcourt or a graduate from any other University recognized by the Senate of University of Port Harcourt. For Departments admitting candidates with HND background, such candidates must have upper credit. In addition, satisfy the departmental requirements specified in the respective programmes of study.

(3) Master's Degree Programmes

Admission to the Master's degree programme shall be from the University's own B.A., B.Ed., B.Sc. or from any other recognized University. The degree shall normally be not less than second class lower division.. A CGPA of 3.5 is required for those from PGD to Masters. Special departmental requirements are specified in the respective programmes of study.

(4) Doctor of Philosophy Programmes

Candidates for the Ph.D. programme shall have a Master's degree and should normally have had a minimum CGPA of 3.50 on a 5-point scale or its equivalent grade as required by specific Faculties/Departments/ Programmes. For candidates who obtained their Master's exclusively by research assessment, admission will be based on the quality of their theses. Final selection of candidate will be based on interview performance. Special departmental admission requirements are specified in the relevant programme of study.

(5) Doctor of Medicine/Master of Surgery (M.DJM.S)

Candidates must be either Medical Graduates (MBBS) of the University of Port Harcourt for not less than 5 years or confirmed and experienced academic staff of the University with Medical degree of recognized Universities. Additional admission requirements are specified in the relevant programme of study.

5.2 REGISTRATION

5.2.1 Procedure for Registration at School of Graduate Studies

Candidates whose applications have been approved by the Board shall be issued letters of admission for the commencement of registration.

- i. All fresh candidates who have been offered admission shall proceed to the Registration Unit of the School of Graduate Studies to be registered by the Registration Officer with the following documents
 - (a) Admission Letter
 - (b) Original Certificate for verification
 - (c) NYSC discharge certificate
 - (d) Evidence of payment of prescribed fees
- ii. The candidate shall submit photocopies of receipts to the Registration Officer and in turn obtain student information forms and course registration forms

5.2.2 Procedure for Registration in the Department

When a candidate has been duly registered in the School of Graduate Studies he/she shall proceed to the Department where his/her choice of programme is for briefing by the Head of Department and Course Registration in the Department. The underlisted documents shall be presented for the Departmental Registration -

- (a) Admission Letter
- (b) Evidence of Registration at School of Graduate Studies
- (c) Evidence of payment of all dues.

Every student is expected on first registration to sign the University Register of Graduate Students at the School of Graduate Studies.

When all these procedures have been accomplished, the candidate has become a bonafide graduate student of the University of Port Harcourt.

5.2.3 Deferment of Registration

A candidate may be allowed for good reasons to defer his/her registration for a year on the recommendation of his/her Faculty Graduate Studies Committee through the Departmental Graduate Studies Committee. Candidates applying for such deferment of registration shall complete the prescribed forms obtainable from the School of Graduate Studies on payment of a prescribed deferment fee. The maximum period allowed for deferment of registration shall normally be one year. Amount of fees for deferment of registration shall be as prescribed from time to time by the School of Graduate Studies.

5.2.4 Renewal of Registration

Candidates shall renew their registration yearly at the commencement of each academic session until the completion of their higher degree/diploma programmes. Renewal of registration shall involve:

- (i) Submission to the School of Graduate Studies a satisfactory Annual Progress Report duly approved by the Supervisor and the Chairman, Departmental Graduate Studies Committee/Head of Department of the candidate.
- (ii) Presentation to the School of Graduate Studies evidence of payment of the prescribed renewal fees.

5.2.5 Late Registration

All admitted candidates who fail to register within the registration period shall pay prescribed penalty fees.

5.2.6 Lapsed Registration

A candidate's registration shall be deemed to have lapsed on the following grounds:

- (i) Failure to renew registration in anyone session
- (ii) Failure to present oneself for examination at the expiration of the approved maximum period of the programme
- (iii) Inability to complete the requirements for the programme within the approved maximum period.
A registration that has lapsed on the grounds stated above shall not be reactivated.

Graduate students are required to undergo registration procedures at the beginning of each academic year during the course of their programme until the programme is completed.

5.2.7 Multiple Registration

No student shall be allowed to register for more than one higher degree programme of the university at the same time. A student must complete the programme registered for, before embarking on another.

6.0 DURATION/ RESIDENTIAL REQUIREMENTS

All lecturers of graduate programmes, Heads of Department, Chairmen of Departmental Graduate Studies Committee and Faculty Graduate Studies Committee and students shall cooperate fully with the School of Graduate Studies to enforce compliance of programme duration

6.1 Postgraduate Diploma in Education (PGDE)

For the PGDE programme, the course shall normally last for a minimum of 12 calendar months for full-time students or two consecutive vacations of eight weeks each (sand-wich programme) for part-time students. There shall be six week period of internship during which the student shall undertake supervised teaching practice. The maximum time allowed shall be 24 months for full time students and 3 long vacations for the part-time students (Sandwich programme).

6.2 Postgraduate Diploma in Petroleum Engineering (PGDPE), and Postgraduate Diploma in Chemical Engineering (DCHE)

The PGDPE programme lasts for a minimum of twelve months and a maximum of 24 months, during which period student will be required to spend a minimum of two months in the field or laboratory, gaining practical and industrial experience.

6.3 The Postgraduate Diploma Programme of Arts, Science, Social Sciences, Engineering and Management Sciences

The programmes will normally be for a period of 12 calendar months full-time.

6.4 Master's Programme

Full-time candidates will be required to spend a minimum of 12 calendar months and a maximum of 24 calendar months. Part-time candidates will be required to spend a minimum of 24 calendar months and a maximum of 48 calendar months.

6.5 Master of Business Administration Programme

Full-time candidates will be required to spend a minimum of 24 calendar months and a maximum of 36 calendar months. Part-time candidates will be required to spend a minimum of 36 calendar months and a maximum of 48 calendar months.

6.6 Sandwich Programmes for Master's Degree

The Sandwich programmes shall run for a minimum of three long vacations and a maximum of five long vacations as follows:

- (i) Course work shall be completed in two consecutive long vacations.
- (ii) The theses shall be completed within the third long vacation. Candidates who are unable to complete within the normal schedule may be allowed up to five vacations.

6.7 Doctor of Philosophy (Ph.D)

Full-time candidates will be required to spend a minimum of 24 calendar months and a maximum of 60 calendar months.

Part-time candidates will be required to spend a minimum of 36 calendar months and a maximum of 84 calendar months.

6.8 Doctor of Medicine (M.D), Master of Surgery (M.S)

The programme will be for a minimum of 24 calendar months and maximum of 36 calendar months.

6.9 Notification of Expiry date of Studentship

In case of students whose maximum period in a programme is about to expire, e.g. 24 months for M.Sc. Full-time, the Graduate Studies Officer shall normally notify them 6 months before the expiry date for students that are in good standing with updated registration.

7.0 SCHEME OF STUDY FOR POSTGRADUATE DIPLOMA, MASTERS AND DOCTOR OF PHILOSOPHY

7.1 The Postgraduate Diploma courses shall consist of

- (i) Taught courses
- (ii) Practical and industrial attachment which ever is applicable
- (iii) Submission of written reports on projects.

7.2 The Postgraduate Diploma in Education shall consist of

- (i) Studies in theory and practice of education
- (ii) Specialized procedure in teaching of subject
- (iii) Supervised practice in teaching
- (iv) Supervised project

7.3 The Master's and Doctor of Philosophy Programmes shall consist of

- i) Taught courses/Seminars
- ii) Attendance and participation in research seminars
- iii) Preparation of thesis dissertation/project.

7.4 Withdrawal from the University

- (i) A student may be asked to withdraw on grounds of the following
 - (a) Unsatisfactory academic performance such as having a CGPA of less than 2.75 at the end of 1st year course work
 - (b) Failing a course twice
 - (c) Poor and irregular lecture attendance
 - (d) Ill health and
 - (e) Misbehaviour
- (ii) A student may also voluntarily withdraw his studentship.

8.0 APPOINTMENT OF SUPERVISOR

On the recommendation of the Departmental Graduate Studies Committee through the Faculty Graduate Studies Committee, the Board of the School of Graduate Studies shall

- (i) Appoint a supervisor for the thesis
- (ii) Approve the termination of a candidate or extend the period of study if so advised by the report of the supervisor.

8.1 CONTINUATION REQUIREMENTS

- (a) A graduate student is expected to pass all taught courses with a minimum grade of "C"

- (b) A student who fails a course shall re-register for it at the next available opportunity. A graduate student will not register for a course more than twice. Failure of a course twice amounts to automatic fail out/withdrawal from the programme.
- (c) At the end of the First Year Course Work, the student should have a cumulative grade point average of not less than 2.75. A student who does not meet the minimum CGPA at the end of the First year shall be asked to withdraw.
- (d) No student shall proceed to the thesis without a cumulative grade point average of 3.00 or above. A student who has exhausted both opportunities for all required course without attaining a CGPA of 3.00 shall be asked to withdraw.
- (e) Course work grading system shall be as follows:

70 and above	A	5.00
60 - 69	B	4.00
50 - 59	C	3.00
0 - 49	F	0

MA/M.Sc RESEARCH SEMINAR

- (f) An important and integral part of the MA/M.Sc shall be the research seminar and attendance shall be obligatory. Such seminar will be organized at least twice a month (A seminar is defined as a place where research projects and their results, including those of the candidates, are presented and critically assessed).

8.2 RESIT EXAMINATION

Resit Examination of Graduate Programme has been abolished. However, failed courses may be retaken at one attempt only.

*8.3 EXAMINATION MISCONDUCT

Any student in the School of Graduate Studies found guilty of examination misconduct of any sort shall be expelled. For clarity, examination misconduct is defined as all forms of cheating which directly or indirectly falsify the ability of a student. In other words, examination misconduct denotes any form of fraud committed by a student in order to pass an examination which under normal circumstances he or she would not have passed. Its forms are various, ranging from cheating in the examination hall such as impersonation, smuggling into the examination hall/room scribes of already prepared answers, copying from each other or one another (collusion), oral or written communication between/amongst students during examination, plagiarism of project, Dissertation and Thesis, etc.

8.4 CONSTITUTION OF THE BOARD OF EXAMINERS FOR EXAMINATION OF THESES AND DISSERTATIONS

For the examination of the candidates' thesis/dissertation, the Board of examinations shall consist the approved External Examiner to the university, supervisors, Chairman, Departmental Graduate Studies Committee, the Head of Department, Dean of the Faculty, and the Dean, School of Graduate Studies, who shall be the Chairman of the Board of Examiners.

8.5 TITLE OF THESIS/DISSERTATION

Candidates shall submit for approval the title of their thesis/dissertation to the Departmental Graduate Studies Committee. The candidate shall, not less than two months before submitting himself for examination, notify the Board of the School of Graduate Studies in writing and state the full title of his thesis/dissertation.

8.6 SUBMISSION OF DISSERTATION

- (a) A candidate shall submit six copies of his/her thesis in paper binding to the Faculty Committee not later than two months to the date of the oral examination.
- (b) Before the degree is conferred, three copies of the very thesis accepted shall be bound in a manner approved by the University Library and these shall become the property of the University.
- (c) Regulations for the P.G.D project and will be specified by the Departmental Graduate Studies Committee

8.7 EXAMINATION OF THESIS/ DISSERTATION

- (a) Each candidate shall be examined by not less than four examiners in accordance with regulations stipulated above. The examination shall be oral and questions asked and topics undertaken during such examination should not be limited to the context of his/her field of specialization.
- (b) After the examination and with or without further consultation or correspondence among the examiners, the examiners shall submit to the appropriate Faculty Committee on a prescribed form a joint report on the candidate. The report shall contain:
 - (i) a clear and detailed evaluation of the research work as summed up in the thesis/dissertation;
 - (ii) a clear assessment of the candidate's knowledge and understanding of the subject as stated in the thesis and subsequent examination;
 - (iii) an unequivocal declaration as to the acceptability, or otherwise, of the thesis/dissertation in fulfillment of the requirements of the degree;
- (c) In cases of difference of opinion, the examiners shall submit separate reports to the relevant Faculty Committee which shall

make an appropriate recommendation to the Board of the School of Graduate Studies.

8.8 REQUIREMENTS FOR THE AWARD OF POSTGRADUATE DIPLOMA

Each student's Performance shall be based on:

- (a) Continuous assessment and final examination in the taught courses
 - (b) Assessment of supervised teaching/seminars;
 - (c) Assessment of project.
- Continuous assessment shall count 30% of a student's grade for each taught course.

Final examinations shall be awarded with a distinction, upper credit, lower credit, merit or fail based on a candidate's cumulative grade point average score as follows:

4.50-5.00	-	Distinction
4.00-4.49	-	Upper Credit
3.50-3.99	-	Lower Credit
3.00-3.49	-	Pass
0.00-2.99	-	Fail

However, classification of Postgraduate Diploma in Education are shown below:

4.50-5.00	-	Distinction
3.50-4.49	-	Credit
3.00-3.49	-	Merit
2.50-2.99	-	Pass
Below 2.50	-	Fail

Any candidate who resits any course shall not be eligible for a Distinction; and no candidate who fails to meet the graduation requirement within the normal period of his programme shall be eligible for the award of credit grade.

8.9 MASTER DEGREE PROGRAMME

Duration of Programmes

Full-time candidates will be required to complete the programme in a minimum of 24 calendar months and a maximum of thirty-six calendar months.

Part-time candidates will be required to spend a minimum of thirty-six calendar months and a maximum of forty-eight calendar months.

8.10 DOCTOR OF PHILOSOPHY PROGRAMME

The regulation for the Ph.D. programme shall be as for Master's degree in Arts or Science except in the following areas:

(i) Admission Requirements

As stated in the general admission requirements above

(ii) Duration of Programmes

As stated under duration above

(iii) Scheme of study and appointment of Supervisor.

The Ph.D. is principally a research degree finally examined by thesis. The Departmental Graduate Studies Committee on the approval of the Board of the School of Graduate Studies shall:

- (a) Prescribe for each candidate on admission a minimum period of study (normally 2 calendar years).
- (b) Appoint a supervisor.
- (c) Require attendance of any advanced courses approved by Senate for Ph.D.
- (d) Require the study or further study of any language or languages prescribed by the supervisor if appropriate.
- (e) Satisfy any further conditions which may be specified by the Departmental Graduate Studies Committee concerned.
- (f) Require regular attendance at the research seminars which will be organized at least twice a month.
- (g) Require the presentation of Public Seminar at the School of Graduate Studies.

8.11 Examination Requirements for the Award of Ph.D Degree

The examination requirement for the award of the degree shall include any or all of the following as approved by the Senate for each candidate:

- (a) Passing of written examination in the areas of the candidate's programme;
- (b) Proof of proficiency in the language prescribed for each candidate, if any;
- (c) Submission of a Thesis and its acceptance by the examiners appointed for the purpose;
- (d) Passing of an oral examination on the subject of the Thesis and related subjects.

8.12 Title of Thesis

The candidate shall in not less than two calendar months before submitting himself for examination, notify the Board of the School of Graduate Studies in writing through the appropriate Faculty Committee and state the title of his Thesis.

8.13 Submission of Thesis

- (a) A candidate shall, submit four copies of the Thesis in paper binding to the Faculty Committee not later than the beginning of the last semester of the prescribed period of study and not later than two months to the date of the examination.
- (b) A Thesis must conform to the specifications laid down by the School of Graduate Studies
- (c) Before the degree is conferred, three copies of every Thesis accepted shall be bound in a manner approved by the University Library and these shall become the property of the University.

8.14 Examination of Thesis

- (a) Each candidate shall be examined by not less than four examiners approved by the Board of the School of Graduate Studies in accordance with regulation (5) above. The examiners shall be oral and shall include the subject of the research and related subjects.
- (b) After the examination and with or without further consultation or correspondence among the examiners, the examiners shall submit to the Faculty Committee on a prescribed form a joint report on the candidate.

The report shall contain:

- (i) a clear and detailed evaluation of the research work as summed up in the thesis, including an assessment of its originality and its contribution to the advancement of knowledge;
- (ii) a clear assessment of the candidate's knowledge and understanding of his subject as shown in the thesis and subsequent examination;
- (iii) an unequivocal declaration as to the acceptability or otherwise of the thesis in fulfillment of the requirement of the degree, The report shall thereafter be forwarded by the Faculty Committee to the Board, School of Graduate Studies.
- (c) In case of difference of opinion, the examiners shall submit separate reports to the Faculty Graduate Studies Committee, which will make an appropriate recommendation to the Board, School of Graduate Studies.

8.15 CONDUCT OF GRADUATE EXAMINATIONS:

(i) *Circulation of Academic Calendar:*

The School of Graduate Studies shall circulate the Academic Calendar to the Heads of Department at least two weeks before the commencement of a new session. The Heads of Department should thereafter circulate the Academic Calendar to the various Chairmen, Departmental Graduate Studies Committees and to all Course Lecturers involved in the Graduate Programmes.

(ii) *Collection of Answer Scripts/Booklets and Envelopes:*

The Heads of Department should pick the answer scripts and envelopes from the Office of the Chief Accountant, School of Graduate Studies a week before each semester examination.

8.16 PRESENTATION OF RESULTS:

(i) *Semester Results*

ALL semester results must reach the School of Graduate Studies not later than six (6) weeks after examinations (i.e. 1st and 2nd Semesters) indicating the outstanding courses and course lecturers in the 'remark' column.

- SGS 801.1 - 1st Semester (ICT and Research Methodology) and
- SGS 801.2 - 2nd Semester (Management and Entrepreneurship) shall carry a uniform credit load of 2 units as stipulated in the prospectus.

(ii) *Failed Courses:*

If a student passes a repeat examination, the failed and passed scores must be indicated on the Mark-sheet in the appropriate column and graded with a "C".

(iii) *Presentation of Final Results*

The presentation of the Master Mark-sheet for the award of Degree shall be in tabular form and shall contain the following details:

- Full names of the students (surname should be in capital letters)
- The students' Registration Numbers
- Course Codes
- Credit Units
- TQP = Total Quality Points
- TCU = Total Credit Units
- CGPA = Cumulative Grade Point Average
- Area of Specialization (for Masters and PhD)

The Mark-sheet shall be certified by the following signatories:

- Chairman, Departmental Graduate Studies Committee
- Head of Department
- Dean of Faculty
- Dean, School of Graduate Studies

(iv) *Submission of Master Marksheet, External Examiner's Report Form and Thesis/Dissertation*

- a) The HOD should submit the above items within six (6) weeks after the external defense, while the students should submit their corrected theses/dissertations to their departments within four (4) weeks after external defense.

b) *Delay in Submission of Results*

Note that in the event of delay in submitting the results to the School of Graduate Studies, the Head of Department will be held responsible and appropriate sanctions shall apply.

9.0 REGULATIONS GOVERNING THE PRESENTATION OF THESIS/DISSERTATIONS

The regulations stated below which have been approved are to be strictly followed:

9.1 Size of Paper

The approved size of paper for writing up is A4 and in case of scarcity approval could be sought for use of Foolscap size.

9.2 Signatories

The underlisted members of a candidate's Board of Examiners should sign the certification of theses/dissertations.

Supervisor(s)
Head of Department
Chairman, Departmental Graduate
Committee
Dean of Faculty
External Examiner
Chairman, Board of Examiners

9.3 Length

Word count for Thesis/Dissertation in the Department of Mathematics and Statistics, Physics, Computing, Physics/Electronics/Production in SSLT, Faculties of Engineering, Pharmaceutical Sciences and Agriculture should be a minimum of 20,000 words for Masters and 40,000 words for PhD, while other Faculties/Departments not mentioned here would maintain the status quo of 25,000 words for Masters Dissertation and 50,000 words for Ph.D Thesis. The font of writing shall be font 12 and style is Times New Romans.

9.4 Binding

(a) Colours for Binding

Each thesis/dissertation should be bound in the colour of the awarding Faculty and the colours approved for various faculties are:

College of Health Science	Purple
Education	Blue
Humanities	Terra cotta
Social Sciences	Black
Science	Gold
Engineering	Orange
Management Science	Beige

It is expected that all theses/dissertations should be well bound or cased in boards. It should open easily.

9.6 MODIFIED STANDARD FORMAT OF THESIS/DISSERTATION AMENDED AT THE 281ST MEETING OF THE SCHOOL OF GRADUATE STUDIES BOARD (2023).

Font type for all Thesis/Dissertation should be in Times New Roman and the Font Size is 12. The body of the Thesis/Dissertation should be in double line spacing except the abstract.

Prospective compilers of theses/dissertations should consult the University Librarian for uniformity.

(b) Binding Specifications

The technical and other requirements are listed below

Style: Library Binding or full bound

Size of Book: A4, 210 x 297mm

Weight of Board: 400gms

End papers Cartridges: Paper (clothlined joints or made end papers)

Blocking Gold or Aluminum foil.

Title: and author cover and spine

Strengthening Material: Mull. Calico. Tape

Round and Back Yes

Cover Materials: Art canvas, leather cloth, waterproof library cloth buckram (A good quality material that will take hard wear for a considerable time and will have much better tensile strength and resistance to abrasion)

Linings: Crepe Kraft with split board

Decoration: Headband (optional)
Write your name, degree, Department and year on the spine of the bound thesis/dissertation.

9.5 Masters Dissertation and Ph.D. Thesis Defense

Masters students should have at least one Journal publication while Ph.D students should have two journal publications. Abstract should be maximum of 350 words for Ph.D Thesis and 300 words for Masters Dissertation. It should be descriptive and informative.

PRELIMINARY PAGES

- Cover Page
- Title Page
- Declaration
- Certification
- Dedication should be simple and to the point
- Acknowledgements (should be one page starting with the supervisor/s)
- Abstract - (single line spacing and not more than 350 words for Thesis and 300 words for Dissertation and not italicized.
- Table of Contents (there should be no lines)
- List of Tables (if applicable)
- List of Figures (if applicable)
- List of Plates (if applicable)
- List of Abbreviations/Symbols (where applicable)

CHAPTER ONE: INTRODUCTION

- 1.1 Background to the Study
- 1.2 Statement of the Problem
- 1.3 Aim and Objectives of the Study
- 1.4 Research Questions/Hypothesis (if applicable)
- 1.5 Significance of the Study (Benefits derivable from study)
- 1.6 Biography of the Author of the works being studied (if applicable)
- 1.7 Scope of the Study/Delimitation

CHAPTER TWO: LITERATURE REVIEW

- 2.1 Conceptual Framework (if applicable)
- 2.2 Theoretical Framework (if applicable)
- 2.3 Empirical Review (aim, methods, findings of previous works) if relevant.
- 2.4 Periodization of existing literature/stylistic development/genres (if applicable)
- 2.5 Gap Identification

Note: For College of Health Sciences, Faculties of Science, Pharmaceutical Sciences, and some Departments in Agriculture and the School Laboratory Technology students should concentrate on Empirical Review.

CHAPTER THREE: METHODOLOGY (MATERIALS AND METHODS)

- 3.1 Research Design
- 3.2 Study Area (if applicable)
- 3.3 Population for the study (if applicable)
- 3.4 Sample(s) and Sampling Techniques (if applicable)
- 3.5 Nature/Sources of Data— Primary/Secondary (if applicable)
- 3.6 Methods of Data Collection/Instrumentation (if applicable)
- 3.7 Validity/Reliability of Instrument (if applicable)
- 3.8 Methods of Data Analysis
- 3.9 Ethical Approval (if applicable)

CHAPTER FOUR: RESULTS AND DISCUSSION

- 4.1 Research and Analysis (Addressing objectives and hypotheses (where necessary, substantiated with tables, figures, plates, theorems)
- 4.2 Discussion of Findings

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

- 5.1 Summary of Findings
- 5.2 Limitations (if applicable)
- 5.3 Conclusion
- 5.4 Recommendations

5.5 Contributions to knowledge (preferably original, novel, specific and emanating from the work)

References American Psychological Association style 7th edition should be adopted.

APPENDICES To be structured according to the chapters.

N/B

- Tables should be on separate pages. Without grids or lines
- Figures on separate pages
- Plates on separate pages.

(If possible multiples of tables or figures or plates can be on a page)

Numbering of Tables, Figures, Plates and Equations should be Chapter specific.

- Pagination: Roman numerals (Preliminary pages) and Arabic numerals (the rest of the Thesis/Dissertation), numbering: bottom-centred
- Colour: Faculty Colour
- Effective Date – 2022/2023 Academic Session

COVER PAGE

THESIS/DISSERTATION TOPIC

BY

NAME OF CANDIDATE (SURNAME FIRST, OTHER NAMES)

Degree(s) and Awarding Institution)
REGISTRATION NUMBER

DEPARTMENT

FACULTY

UNIVERSITY OF PORT HARCOURT

MONTH/YEAR OF VIVA

TITLE PAGE

THESIS/DISERTATION TOPIC

NAME OF CANDIDATE (SURNAME FIRST, OTHER NAMES)

Degree(s) and Awarding Institution(s)

REGISTRATION NUMBER

A Thesis/Dissertation submitted to the School of Graduate Studies in partial fulfilment of the requirements for the award of degree of Doctor of Philosophy of (Ph.D/ Master of Arts/Science/Engineering/Education (M.A/MSc/M.Eng/M.Ed) in (Area of Specialisation) ----
----- in the Department of -----
Faculty of----- University of Port Harcourt.

Name(s) of Supervisor(s)

Month/Year of Viva

DECLARATION

I, ----- FULL NAME (SURNAME FIRST, Other Names) with Registration Number ----- declare that the work in this Thesis/Dissertation on-----
----- TOPIC----- was carried out by me; that it is my original work and that it has not been submitted wholly or in part for the award of a degree in this or any other institution.

Name of Student: ----- Signature/Date:-----

Confirmation by Supervisor(s)

Name of Supervisor (1)-----Signature/Date:-----

Name of Supervisor (2) -----Signature/Date:-----

CERTIFICATION

**UNIVERSITY OF PORT HARCOURT
SCHOOL OF GRADUATE STUDIES**

TITLE OF THESIS/DISSERTATION

BY

NAME OF STUDENT IN FULL (SURNAME FIRST,) OTHER NAMES

The Board of Examiners certifies that this Thesis/Dissertation is accepted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy (Ph.D)/Master of Arts/Science/Engineering/Education (M.A./M.Sc./M.Eng./M.Ed) in Area Specialisation.

DESIGNATION	NAME	SIGNATURE	DATE
Supervisor (1)	-----	-----	-----
Supervisor (2)	-----	-----	-----
Chairman, Deptl. Graduate Studies Committee	-----	-----	-----
Head of Department/ Director of Centre	-----	-----	-----
Dean of Faculty	-----	-----	-----
External Examiner	-----	-----	-----
Dean, School of Graduate Studies/Chairman, Board Of Examiners	-----	-----	-----

N.B. Students are to contact their Chairman, Departmental Graduate Studies Committees/Heads of Departments or Graduate Studies Officer to confirm the form of the Title and Certification pages. Details on styles of presentation are expected to be provided by the respective disciplines.

10.1 GUIDELINES ON THE SUPERVISION OF GRADUATE STUDENTS BY AN ACADEMIC STAFF

- (a) An academic staff member below the rank of Reader/Professor should not supervise more than THREE Master's students and ONE Doctoral student from any annual intake
- (b) A Reader/Professor may supervise THREE Master's students and TWO Doctoral students from any annual intake

- (c) Faculties of Education and Management Sciences are allowed a maximum of FIVE Master's students
- (d) Academic staff supervising Ph.D. students should not be below the rank of Senior Lecturer
- (e) Academic staff supervising Master's students should normally not be below the rank of Lecturer I. However, M.Sc holders are not encouraged to supervise M.Sc students.

10.2 SCHOLARSHIPS

The school awards a number of scholarships per session to the value determined regularly by the Development Committee of the University per recipient as allowance, in addition to free tuition and accommodation.

Eligibility for the Award

Holders of at least a second class upper division degree of the University of Port Harcourt or other recognized Universities after successful screening by an interview panel. Holders should not have a paid employment.

11.0 FINANCIAL INFORMATION

Duration of the Award

The award shall be for one year only, subject to satisfactory progress and availability of funds.

10.3 TEACHING AND RESEARCH ASSISTANTSHIP

In addition to scholarship, the School provides for the award of Research and Teaching Assistantships to a carefully selected number of top candidates with

at least a 2nd Class Upper Degree who will, in addition to being registered for a specified higher degree, be required to assist in grading of scripts and in the research programme of academic staff, subject to a maximum of specified number of contact hours.

Eligibility

All holders of 2nd class upper and above honours degree of the University of Port Harcourt and other recognized Universities who are registered for the Ph. D programmes. Holders should not have any paid employment.

Value of the Award

Remunerations shall normally be fixed by the University.

Successful candidates shall in addition to being registered for a specific degree, assist in the grading of scripts and in the research programmes of the department.

Duration

The Assistantship Award is for one year but could be renewed for another year subject to availability of funds and satisfactory progress.

CURRENT SCHOOL FEE FOR FRESH STUDENTS, WEF 2013/2014 SESSION

S/ N	FACULTY	SCHOOL FEE	ICTC	ID. CARDS	MEDICAL S	DEV. LEV Y	LIBRARY CHARGE S	ACCEPTANC E FEE	GRAND TOTAL
1	Ph.D ARTS	85,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	165,000.00
2	Ph.D SCIENCES	103,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	183,000.00
3	M.SC/MBA/ MGT, SCIENCES	84,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	164,000.00
4	M.SC., SCIENCES & ENGR.	83,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	163,000.00
5	M.A/MED/ MSC. HUM; SOS & EDU	73,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	153,000.00
6	MEM & ENVT. ENGR.	105,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	185,000.00
7	PGD. ARTS	76,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	156,000.00
8	PGD SCIENCES & ENGR.	95,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	175,000.00
9	MED SANDWICH (SW)	87,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	120,000.00
10	PGD SANDWICH (SW)	61,000.00	3,000.00	1,000.00	2,000.00	35,000	4,000.00	35,000.00	94,000.00

NOTE:

1. School fee items include project supervision which had been increased to N25,000.00 out of which N25,000.00 is for Professors/Readers, N20,000.00 for Senior Lecturers and N15,000.00 for other lecturers per student, per session.

2. Staff with approved school fee waiver is expected to pay (60%) of the tuition fee only.
3. School fees owed for previous session(s) shall attract additional (30%) surcharge on tuition fee only.
4. Late registration. All admitted candidates who fail to register within the registration period shall pay a late registration fee of (10%) on tuition fee only.

OTHER NATIONALS

Non Science Courses

DETAIL	PGD	M.Sc.	Ph.D
Tuition	400,000.00	440,000.00	460,000.00
Bench	-	-	-
Examination	20,000.00	22,000.00	23,000.00
Health	50,000.00	55,000.00	57,000.00
Caution	10,000.00	11,000.00	11,500.00
Library fee	5,500.00	5,500.00	5,750.00
Supervision	10,000.00	11,000.00	11,500.00
I.D. Card	5,500.00	5,500.00	5,750.00
TOTAL	500,000.00	550,000.00	575,000.00

Science Courses

DETAIL	PGD	M.Sc.	Ph.D
Tuition	400,000.00	440,000.00	460,000.00
Bench	150,000.00	165,000.00	172,000.00
Examination	20,000.00	22,000.00	23,000.00
Health	50,000.00	55,000.00	57,500.00
Caution	10,000.00	11,000.00	11,500.00
Library fee	5,000.00	5,500.00	5,750.00
Supervision	10,000.00	11,000.00	11,500.00
I.D. Card	5,000.00	5,000.00	5,750.00
TOTAL	650,000.00	715,000.00	747,000.00

Note:

1. School Fee items include Project Supervision which had been increased to N25,000.00, out of which N25,000.00 is for Professors/Readers, N20,000.00 for Senior Lecturers and N 15,000.00 for Lecturers' I per student, per session.
2. Staff with approved School Fees Waiver are expected to pay 60% of the total School Fee.
3. Late Registration: All admitted candidates who fail to register within the registration period shall pay a late registration fee of 30% of the sessional fee.
4. Change of Mode of Study, Deferment of Admission and Change of Course, shall attract a charge of 10% of the tuition

Late Registration

All admitted candidates who fail to register within the Registration period shall pay a late registration fee of 30% of the sessional fee.

ICTC

Fresh and Returning students are expected to pay N3,000 only as ICTC charges. Foreign students are to pay N39,500 only.

ACCOMMODATION

Post Graduate Diploma students are not entitled to accommodation. Bed spaces are limited for Masters and Doctoral students and subject to confirmation of bed space by the Students Affairs Unit, accommodation fee is fixed by the University.

11.7 Pro Rata Fees

Payment on a pro rata basis has been abolished with effect from the 1991/92 Session.

11.8 Refund of Fees

- (1) No partial refunds shall be made for courses dropped by a student. To be eligible for refund a student must withdraw from all other courses.
- (2) To be eligible for refund a student who withdraws from all his courses must do so with the knowledge and consent of his

Supervisor/Adviser who will communicate his comments to the Dean, Graduate School through the Faculty Graduate Studies Committee or Head of Department.

- (3) Refunds will be pro-rated as follows
- (i) 100%: if student is required to withdraw for academic reasons
 - (ii) 80%: if done within the first two weeks after the beginning of C lasses
 - (iii) 50%: if done within the first six weeks after the beginning of Classes

Thereafter no refund will be made.

11.9 CHEATING IN EXAMINATIONS

Any graduate student found cheating in any Examination shall be expelled from the University. The comment “W” (Withdrawal) shall be used for the record of students that withdraw from their programmes.

11.10 ACCOMMODATION

Graduate Students are accommodated in the Graduate Hostel at University Park. The University

does not guarantee hostel accommodation for every student.

11.11 HEALTH SERVICES

Health Services are provided for all students and members of staff at Medical Centre situated at the Choba Park. The services include the General Out-patient Clinics and Emergencies, Environmental and Public Health Immunization, Family Planning and referrals. All students and members of staff are required to register at the Medical centre. Any candidate unable to sit for an examination on account of illness duly certified by a medical authority approved by the University’s Director of Medical Services may be allowed to take the examination at the next period as first attempt. The candidate shall notify the Dean, School of Graduate Studies through the Head of Department and the Dean of Faculty of this fact and shall submit a valid medical certificate to be authenticated by the Director of Medical Services (MDS).

OVERSTAY ON POSTGRADUATE PROGRAMMES

Senate at its 381st meeting held on Wednesday, February, 29, 2012, approved the School of Graduate Studies Overstay Report. The implementation is with effect from March 21, 2012.

The approved decisions are as follows:

S/N	PROGRAMME	OVERSTAY
1.	Ph.D	(a) Full-Time Candidates are deemed to have overstayed after the period of 6 years that is, 1 extra year after the statutory 5 year. (b) Part-Time Candidates are deemed to have Overstayed after the period of 9 years that is, 1 extra years after the statutory 7 years.
2.	Masters	(a) Full-Time Candidates are deemed to have overstayed after the period of 36 calendar months, that is, 12 Calendar months (1 extra year) after the statutory 24 Calendar months. (b) Part-Time Candidates are deemed to have overstayed after the period of 60 Calendar months, that is, 12 extra Calendar months after the statutory 48 Calendar months.
3.	PGD	Candidates in the Full-Time POD programmes are deemed to have overstayed after a period of 24 Calendar months, that is, 12 extra Calendar months, after the statutory 12 Calendar months.
	PGD (Full-Time)	Full-Time Candidates in the PGDE programme are deemed to have overstayed after a period of 24 Calendar months, that is, 12 extra Calendar months after the statutory 12 Calendar months.
	PGDE (Sandwich)	Sandwich candidates in the PGDE programme are deemed to have overstayed after a period of 4 long vacations, that is, 1 extra long vacation after the statutory 3 long vacations.

The Senate also **approved** that:

1. Candidates who have overstayed the newly approved duration of the programmes should re-apply and start afresh. That is, purchase new forms and get new registration number as new students.
2. Candidates' old results, fees, etc. will be considered null and void.

SCHOOL OF GRADUATE STUDIES COURSES DESCRIPTION

SGS 801.1: ICT AND RESEARCH METHODOLOGY (2 Credit Units)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing, Organization of Research and Report Writing.

SGS 801.2: MANAGEMENT AND ENTREPRENEURSHIP (2 Credit Units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

FACULTY OF HUMANITIES

COMPARATIVE LITERATURE PROGRAMME

Preamble. The MA degree in comparative Literature was the first higher degree programme ever inaugurated by the University of Port Harcourt barely one year after under graduate teaching has commenced. In 1982, the PhD degree was added to the programme. The Comparative Literature programme is run by a committee drawn from five departments, namely, Foreign Languages, English Studies, Linguistics and Communication Studies, Fine Arts and Design, Theatre and Film Studies. The Chairman of the committee is the coordinator of the programme.

OUR VISION. To become the reference point and the centre of Excellence in the Comparative study of Literature across borders and of the interception of Literature with Culture, Politics, Postcoloniality globalization, development etc.

OUR MISSION. To train students with core inter-cultural and inter-disciplinary competence who will be able to make the study of literature relevant to the needs of national development and moral progress.

PHILOSOPHY. The philosophy of the inter-disciplinary Comparative Literature Programme is to train students who are already proficient in at least two world languages to be able to acquire an expanded inter-cultural awareness and enhanced cross-cultural analytic abilities which will prepare them for life and career in a globally connected world. The products of the programmers having been exposed to trans-national literary traditions as well as inter-disciplinary methodologies will be able to teach in more than one national literature department or work in any organization that requires cross-cultural or translational competences.

AIM AND OBJECTIVES. The programme aims at equipping students with enlarged linguistic, theoretical and inter-disciplinary competences that will enable them to meet the professional requirement of teachers, translators, global cultural workers and as well as integrations facilitators at the ECO was or the AU.

DEGREES OFFERED. MA Comparative Literature, PhD Comparative Literature.

ADMISSION REQUIREMENTS. Subject to the general regulations of the University of Port Harcourt, School of Graduate Studies, the following regulations shall govern admission to MA/PHD in comparative literature.

[1] Candidates for admission to MA Comparative Literature shall possess a good honours degree in French, German or Literature from a recognized university. Graduates of literature in English have to African language is also necessary.

[2] Candidates for admission to the PHD in comparative Literature must possess MA in comparative Literature, or MA in French or German. Candidates with MA in Literature in English must show evidence of a working knowledge of French or German. All candidates for PHD admission must have a CGPA not below 3.5 on a 5 point scale.

DURATION. MA. Full-time students will be required to spend a minimum of 12 calendar months and a maximum of 24 months. Part time students will be required to spend a minimum of 24 months and a maximum of 36 months.

PhD. The PhD degree extends over four to six semesters for full-time students while part-time students may be allowed a period of eight semesters but not extending beyond ten semesters.

COURSE REQUIREMENTS/EXAMINATIONS. MA students are to register for a maximum of five courses per semester and to submit a thesis of not more than 20,000 words excluding bibliography and appendices. PHD students shall register for two courses per semester and present one graduate seminar. In addition they shall submit and defend a dissertation of not less than 100000 words excluding bibliography and appendices.

LIST OF MA COMPARATIVE LITERATURE COURSES.

1 st Semester [core courses]		
HUM 800.1	Research methodology in Comparative Studies	3 units
HUM 801.1	Principles of Comparative Literature	3 units
HUM 802.1	Literary Theory	3 units
HUM 803.1	The Legacy of Colonial Literature	3 units
SGS 801.1	ICT & Research Method	2 units
	TOTAL	14 units
Electives.	Choose one of the following:	
HUM 804.1	Literary Translations Theory and Practice	3 units
HUM 805.1	World Literature	3 units

Or any approved course from English or French Departments

Second Semester. Core Courses

HUM 806.2	Post-Colonial Studies	3 units
HUM 807.2	Reading 19 th Century Europe through post Colonial eyes	3 units
HUM 808.2	Modernism in African Literature, art and cinema	3 units
HUM 809.2	Black Literatures and Ideologies in the New World	3 units
HUM 810.2	SEMINARS	3 units
	TOTAL core courses and Electives	30 units
HUM 811.2	MA Thesis	6 units
SGS 802.2	Management & Entrepreneurship	2 units
	TOTAL	38 units

PHD COURSES

1st Semester

HUM 900.1	Comparative Literatures In the age of Globalization	3 units
HUM 901.1	Beyond Negritude: post-Africanism / Afropolitanism in culture, art and theory	3 units
HUM 902.1	Doctoral Seminar 1	3 units
	TOTAL	9 units

Second Semester

HUM 903 .2	Literature and Philosophy	3 units
HUM 904 .2	African literature and Democracy /development	3 units
HUM 905 .2	Doctoral seminar 2	3 units
	TOTAL	9 units
HUM 906 .2	Ph.D Dissertation	9 units
	TOTAL REQUIRED	27 units

COURSE DESCRIPTION

HUM 800.1 Research methodology in Comparative Studies

Apart from a general overview of literary research and scholarship, the course will acquaint students with the current methodological issues in comparative analysis as applied to the discipline of comparative Literature.

HUM 801.1 Principles of Comparative Literature

The Course examines, from a diachronic perspective, the various definitions, principles, and schools of Comparative Literature. Students will also study the most current trends in the discipline including post-colonial / post-imperial studies, inter-cultural comparatism, globalization/transnational studies etc.

HUM 802 .1 Literary Theory

After a general overview of the nature, functions and forms of literature from the Greeks to the 19th century, the course will focus on major trends in contemporary theories of literature from structuralism to post-modernism, feminism, cultural studies and post-colonial theory.

HUM 803.1. The Legacy of Colonial Literature

The earliest manifestation of Modern African Literature can be seen reactions against the writings of European authors dealing with Africa, mainly during the colonial period but to some extent also in the Post-independent era. It is therefore important to define the scope and conditions of the growth of colonial literature including its aftermath and to analyze its ideological assumptions and main themes. Since these are mostly based on stereotyped view of Africa, a critique of such stereotypes will be attempted and their survival in contemporary literature traced.

HUM 804.1. Literary Translation

Translation studies being one of the core areas of comparative literature, this course will acquaint students with the theories, techniques and cross-cultural competences needed for literary translation. It will focus attention of literary texts e.g Knowledge of the culture and society involved, cultural differences between writer and translator. It will also tackle the linguistic aspects of literary translation.

HUM 805.1

World Literature. A survey of the idea of World Literature since its conception by Goethe, the course will not only study selected masterpieces from major world cultures and traditions but will also focus on the transnational evolution of literary trends, themes and other shared worries of the global age.

HUM 806.2 Post- Colonial Studies

The course undertakes a systematic study of the emergence and evolution of the post-colonial

paradigm, with theoretical insights drawn from the works of Edward Said, Homi Bhabha, Spivak, Anthony Appiah and others, the students will study representative works of post-colonial literature from Africa, Asia, and Latin America.

HUM 807.2. Reading 19th Century Europe through post-colonial eyes

Major writers and thinkers of 19th century Europe such as Dickens, Hardy, Balzac, Zola, Auguste Comte, Spencer wrote about Europe transiting from the old world to a modern industrial age. What can Africa, now trapped in a rather difficult transition to modernity/ development, learn from the descriptions and analyses of transitional societies offered by these authors? A study of representative works of these authors pitted against the works of some African Post-Colonial writer shade some light on some current difficulties of Africa's post-colonial transition to modernity.

HUM 808.2 Modernism of African Literature, Art and Cinema

Modernism had dominated the Literary/Cultural imagination not only in Europe but also in the cultures that were conscripted into modernity via imperialism. African Modernism, mostly a response to the encroachment of European modernity, will be studied as an Ideologies-aesthetic umbrella under which students will study the intersection of themes. Cultural worries, political motifs and formal trends in the literature, art and cinema of both anti-colonial and post-colonial Africa.

HUM 809.2 Black Literatures and Ideologies in the New World

This course exposes the student to the Pan-African literary linkages between Africa and the Black peoples of the US, the Caribbean and Latin America. Through the study of selected writers and ideological movements such as the Negro Renaissance, French Antillean Negritude etc, students will understand the cultural/ ideological cross-currents between Africa and the Black Diaspora. Attempts will be made to see how the writers of these zones grapple with the difficult memory of slavery and how they have used their

works to forge a vibrant post-slavery identity politics.

HUM 900.1. Comparative Literature in the age of Globalization

The course is meant to further acquaint students with the most current global debates around the discipline of Comparative Literature in the era of an inexorable globalization process. From an identity crisis of the discipline signaled by Spivak's *The Death of Discipline* to a view of Comparative literature in the global space as the discovery of new territories, the discipline seems to have taken a firm departure from its imperial past in order to be reborn into a post-Eurocentric global concern for humanity's shared values and problems.

HUM 901.1 Beyond Negritude: Post-Africanism/ Afropolitanism in Culture, Art and Theory

After Negritude, what are Africa's new contributions to global literary/ ideological thoughts? Post-Africanism and Afropolitanism now compete for a post-colonial world. The course will introduce students to the current debates in art, culture and literary theory around the notions of Post-Africanism and Afropolitanism

HUM 903.2 Literature and Philosophy

The course is about the intersection of literature with philosophy, history of ideas and social theory. From Aristotle to Derrida, philosophy and literature seem to be organically entwined. Through the works of Sartre, Derrida, Nietzsche, Foucault etc, the student will study the powerful cross-fertilization of literature and philosophy through the ages.

HUM 904.2 African Literature and Democracy/ Development

The role of literature in the struggles for the political normalization of Africa as well as the alleviation of poverty and suffering in the continent has remained undisputed. In this course, the student will study not only how major post-colonial writers refract in their texts the collapse of political normality and the reign of poverty and under-development but also how the alternative visions of society that nourish their works can help bring about the birth of a democratic and prosperous new Africa.

LIST OF ACADEMIC STAFF

S/NO	NAME	QUALIFICATION	AREA OF SPECIALIZATION	DESIGNATION
1	EKPO D.P	B.A (Calabar), M.A, PhD Bordeaux (France)	Comparative Literature	Professor
2	UDUMUKWU O.	B.A, M.A, PhD (Uniport)	Literature in English	Professor
3	OKOH JULIET (MRS)	B.A(Chicago) M.A(Edmonton),PhD (Bordeaux)	Theatre	Professor
4	UGIOMOH FRANK	B.A(Benin), M.A, PhD (Uniport)	Art history/Aesthetics	Professor
5	SHAKA FEMI	B.A(Benin), M.A(Ibadan) PhD (Warwick)	Film Studies	Professor
6	NJOKU ANTHONY	B.A, M.A, PhD (Uniport)	Comparative Literature	Senior Lecturer
7	EJIOFOR B.A	B.A, M.A(Ibadan) PhD (Uniport)	Comparative Theatre	Senior Lecturer
8	IBOROMA IBIENE (MRS)	B.A, M.A, PhD (Uniport)	Comparative Literature	Senior Lecturer

DEPARTMENT OF ENGLISH STUDIES POSTGRADUATE PROGRAMME

The Philosophy of the Programme

The philosophy of the programme is as follows: In a country where English is used as an added language, a major official language, a lingua franca, and the language of instruction in the educational system, a high level of proficiency in it is usually expected from the graduates of higher institutions, especially the universities. A higher level of competence and communication skills is expected even more from graduates of English. This is why there is a need for devoting greater attention to the achievement of improved knowledge of English and the acquisition of oral and written skills in it. Holders of higher degrees from the Department of English Studies, University of Port Harcourt, should be clearly and positively identified with adequate proficiency in pronunciation, articulateness in speech, correctness of grammar and usage, elegance and style in diction in the choice of an appropriate variety of English for various academic leadership positions, administrative and professional job opportunities available in the labour market, in literary and creative writing domains, and in teaching and research in language, literature, popular culture and media studies.

Aim of the Department

- (i) To instil in the student a sound knowledge of the varieties of English Language usage in its dynamic and changing forms.
- (ii) To reveal to the student through exposure to the multi-faceted nature of *belles lettres*, the aesthetic value of ideas.
- (iii) To develop in the student the ability to understand, analyze, and discuss critically any piece of literary writing by helping him to develop his own powers of written and oral expressions in the English Language.
- (iv) To produce competent teachers in English Language and Literature in English in Nigerian Schools and Colleges.
- (v) To prepare the students for Graduate work in either Language or Literature.

Admission Requirements

M.A Programme

In addition to the general regulations governing the admission of candidates into the Masters degree, applicants for admission into M.A. degree programmes of the Department of English Studies will be required to meet the following conditions:

- (i) Possess a first degree of the University of Port Harcourt or any other recognized university with at least a Second Class (Lower Division)
- (ii) **Candidates whose first degree is from a cognate discipline other than English will be required to have a CGPA of 3.50 on a 5-point scale.**
- (iii) The candidates may be required to pass a qualifying entrance examination where necessary and may be required to attend an oral interview

Duration

The duration of the M. A. degree programme is 12 months (two semesters of course work) plus a long vacation used for writing of dissertation) for full time students and 24 months for part-time students.

Ph.D. Programme

Subject to the provisions of the university-wide regulations governing the admission of candidates into the Ph.D. programme, candidates seeking admission into the Ph.D. degree programme of the Department of English Studies will be required to meet the following conditions:

- (i) Possess a master's degree in English (or a related discipline) obtained from the University of Port Harcourt or any other recognized university
- (ii) Candidates who possess the qualification stated in (i) above will be expected to have at least a CGPA of 3.5 on a 5-point scale in the course work leading to the award of their Master's degree
- (iii) In addition to fulfilling conditions (i) and (ii) above, applicants for admission into the Ph.D. programme will submit a topic proposal of minimum of 5 pages based on area of interest to the Chairman of Departmental Graduate Studies Committee. Only students who scored 60% in the oral interview will be recommended for admission.
- (iv) Supervisors will be assigned to the students based on their area of interest at the end of the First Semester course work.
- (v) Students have two course seminars to present before the Departmental Graduate Studies Committee as part of the course work. Seminar 1 will hold in the first semester, while Seminar 2 will hold in the second semester on the Department stipulated seminar day(s). They are expected to work closely with the Seminar Course lecturers

- who will present them to the Graduate Studies Committee. The scoring for the seminars will be: Course Lecturers/Coordinators 40%; Graduate Studies Committee 60%
- (vi) In order to proceed further with the programme, a candidate admitted into the Ph.D. programme shall do a Proposal defence within the first semester of the second year of study, which should consist of the first three chapters of the thesis and the whole thesis outline. The candidate will also be required to defend the said proposal at a qualifying oral examination before the Graduate Studies Committee of the Department that approves the continuation of the research.
 - (vii) Internal Defence will hold by the first semester of the students' third year of study and only students who scored 60% and above will be allowed to proceed to the Faculty Seminar.
 - (viii) Candidates from other universities whose admission qualifications show a deficiency in course offerings will be required to take remedial courses from the courses available in the M.A. programme of the Department.

Duration

Minimum of Two Calendar years (24 months) & Maximum of Five calendar years (Full Time)
 Minimum of Four calendar years (48months) & Maximum of Six calendar years (Part Time)
 Alterations to the above time schedules can only be made by special written permission of the Board, School of Graduate Studies.

Requirements for Graduation

M.A. Programme

To graduate with the M.A. degree in English (Language or Literature/Area of Specialisation), a candidate must have taken and passed the prescribed number of compulsory and required courses listed in the approved list and totalling 43 units as shown below.

Core Courses	37 units
Dissertation	6 units
Total	43 units

Completed M.A. dissertation shall be submitted at least three months before the stipulated completion date, which should correspond with the date of the oral examination.
 Oral Examination

The M.A. degree candidate will be required to defend his/her dissertation in a final oral examination before a panel of examiners constituted as follows:

- (i) Chairman, Board of Examiners
- (ii) An External Examiner duly appointed by the Faculty Board and Senate
- (iii) The Representative of the College of Graduate Studies
- (iv) The Head of Department
- (v) The Chairman, Departmental Graduate Studies Committee
- (vi) The candidate's supervisor(s)
- (vii) Other members of the Departmental Graduate Studies Committee

Ph.D. Programme

To graduate with a Ph.D., candidates must take and pass all the requisite courses as prescribed in the Ph.D. course list totalling 27 units as shown below.

Core Courses	18 units
Thesis	9 units
Total	27 units

Completed Ph.D. thesis shall be submitted at least three months before the stipulated completion date, which should correspond with the date of the oral examination.

Graduate Programme in English

The Graduate Programme of the Department of English Studies offers M. A. English and Ph.D. English. Under these broad categories the student can pursue a programme in either Literature or Language.

The Literature component emphasizes the following fields of specialization:

- (a) Literary Theory and Critical Studies
- (b) Modern African Literature, Postcolonial and Transnational Literatures
- (c) African Oral Literature
- (d) Contemporary European and American Literature
- (e) African American and African Diaspora Literatures
- (f) Women's Writings and Gender Studies while the Language component emphasizes the following fields of specialization:
 - (a) Phonology of English
 - (b) English Morphology and Syntax
 - (c) Semantics of English
 - (d) Sociolinguistics
 - (e) Applied English Linguistics
 - (f) Discourse Analysis and Pragmatics
 - (g) English as a Second Language
 - (h) Linguistic Stylistics

M.A. COURSES

The students are expected to offer not less than six (6) courses in each semester.

A. Literature Option

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT & Research Method	2
EST 800.1	Linguistics and the Study of Literature	3
EST 801.1	Oral Literature	3
EST 803.1	Literary Theory and Criticism I	3
EST 805.1	Studies in Modern African Literature	3
EST 807.1	Modern European Literature	3
EST 809.1	Popular Literature and the Mass Media	3

Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Entrepreneurship & Management	2
EST 830.2	Seminar on a Special Author	3
EST 834.2	Research Methods	3
EST 836.2	Literary Theory & Criticism II	3
EST 838.2	Black Literature in the New World	3
EST 840.2	Modern British & American Literature	3
EST 832.2	Thesis	3

B. Language Option

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT & Research Method	2
EST 810.1	Advanced Stylistics	3
EST 811.1	The Syntax of Modern English	3
EST 813.1	Research Methods	3
EST 815.1	Advanced Phonology of English	3
EST 817.1	Discourse Analysis and Pragmatics	3

Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Entrepreneurship & Management	2
EST 818.2	Studies in Sociolinguistics	3
EST 820.2	Advanced Semantics	3

EST 822.2	Studies in World Englishes	3
EST 824.2	English as a Second Language	3
EST 826.2	Psycholinguistics	3
EST 828.2	Language Seminar	3
EST 832.2	Thesis	6

Ph.D. COURSES

A. Literature Option

First Semester

Course Code	Course Title	Credit Units
EST 901.1	Methods and Techniques of Critical Discourse	3
EST 903.1	World Literature Written in English	3
EST 905.1	PhD Course Seminar I	3

Second Semester

Course Code	Course Title	Credit Units
EST 902.2	Literature and Ideas	3
EST 904.2	Main Currents in African Literature	3
EST 906.2	Ph.D. Course Seminar II	3
EST 914.2	Thesis	9

B. Language option

First Semester

Course Code	Course Title	Credit Units
EST 907.1	Advanced Linguistic Theory & Present Day English	3
EST 909.1	English Based Pidgins & Creoles & Decoreolization	3
EST 911.1	PhD Course Seminar I	3

Second Semester

Course Code	Course Title	Credit Units
EST 908.2	Applied Linguistics of English	3
EST 910.2	Language Therapy and National Development	3
EST 912.2	Ph.D. Course Seminar II	3
EST 914.2	Thesis	9

MASTERS' COURSE DESCRIPTION

(a) Literature Emphasis

EST 800.1: Linguistics and the Study of Literature

The nature of language; major language families; linguistics and traditional grammar; synchronic and diachronic linguistics; the comparative method; phonetics; various branches of linguistics explained and literary genres.

EST 801.1: Oral Literature

By a comparative study of selected examples of African tales, poems, narratives and dramatic forms, the course will establish some typologies for oral literature in Africa. Comparison may then be attempted with the characteristics of oral literature outside the Continent. Knowledge of African languages will be built upon as much as possible; otherwise, English translations will be used.

EST 803.1: Literary Theory and Criticis

This course will first concern itself with the nature and functions of literature and the various approaches to criticism, before moving on to the history of literary criticism, from Plato to Roland Barthes.

EST 805.1: Studies in Modern African Literature

This is an intensive study of Modern African Literature in European languages in the different genres. The course will emphasize the sociological and historical contexts of the different genres including fiction, drama, poetry and autobiography. The major theoretical and formal strategies of the works of selected authors from the different sub regions will be highlighted.

EST 807.1: Modern European Literature

This course will adopt a comparative method in order to survey the major responses of writers from Europe to the modernist movement. A selection of primary texts will be made from the different genres of fiction, drama and poetry.

EST 809.1: Popular Literature and the Mass Media

The course will examine the interface of literature, literacy and the institutions of popular, mass culture, festival events, radio, television, newspaper, music, video, film computers and the electronic media. Theories of literacy and what Walter Ong has called "Technologizing the world will be considered.

EST 830.2: Seminar on a Special Author

The course aims mainly at providing guidance to graduate students in their chosen genre of concentration for their Graduate Seminar paper either in the Novel, Drama, Poetry or Oral Literature. Comparative Approaches to the chosen genre will be insisted upon and students will be encouraged to study works of Anglophone and francophone expression through lectures, guided discussions, and seminar-type class presentations by the students themselves. Students will also be

encouraged, wherever possible, to proceed to their dissertations from topics chosen during the course.

EST 832.2: Thesis

The thesis shall conform to all the requirements laid down by Senate and shall not be below 25,000 words. The closing date for submission shall be laid down from year to year by the Graduate Studies Committee.

EST 834.2: Research Methods

The course will deal with the efficient handling of research materials such as journals, book indexes, guides to periodical literature and recorded sources. Apart from being given practical assignments to trace information in libraries and in the field, the students will be taught how to organize data and present them in a scholarly form.

EST 836.2: Literary Theory & Criticism II

This is an advanced course focusing on the major movements in contemporary literary theory, with special emphasis on any two of the following: Structuralism, Semiotics, Deconstruction, Sociology of Literature, Formalism and Postcolonial Aesthetics.

EST 838.2: Black Literature in the New World

This course is meant to acquaint the students with significant themes in the literature of black peoples in the United States, the Caribbean and in Central and South America (Cuba and Brazil in particular). Attempts will be made to see how the writers of these zones deal with the themes of slavery, domination and alienation, of violence and liberation. The image of the white man and the idea of Africa in the various literatures will also be examined. Cultural cross-currents between Africa and the Black Diaspora, as well as the influence of the metropole-cultural and otherwise –will constitute importance points for investigation.

EST 840.2: Modern British and American Literature

This course undertakes a broad survey of the major authors and literary movements of the 19th and 20th centuries of British and American Literatures.

(b) Language Emphasis

EST 810.1: Advanced Stylistics

This course gives opportunity for graduate students to have a firm grasp of landmarks in general linguistics with emphasis on key figures from Edward Sapir to Noam Chomsky, importance schools like those of Britain and America and recent advances such as clinical and forensic linguistics. More importantly, the course will explore the possibility of relating linguistics knowledge to the study of literature.

EST 811.1: The Syntax of Modern English

This course aims at giving graduates of English an opportunity to consolidate their understanding of English syntax through a study of various structural issues and grammatical models which propound them. The course assumes a good knowledge of general structural patterns in English.

EST 813.1: Research Methods

This course will train graduate students in current approaches to research: data collection and processing procedures; appropriate bibliographical entries. Emphasis will also be placed in specific requirements for research in English and the format of presentation of findings in the discipline.

EST 815.1: Advanced Phonology of English

The purpose of this course is to train graduate students to master the phonological processes and organization of sound of the English Language; the different phonological theories, phonological rules and annotations which explain such patterning. Attention is also paid to specialized issues such as M. A. K. Halliday's system of intonation, as well as recent relevant phonological controversies. Students should also be able to attempt a contrastive analysis of the phonology of English and that of their indigenous languages.

EST 817.1: Discourse Analysis and Pragmatics

The course examines the ways post-structuralist theories inform the analysis of texts. It employs the terms and methods of linguistics to study two related areas of study, Discourse Analysis and Pragmatics. Primarily, these fields of study are preoccupied with the description of written and spoken language in use. They aim to identify the systems and patterns within discourse and to relate these features to the context in which texts are produced. The course also seeks to establish and explore the relationship between discourse considerations can explain language users' choices, and the effects on hearers and readers if those choices, once they are made, Other areas of Pragmatics to be considered include speech act theory, implicatures, and context of situation, as they apply to texts.

EST 818.2: Studies in Sociolinguistics

Sociolinguistics will first be distinguished from sociology of language. The course will expose students about the study of language in relation to social factors including variations according to region, class, occupation, age, gender, style, etc. It also covers issues bilingualism and multilingualism and cognition. The course will also treat cultural norms expectations, and context affecting language use. It describes the social functions of language.

EST 820.2: Advanced Semantics

This course seeks to give graduate students of English an opportunity to undertake a critical study and analysis of the theories of meaning (past and current), the factors which explain such theories and the possible applications of major Semantics concepts in practical situations. Attention is also paid to recent advances in the subject.

EST 822.2: Studies in World Englishes

This course gives graduate students to understand the emerging varieties of English in the World. It will also provide them an opportunity to consolidate and deepen their understanding of style in various forms of communication, in various situations, in various literary genres, as well as specific usages of English in various regions of the world.

EST 824.2: English as a Second Language

This course differentiates ESL from EFL and covers the principles and theories of language acquisition and learning in a Second language situation. The course also examines the challenges and prospects of English in a multilingual situation. It will also treat techniques and procedures of second language teaching and learning from the traditional to the modern times. The course also includes production and critique of materials necessary for language teaching and learning in a second language situation.

EST 826.2: Psycholinguistics

Psycholinguistics is also called psychology of language. This course will describe the relationship between psychology and linguistic behaviours such as processes of language acquisition in human; how humans comprehend and use language. It covers mechanisms in which languages are processed and represented in the brain. The course will also describe popular psycholinguistics theories.

EST 828.2: Language Seminar

This course aims at training graduates students in the selection of appropriate seminar topics; the format of presentation and the mode of delivery of a seminar to an academic audience.

EST 832.2: Thesis

The MA thesis is planned to give graduate students an opportunity for a reasonably independent research, the supervisor providing only essential guidance. The course seeks to encourage the students to utilize the knowledge acquired in their training in EST 813.1 (*Research Methods*) and to present their dissertation in format which follows in every detail the guide as approved by the Department of English Studies and the School of Graduate Studies.

Ph.D. COURSE DESCRIPTION

(a) Literature Emphasis

EST 901.1: Methods and Techniques of Critical Discourse

This course is designed to provide in-depth knowledge of the theories of literary production, of criticism, and criticism as a mode of production. In doing these it will emphasize the debates that have informed critical discourse and their major schools – sociological, the formalist, the structuralist, the feminist, and the Marxists and the versions of post-structuralism, and postcolonialism. This course is also designed to create awareness of the process of the Africanization of literary theory and critical procedures in Africa. At the end of the course the students will gain deeper understanding of the following:

- i. The difference between method and technique in critical discourse
- ii. Know how Rene Descartes' *Discourse on Method* can be said to have laid the foundation for critical discourse
- iii. Come to terms with the possible logic of interpretation
- iv. Wonder whether interpretation is of any ideological relevance
- v. Question the available strategies of interpretation and propose new ones
- vi. Ask questions about what constitutes correctness or relevance in literary and critical discourse
- vii. These and other issues will form the core of our concern in this course.

EST 903.1: World Literature Written in English

From the second half of the twentieth century, there occurred a global explosion in English Language Literature. This explosion coincided with the debates over the disciplinary status of postmodernism, post-colonialism and cultural studies. Against this background postcolonial studies became the congenial theoretical heading for world literature in English. The reason for this is that much of this literature is being written in former colonies. Consequently, this course is essentially a comparative survey of the contribution of the English Language to the emergence and development of the literature of the formerly colonized people and nations in Africa, Asia, the Caribbean and the Oceania. Apart from the influence from European colonization the course will explore the impact of knowledge of the English Language in recording migrant experiences in North America especially the United States and Canada.

EST 905.1: PhD Course Seminar I

This course and the second part offered in the second semester (**EST 906.2: PhD Seminar II**) are guided advanced seminars on a diversity of issues in literary

theory and criticism. It is a course/series of presentation in one package. In the introductory technical part, the students will undergo discussion and exercises in presentation skills and documentation. Students should be conversant with the relevant Word applications, pdf format, power point presentation skills. They should be taught the rules of conference preparation and presentations, group discussion skills, audience sensitivity and time-management. The second practical part will include presentations and discussion on topics either selected by the lecturer or following his/her recommendation and approval by the students. The topics will be based on the issues that drive debates in literary studies. At the discretion of the lecturer the Seminar could solicit presentations from scholars/writers as guest speakers. On such occasion the Seminar could open its doors to other members of staff and graduate students especially in the MA class to be in attendance. Such gesture is to sustain the overall goal of the Seminar which is to encourage discussion and debate on contemporary literary concerns. Ultimately, students should be encouraged to follow and possibly attend the proceedings of major international Seminars in the field including, the Salzburg Seminars in Austria, the Oxford Round Table (not connected with the Oxford University), the School of Criticism and Theory at Cornell University.

EST 902.2: Literature and Ideas

Given that ideas are central to human existence, the overall concern of this course is that of understanding the relationship between literary representation and the reigning or moving ideas of any given moment. We are keen in understanding whether there are literary works or genres that have either propagated or militated against particular ideas in the African context and beyond especially given the interconnection between African and both the Atlantic and European worlds. In the light of this the discussion will review and examine the significance of works like Frantz Fanon's *The Wretched of the Earth*, Paul Gilroy's *The Black Atlantic*, Achille Mbembe's *On the Postcolony*, Mahmoud Mamdani's *When Victims Become Killers*, and other main frame theoretical contributions like them to underscore their significance in the emerging literatures. How can we account for the narratological and aesthetic implications of such forms of representation? The main objective of this course is to arouse in the student his/her innate critical and interpretative potentials. It will achieve this by insisting that the student read and reread literary works and works from definite literary traditions and to see these

works as representations of the world, culture and times. The course will draw materials from a diversity of backgrounds that enunciate the literary or non-literary representation of ideas.

EST 904.2: Main Currents in African Literature

The course will adopt a historical approach in order to study the emergence and development of modern African literature in the European languages. As writers and intellectuals such as Chinua Achebe, Mudimbe, and others have argued, African literature was spurned by the twin acts of reinventing and *re-storying* the African world and identity. This course will explore the factors that make the twin acts of reinventing and *re-storying* possible; it will examine the debates provoked and the diversity of strategies adopted by the writers from a diversity of backgrounds. Questions to be addressed will include: is there a monolithic Africa or are there many *Africas*? What is African identity? To what extent do models and approaches such as Negritude, African Personality, *womanism*, etc. succeed in evoking a concrete sense of African identity? Is the language question still of relevance to our apprehension of African literature? The implicit politics and interests that generate the voices in modern African literature in the genres, including the novel, drama, poetry, and autobiography will be considered. The practical study of selected texts from a diversity of backgrounds will explore the writers' act of social responsibility and their attendant will to power and desire to restructure inherited structures and their effects on experience.

EST 906.2: Ph.D. Course Seminal II

This course aims at training doctorate students in the selection of appropriate seminar topics; the format of presentation and the mode of delivery of a seminar to an academic audience. It involves presentation on topical issues in language, literacy, and literature and how these affect society and are in turn affected by society.

PhD English (Language Option)

EST 907.1: Advanced Linguistic Theory & Present Day English

This course presents current linguistic theories and how they are used in present day research. Students

are exposed to construction and deconstruction of theories in linguistics.

EST 909.1: English-based Pidgins and Creoles & Decreolization

The course describes pidgin, creole, their status and types. It traces the origin of English-based pidgins and creoles around the globe and explains how pidgins develop. It investigates what kind of linguistics structure a pidgin language has. It further explains why linguists are interested in studying pidgins and peoples' various attitudes towards pidgins. It narrows it down to the use of pidgin in Nigeria, its characteristics, functions and place in the multilingual Nigeria.

EST 911.1: PhD Seminar I

This course aims at training doctorate students in the selection of appropriate seminar topics; the format of presentation and the mode of delivery of a seminar to an academic audience.

EST 908.2: Applied Linguistics of English

This course aims at training doctoral students in the discipline of applied linguistics and the application of linguistics to various domains of language use and context such as education and her professions. It also covers such areas as methods in language teaching and learning, interference, contrastive and error analysis, language learning and acquisition, bilingualism education, multilingualism, literacy, language and development.

EST 910.2: Language Therapy and National Development

The course starts with speech and language disorders which include phonological and neurological disorders. It describes a language therapist, and examines available therapies for different disorders. This course also focuses on the role of language in national development – be in indigenous languages or a second language in national development. It explicates the constraint placed on national development by the linguistics situation in developing African nations.

EST 912.2: Ph.D. Course Seminar II

This course aims at training doctorate students in the selection of appropriate seminar topics; the format of presentation and the mode of delivery of a seminar to an academic audience. It involves presentation on topical issues in language, literacy, and literature and how these affect society and are in turn affected by society.

ACADEMIC STAFF

S/N	Name	Qualification	Field of Specialization	Designation
1.	Udumukwu, Onyemaechi	B.A., M.A., Ph.D. UPH	Literary and Cultural Theory, African & African Diaspora	Professor

			Literatures, Autobiography & Life Writing, Post-colonial and Transnational Literatures	
2.	Ojukwu, Chinyelu Florence	B.Ed., M.A. UI, Ph.D. UNILAG	Drama, African Literature and Feminist Studies	Professor
3.	Kamalu, Ikenna	B.A. UPH, M.A. ABU, Ph.D. UI	Stylistics, Discourse Analysis, Metaphor Analysis, African Literature	Professor
4.	Nutsukpo, Margaret Fafa	B.A., M.A., Ph.D. UPH	Gender and Women's Studies, Creative Writing, European Literature	Professor
5.	Nwala, Michael Alozie	B.A. UNICAL, M.A. UNN, Ph.D. UNICAL	Morphology and Syntax, Semantics	Professor
6.	Chinaka, Psalms Emeka	B.A. ABSU, M.A. UNIUYO, Ph.D. ABSU	African Prose Fiction, Literary Criticism, Poetry, Drama, Creative Writing	Reader
7.	Anurudu, Stephen Madu	B.A. M.A. Ph.D. UI	Syntax and Linguistic Theories	Reader
8.	Nwanyanwu, Augustine Uka	B.A. UNICAL, M.A. Ph.D. UPH	African Literature, Stylistics, Criticism theory	Senior Lecturer
9.	Ngwoke, Omeh Obasi	B.A., M.A. Ph.D. UPH	African Literature, Dramatic Literature, Theory of Literature, Oral Literature	Senior Lecturer
10.	Gomba, Obari Emmanuel	B.A. UNN M.A. Ph.D. UPH	African Literature, Theory of Literature, Poetry, Creative Writing	Senior Lecturer
11.	Obobolo, Vincent Lucky	B.A., MA EKPOMA, Ph.D. UPH	Linguistic Stylistics, Applied Linguistics & Language Skills	Senior Lecturer
12.	Oyeh, Otu Oko	B.A., M.A. UNICAL, Ph.D. UPH	African American Literature, Literary Theory and Criticism, Drama	Senior Lecturer
13.	Dick, Tambari Ogbonanwii	B.A., M.A., Ph.D. UPH	Modern African Literature, Literary Stylistics	Senior Lecturer
14.	Iboroma, Ibiene Evelyn	B.A. UNIBEN M.A. Ph.D. UPH	Comparative Literature and Multiculturalism, Transnational Literatures	Senior Lecturer
15.	Asiegbu, Perpetua St'Remy	B.Ed IMSU, MA, PhD UPH	Drama, Creative Writing	Senior Lecturer
16.	Akani, Julius Nsirim	B.A., M.A., Ph.D. UPH	African Literature, Literature of the Nigerian Diaspora and Transnational Literatures	Senior Lecturer
17.	Ahaotu, Joseph Onyema	BA Calabar, MILD RSUST, MA, PhD UPH	Sociolinguistics	Senior Lecturer
18.	Ibekwe, Ezeakolam Nworisa	BA, MA, PhD UPH	English Language	Lecturer I
19.	Udo, Margaret S.	B.Ed. Curriculum Studies UPH MA CESOL Leeds, PhD UPH	English Phonology, Phonetics	Lecturer 1
20.	Ugwuezumba, Onyinyechi	BA IMSU, MA, PhD UPH	African Literature	Lecturer I

DEPARTMENT OF FINE ARTS AND DESIGN

Introduction: The need to establish the graduate degree programmes in Fine Arts and Design is defined by the felt needs to be up to date with global trends of in-depth research development and problem solving. To this end, the programme is aimed at harnessing skills and talents that are critical to the individual in meeting with global standards and challenges that regularly confront society. University of Port Harcourt is therefore not insulated from this as it is centrally located in the deep of the Niger Delta region where current issues of development critically challenge the need towards a concrete development strategy. The University of Port Harcourt therefore, through the Graduate degree programme of Fine Arts and Design, is finding solution to myriads of problems in its environment and beyond by establishing quality teaching and research team for a modern university as University of Port Harcourt.

The programme of the Department of Fine Arts and Design is designed therefore to cater for the interest of students who would offer the MA degree and further his research quest in the PhD degree that are available in different areas of specialisation. It is designed to take care of the critical areas of art as an aesthetics element married with functionality in an environment where industry can play important role. It is therefore both theoretical and practice led programme for those who wants to either focus mainly on the theoretical as applicable to Art History or Design History, and or the studio specialisations of Painting, Sculpture Ceramics, Graphics and Communication Design, or in Textiles and Fashion.

Vision: The University of Port Harcourt's mission is to contribute to national development, self-reliance and excellence through the advancement and propagation of knowledge and in like manner use such knowledge for service to humanity and the community.

To this end, the Department of Fine Arts and Design shall be one of the leading departments in art and design education; in teaching and generating new knowledge through research development for the uplift of humanity. It aspires to achieve this by attracting a core of highly led and motivated academics and students in order to provide creative solutions to demands of society

Mission

- The Department shall endeavour to attain a leading position in the University, the Niger Delta, Nigeria and in global contexts by developing creative solutions towards ideals for which creative impulses have always

been instigated in human consciousness for the growth of cultures.

- The Department is committed to promote a well- rounded art and design education, which includes studio supplementary disciplines of art criticism/appreciation and art history to facilitate a hike in visual literacy among students and staff and the immediate locus of the university and beyond.
- The Department's commitment to art education includes providing talented and highly motivated students and staff with theoretical, conceptual and technical skills needed to excel as professional artists and designers who are able to cope with the demands of a dynamic and changing society.
- The department is poised to compete with other disciplinary focuses in the University, relevant Government and non-governmental agencies to bring about the integration of the town and gown for the purpose of uplifting the Department and the University as it provides and offers alternative ways of appreciating cultural progress and advancements in human societies.

Objectives

- 1) To prepare students as research scholars, teachers and as practitioners in the areas of Art and Design practice.
- 2) To encourage an in-depth study of specific areas within the subject in a way to stimulate independent, critical, and creative constructive minds.
- 3) To inculcate Art and Design orientation for creative problem solving and its universal application.

Future Prospects

- The Fine Arts and Design Department aims strategically to offer the best programme, working consciously towards building sound knowledge and character in its syllabus. It has a crop of sound intellectuals internationally acknowledged by some of the best institutions of art in the world.
- Hence, a Masters in art or design from the University of Port Harcourt gives you the penultimate professional qualification to practice- if you are looking for an ongoing career in academia, a PhD research degree is the next step in your development.
- The programme equips the individual to go on to find employment in the visual art or design in one of the creative industries in the private sector, or in a relevant department of the public sector.

- There is huge potential for self-employment as an artist or designer, in areas as diverse as ceramics, product design, Textiles and Fashion, fabric design, media theory, sound and video recording, community art and education, furniture design, television graphics, conceptual art, glass blowing, curating, environmental design, web design, graphic communications, web games, environmental art, interior architecture, web graphics, interior design, product design, painting and illustration, etc..
- The programme is also targeted at skills for an employer in any sector where a clear sense of personal inquiry, creativity and confidence in the development of technical skills is valued. In particular, you could work in museums, art galleries, arts administration, art history, curating, teaching or in the multimedia industry.

Admission into the Programmes

Admission into the M.A programmes will be open to candidates with a B.A. degree in Fine Arts & Design and other related areas such as Industrial Design, Art History from the University of Port Harcourt and other institutions recognized by University of Port Harcourt. Subject to the general admission regulations of the school of Graduate Studies, the class of B.A. degree must not be lower than a Second Class Lower Division. HND holders with Upper Credit and above may be considered if the candidate holds in addition a PG Diploma in art or in a related area. The methods of application are as spelt out in the Graduate School's Guidelines.

Requirements & Duration of the Programmes

MA DEGREE PROGRAMME

The M.A. Degree in Fine Arts & Design extends over 12 calendar months, i.e. 2 semesters up to a maximum period of 24 calendar months. Part time is 24 calendar months to a maximum of 48 months.

The Fine Arts & Design specialization options are clearly spelt out to include:

1. African Art History
2. Design History
3. Painting
4. Sculpture
5. Ceramics Design
6. Graphic Design and Communication, and
7. Textiles and Fashion Design.

Assessment

Overall assessment will be based on coursework, and examination at the end of each semester and a satisfactory completion/defence of a Thesis and an art exhibition. To fulfil the requirements for the award of the degree, a candidate must obtain at least

an average grade of C'. Scoring will adopt the Graduate School format of Continuous Assessment C/A= 30%, Examination= 70%, Total= 100%

Code of Practice

The responsibilities of the supervisor, exercised on behalf of the Graduate School, include the following:

- Supervisors should meet with their research students for formal consultation at least three times a semester in the case of full-time students or at least twice a semester in the case of part-time students. The number of formal consultations may be varied by mutual agreement as circumstances may require. They may also maintain contact through regular seminar meetings, in accordance with college and school policy, and in the light of discussion of arrangements with the student. Supervisors should be accessible to the student at other appropriate times.
- Supervisors should give guidance on the nature of research and the standard expected, the planning and scope of the research programme, literature and sources, attendance at taught classes, research techniques (including arranging for instruction where necessary) and the avoidance of plagiarism.
- Detailed advice should be given on the necessary completion dates of successive stages of the work, so that the whole may be submitted within the scheduled time.
- Written work should be requested as appropriate and returned with constructive criticism, and in reasonable time.
- Arrangements should be made as appropriate for the student to talk about his or her work to staff or in graduate seminars and to have practice in oral examinations.
- The supervisor should ensure that the student is made aware of any inadequacy of progress or of standard of work below that generally expected.

In appropriate cases, the supervisor should be prepared to refer to the student for professional guidance in respect of personal or other problems not necessarily directly related to the research.

The supervisor will report annually to the school sub-committee on the student's progress and any problems encountered during the year. The supervisor will also comment, as appropriate, on the student's own report, which is submitted to the sub-committee through the supervisor.

Study Opportunities

Our students have many different reasons for choosing to study here. For some, the quality of the course is important; for others it is the social life and facilities offered by the city of Port Harcourt. A proportion of students tell us they chose UNIPORT because the city does not leave them feeling overwhelmed; others wish to be close to their homes. Whatever are the reasons for choosing UNIPORT, our students say that when they leave us at the end of their course they take with them memories of friendship, warmth and hospitality.

Links with Industry

The Department is collaborating with small and medium-sized companies for exciting research challenges such as the development of joint research in Anatomical modelling, product designs, Infusion of Clay and glass designs, Design of house building bricks, Digital and web design, Animation modelling for the moving image, Fashion magazine and wears, etc.

International Links

UNIPORT places great importance on the need to prepare students for the increasing opportunities for work study home and abroad. Work placements and study visits outside Nigeria are best established together with a thriving programme of student exchange schemes with many UK institutions. As such University of Wolverhampton, the Centre of African Studies, School of Oriental and African Studies, University of London and London University of the Arts are some of the associated links.

UNIPORT – A Quality Education

UNIPORT provides education and training opportunities that are accessible, flexible and of the highest quality, and has been independently acclaimed for his high academic standards and its high level of student satisfaction. A measure of success being that in 2003, UNIPORT was recognised as the best quality undergraduate programmes in all Nigerian universities as rated by NUC.

Opportunities for Scholarships and Bursaries

There are a number of scholarships and bursaries, grants and loans available to deserving graduate students of Fine Arts and Design in each year of study. They range from scholarships, teaching and research assistantship to soft loans and grants towards the upkeep of students research projects. The modes and methods of application are available in the School of Graduate Studies prospectus.

Research Resources

Resource centres such as the main University library, the University Museum, and the National Gallery of Modern Art stands as resource centres for the acquisition of knowledge for research students

within the University campus. However, the Department of Fine Arts and Design has an up to date digital Library with collection of textbooks, journals, newspapers and magazines and a mini computer laboratory for art history and design. There are also facilities for power-point lecture delivery and seminars.

Student Life

The University of Port Harcourt have many social clubs and societies run for students, by students. University is not just about reading, writing and revision. It would be dull if it was. University life is about life. And there is plenty of it; New interests, new discoveries, and new friends. What you do here will never leave you. So make sure you take an active part in the incredible range of activities we have to offer you here at Uniport. We are not one of the largest universities in Nigeria for nothing. Take a look at its sporting activities which is number one in the west coast of Africa, its theatres and dramatic performances that places him as number one in the production of Nollywood movie stars in Africa, operatic music in the city and the Fine Arts and Design.

COURSES

MA African Art History

Year 1 (Semester I)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 800.1	Research Methodology	3
FAD 801.1	African Art Historiography	3
FAD 802.1	Theories of African Arts & Interpretation	2
CGS 802.1	ICT & Research methods	2
FAD 803.1	Aesthetics and Art Criticism	2
FAD 804.1	African Art and Religious Symbolism	3
FAD 810.1	African Designers and Society (Elect Course)	3

Year 1 (Semester II)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 805.2	Critical Studies in Contemporary African Arts	3
FAD 801.2	Management and Entrepreneurship	2
FAD 806.2	Themes in Contemporary Nigerian Art	3
FAD 807.2	African Art in the Diaspora	2
FAD 808.2	Museum Methods and Curatorial Practice	3
FAD 843.2	Graduate Seminar	3
FAD 845.2	Thesis Orals and Defence	6

Total Credit Units 40

COURSE DESCRIPTION FOR MA AFRICAN ART HISTORY

FAD 800.1: Research Methodology

This course examines the technical and methodological field gathering approaches. Here, Art historical methodological roles in multidisciplinary teams of innovative research techniques in oral tradition, interviews, participant observation, library/secondary data shall be explored. Approaches such as before the field, on the field, and after the field shall form the basis of writing research, reports, essays, papers, manuscripts and thesis.

FAD 801.1: African Art Historiography

A survey and distribution of art within the African continent. A consideration of the various contextual issues of theories and concepts in the development of the study of African art. Emphasis shall include methodologies of representations as in biographical historicism and orality as process of interpretation in art history as well as in field, data gathering and utilization.

FAD 802.1: Theories of African Art and Interpretations

This course will evaluate the critical underlying notions and theories in African Art and how they are located in the broader theories of art History. In this case, theories of primitivism, evolutionary, holistic, and stylistic developments will be examined within the context of interpretation.

FAD 803.1: Aesthetics and Art Criticism

A study of the theories, principles and practice of art in Africa in relation to critical areas of thought such as in religious institutions political, social and economic. Some terminologies such as African aesthetics, African art, Nigerian art, Niger Delta art etc. shall be examined as issues and ideas of modern concern in the context of world art.

FAD 804.1: African Art & Religious Symbolism

This course is intended to evaluate the various aspects of African religious art forms from the various religious groups such as indigenous African religions, Christianity, Islam and other images of worships. In this regard, the use or the intentionality of objects, image or icon shall be examined against the background of style,

FAD 805.2: Critical Studies in Contemporary African Arts

Studies at critical dimensions of today's Visual Arts in Africa and their relationship with other world, their relevant theories of aesthetics, form, style and content. Presentations in exhibition galleries,

museums show cases, acquisition patterns and experiential determinants to work produced. Comparative studies in media, form, function will be examined in relation to studio masters in the practice.

FAD 806.2: Themes in Contemporary Nigerian Art

A detailed study and examination of contemporary Nigerian art in thematic structure, typology, form and function.

FAD 807.2: African Art in the Diaspora

An identification, classification and documentation of African art to private and public collections overseas. Attempts should be focused on the mode of movement and transportation of such works to their present location. Attempts also should focus on their histories and current use.

FAD 808.2: Museums Methods and Practice

Methods and theory of conservation, ethnographic, archaeological, and monuments conservation, handling, restoration, preservation, storage and display of museum specimens, materials and environmental reaction of ethnographic objects. Aspects of preventive conservation, monitoring environs, examining objects and documenting their state, and identifying sources of deterioration. Students to conduct tests, evaluate exhibition and storage areas, and help to improve museum conditions. The role of museums to national building.

MA Design History

Year 1 (Semester I)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 800.1	Research Methodology	3
SGS 801.1	ICT & Research Methods	2
FAD 809.1	Theories/History of Industrial Design	3
FAD 810.1	African Designers and Society	3
FAD 611.1	Iconography & African Design Systems	3
FAD 603.1	Aesthetics and Art Criticism (Elect. Course)	3

Year 1 (Semester II)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 812.2	Critical Studies in Contemporary World Designs	3
SGS 801.2	Management and Entrepreneurship	2
FAD 813.2	Issues in Art and Design	2

FAD 814.2	Themes in Contemporary Nigerian Designs	2
FAD 815.2	Design Galleries and Curatorial Practices	3
FAD 843.2	Graduate Seminar	3
FAD 845.2	Thesis Orals and Defence	6
	Total Credit Units	40

COURSE DESIGN DESCRIPTION FOR M.A. AFRICAN ART HISTORY

FAD 809.1: Theory/History of Industrial Design

The course examines the epoch of industrial design in Europe starting from the 17th, 18th century industrial revolutionary years; its historical and cultural impact on Design theories and concepts in the modern world. Centres of industrial designs in the world should be examined in comparison with Nigeria as an industrializing nation.

FAD 810.1: African Designers & Society

The course focuses on African designs as communication symbol complex. It will examine the modes of practice, tools, types, practical involvement in industry and environmental impact of their works. Case studies of designers in the African society should be examined for greater understanding.

FAD 811.1: Iconography and African Design Systems

The course aims to review and trace the origin of symbols systems in Africa as they relate to numerology, image formation and use, teachings and narrative writings, adaptation for use in various institutions and societies in North Africa, W/Africa, East/Africa and South Africa. The current state of iconographical use such as nags as identity, images as power for worship, calligraphy as a writing and graphic form, etc. Focus on African decorative tradition and crafts.

FAD 812.2: Critical Studies in Contemporary World Design

Design 360 examines design and design development as a global phenomenon. It focuses on new design approaches and techniques in today's design world, in gallery presentation/exhibitions versus installations worldwide. Critical studies would be carried out in design reviews and outlets such as in the electronic media of the internet, print and the verbal.

FAD 813.2: Issues in Art and Design

The course is designed to examine critical issues of art and design as it relates to aesthetics, form and function. Issues relating to craftsmanship and design, product design and industry should be critically addressed. Other issues of include the socio-cultural context of design, the economic,

context personal, project management and theoretical design models.

FAD 814.2: Themes in Contemporary Nigerian Designs

This course will attempt to identify and define some of the major categories of Contemporary Nigerian designs and to suggest how they are related to one another in the whole gamut we call Nigerian design. The following aspects will be highlighted Design, Art and Architecture, industrial design, environmental design, Digital art practice, Animation, Film/Video and the theatre.

FAD 815.2: Design Galleries and Curatorial Practices

The course is designed to focus on the role of the curator in art and design management, with in-dept investigation into the educational values of Galleries established for the purposes of show-easing industrial inventions and creative works. It will also define the nature of galleries, sites, function and typology worldwide

MA Painting

Year 1 (Semester I)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 800.1	Research Methodology	3
CGS 802.1	ICT & Research Methods	2
FAD 816.1	Theories/History of Painting	3
FAD 817.1	Advanced Painting Techniques and Processes I	3
FAD 818.1	Mixed Media Painting	3
FAD 835.1	Advanced Digital Art and Design (Elect. Course)	3

Year 1 (Semester II)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 805.2	Critical Studies in Contemporary African Arts	3
CGS 801.2	Management and Entrepreneurship	2
FAD 819.2	Advanced Painting Techniques and Processes II	3
FAD 820.2	Advanced Studio Workshop Management	3
FAD 821.2	Independent Study (Research in Painting)	3
FAD 843.2	Graduate Seminar	3
FAD 844.2	Graduate Art Exhibition	6
FAD 845.2	Thesis Orals and Defence	6
	Total Credit Units	40

COURSE DESCRIPTION FOR M.A. PAINTING

FAD 816.1: Theory/History of Painting

The course shall examine painting from the earliest times up through to the late 19th century. Areas of focus shall be Western, oriental and Afro America paintings. Of particular interest shall be the styles, materials, techniques and function.

FAD 817.1: Advanced Painting Techniques and processes 1

Technical approaches to painting with emphasis on the aesthetic and style. Basic focus shall be contextual dimensions in compositional dexterity, medium and studios involving life and still life.

FAD 818.1: Mixed Media Painting I

Advanced studies of the theory and practice of painting utilizing a variety of painting media. Individual interest and focus shall be encouraged,

FAD 819.2: Advanced Painting Techniques & Processes II

Continuation of FAD 617.1 Aspects and areas of emphasis shall be new techniques and medium such as advanced drawing leading to wash drawings, cartooning and illustration.

FAD 820.2: Advanced Studio Workshop Management I

Painting composition of Landscapes, seascapes, construction and detailed studies figures such as animals, human, architecture of buildings, cities etc.

FAD 821.1: Independent Study (Research in Painting)

Individually conceived research are designed to espouse on a specialized route which will lead into a final project.

MA Sculpture

Year 1 (Semester I)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 800.1	Research Methodology	3
SGS 801.1	ICT & Research Methods	2
FAD 822.1	Theory/History of Sculpture	3
FAD 823.1	Advanced Sculpture Studio Design I	3
FAD 824.1	Advanced Product Sculpture	3
FAD 835.1	Advanced Digital Art and Design (Elect. Course)	3

Year 1 (Semester II)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 805.2	Critical Studies in Contemporary African Art	3
SGS 801.2	Management and Entrepreneurship	2

FAD 825.2	Advanced Sculpture Workshop Management	3
FAD 826.2	Metals, plastic and Polyesters	2
FAD 827.2	Independent Study (Research in sculpture)	3
FAD 848.2	Graduate Seminar	3
FAD 849.2	Graduate Art Exhibition	6
FAD 850.2	Thesis Orals & Defence	6
Total Credit Units		46

COURSE DESCRIPTION FOR M.A. SCULPTURE

FAD 822.1: Theory History of Sculpture

The course shall examine sculpture from its rudimentary stages. Highlighting the features that projected certain sculpture, their forms in the Western world up through to the late 20th century

FAD 823.1: Advanced Sculpture Studio Design I

This course is designed to encourage individual initiative in the student. It encourages an innovative encounter in materials depending on the student's choice.

FAD 824.1: Advanced Product Sculpture

This is a hand-on studio course and it is focused on machine and workshop practices and techniques exploring precision measurements in materials such as wood, materials and clay. An important aspect of this course is the development of moulds for multiple replications from mechanized or modelled processes.

FAD 825.2: Advanced Sculpture Workshop Management

This course is a forum for students to give and receive critiques in the area of sculpture studies and will emphasize issues in student's studio specialization. The workshop also focuses on proposal development in individual projects in the context of peer review and proffering solutions to a defined problem through audience analysis informed by the student's work. Discussions draw on diverse critical methods and techniques. A significant proportion of the work is self-motivated and self-directed.

FAD 826.2: Metals, Plastics and Polyesters

Practical studio practice covering wide range of materials for sculptural production. A study of the chemistry and composition of materials such as concrete, clay, wood, metal, stone, plastics and glass. Understanding the relationship between materials and factors affecting choice of such materials and forms is important.

FAD 827.2: Independent Study (Research in Sculpture)

Individually conceived research in the area of sculpture materials and technology designed to espouse on materials on a specialized route which will lead into a final project.

MA Ceramics Design

Year 1 (Semester I)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 800.1	Research Methodology	3
SGS 801.1	ICT & Research methods	2
FAD 809.1	Theory/History of Industrial Design	3
FAD 828.1	Advanced Glaze Chemistry	3
FAD 829.1	Advanced Ceramics Studio Design I	3
FAD 835.1	Digital Art and Design (Elect. Course)	3

Year 1 (Semester II)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 812.2	Critical Studies in Contemporary World Design	3
SGS 801.2	Management and Entrepreneurship	2
FAD 830.2	History of World Ceramics	3
FAD 831.2	Advanced Ceramics Studio Design II	2
FAD 832.2	Independent Study (Research in Ceramics)	3
FAD 843.2	Graduate Seminar	3
FAD 844.2	Graduate Design Exhibition	6
FAD 845.2	Thesis Orals & Defence	6
Total Credit Units		46

COURSE DESCRIPTION FOR MA CERAMICS DESIGN

FAD 828.1: Advanced Glaze Chemistry

Theoretical study of the geology for potters, their mineralogical composition in clays, silicates and analysis. Emphasis shall be on local raw materials and their potential for sustainable ceramic transformation.

FAD 829.1: Advanced Ceramics Studio Design I

Conceptual design framework for ceramic sculpture, architectural ceramics, ceramic decor etc. detailed working sketches of designs, and exploration into mixed media forms shall be stressed.

FAD 830.2: History of World Ceramics

A history world ceramics its practice from medieval to the contemporary highlighting world centres of

ceramic production such as African, British, Japan, Australia and the Americas.

FAD 831.2: Advanced Ceramics Studio Design II

Continuation of FAD 629 .1 Resolution of more complex ceramic designs xnceptual dimension, context and content/function.

FAD 832.2: Independent Study (Research in Ceramics)

This course will examine a detailed and in-depth investigation in a project to be carried out by the student. Aspects such as architectural ceramics, table works, ceramics, sculpture etc

MA Graphic Design & Communication

With Specialisation in Graphic Design, Animation, Illustration, Photography and Printmaking

Year 1 (Semester I)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 800.1	Research Methodology	3
SGS 801.1	ICT & Research methods	2
FAD 802.1	Theories/History of Industrial Design	3
FAD 833.1	Theory/History of Graphic Design	3
FAD 834.1	Advanced Graphics Studio Design I	3
FAD 835.1	Advanced Digital Art and Design	3
FAD 818.1	Mixed-Media Painting I (Elect. Course)	3

Year 1 (Semester II)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 812.2	Critical Studies in Contemporary World Design	3
SGS 801.2	Management and Entrepreneurship	2
FAD 836.2	Printmaking/Photography/Advertising	3
FAD 837.2	Advanced Graphics Studio Design II	3
FAD 843.2	Graduate Seminar	3
FAD 844.2	Graduate Design Exhibition	6
FAD 845.2	Thesis Orals & Defence	6
Total Credit Units		46

COURSE DESCRIPTION FOR MA GRAPHIC DESIGN & COMMUNICATION

FAD 833.1: Theory/History of Graphic Design

A history of the development of graphic design from the beginning of present, highlight epochs. Major

themes that confront graphic design processes will be examine

FAD 834.1: Advanced Graphic Studio Design I

This is a hand-on focuses on the symbolic aspects of design, using semiotics, visual rhetoric and other communication models. Emphasis is on developing a strong formal foundation and general conceptual skills. Exercise are designed to home students’ skill at controlling meaning through the use of words, images, graphic elements, motion, behaviour, etc.

Additionally, this course aims at developing the students critical and visual vocabularies and evaluating aspects of form, audience interaction, social concerns, personal voice, function, and professional convention and structures. Broad issues such as colour, typography, illustration, photography/film sequence, composition, technical skills and production technology are addressed through studio assignments, workshops and seminars.

FAD 835.1: Advanced Digital Art and Design

This course is an introduction to computational forms and the constraint of practice in the entrance of digital culture in art and design. The goal is to look closely at the unique formal characteristics of a computational medium, and through a series of explorations, to invent and extend a formal vocabulary. Class time is spent looking at examples of digital work, talking about computational form and interactive design concepts, discussing related readings, and reviewing assignments and the inherent problems of translation from one medium to another as both a constraint and a source of inspiration.

FAD 836.2: Printmaking/Photography Advertising

The course is advancement on the exploration into printmaking mediums but limits the graduate student to three techniques where competence will be demonstrated in bi-weekly presentation of works in the course and group critiques. It is also an investigation into the process of photographic reproduction and practices like the silver and non-printing devices like platinum, palladium, computer and kali, type process. Finally, it focuses on experimental conceptual thinking through design making and the critical context that surrounds design practice. Students will be encouraged to tackle imaginative problem defining and solving with a focus on experimentation, research, working methodologies, and ideation. In addition, they will be required to define the criteria by which they evaluate design within their visual ecology by analyzing existing work and making a reasoned original work in response.

FAD 837.2: Advanced Graphics Studio Design II

Continuation of FAD 634.1 but with emphasis on more complex design forms

MA Textiles & Fashion Design

Year 1 (Semester I)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 800.1	Research Methodology	3
SGS 801.1	ICT & Research methods	2
FAD 809.1	Theory/History of Industrial Design	3
FAD 838.1	Theory/History of Textiles & Fashion	3
FAD 839.1	Advanced Textile Studio Design I	3
FAD 835.1	Advanced Digital Art and Design (Elect. Course)	3

Year 1 (Semester II)

COURSE CODE	COURSE TITLE	Credit Unit
FAD 812.2	Critical Studies in Contemporary World Design	3
SGS 801.2	Management and Entrepreneurship	2
FAD 840.2	Fashion Drawing	3
FAD 841.2	Advanced Textile Studio Design II	3
FAD 842.2	Advanced Studio Workshop Management	3
FAD 843.2	Graduate Seminar	3
FAD 844.2	Graduate Design Exhibition	6
FAD 845.2	Thesis Orals & Defence	6
Total Credit Units		46

COURSE DESCRIPTION FOR MA TEXTILES AND FASHION DESIGN

FAD 838.1: Theory and History of Textiles & Fashion

The course examines the epic of industrial design in Europe starting from the 17th, 8th century industrial revolutionary year, its historical and cultural impact on Design theories and concepts in the modem world. Comparative relationship with Nigeria is essential. The evolution of the fibre act, textile design and practice over time should be examined through lectures, group discussion, critics, etc. The history of African textiles till date, the North Africa, East Africa, the West Coast of Africa and the Southern Africa and their use till date. The impact of industrial revolution and the development of local fabrics should be considered.

FAD 839.1: Advanced Textile Studio Design I

The course provides background to processes and production in fabrics decorations, application of design to textile materials and equipment for prints, fashion and woven fabrics and products emanating from research of different applications and processes of design would constitute seminar presentations in consultation with the course lecturer. Areas of focus shall include (a) woven and non-woven fabrics, (b) textile and fashion use, (c) textile and the environment, and (d) fabric structure and construction.

FAD 840.2: Fashion Drawing

The course will focus on sketch drawings and standardisation of designs for personal and industrial fabrics. Emphases shall be on clothing construction, standardising systems and sizes for body form, variance, designing for production and manufacturing clothes.

FAD 841.2: Advanced Textile Studio Design II

Continuation of studio design FAD 639.1, emphasis is on fabric structure and construction. It will focus on advanced techniques of designing fabrics for production, use and testing analysis, representation of weave on point paper showing drafting, pegging plans and colouring. Transferring design to fabric on the loom following design specifications. Exploration into weave combination to product a variety of fabrics including tapestry design will be encouraged.

FAD 842.2: Advanced Studio Workshop Management

The production and design of textiles tools and fashion accessories. The design and construction of simple tools like looms, local dyes, etc will be encouraged. The following area of fabric wears should be considered and explored (1) children’s wears, (2) men’s wears, (3) women’s wears, (4) sports wears, and (5) men and women’s underwears (lingerie).

FAD 843.2: Graduate Seminar

Topics for seminar will be channels through which students training in their chosen research field shall be presented. These should reflect main aspect of their dissertation.

FAD 844.2: Graduate Exhibition

Students shall mount selected works over the period of their studies for examination which shall from the graduate exhibition reflecting a theme of ideas.

FAD 845.2: Thesis Orals and Defence

As part of the requirements for graduation, a student is expected to produce a dissertation from a well-researched area of study which should have been earlier juried in a graduate seminar. The thesis must

conform to all requirements as spelt out in the school of graduate studies prospectus.

PhD PROGRAMME AND REQUIREMENTS/ DURATION OF PROGRAMME (PhD)

Ph.D. Full Time candidates will be required to spend 36months and a maximum of 60 months 3years to maximum of 5 years.

Part Time candidates are to spend 48 calendar months and a maximum of 84 calendar months4 years to maximum of 7 years

SPECIALIZATION OPTIONS

The Fine Arts & Design specialization options are clearly spelt out to include:

1. African Art History
2. Design History
3. Painting
4. Sculpture
5. Ceramics Design
6. Graphic Design and Communication
7. Textiles and Fashion Design

General Requirements and Pre-requisite Courses

1. Take All Courses Required as may be prescribed for entry into the programme in the first year if your Masters degree is from Other Institutions
2. Present Two (2) Graduate Seminars at Departmental Level in the first two years.
3. Present a seminar at the Faculty level and another at the Graduate School before final defence of the PhD thesis,
4. An Art and Design Exhibition to accompany the final defence.
5. The following shall be the main courses for the PhD programme without prejudice to other recommended courses.

COURSE CODE	COURSE TITLE	Credit Unit
FAD 900.1	Advanced Research Theory and Methods	3
FAD 901.1	World Art and Design Theorization (for Art and Design Historians)	3
FAD 902.1	Research Seminar I (At Department)	3
FAD 903.2	Advanced Studio Practice and Design	3
FAD 904.2	Research Seminar II (2nd Year)	3
FAD 905.2	Advanced Graduate Art Exhibition	9
FAD 906.2	Thesis Orals and Defence	9
Total Credit Units		33

COURSE DESCRIPTION

FAD 900.1 Advanced Research Theory and Methods

This course focuses on contemporary literary theory and critical analysis of the concept and nature of research, scientific processes in research, problem definition, variable identification, sources of research topics, theory construction and hypotheses formulation and testing; techniques and literature review; principles of design, instrumentation, data collection, techniques for data analysis and presentation of results. Students must be computer compliant with software techniques in education.

FAD 901.1: World Art and Design Theorization (for Art and Design Historians)

The aim of this course is to examine critically the extent of literary output since the outbreak of the industrial revolution that swept across Europe and the United States bringing to bear major influences in the understanding of world art and design including the African continent in the early 20th century, in politics, economy and art. Special topics as they relate to individual area of specialization should be examined and explored for discourses.

FAD 902.1: Research Seminar I (At Departmental Level)

A general seminar topic chosen to from area of study or a general topic in art and design that will contribute to new knowledge in the field.

FAD 903.2: Advanced Studio Practice and Design

This course is an advancement on the exploration and contextualization of the area of specialization or the field of the student's studio practice. The processes and production ultimately should form the final exhibition display of the student.

FAD 904.2: Research Seminar II (2nd Year)

This presentation should dwell on the student's main topic of his/her thesis and should hazard preliminary statements of research on his/her field of study leading to the thesis.

FAD 905.2: Advanced Graduate Art Exhibition

From the continuation of FAD 903.2 students should attempt to mount a comprehensive final art exhibition from works produced as course works and their independent researches as well as a clearly defined final works representing the thesis studio practice.

FAD 906.2: Thesis Orals and Defence

As a requirement for graduation, a student must compulsorily produce a final thesis that should conform to the standards spelt out in the School of Graduate Studies prospectus and should be defended successfully before a committee of both Internal and an External examiners.

ACADEMIC STAFF

SN	NAME OF STAFF	QUALIFICATION	DESIGNATION	AREA OF SPECIALIZATION
1	P. I. Cyril-Egware	BA (ABU), MFA (UNN), PhD UPH	Professor	Textiles and Fashion Design
2	J.T. Agberia	BA, Benin, MA, Ibadan, PhD, UPH,	Professor	Art and Art History, Design History, Ceramics Design, Museum and Heritage Studies, Art Curating, Iconography & Religious Symbolism
3	C.C. Chukueggu	BA, Ife, MA, Ibadan, PhD, UPH	Professor	Nigerian Art History and Textile Design
4	Prof. Frank Ugiomoh	BA (Benin), MA (Ibadan), MA, Ph.D (UPH)	Professor	Aesthetics/Criticism, Art History/Sculture
5	B.O.N. Nwanze	BA, Ife, PGDE, UPH, MFA, Benin, PhD Ibadan	Professor	Painting, Art History, Women's Art Studies
6	Prof. Antonia Okogwu	BA (UNN), MFA (ABU), PhD (Delsu)	Professor	Sculpture
7	N.O. Ubogu	BA, MFA, Benin, PhD, UPH	Professor	Painting and Theory of Art
8	Dr. E.E. Peters,	BA, UYO, MFA, PhD, UNN	Professor	Ceramic Design/Art Education
9	Dr. E. E. Inyang	BA, ABU, MFA, UYO, PhD, UPH	Snr. Lecturer	Graphic Design & Communication
10	Dr. J.J. Umoh	BA UYO, MFA UNN, PhD UPH	Snr. Lecturer	Ceramics Art
11	Dr. M. Ajiginni	HND Auchu, PGDE UPH, MFA, PhD Delsu	Snr. Lecturer	Textile Design
12	Dr. Francis Okoronkwo Ikechukwu	BA UPH, MFA UNN, PhD UPH	Lecturer 1	Painting

DEPARTMENT OF FOREIGN LANGUAGES & LITERATURES

POSTGRADUATE PROGRAMMES IN FRENCH

OUR VISION

To become one of the true Centres of Excellence in French Studies and by so doing help to create a world in which language shall no longer be a barrier to mutual intelligibility, world peace and global progress.

OUR MISSION

To train the bilingual manpower (Linguists, teachers, translators, interpreters, writers, etc) needed in the public and private sectors of our national economy and international relations across linguistic boundaries.

PHILOSOPHY

The philosophy of the PGD, M.A. and Ph.D. programmes in French Language/Linguistics, Literatures and Translation, in the Department of Foreign Languages and Literatures, is to train and develop scholars whose critical ability in the use of the French Language as a medium of communication, in both regular linguistic exchange and critical or scientific writing, would reassert human values. This ability would enable them to appreciate the complexity of human motivations and actions. This is against the backdrop of Nigeria's interaction in this era of globalization with Francophone societies and cultures in the ECOWAS region/Africa in particular and the world as whole. The products of the PGD, M.A. and Ph.D. programmes are therefore expected to acquire such linguistic, critical and analytic competences that would guaranty a higher degree of proficiency in the production/interpretation and analysis of French Language texts in a variety of discourse situations

AIM AND OBJECTIVES

The PGD, M.A and Ph.D. programmes in French shall provide students with higher linguistic, analytic and practical competences to meet the professional needs of teachers, translators and other categories of manpower. In view of Nigeria's strategic role in the ECOWAS subregion and given her neighbouring Francophone countries, products of these programmes would be expected to apply their knowledge not only for national development, but also for African and global advancement.

HIGHER DEGREES PROGRAMMES IN FRENCH

1. Admission Requirements

Subject to the general regulations of the School of Graduate Studies, University of Port Harcourt, the following regulations shall govern admission to the

Higher Degree Programmes in the Department of Foreign Languages and Literatures.

- i. All candidates must possess the minimum of five 0' Level Credit Passes which must include English Language.
- ii. Candidates for the Postgraduate Diploma must possess at least a Third Class (Single Honours) degree in French or a Second Class (Combined Honours) degree in French and any other subject (e.g. B.A. French/German, B.Ed. French or B.Sc. in any discipline obtained in a French speaking university, etc.)
- iii. Candidates for admission into the M.A. programmes must possess at least a Post Graduate Diploma (PGD) with a minimum average score of 60(B) or a CGPA of not less than 3.50 on a 5 point scale from the Department of Foreign Languages and Literatures, University of Port Harcourt, or a Second Class Honours Degree, Lower Division in French from the University of Port Harcourt or any other recognized University.
- iv. Candidates for admission into the Ph.D. Programmes in the Department of Foreign Languages and Literatures must possess, in addition to a good first degree in French, an M.A. in the relevant area from the University of Port Harcourt, or any other recognized University, with a minimum CGPA of 3.50 on a 5 point scale. They must also submit a proposed Plan of Research along with their application.
- v. All candidates shall be interviewed before final admission is granted.

2. Areas of Specialization

Candidates for the PGD, M.A. and Ph.D. programmes in the Department of Foreign Languages and Literatures may specialize in any of the following general areas:

- i. French Language/Linguistics
- ii. French Literature/Civilization
- iii. Francophone African Literature
- iv. Translation.

3. Duration of Programmes (See SGS Overstay Policy)

a) PGD

- i. Full-time POD programme would run for a minimum of two semesters of course work and a maximum of four semesters.
- ii. Part-time PGD programme would run for a minimum of three semesters of course work and a maximum of four semesters

B) M.A.

- i) Full-time M.A. (French Language/Linguistics, French Literature/Civilization and Francophone African Literature) programmes would run for a minimum of two semesters of course work and a maximum of four semesters.
- ii) Part-time M.A. (French Language/Linguistics, French Literature/Civilization and Francophone African Literature) programmes would run for a minimum of four semesters and a maximum of six semesters
- iii) Full-time M.A. Translation (French/English) programme would run for a minimum of three semesters of course of work and a maximum of four semesters.
- iv) Part-time M.A. Translation (French/English) programme would run for a minimum of four semesters of course work and a maximum of six semesters.

c) Ph.D.

- i) Full-time Ph.D programmes would run a minimum of six semesters and a maximum of ten semesters.
- ii) Part-time Ph.D programme would run for a minimum of eight semesters and a maximum of twelve semesters

4. Degrees to be offered

The following are the designations to be used for the Postgraduate Degree (PGD) and the degrees of Master of Arts (M.A.) and Doctor of Philosophy (Ph.D) in the various options listed below:

- i) PGD (French Language/Linguistics)
- ii) PGD (French Literature/Civilization)
- iii) POD (Francophone African Literature)
- iv) PGD Translation (French/English)
- v) M.A. (French Language/Linguistics)
- vi) M.A. (French Literature/Civilization)
- vii) M.A. (Francophone African Literature)
- viii) M.A. Translation (French/English)
- ix) Ph.D. (French Language/Linguistics)
- x) Ph.D. (French Literature/Civilization)
- xi) Ph.D. (Francophone African Literature)
- xii) Ph.D. Translation (French/English)

5. REQUIREMENTS FOR GRADUATION

A) Postgraduate Diploma Programme

i) Language Requirements

Candidates will be taught in French or English depending on the course but shall write their Research project or dissertation in French.

ii) Course Requirements

Every Postgraduate Diploma student shall register for 6 courses (18 credit units) in the first semester and four (12 credit units) in the second and pass them with a Grade of at least 50(C).

iii) Award of the Postgraduate Diploma (PGD)

To be awarded the PGD in any of the areas of specialization in the Department of Foreign Languages and Literatures, a candidate must have taken and passed the prescribed number of compulsory and required courses selected from the approved list and totaling 30 units as follows:

Core/Elective Courses	30 units
Dissertation	6 units
Total	36 units

In addition to the successful completion of the prescribed courses and presentation of the Graduate Seminar, candidates will be required to submit and defend their research project or dissertation of not less than 10,000 words, excluding notes, bibliography and appendices, in French before a Postgraduate Panel of Examiners.

b) Master of Arts (MA.)

(Language/Linguistics, Literatures/Civilization)

i) Language Requirements

Candidates will be taught in French or English depending on the course but shall write their dissertation or thesis in French.

ii) Course Requirements

All candidates have to register for a maximum of five courses per semester in the case of full-time students, and a minimum of 2 courses per semester in the case of part-time students, and pass them with a Grade of at least 50(C).

iii) Award of the M.A. Degree in French Language and Literature

To be awarded the M.A. degree in the areas of French Language! Linguistics, French Literature/Civilization and Francophone African Literature, a candidate must have taken and passed the prescribed number of compulsory and required

courses selected from the approved list and totaling 30 units as follows:

Core/Elective Courses	30 units
Dissertation	6 units
Total	36 units

In addition to the successful completion of the prescribed courses and presentation of the Graduate Seminar, candidates will be required to submit and defend in viva voce a thesis of not less than 20,000 words, excluding notes, bibliography and appendices, in French before a Postgraduate Panel of Examiners.

c) M.A. Translation (French/English)

i) Language Requirements

Candidates will be taught in French or English depending on the course but shall write their dissertation or thesis in French.

ii) Course Requirements

- a. Candidates must register for all core courses and one elective course per semester for the first two semesters.
- b. Candidates must audit ECO 334.2 International Economics, POL 522.2 International Law, MGT 601.1 Business Law and POL 520.1 Theories of International Relations as the basis for the terminological work in French for the following courses: FLL 833.2 Terminology of International Economics, FLL 834.2 Terminology of International Law, FLL 835.2 French Registers in Business Law and FLL 836.1 French in International Relations.
- c. Candidates are required to present a graduate seminar in their area of specialization before defending their thesis.

iii) Award of the M.A. Degree in Translation (French/English)

To be awarded the M.A. degree in the area of Translation (French/English), a candidate must have taken and passed the prescribed number of core and required courses selected from the approved list and totaling 31 units as follows:

Core/Elective Courses	31 units
Dissertation	6 units
Total	37 units

In addition to the successful completion of the prescribed courses and presentation of the Graduate Seminar, candidates will be required to submit and

defend in viva voce a thesis of not less than 20,000 words, excluding notes, bibliography and appendices, in French before a Postgraduate Panel of Examiners.

d) Ph.D. French (Language/Linguistics, Literatures/Civilization)

i) Language Requirements

Candidates will be taught in French or English depending on the course but shall write their dissertation or thesis in French.

ii) Course Requirements

In each semester, all candidates have to register for at least two courses and one doctoral seminar depending on their areas of specialization, and present one graduate seminar. Should their background turn out to be deficient in significant areas, they may take a maximum of two additional courses as prescribed by the Departmental Graduate Committee or the School of Graduate Studies.

iii) Award of the Ph.D. Degree in French

To be awarded the Ph.D. degree in French (Language! Linguistics, French Literature! Civilization, Francophone African Literature), a candidate must have taken and passed the prescribed number of required courses and seminars totaling a minimum of 18 credit units and a maximum of 22 credit units as follows:

Core/Elective Courses	22 units
Dissertation	9 units
Total	31 units

e) Ph.D. Translation (French/English)

i) Language Requirements

Candidates will be taught in French or English depending on the course but shall write their dissertation or thesis in French.

ii) Course Requirements

In each semester, all candidates have to register for at least two courses and one doctoral seminar depending on their areas of specialization, and present one graduate seminar. Should their background turn out to be deficient in significant areas, they may take a maximum of two additional courses as prescribed by the Departmental Graduate Committee or the School of Graduate Studies.

iii) Award of the Ph.D. Degree in Translation (French/English)

To be awarded the Ph.D. degree in Translation (French/English), a candidate must have taken and

passed the prescribed number of core and required courses and seminars totaling a minimum of 18 credit units and a maximum of 22 credit units as follows:

Core/Elective Courses	22 units
Dissertation	9 units
Total	31 units

Note 1: In addition to the successful completion of the prescribed courses and presentation of the Graduate Seminars, Ph.D. candidates shall submit and defend in viva voce a dissertation or thesis of not less than 60,000 words and not more than 100,000 words, excluding notes, bibliography and appendices, in French before a Postgraduate Panel of Examiners.

Note 2: In addition to the requirements above, Ph.D. candidates who did not offer CGS 802.1 ICT and Research Methods and CGS 801.2 Entrepreneurial Skills at the M.A. level, shall be required to register and pass them.

6. Examinations, Grading Procedure and Results

- i) For each course 60% is allotted to Examination and 40% to Continuous Assessment to make up the total score of 100%.
- ii) The minimum pass mark for all postgraduate (PGD, M.A., Ph.D.) courses shall be 50% (C).
- iii) Any student whose CGPA falls below 2.50 after the second semester is deemed to have failed out and shall withdraw from the programme.

Note: Scoring and grading of courses shall be as follows:

(i) Credit Units	(ii) % Score	(iii) Letter Grade	(iv) Grade Point	(v) Grade Point Average	(vi) Cum. Grade Point Average	(vii) Class of Degree
Vary according to contact hours assigned to each course per week per semester, and load carried by	70 – 100	A	5	Multiply (i) and (iv) and divide by total credit units	4.50 - 5.00	DISTINCTION
	60 - 69	B	4		3.45 - 4.49	CREDIT
	50 - 59	C	3		3.00 - 3.44	PASS
	Below 52	F	0		Below 3.00	FAIL

7. DETAILED STRUCTURE OF HIGHER DEGREE PROGRAMMES

a. PGD French Courses

(Language/Linguistics and Literature/Civilization)

First Semester

Course Code	Course Title	Credit Units
FLL 700.1	Advanced French Composition and Comprehension	3
FLL 701.1	French Grammar and Linguistics in Texts	3
FLL 702.1	Readings in French and Francophone Literatures	3
FLL 703.1	Research Methods and Computing	3
FLL 704.1	French and Francophone Civilization	3
FLL 705.1	Spoken French and techniques of oral communication	3
Total		18

Second Semester

Course Code	Course Title	Credit Units
FLL 706.2	Advanced French Composition and Comprehension II	3
FLL 707.2	French Grammar and Linguistics in Texts II	3
FLL 708.2	Introduction to Literary Theory	3
	OR	
FLL 709.2	Introduction to Linguistics	3
FLL 710.2	Seminar on Topics in Contemporary French	3
FLL 711.2	Research project	6
	Total	18

NB: Candidates with literature bias shall register for FLL 708.2: Introduction to Literary Theory. FLL 709.2 shall be taken by students with language bias.

b. PGD Translation Courses (French/English)

First Semester

Course Code	Course Title	Credit Units		Credit Units	
FLL 700.1	Advanced French Composition and Comprehension I	3	FLL 819.1	Syntax and Morphology of French	
FLL 701.1	French Grammar and Linguistics in Texts I	3	FLL 820.1	Lexicology, Semantics and Pragmatics	
FLL 703.1	Research Methods and Computing	3		(Elective) One course to be chosen	
FLL 712.1	Introduction to Translation, Theory and Practice I	3	FLL 821.1	Bilingualism and Multilingualism	
FLL 705.1	Spoken French and Techniques of Oral Communication I	3	FLL 822.1	Phonetics and Phonology	
FLL 713.1	Studies in Terminology	3	FLL 805.1	Translation	
	Total	18		Total	
				14	
Second Semester					
Course Code	Course Title	Credit Units	Course Code	Course Title	Credit Units
FLL 706.2	Advanced French Composition and Comprehension II	3	SGS 801.2	Mgt. & Entrepreneurship	2
EST 701.2	The Syntax of Modern English	3	FLL 823.2	Grammatical Systems of French	3
FLL 714.2	Introduction to Translation: Theory and Practice II	3	FLL 824.2	French for Specific Purposes	3
FLL 715.2	Introduction to Interpreting	3	FLL 825.2	Contrastive Linguistics Analysis	2
FLL 716.2	Seminar Topics in Linguistics and Translation	3	FLL 826.2	Applied Linguistics in French	3
FLL 717.2	Research Project	6	FLL 810.2	Seminar	3
	Total	21		Total	16
	Total Required	39		Total Core Courses and Electives for 1st and 2nd Semesters	30 units
				FLL M.A. Thesis	6 units
				811.2	
				Total Required	36 units

c. PGDF/PGDT DEGREE CLASSIFICATION

Score/100	Letter Grade	Grade Point	Cumulative Class of Point Average	Degree
70 and above	A	5.00	4.50 – 5.00	Distinction
60 – 69	B	4.00	3.45 – 4.49	Credit
50 – 59	C	3.00	3.00 – 3.44	Pass
0 – 49	F	0.00	0.00 – 0.99	Fail

d. M.A. French Language & Linguistics

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT & Research Method	2
FLL 818.1	Survey of General Linguistics	3

e. M.A. French Literature & Civilization

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT & Research Methods	2
FLL 801.1	Literary Theory and Criticism	3
FLL 812.1	French Fiction since 19 th century	3
FLL 813.1	French Drama from Classicism to Romanticism	3
	(Elective) One course to be chosen	
FLL 804.1	Issues in Comparative Literature	3
FLL 805.1	Translation	3
	Total	14

Second Semester

Course Code	Course Title	Credit Units	FLL 810.2	Seminar	3
SGS 802.2	Entrepreneurial Skills	2		Total	16
FLL 814.2	Major Movements in French Poetry in the 19 th and 20 th Centuries	3	Total Core Courses and Electives for 1st and 2nd Semesters		30 units
FLL 815.2	Modern French Theatre and Drama	3	FLL 811.2	M.A. Thesis	6 units
FLL 816.2	La Francophonie and Francophone Literature	2	Total Required		36 units
FLL 817.2	French Fiction of Revolt	3	g. M.A. Translation (French/English)		
FLL 810.2	Seminar	3	First Semester		
Total	Total	16	Course Code	Course Title	Credit Units
Total Core Courses and Electives for 1st and 2nd Semesters			SGS 801.1	ICT & Research Methods	2
FLL 811.2	M.A. Thesis	6 units	FLL 827.1	Advanced Theory and Methods of Translation I	2
Total Required	Total Required	36 units	FLL 828.1	Technical Translation I (Social/Technology) I	2
f. M.A. Francophone African Literature			FLL 829.1	Machine Translation	2
First Semester			(Elective) One course to be chosen		
Course Code	Course Title	Credit Units	FLL 820.1	Lexicology, Semantics and Pragmatics of French	2
SGS 801.1	ICT & Research Methods	2	FLL 821.1	Bilingualism and Multilingualism	2
FLL 801.1	Literary Theory and Criticism	3	Total		10
FLL 812.1	The Francophone African Novel in Colonial Times	3	Second Semester		
FLL 813.1	Francophone African Theatre and Drama	3	Course Code	Course Title	Credit Units
(Elective) One course to be chosen			SGS 801.2	Mgt.&Entrepreneurship	2
FLL 804.1	Issues in Comparative Literature	3	FLL 830.2	Major Movements in French Poetry in the 19 th and 20 th Centuries	3
FLL 805.1	Translation	3	FLL 831.2	Modern French Theatre and Drama	3
Total	Total	14	FLL 832.2	La Francophonie and Francophone Literature	2
Second Semester			FLL 833.2	French Fiction of Revolt	3
Course Code	Course Title	Credit Units	(Elective) One course to be chosen		
SGS 801.2	Mgt & Entrepreneursip	2	EST 431.2	Semantics of English	2
FLL 806.2	African Fiction of Disillusionment after Independence	3	FLL 827.2	Grammatical Systems of French	2
FLL 807.2	Francophone African Poetry	3	Total		12
FLL 808.2	Afro-American and Caribbean Literature in French	2	Third Semester		
FLL 809.2	Feminism and Francophone Female African Writers	3	Course Code	Course Title	Credit Units
			FLL 834.2	Terminology of International Law	2
			FLL 835.2	French Registers in Business Law	2
			FLL 836.2	French in International Relations	2

FLL 810.2	Seminar	2
Total		9
Total Core Courses and Electives for 1st, 2nd and 3rd Semesters		
FLL 811.1	Thesis	6 units
Total Required		37 units

SGS 801.2	Mgt.&Entrepreneurship	2
FLL 908.2	French Literature after Existentialism and the Absurd	3
FLL 904.2	African and Black World Literatures in French	3
FLL 905.2	Doctoral Seminar II	2
Total		16

h. Ph.D. French Language and Linguistics

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT & Research Methods	2
FLL 909.1	Contemporary Linguistics Theories of French	3
FLL 910.1	Discourse Analysis	3
FLL 902.1	Doctoral Seminar I	3
Total		14

Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Mgt&Entrepreneurship	2
FLL 911.2	Foreign Language Acquisition	3
FLL 912.2	Semantics	3
FLL 905.2	Doctoral Seminar II	2
Total		16
Total Core Courses and Electives for 1st and 2nd Semesters		
FLL 906.2	Ph.D Dissertation	9 units
Total Required		31 units

i. Ph.D. French Literature and Civilization

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT & Research Methods	2
FLL 907.1	What is Literature Today? Current Methods and Techniques of Critical Discourse in France	3
FLL 901.1	World Literatures in French (outside the Black World)	3
FLL 902.1	Doctoral Seminar I	3
Total		14

Second Semester

Course Code	Course Title	Credit Units
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Total Core Courses and Electives for 1st and 2nd Semesters

FLL 906.2	Ph.D Dissertation	9 units
Total Required		31 units

j. Ph.D. Francophone African Literature

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT & Research Methods	2
FLL 900.1	Current Methods and Techniques of Critical Discourse in Africa	3
FLL 901.1	World Literatures in French (outside Black World)	3
FLL 902.1	Doctoral Seminar I	3
Total		11

Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Mgt&Entrepreneurship	2
FLL 903.2	Francophone Literature in West Africa Since 2000	3
FLL 904.2	African and Black World Literatures in French	3
FLL 905.2	Doctoral Seminar II	3
Total		11

Total Core Courses and Electives for 1st and 2nd Semesters

FLL 906.2	Ph.D Dissertation	9 units
Total Required		31 units

k. Ph.D. Translation (French/English)

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT & Research Methods	2
FLL 913.1	Advanced Theories and Methods of Translation II	3
FLL 914.1	Technical Translation III	3
FLL 902.1	Doctoral Seminar I	3
Total		11

Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Mgt&Entrepreneurship	2
FLL 915.2	Literary Translation II	3
FLL 916.2	Comparative Morpho-Syntax (Contrastive Studies)	3
FLL 905.2	Doctoral Seminar II	3
	Total	11
Total Core Courses and Electives for 1st and 2nd Semesters		22 units
FLL 906.2	Ph.D Dissertation	9 units
Total Required		31 units

COURSE DESCRIPTION

PGD COURSES:

FLL 700.1: Advanced French Composition and Comprehension I

This course focuses on skills and techniques of written communication in French for different purposes (Telling a story, writing a report, letter writing, synopsis writing, descriptive and expository essays, commentaries, etc). The candidate shall also learn to distinguish between technical and non-technical texts (denotational, connotational/pragmatic meanings) as well as general problems of register and style, punctuation, cogency and other minimum conditions of texts as “product” and as “production”.

FLL 701.1: French Grammar and Linguistics in Texts I

The mastery of French grammar and its manipulation in texts is the focus of this course. With the aid of varied texts in French, the candidate would be guided to an understanding of the inter-relationship between grammar and text-types. General notions in normative grammar/Linguistics and the concept of grammatical correctness shall be taught alongside general notions in Linguistics such as sign theory, textual adequacy, cogency (cohesion and coherence). Elements of grammatical analysis of texts shall also be taught.

FLL 702.1: Readings in French and Francophone Literatures

A selection of French and Francophone authors in the three genres (novel, play, poetry) by Africans and Foreigners of French expression shall form the corpus for this course. Emphasis here shall be on the “Explication de texte” approach i.e. considering

Literary productions as expressing social, cultural and political realities and as reflection of dominant Literary visions of the time and space of production.

FLL 703.1: Research Methods and Computing

This course teaches techniques of research with special emphasis on academic writing skills (research topic delimitation and outline) data search and appropriation, use of real and virtual libraries, use of bibliographical cards, computers and the internet. It emphasizes the knowledge of sources through bibliographical norms with a bias for the single/multiple author entries for articles, monographs, multiple editions) MLA style sheet. General problems of proposal writing, presentation/packaging of research work, edition, critical edition, annotations, footnoting etc as well as ethical problems of citations and plagiarism shall be studied.

FLL 704.1: French and Francophone Civilization

Since Language is also a reflection of and an expression of the humanity that speaks it, this course concentrates on contemporary French and Francophone societies and their cultures. Aspects to be studied include the Press, Religion, Social security, the Judiciary, ECOWAS, Francophony, French/Francophone educational system, Agriculture, Sports, Political systems, Family ties, National Service, Tourism and contemporary historical landmarks. Such institutions as the Alliance Française, L’Académie Française, and National/International figures that bestride the French/Francophone landscape, like Charles De Gaulle, Leopold Sedar Senghor, Ahmed Sékou Touré, Frantz Fanon, etc..., shall be singled out for study.

FLL 705.1: Spoken French and techniques of oral Communication

This course derives from the philosophical view that we are “logocentric” giving primacy to speech: “Speech is the image of thought; writing the image of speech”. Language is first spoken and the aim is to ensure, through sustained practice that candidates acquire the critical techniques of speaking (seminars, exposé, debates, drama etc).

FLL 706.2: Advanced French Composition and Comprehension II

This course is a continuation of FLL 700.1: Advanced French Composition and Comprehension I. At this level, greater emphasis should be on practical rather than theoretical work. Topics for composition and texts for reading and comprehension should include fields like sports and entertainment, Commerce and Industry, the

Judiciary and the Armed Forces, Science and Technology as well as Mass Media, Management Sciences, Education and Politics.

FLL 707.2: French Grammar and Linguistics in Texts II

This is a continuation of FLL 701.1: French Grammar in Texts I. There is a shift towards logical analysis and basic discourse analysis emphasizing understanding of the participants in a discourse activity and the relationship between text-intention and choice of grammatical forms. Exercises in commentary, adaptation, rewriting, summary, etc, in addition to exercises in Grammar in varied texts, notional and pragmatic French Grammar/ Linguistics.

FLL 708.2: Introduction to Literary Theory

This course stems from the assumption that Literature is a cultural product and is open to plural readings or interpretations. Different readings derive from different “ideas” on what Literature is, how it is constructed, why it is constructed. These ideas form the Kernel of “theories” of Literature. The candidate would therefore be exposed to traditionalist/modernist theories and “New” or Postmodernist ones. The course is panoramic in nature and would touch on “author-centred” and “reader-centred” as well as sociological, historical, Marxist, and the more recent structuralist, poststructuralist, post-colonialist strands under the general label “Postmodernism”.

FLL 709.2: Introduction to Linguistics

Linguistics is a critical discipline in language studies. Consequently, the candidate who enrolls for a course in language should be familiar with basic concepts in linguistics. This course covers general areas of descriptive linguistics (phonology, syntax and semantics) with special emphasis on sign theories, generative and transformational grammar, meaning relations at the word, sentence and text levels, including such other concepts as, implicature, cogency and basic problems of enunciation.

FLL 710.2: Seminar on Topics in Contemporary French

This is a seminar course and candidates will present seminars in French in their areas of interest in either Language, Linguistics, Literature or Culture and Civilization.

FLL 711.2: Research Project

Each candidate is required to present for defence a “Research Project” of not less than 10,000 words, in his/her area of interest (Language, Linguistics,

Literature, Culture and Civilization). The defence shall be administered viva voce by a panel of Examiners.

FLL 712.2: Introduction to Translation: Theory and Practice I

This course introduces translation studies essentially as practice. Through “induction” arising from translating varied texts, candidates would understand the theoretical assumptions implied in different definitions of translation. The first step would lead to “deductive” exposure to theories of translation and facilitate understanding of criteria for production/evaluation of quality translation.

FLL 713.2 Terminology Studies

This course defines terminology in Translation studies and the uses and limits of terminology studies. Terminology studies open the translator to a deeper understanding of words as “tools” in time and space of human communication by redefining terminology “as the way working people talk and write” rather than as an abstract list of words to memorize in isolation.

EST 701.1: The Syntax of Modern English

This course aims at giving graduates of English opportunity to consolidate their understanding of English Syntax through a study of various structural issues and grammatical models which propound them. The course assumes a good knowledge of general structural patterns in English.

FLL 714.2: Introduction to Translation: Theory and Practice II

This course is continuation of FLL 712.1: Introduction to Translation: Theory and Practice I. It would widen the scope of practice on varied texts and explore such problems as equivalence, text typology, translatability/ untranslatability and some compensatory strategies to improve on quality of translated texts.

FLL 715.2: Introduction to Interpreting

Interpreting would be taught as the “oral” version of translation (which is written). This includes signed, consecutive and simultaneous interpreting as well as problems of “time”, “text-difficulty”, defects in “rendition by speaker”, fidelity and listener-audience. Discussion would also dwell on distinctions between translation/interpreting, problems of terminology, grammar, etc.

FLL 716.2: Seminar Topics in Linguistics and Translation

This is a seminar course that insists on individual presentations by candidates. Topics would include semantics and translation, pragmatics and translation, quality evaluation in translation, translation and target-audience, cultural transposition in translation, terminological research, translator and the information technology, translation and ideology, fidelity, fidelity to Source Text (ST) or equivalence, stylistics and translation, grammar in Source-Text (ST) reader and Source-Text/Target Text (ST/TT) fidelity, ST-author and Translator, qualities of a good translator, the Revisor and the translation activity, text-typology and translation difficulties etc.

FLL 717.2 Research Project (a minimum of 10,000 words)

The candidate shall choose a practice-based topic in the areas of interpreting or translating implying any of the areas covered from terminology, grammar, Translation theories, linguistics and translation. Any topic chosen must be related to solving a translation or elucidating thorny practical problems through sustained enquiry and theorization. Defense of thesis shall be administered viva voce by a panel of examiners.

M.A. COURSES:

SGS 801.1	ICT & Research Methods
SGS 801.2	Mgt&Entrepreneurship
FLL 801.1	Literary Theory and Criticism

This course examines the diversities of critical issues and approaches at the basis of differing theories of literature and practices of criticism-biography, chronology, sources, influences and biography in relation to literature, the intersections of literature and other disciplines, etc. Literature's interactions with philosophy, psychology, sociology, ideology and the way literary theories are enriched by inter-disciplinary thrusts will be discussed.

The theory and practice of literary criticism as they have evolved in various parts of the world since Aristotle will be examined. Theories such as formalism, structuralism, post-structuralism, and Reader-response theory will be critiqued. More modern and contemporary criticism and theories that will be studied include semiotics, Deconstruction, post-modernism, gender theories, intertextuality, psycho-analysis and symbolism.

Students will study specific classical and modern critics of France as illustrations of the ideas introduced into literary theory and criticism.

FLL 802.1: The Francophone African Novel in Colonial Times

This course examines the emergence and phenomenon of the African novel during the colonial era. Representative works of fiction will be closely studied to highlight the *raison d'être* of African literature, the issue of commitment, and protest against oppressive colonial rule with its attendant loss of identity, alienation, conflict of civilizations, etc.

FLL 803.1: Francophone African Theatre and Drama

This course seeks to lay emphasis on the contributions of African drama to socio-political change, the epico-historical dimensions of the genre will be examined. Notable dramatists such as Bernard Dadié, Guillaume Oyono-Mbia, Charles Nokan, etc will be studied.

FLL 804.1: Issues in Comparative Literature

An introductory course to the general issues and problems of Comparative Literature; history and methods; evaluation, history of ideas, style and taste, stylistics, psychoanalysis and archetypes, image studies, sociology of arts, genre theory, thematic and moral criticism, structuralism, etc. Using the theories of Vladimir Propp, the course will also deal with the dialectics of orality and literary discourse in some African texts.

FLL 805.1: Translation

This course will provide students with ample practice and skills in translating different types of texts ranging from literary to technical/scientific and pragmatic texts.

FLL 806.2: Post-Independence African Fiction: Feminism and Disillusionment

This course highlights the orientation of African fiction since independence in the 1960's. The butt of African criticism shifts from anti-colonialism (criticism of the aberrations of the colonial system) to the criticism of the failure of post-colonial structures. Works of representative male and female African writers will be used to exemplify the movement from hetero-criticism (criticism of the other) to auto-criticism (self-criticism).

FLL 807.2: Francophone African Poetry

The objective of this course is to analyse critically the fundamental themes and techniques of representative works of poetry from the Négritude beginnings to the present. Attention will be focused

on selected poems of L.S. Senghor, D. Diop, Tchicaya U'Tamsi and others.

FLL80S.2: Afro-American and Caribbean Literature in French

This course stresses significant issues such as African traditional culture in Francophone literature written in the New World and the influence of the New World on African writers. Specific Afro-American and Caribbean works will be studied to illustrate how issues like the

Negro-Renaissance and the search for identity can be related to contemporary developments in Africa. The contributions and impact of J. Zobel, E. Glissant, Jacques Roumain, J.S. Alexis, Aimé Césaire, Maryse Condé, etc, will be highlighted.

FLL 809.2: Feminism and Francophone Female African Writers

This course discusses feminist/womanist theories from their origins, stressing their aims and achievements in relation to women's experiences delineated in literary works. The theoretical discussion will be buttressed with examples from detailed studies of some representative Francophone Female African writers.

FLL 810.2: Seminar

Graduate students are required to present a seminar in their field of specialization.

FLL 811.2: Thesis

In addition to the successful completion of the graduate courses and seminar, graduate students will be expected to write a supervised thesis in French. The oral examination will be conducted by a panel of examiners.

FLL 812.1: French Fiction since the 19th Century

This course embraces a careful study of the themes and techniques, as well as the philosophical thoughts that inform the body of French fiction, ranging from Romanticism, Realism and Naturalism in the 19th century, to the distinctive features, styles and dominant preoccupations that underpin French fiction in the 20th century.

FLL 813.1: French Drama from Classicism to Romanticism

This course lays emphasis on the ideas and literary theories that inform French drama in the 17th and 18th centuries, and the radical departures and innovations of 19th century dramatists. The works of some major dramatists such as Racine, Corneille, Moliere, Moliere, Moliere, Beaumarchais, V. Hugo,

Musset, Vigny and Lamartine will be given close attention.

FLL 814.2: Major Movements in French Poetry in the 19th and 20th Centuries

This course traces and analyses the sensibilities and techniques that inform French Poetry from Romanticism, the Parnasse to Symbolism and Surrealism. Representative authors will be studied to highlight the originality and flavour of each poetic current.

FLL 815.2: Modern French Theatre and Drama

This course examines the development of French theatre and drama before and after the Absurd. Selected works of Anouilh, Montherlant, Mauriac, Claudel, Giraudoux, Camus, Sartre, Beckett, Adamov and Ionesco will be carefully studied to identify the ideas, the metaphysical agony, existentialism and the Absurd philosophy that underpin them.

Emphasis will be laid on how the disconcerting perspectives and structures of antitheatre and avant-garde theatre attempt to mirror the problematics of human nature/condition.

FLL 816.2: La Francophonie and Francophone Literature

A study of the Francophonie movement and its impact on the development of Literature in the Francophone world. The course will examine the geo-strategic importance of La Francophonie both as a tool of France's post-imperial self-assertion and as a vehicle of a specific francophone post-coloniality.

FLL817.2: French Fiction of Revolt

This course focuses on modern literature of revolt in France. The works of Sartre and Camus, among others, will be carefully studied to highlight the philosophical ideas that underline their literary universe. The literary expression of the sentiment of revolt will be defined through a careful analysis of characters, themes, styles and techniques.

FLL 818.1: Survey of General Linguistics

This course will x-ray the principles of Linguistics with a view to highlighting the essential attributes of human language and Linguistics as a science of language: sign theory, types of Linguistics (diachrony and synchrony), main levels of linguistics-phonetics, phonology, morphology, semantics, syntax, lexicology, language and society.

FLL 819.1: Syntax and Morphology of French

This course will deal with a comprehensive study of French morphological and syntactic patterns. Attention will be paid to word formation and basic sentence structures and their relationships.

FLL 820.1: Lexicology, Semantics and Pragmatics

This course will focus on the Theories involving lexicology, semantics and pragmatics based on the various problems of French lexis: origin, development, functions and usage with particular reference to areas in pragmatics such as factors governing speaker's choice of language in communication, speech act theory: implicitness, deictic categories, context and communicative competence and rhetorical devices.

FLL 821.1: Bilingualism and Multilingualism

This course will examine bilingualism and multilingualism from the point of view of languages in contact as a feature of colonial heritage and multi-ethnic societies and their implications for language learning (Foreign and indigenous), language planning and national development and unity.

FLL 822.1: Phonetics and Phonology

This course will undertake a more in-depth study of French phonetics and phonology. It will include the identification and description of French speech sounds and their various prosodic features (syllabisation, accents, accentuation, intonation, rhythm) and principles of phonemic analysis as well as contrastive study of phonemic features of French and other languages such as English and any Nigerian Language.

FLL 823.2: Grammatical Systems of French

Lectures will focus on syntactical and morphological relations (predication, modification, coordination, complementation), argumentation, distribution, word classes and order, simple and complex sentences, constituent structural analysis: immediate constituent structural analysis: immediate constituent analysis, finite grammar, phrase structural and transformational generative grammar.

FLL 824.2: French for Specific Purposes

The aim of this course shall be to equip the student with the principles and techniques of the study of the language usage of certain specialized domains of human endeavour and professional disciplines such as aviation, business, tourism, etc. It will involve each student in a practical study in a domain or discipline of his/her choice.

FLL 825.2: Contrastive Linguistics Analysis

This course introduces students to the fundamentals and methodology of contrastive linguistic analysis. It will also prepare them for possible contrastive analysis of any aspect of the grammatical structure of French and that of any other language/languages taught in the Faculty of Humanities, (specifically English).

FLL 826.2: Applied Linguistics in French

This course will apply the findings of General Linguistics and other related disciplines (such as bilingualism and multilingualism) to the teaching of Foreign Languages (with particular reference to French). It seeks to train students to prepare, evaluate and adapt foreign language teaching methods and materials to specific needs such as language planning and development, communication disorders, lexicography, error analyses, etc.

PLL 827.1: Advanced Theory and Methods of Translation I

It will focus on the theoretical problems of translation applied to texts in various disciplines: politics, business, reports, administration, etc. It will equip students with the means of solving such problems to arrive at an acceptable translation in the target language.

FLL 828.1: Technical Translation (Science & Technology) I

The practical orientation of this course will be towards giving students thorough and exhaustive exercises in translation of texts chosen from specialized modern technical fields such as cybernetics, space technology, military technology, etc.

FLL 829.1: Machine Translation

This course introduces students to machine translation and translation memory, which are technologies revolutionizing the manner in which target-language text and speech are delivered. With the knowledge of these technologies, students will be able to translate volumes of text within a relatively shorter time. It will further enable students to better evaluate the benefits of these technologies within their career field.

EST 431.2: Semantics of English

Study of the meaning of English with particular emphasis on denotative and connotative meanings, lexical and grammatical meanings, synonymy and antonym, ambiguity and paraphrase, contrasts and contradiction, implication in discourse, metaphor

and irony, discussion of the relation between syntax and semantics as exemplified by selectional reconstructions.

FLL 830.2: Literary Translation: Theory and Practice I

This course will focus attention on the metalinguistic problems involved in the translation of literary texts, (e.g. knowledge of the culture and society involved, cultural differences between the writer and his translator). It will also deal with the linguistic aspect of literary translation (style, vocabulary, syntax).

FLL 831.2: Technical Translation (Economics) II

This course, built on the general skills acquired in Technical Translation in FLL 828.1, deals with the translation of documents issued by national and international bodies; fields covered will include health, technology, foreign affairs, economics, commerce and law. Special attention will be paid to the stylistic peculiarities of various technical documents; letters, speeches, minutes of meetings, reports and others.

FLL 832.2: Conference Interpreting

This course introduces students to conference interpreting, sight translation and consecutive interpreting. It lays a foundation for the development of professional skills in interpreting, emphasizing the ability to understand and analyze a message in the source language and convey it in the target language clearly. More emphasis is placed on active listening and concentration skills, memory, the ability to abstract information for subsequent recall and basic elements of note-taking.

FLL 833.2: Terminology of International Economics

This course provides students a practical knowledge of the terminology of international economics in French based on the knowledge acquired in ECO 334.2 International Economics which every student must audit. This course deals with the following: World economy and its structure in developed and less developed countries, the evolution of the theory of international trade, the role of multinationals, international trade and finance, balance of payments, protectionism and regional integration.

FLL 834.2 Terminology of International Law

This course provides students a practical knowledge of the terminology of international law in French based on the knowledge acquired in POL 522.2 International Law which every student must audit. This course focuses on the role of international law

in the regulation of economic, financial, technological and political relations between states as well as international laws governing CATT, the Seas, IMF, Expropriation, Investment Guarantee, Litigations, etc.

FLL 835.2: French Registers in Business Law

The aim of this course is to provide students with a basic knowledge of French registers in Business Law based on the knowledge acquired in MGT 601. 1 Business Law which every student must audit. This course deals with the following:

- Law of Contract

Introduction, formation of a contract, contractual terms, forms of contract, capacity of contract, vitiating elements of contract, contractual remedies.

- Law of Agency

Formation of relationships between principal and agent and their parties termination of agency.

- Negotiable Instruments

Nature and requisites of negotiability. Bills of exchange=parties to the bill, the drawer, acceptor, the bearer, the holder and the holder in the due course. Promissory notes, cheques and bills of lading, etc.

- Sales of Goods

Nature of contract, rights and obligations of sellers and purchasers, other aspects of contract. Hire Purchase transactions.

- Insurance

Nature of life, Marine and Fire Insurance, accidents and loss of profits insurance.

FLL 836.1: French in International Relations

This course provides students with a practical knowledge of the terminology of International Relations in French based on the knowledge acquired in **POL 520.1 Theories of International Relations** which every student must audit. This course offers a critical analysis and appraisal of analytical models for explaining the distribution of power, interaction among states, national interest and instruments of Foreign Policy.

Ph.D COURSES:

FLL 900.1 Current Methods and Techniques of Critical Discourse in Africa

The course focuses on contemporary literary theory and techniques of critical analysis ranging from Post-structuralism, Deconstructivism, Feminist theory, to post- colonial theories. Emphasis will be placed on the domestication of these discourses in

Africa through such critical trends as Afro-politanism, post-Africanism, African feminism etc.

FLL 901.1 World Literatures in French (Outside the Black World)

This course aims at a general survey of literature as a global/universal phenomenon; its manifestations and development in different French speaking regions outside the Black World, as well as the themes and the main features that characterize each region will be defined through a close study of some major writers in Québec (Canada), the Maghreb, etc.

FLL 902.1 Doctoral Seminar I

Doctoral students must present a seminar which will involve a close examination of aspects of their particular areas of specialisation, with the aim of discussing issues of crucial interest to researchers.

FLL 903.1 Francophone Literature in West Africa Since 2000

One of the main objectives of this course is to critically evaluate to what extent the literary output since 2000 articulates the pulse of contemporary West African society. The exploration of new horizons, as well as thematic structures and innovative techniques will be carefully examined.

FLL 904.2 African and Black World Literatures in French

Here special emphasis will be laid on selected literary masterpieces from Africa and the Black World.

FLL 905.2 Doctoral Seminar II

Doctoral students must present a seminar based on their fields of research; the seminar should highlight and discuss some of the main issues that will feature in the dissertation.

FLL 906.2 PhD Dissertation

After a successful completion of the graduate courses and the seminars, PhD candidates will be expected to write and defend an original dissertation in French in consultation with a supervisor. The oral examination will be conducted by a panel of examiners.

FLL 907.2 What is Literature? Current Methods and Techniques of Critical Discourse in France

This course aims at succinctly analyzing the evolution of French Literature, and at highlighting the new perspectives. Currents of Literary criticism ranging from Marxism to Structuralism, Semiotics, Deconstruction, etc, will be discussed in some detail.

FLL 908.2 French Literature after Existentialism and the Absurd

Selected works from some major authors will be studied to show to what extent their invention of new themes and techniques represents a departure from Existentialism and the Absurd. A careful selection can be made from the works of the following authors: Louis Ferdinand Céline, Raymond Queneau, Henri Michaux, Georges Bataille, Paul Valery, Francis Ponge, Paul Eluard, Jean Grosjean, André Frénaud, Jacques Roubaud, Robbe Grillet, Michel Butor, Nathalie Sarraute, etc.

FLL 909.1 Contemporary Linguistic Theories of French

This course will examine the major linguistic theories/schools of thought- Saussureanism, structuralism, distributionalism, chomskyan transformational-generative grammar, case grammar and speech acts theories, with a view to familiarizing students with their general characteristics, techniques, strengths/weaknesses and applications to the study of French.

FLL 910.1 Discourse Analysis

This course will survey the principles of discourse analysis of language use in communication taking into consideration speech acts, rules governing oral and written communicative/ discursive interactions and competence. Discourse strategies shall be considered in relation to semantic and pragmatic application.

FLL 911.2 Foreign Language Acquisition

This course will deal with theoretical and practical issues associated with the teaching and learning (or pedagogy) of second and foreign languages: Theories of language learning and acquisition, role of first/mother language in foreign language learning; socio-cultural and cognitive variables at play, interferences and error analysis and evolution of methods of foreign language teaching and learning.

FLL 912.2 Semantics

This course will deal with the various theoretical approaches to the study of meaning in French: interaction between semantics, contexts and syntactical components as well as denotative and connotative meanings, synonyms, antonyms, contrasts and contradictions and use of figures of speech such as metaphor, irony, metonymy, etc.

FLL 913.1 Advanced Theory and Methods of Translation II

This course is the continuation of FLL 827.1. It will expose students to more complex problems of translation posed by texts from domains such as politics, correspondences, certificates, reports of

various types, etc. This course will also provide students with the theoretical and practical skills of documentary research, the efficient use of reference materials and expose them to more difficult vocabulary and expressions.

FLL 914.1 Technical Translation III

This course deals with the translation of specialized texts and more complex problems they pose. Fields to be covered by this course include health, power generation, water resources, technology, commerce, mineral extraction, aviation, agriculture, etc. Special attention will be paid to the characteristics and terminology of these texts. Practical translation exercises in class will highlight these peculiarities.

FLL 915.2 Literary Translation II

This course which is a continuation of FLL 832.2, focuses on the extra-linguistic determinations in the translation of literary texts (cultural transposition, literary norms, stylistic dominants (obsessions/word systems), idiotisms, etc.). It also deals with the problematic of translatability/ untranslatability with regard to literary texts (poetry, prose and drama) and the linguistic/ stylistic aspects of literary translation.

FLL 916.2 Comparative Morpho-Syntax (contrastive studies)

This will provide students with the fundamentals of contrastive linguistic analysis. It will also prepare them for possible contrastive analysis of any aspect of the grammatical structure of French and that of English or any other language. It is also aimed at making the students know the peculiarities of their working languages.

ACADEMIC STAFF

S/N	NAME	SEX	DESIGNATION	AREA OF SPECIALIZATION	QUALIFICATIONS
1	PROF. D. P. EKPO	M	Professor	French Thought, Literary Criticism, Francophone & Comparative Literature	B.A. (Calabar), M.A., PhD Bordeaux (France)
2	PROF. Dele ADEGBOKU	M	Professor	French Linguistics, Didactics & Translation	B.A/Ed., M.A. (Unilorin), DEA, PhD Besançon, (France)
3	PROF. Kalu WOSU	M	Professor	Francophone Literature/Oral Literature	B.A., M.A, PhD (Uniport)
4	Dr. Anthony NJOKU	M	Reader	Comparative Literature/ Francophone African Literature	B.A., M.A., PhD (Uniport)
5	Dr. Michael N. MOMBE	M	Senior Lecturer	French/Francophone Civilization, African Literature	B.A. (Nigeria), M.A. Uniport, PhD (Unical)
6	Dr. Dufua SHARP-AKOSUBO	M	Lecturer I	French Grammar & Literature, Translation Studies	B.A., M.A., PhD (Uniport)
7	*PROF. Ozo-Mekuri NDIMELE	M	Professor	Syntax, Semantic, English Grammar, Pragmatics, Human Communication & Stylistic, analysis	B.A., M.A., PhD (Uniport)
8	*PROF. M. A. NWALA	M	Professor	Syntax of English	B.A. (Unical), M.A. (UNN), PhD (Unical)
9	*PROF. Ikenna KAMALU	M	Professor	Discourse Analysis/ Pragmatics	B.A. (UPH), M.A. (ABU), PhD (Ibadan)
10	* Dr. B. H. Isaac	M	Senior Lecturer	Linguistics & Theory of Communication/ Morphology, Syntax, English Grammar. Applied Linguistics, Gokana	B.A., M.A., PhD (Uniport)
11	*Dr. E. N. OWELEKE	F	Senior Lecturer	Morphology, Semantics, Lexicography, Igbo	B.A. (Unical), PGDE, M.A., PhD (Uniport)
12	*Dr. Iboroma IBIENE	F	Lecturer I	Comparative Literature	B.A (Benin), M.A., PhD (UPH)
13	*Ngozi C. Nzenwa	F	Lecturer I	German/Translation Studies	B.A., M.A. (UNN),

* Lecturers teaching external courses

DEPARTMENT OF PHILOSOPHY

GRADUATE PROGRAMMES IN PHILOSOPHY

The M.A/Ph.D programme in Philosophy is designed to deepen the students' knowledge of philosophy and to develop a more critical, independent and creative approach to reality.

AIM AND OBJECTIVES:

The programme aims at:

- i) Equipping the students to rationally meet the challenges of life.
- ii) Empowering the students to play leadership roles in nation building.
- iii) Preparing students for research and university teaching.
- iv) Enabling students to be effective in policy decision making.
- v) Helping graduates develop problem solving capabilities through critical, innovative and creative approach to analyzing problems.
- vi) Communication competency, ability for logical analysis, social responsibility, gender sensitivity and conflict resolution.

ADMISSION REQUIREMENTS

a) M.A Programme

- 1) A candidate must possess the minimum of O' Level Credit Passes which must include English Language.
- 2) A candidates must possess a minimum of second class (lower division) in the Bachelor's degree in Philosophy from a recognized University.
- 3) Candidates shall be subjected to a selection process.

b) Ph.D Programme

A candidate must possess a good Master's degree in Philosophy from a recognized University, with a CGPA not below 3.5 on a five-point scale.

Candidates who did not make up to 3.5 on a 5.00 scale or 2.80 on a 4.00 scale will be required to register for the M.Phil/Ph.D programme. Such candidates must present two seminars and a research proposal for grading and must score a minimum CGPA of 3.5 before proceeding to the Ph.D, otherwise the M.Phil Degree should be awarded upon the submission of a thesis. The thesis would be examined following the procedure of a Ph.D thesis.

AREAS OF SPECIALIZATION (M.A & Ph.D)

The following are the areas in which candidates could specialize:

- (a) Metaphysics
- (b) Epistemology
- (c) Ethics
- (d) History of Philosophy
- (e) African Philosophy
- (f) Political Philosophy
- (g) Philosophy of Social Sciences
- (h) Logic and Methodology

COURSE STRUCTURES

MASTER OF ARTS (MA) PROGRAMME

a) 1ST SEMESTER: CORE/COMPULSORY COURSES

All candidates, irrespective of their areas of specialization must take the following core courses in their 1 Semester;

(a) First Semester

Course Code	Course Title	Credit Units
PHL 800.1	Research Methodology	3
PHL 801.1	21 st Century Epistemology	3
PHL 802.1	Theories of Ethics	3
PHL 803.1	Themes in the History of Philosophy	3
SGS 801.1	Entrepreneurship & Management	3
Total		15

(b) Second Semester

All candidates must take in the 2nd Semester;

Course Code	Course Title	Credit Units
PHL 804.2	2st Century Metaphysics	3

GRADUATE SEMINAR

All candidates must take in the 2nd Semester;

Course Code	Course Title	Credit Units
	(Any three courses of 3 credits each from the area of specialization)	9
SGS 801.2	ICT & Research Methods	3
Total		15

c) Areas of Specialization and Courses

Metaphysics			Course Code	Course Title	Credit Units
PHL 805.2	Greek Metaphysics	3	PHL 827.2	African Metaphysics	3
PHL 806.2	Medieval Metaphysics	3	PHL 828.2	African Epistemology	3
PHL 807.2	Modern Metaphysics	3	PHL 829.2	African Ethics	3
PHL 808.2	Philosophy of Religion	3	PHL 830.2	African Socio-political Philosophy	3
PHL 809.2	Philosophy of Mind	3	PHL 831.2	Contemporary issues in African Philosophy	3
PHL 811.2	Philosophy of Language	3		Philosophy and Literature	3
	Total	18		Total	18

Epistemology		
Course Code	Course Title	Credit Units
PHL 812.2	Rationalist Epistemology	3
PHL 813.2	Empiricist Epistemology	3
PHL 814.2	Philosophy of Science	3
PHL 815.2	Philosophy of Education	3
PHL 816.2	Philosophy of the Social Sciences	3
PHL 817.2	Logic and Foundations of Mathematics	3
	Total	18

Ethics		
Course Code	Course Title	Credit Units
PHL 816.2	Contemporary Socio-Ethical Problems	3
PHL 817.2	Ethical Issues in Science and Technology	3
PHL 818.2	Contemporary Issues in Bio-Medical Ethics	3
PHL 819.2	Environmental Ethics	3
PHL 820.2	Aesthetic Theories	3
PHL 821.2	Professional Ethics	3
	Total	18

History of Philosophy		
Course Code	Course Title	Credit Units
PHL 822.2	Greek and Post-Aristotelian Philosophy	3
PHL 823.2	Medieval Philosophy	3
PHL 824.2	Modern Philosophy	3
PHL 825.2	Contemporary Philosophy	3
PHL 826.2	Philosophy of History	3
	Total	15

African Philosophy

Political Philosophy		
Course Code	Course Title	Credit Units
PHL 832.2	Greek Political Philosophy	3
PHL 833.2	Marxist Political Philosophy	3
PHL 834.2	Contemporary Political Philosophy	3
PHL 835.2	Philosophy of Law	3
PHL 836.2	Philosophy and Theories of Development	3
PHL 837.2	Philosophy and Public Policy	3
	Total	18
	Total Units (Course Work)	30
PHL 840.2	Dissertation	12
	Total Required	42

B. DOCTOR OF PHILOSOPHY (Ph.D) PROGRAMME

A candidate for the PhD degree is required to specialize in any of the aforementioned areas of specialization. The candidate is required to take 33 credit units in all including six (6) core courses and two (2) seminars of three units each and a Thesis of twelve units (12).

COMPULSORY COURSES/REQUIREMENTS FOR THE VARIOUS SPECIALIZATIONS

METAPHYSICS

1ST SEMESTER

Course Code	Course Title	Credit Units
PHL 900.1	Advanced Metaphysics	3
PHL 901.1	Special Author(s) in Metaphysics	3
PHL 902.1	Philosophy of Mind	3

PHL 903.1	Fundamental Problems of Metaphysics (Seminar)	3
Total		12

2ND SEMESTER

Course Code	Course Title	Credit Units
PHL 904.2	Contemporary Metaphysics	3
PHL 905.2	African Metaphysics	3
PHL 906.2	Mind-Body Problem (Seminar) or	3
PHL 907.2	Metaphysics and Science (Seminar)	3
Total		12
PHL 930.2	Thesis	12
Total Required		33

EPISTEMOLOGY

1ST SEMESTER

Course Code	Course Title	Credit Units
PHL 908.1	Advanced Epistemology (Core)	3
PHL 909.1	Special Author(s) in Epistemology (Core)	3
PHL 910.1	Normative and Naturalized Epistemology (Core)	3
PHL 911.1	Epistemology and Post-Modernism (Seminar)	3
Total		12

2ND SEMESTER

Course Code	Course Title	Credit Units
PHL 912.2	Analytic Epistemology (Core)	3
PHL 913.2	Foundationalism in Epistemology (Core)	3
PHL 914.2	Theories of Truth (Seminar) or	3
PHL 915.2	Epistemology and Artificial Intelligence (Seminar)	3
Total		12
PHL 930.2	Thesis	12
Total Required		33

ETHICS

1ST SEMESTER

Course Code	Course Title	Credit Units
PHL 916.1	Ethics and Society	3
PHL 917.1	Special Author(s) in Ethics	3

PHL 918.1	Foundations of Ethics	3
PHL 919.1	Selected Topics on Environmental Ethics (Seminar) or	3
PHL 930.1	Contemporary Issues in Bio-Medical Ethics (Seminar)	3
Total		12

2ND SEMESTER

Course Code	Course Title	Credit Units
PHL 921.2	The Nature of Value (Core)	3
PHL 922.2	Existential Ethics (Core)	3
PHL 923.2	Applied Ethics (Seminar)	3
Total		9
PHL 930.2	Thesis	12
Total Required		33

HISTORY OF PHILOSOPHY

1ST SEMESTER

Course Code	Course Title	Credit Units
PHL 924.1	Contemporary Analytic Philosophy (Core)	3
PHL 925.1	Selected Texts and Topics in the History of Philosophy (Core)	3
PHL 926.1	Classical Greek Philosophy (Core)	3
PHL 927.1	Kant & 19 th Century Philosophers (Seminar)	3
Total		12

2ND SEMESTER

Course Code	Course Title	Credit Units
PHL 928.2	Hellenistic & Scholastic Philosophy (Core)	3
PHL 929.2	Renaissance Interlude (Core)	3
PHL 930.2	Empiricism & Pragmatism (Seminar)	3
Total		9
PHL 930.2	Thesis	12
Total Required		33

AFRICAN PHILOSOPHY

1ST SEMESTER

Course Code	Course Title	Credit Units
PHL 931.1	Contemporary African Philosophy (Core)	3

PHL 932.1	Special Author(s) in African Philosophy (Core)	3	The core courses including Ph.D seminar (i and ii) 6 x 3 = 18 for each
PHL 933.1	African Socio-Political Philosophy (Core)	3	Total Required 27 units
PHL 934.1	Fundamental Issues in African Metaphysics (Seminar)	3	COURSE DESCRIPTION
	Total	12	PHL804.1 21st Century Metaphysics This course will focus on the study of epistemological systems, such as those of Heidegger, The Neo-Thomists, Neo-Idealists and Whitehead.
2ND SEMESTER			
Course Code	Course Title	Credit Units	
PHL 934.2	African Indigenous Value Systems (Core)	3	PHL 802.1 Theories of Ethics This course focuses on the various theories in ethics. This includes the ethical theories of Plato and Aristotle, the existentialist ethics of Heidegger, Sartre, Albert Camus, the utilitarian ethics of John Stuart Mill, the Emotivist ethics of A.J. Ayer and the intuitionist ethics of G.E. Moore and David Ross.
PHL 935.2	Epistemological Problems in African Philosophy (Core)	3	
PHL 930.2	Thesis	12	
	Total Required	30	
SOCIO-POLITICAL PHILOSOPHY			
1ST SEMESTER			
Course Code	Course Title	Credit Units	
PHL 910.1	Foundations of Political Theories	3	PHL803.1 Themes in History Philosophy Origin of the notion of philosophy as Divine Wisdom and its secularization changing ideal of philosophical knowledge, philosophical problems, old and new epochs in philosophy, personality role in the development of philosophy; and ideological functions of philosophy.
PHL 911.1	Special Author(s) in Political Philosophy Seminar I and II of three units each	3	PHL 805.2 Greek Metaphysics This course is a study of the metaphysics of ancient Greek philosophers such as Parmenides, Heraclitus, Anaxagoras, Pythagoras, Plato, Aristotle, the Stoics, and Plotinus.
	Two other Core Courses of three units each	6	
PHL 930.2	Thesis	12	PHL806.2 Medieval Metaphysics This course is a detailed study of the medieval philosophers such as John Scotus Erigena, St. Anseim of Ockham, Francis Suarez.
	Total	30	PHL807.2 Modern Metaphysics This course is a detailed study of the metaphysics of the continental rationalists such as Descartes, Leibniz, Spinoza, Kant's criticism of metaphysics and the German idealists will be studied.
Ph.D Seminars			
PHL 910.2	Applied Ethics	3	PHL812.2 Rationalist Epistemology This course is a critical study of the rationalist approach to the problem of knowledge. The epistemological claims of the rationalists will be critically examined.
PHL 911.2	Aesthetic Theories	3	PHL 813.2 Empiricist Epistemology This course is a critical study of the rationalist approach to the problem of knowledge. The
PHL 912.2	Environmental Ethics	3	
PHL 913.2	Bio-Medical Ethics	3	
PHL 914.2	Philosophy of Education	3	
PHL 915.2	Philosophy of Science and Technology	3	
PHL 916.2	Philosophy of the Social Sciences	3	
PHL 917.2	Philosophy of Literature	3	
PHL 918.2	Symbolic Logic	3	
PHL 919.2	Marxist Philosophy	3	
PHL 920.2	Comparative Philosophy	3	
PHL 921.2	Advanced Philosophy of Law	3	
PHL 922.2	Advanced Philosophy of Religion	3	
	Total	39	

epistemological claims of the empiricist will be critically examined.

PHL 816.2 Contemporary Ethical Problems

This course is a study of some of the controversial ethical problems such as the problem of freedom and determination, the universality and relatively of morals, euthanasia, abortion, moral principles and their application to concrete situations.

PHL 817.2 Ethical Issues in Science and Technology

This course focuses on the numerous ethical problems in science and technology like, in vitro fertilization, cloning, surrogate motherhood parenting, environmental issues, and advertising.

PHL 823.2 Medieval Philosophy

This course focuses on the development of philosophy in the Middle Ages and its link with both ancient and modern philosophy to be studied includes Boethius. St. Bonaventure. St. Thomas Aquinas, etc.

PHL 824.2 Modern Philosophy

This course focuses on the rise of modern philosophy. Rationalism and Empiricism will be studied through philosophers like Descartes. Leibniz, Spinoza, Locke, Berkeley and Hume.

PHL 827.2 African Metaphysics

This course is concerned with issues such as the ways and modalities of knowledge, the contents and source of knowledge, mind, body problem and

epistemological queries about the African theory of knowledge.

PHL830.2 Contemporary African Socio-Political Philosophy

This course is a study of the works of present-day African philosophers, and trends in contemporary African philosophy.

PHL 831.2 Contemporary Issues in African Philosophy

This course examines the various theories and definitions of African philosophy. What are the essential features that distinguish it from western or Eastern philosophies? What is the relation between philosophy and culture? Can there be a philosophy that is not culture-bound. Etc

PHL 832.2 Greek Political Philosophy

This course examines the political philosophy of ancient Greek philosophers, such as Plato, Aristotle, the Stoics etc.

PHL 833.2 Medieval Political Philosophy

This course examines the political philosophy of medieval philosophers. Such as St. Augustine, St. Thomas Aquinas, William of Ockham, Machiavelli St. Thomas Moore and Jean Bodin.

PHL 834.2 Marxist Political Philosophy

This course examines the political theory of Karl Marx and Lenin, the revolution, Dialectical materialism economic determinist ideology, class struggle, and capitalism.

ACADEMIC STAFF

S/N	Name of Academic Staff	Area of Specialization	Qualification	Rank
1	S. I. Udoideni	Ethics, Social and Political Philosophy, Philosophy and Literature, Ancient Philosophy	PhD, M.A., (Washington); B.A. (Ibadan), Dip (Germany); B.Phil (Rome)	Professor
2	V. D. B. Inoka	Social and Political Philosophy, Philosophy of Social Science, Logic	PhD (UPH), M.A, B.A. (Nsukka)	Professor
3	L.O. Akaruese	Social and Political Philosophy, African Philosophy, Philosophy of Human and Animal Rights, Marxist Philosophy	PhD (Nsukka), M.A, B.A.(Ife)	Professor
4	A.O. Efemini	Philosophy of Development, Logic, Social and Political Philosophy, Philosophy of Public Policy, Philosophy of Peace and Conflict Resolution	PhD (UPH), M.A (Nsukka), B. A. (Calabar)	Professor
5	F. I. Minimah	Metaphysics, Epistemology, Modern Philosophy, Ethics	PhD (UPH); M.A (Calabar), B.A. (UPH)	Senior Lecturer
6	B. S. Nnamdi	Philosophy of Law, Social and Political Philosophy, Ethics, Philosophy of Arts and Aesthetics	PhD, M.A, B.A. (Rome)	Senior Lecturer
7	T. V. Ogan	Philosophy of Development, Social and Political Philosophy, African Philosophy	PhD (UPH), M.A, B.A. (Calabar)	Senior Lecturer
8	A.O. Nbeta	Social and Political Philosophy, Metaphysics, Philosophy of Economics	PhD, MA., B.A.(UPH)	Senior Lecturer
9	I. U. Gwunireama	Social and Political Philosophy, Philosophy of Law	PhD, M.A (UPH), B.A. (Uyo)	Senior Lecturer
10	C. C. Emedolu	Philosophy of Science, Ancient Philosophy, Analytic Philosophy	PhD, M.A. (UPI-1), B. A. (Uyo)	Senior Lecturer
11	E. U. Ezedike	Ethics, Modern Philosophy, Comparative Philosophy, Philosophy of Education	PhD, M.A., B.A (Calabar)	Senior Lecturer
12	P. Z. Alawa	Contemporary Philosophy, Metaphysics, Philosophy of Religion Philosophy of Mind, Phenomenology and Existentialism	PhD, MA. (UPH), B.A. (Rome)	Senior Lecturer
13	E. G. Akpan	Logic, Philosophy of Social Science	PhD, M.A. (Calabar), B.A. (Uyo), B.Phil (Rome)	Senior Lecturer
14	J. C. Asike	Philosophy and Development Studies, Philosophy of Peace and Conflict Resolution	PhD, (Howard) M. A (Lagos), B.A, PGDE(UPH)	Senior Lecturer
15	N. C. Aja	Philosophy of Law	PhD, M.A, B.A(1st Class UPH)	Senior Lecturer
16	C. I. C. Ihejirika	Epistemology, Philosophy of Religion, African Philosophy, Philosophy of Education	PhD, M.A(UPH), B.A. (Calabar), PGDE (Kaduna), Dip. Theo & Rel. Stud. (Umuahia)	Senior Lecturer

DEPARTMENT OF THEATRE & FILM STUDIES

DIPLOMA PROGRAMME IN THEATRE & FILM STUDIES

PHILOSOPHY

This programme is designed to instruct new entrants in the performing arts, especially graduates from other disciplines who want to make a living in Theatre and Film Production or to update the knowledge of the graduates of the discipline who made Third Class and below. This programme is therefore designed to teach the students modern theories and practices that define the performing arts, and the media avenues through which they can practice their trade. The curriculum is designed to orient the students towards conceiving stage and media entertainments that will help to facilitate social, political and economic development of the Niger Delta region.

RATIONALE

The Post-Graduate Diploma in Theatre and Film Studies is designed to run for twelve (12) calendar months to enable students from related disciplines and those with Third Class transit to the MA programme.

AIM AND OBJECTIVES

The aim of this programme is to equip students for the media needs of the present century. Its specific objectives are:

- a) To provide a programme of studies that will facilitate teaching and research in theatre and media arts, focusing on skill acquisition of students in meeting the socio-economic demands of the modern era, nationally and internationally.
- b) To use theatre and the medium of radio, television and film in projecting the cultural aspirations of the Niger Delta region and the generality of the Nigerian nation.
- c) To train teachers in Theatre and Film Production for meeting the needs of aspiring young artists in the creative arts particularly in the secondary and tertiary levels of education in Nigeria.
- d) To arouse critical consciousness in students of Theatre and Theatre and Film Production through learning academic publications and distribution.
- e) To generate economic drive among students and scholars of Theatre and Theatre and Film Production through artistic and creative

productions in Theatre and Theatre and Film Production as commodities.

- f) To impart on students and associates intellectual and critical awareness through seminars and workshops and the imitation of projects as the case may be.

ADMISSION REQUIREMENTS

To qualify for admission into the Postgraduate Diploma programme, the candidate must obtain a first degree in the disciplines within the Humanities or a first degree from any discipline.

PROGRAMME DURATION

This is a one-year programme of two semesters.

AREAS OF SPECIALIZATION

1. Theory and Criticism
2. Performance Studies
3. Tourism and Cultural Administration
4. Theatre and Arts Administration
5. Theatre in Education
6. Theatre-for-Development
7. Screen and Playwriting
8. Film Production
9. Scenography and Lighting
10. Costume and Make-up Arts
11. Dance and Choreography
12. Radio and Television Production
13. Directing
14. Acting
15. Stadup Comedy

POST-GRADUATE (PGD) PROGRAMME STRUCTURE

FIRST SEMESTER

Course	Course title	Credit Unit
TFS 700.1	Research Methodology	3
TFS 701.1	Period Studies in Theatre and Film Production	3
TFS 702.1	Advanced Dramatic Theory and Criticism	3
TFS 703.1	Arts of the Theatre and Film Production	3
TFS 704.2	Directing I	3

TFS 705.1	Script Writing for Stage, Radio, Film and Television	2
TFS 706.1	Principles of Film and Television Production	3
TFS 707.1	Ethics of Theatre, Film Production and Society	3
Total Credit Units for Second Semester		24

SECOND SEMESTER

COURSE	COURSE TITLE	Credit Unit
TFS 707.2	Advanced Scenography & Lighting	3
TFS 708.2	Film Production Techniques	3
TFS 709.2	Theatre and Film Production Administration	3
TFS 710.2	Advanced Sociology and the Media	3
TFS 711.2	Advanced Theatre in Education	3
TFS 712.2	Directing II	2
TFS 713.2	Women in African Theatre	3
And		
TFS 714.2	Research Project	5
Total Credit Units for Second Semester		14
TOTAL CREDIT UNITS		38

COURSE DESCRIPTIONS

FIRST SEMESTER: PGD PROGRAMME

TFS 700.1: Research Methodology

This course will examine the principles that govern research methodology with emphasis on documentation, citations, paraphrasing, topic sentence, thesis statement and mechanical accuracy. Students will also be exposed to the basic notes that apply in the APA and MLA documentation style sheets.

TFS 701.1: Period Studies in Theatre and Film Production

The course will carry out an in-depth examination of the various theatrical trends, traditions and movements in theatre history. It will explore the similarities and dissimilarities between classicism and romanticism. Representational texts will serve as instructional materials.

TFS 702.1: Advanced Dramatic Theory and Criticism

The course will explore students to contemporary concepts, theories and approaches to dramatic criticism. It will examine such theories. As post modernism, post-structuralism, Marxism, feminism etc. selected texts will be used as samples.

TFS 703.1: Arts of the Theatre and Film Production

Students will be allowed to choose three sub courses out of the following

- (i) Playwriting/Screenwriting
- (ii) Acting
- (iii) Directing
- (iv) Costume Design and Makeup
- (v) Dance and Choreography
- (vi) Scenography and Lighting

Note:

There is always a coordinator in this course to collate questions, administer examinations and compute results of the examination.

TFS 704.1: Directing I

This course will afford students the opportunity to understand performance theories and principles of directing for stage and media. While the stage component will address such areas as stage orientations and stage geography, the media constituent will introduce students to such basic elements of production as camera, microphone, lights, sound and editing.

TFS 705.1: Script Writing for Stage, Film, Radio & Television

This course will expose students to the tenets and methods of script development for the stage, film, radio and television. It will examine how the raw idea and story line is transformed into patterned script or text. Students will be involved in the practical process of developing a forty-five-minute script for stage, television, radio or film.

TFS 706.1: Principles of Radio and Film Production

This course will expose students to contemporary approaches, methods and techniques of radio and film production. It will emphasize the difference between producing a film and television drama. The course will involve a practical component where students will produce either a thirty minutes radio drama or a forty-five-minute television drama.

TFS 707.1: Ethics in Theatre, Film Production and Society

This course introduces students to some Classical, Modern and Contemporary theories of ethics as they relate to the theatre and society. The study will take into cognizance how emerging trends in the theatre affect the cultural and moral values of societies. Attention will be focused on how a proper understanding and application of ethical themes can shape and enhance cultural and moral values of societies through the theatre.

SECOND SEMESTER: PGD PROGRAMME

TFS 707.2: Advanced Scenography & Lighting

This course will examine the concept, objectives and history of technical theatre. It will identify its components and their functions. The importance of design shall be discussed in relation to lighting, sound, costume, make-up and set which comprises such stage orientations as proscenium, arena, thrust, created and found spaces. From the aesthetic perspective, the course will treat scenic environment, the central image or metaphor of the design concept, the locale, period, tone and style whether realistic or non-realistic scenery. The place of colour in design shall be highlighted. The course will examine practical coordination particularly in the determination of the relationship between the collaborators in technical theatre.

TFS 708.2: Film Production Techniques

This course will expose students to the techniques of producing for the film medium. It will have both theory and practice that require students to produce either a short film or Radio programme.

TFS 709.2: Theatre and Film Administration

This course will expose students to the tenets of managing a live theatre outfit, radio and television houses and film production companies. The basic principles and approaches to management will be explored.

TFS 710.2: Advanced Sociology of Theatre and Film Production

In this course, students will be exposed to the healthy relationship that exists between drama and the society. It will examine the impact of theatrical products to the society. Representational play texts, radio dramas, video films and television dramas will serve as instructional materials.

TFS 711.2: Advanced Theatre in Education

The course will explore and discuss the rhetoric and dynamics of theatre as a veritable tool for education. It will emphasize the theatre as a vehicle for the enhancement of the psychological, cognitive and personality development of the child.

TFS 712.2: Directing II

In continuation of work started in the first semester, the course is designed as a comparative examination of the conventional and unconventional/experimental forms of directing in an attempt to underscore their points of convergence and variance. The focus will be on the concept, characteristics, types, directorial approaches and factors that influenced the rise of the unconventional/experimental theatre. Techniques of production for stage and media at the pre-production, production and post-production stages shall be examined. Each student would be required to produce a full-length stage play, radio drama or film (documentary or feature) as part of the course requirements.

TFS 713.2: Women in African Theatre

This course is designed to introduce students to the works of both male and female African playwrights. The main objective is to critically examine how women are portrayed in these plays right from the pre-colonial to modern times. Students will be required to critically study select plays by African playwrights.

TFS 714.2: Research Project

This course involves a documentation of students' research efforts in their areas of specialization. Students will be expected to submit four bound projects that must have been read, supervised and approved by the Department Board of Graduate Studies.

MASTER'S DEGREE PROGRAMME IN THEATRE & FILM STUDIES

INTRODUCTION

This programme is designed to ground the students in modern theories and practices that define the performing arts, and the stage and media avenues through which they can practice their trade. The curriculum is designed to orient the students towards conceiving stage and media entertainments that will help to facilitate social, political and cultural development of the Niger Delta region. The programme is designed to challenge the intellectual reasoning power of the students as young upcoming scholars in the discipline of performing arts. The orientation is towards independent reasoning, research conceptualization and general scholarship in the field. Through regular seminar presentations, production workshops and essay writing, the students are trained to be able to conceive and produce entertainments through several media

outlets and also undertake pedagogical duties in the discipline.

PHILOSOPHY

The philosophy of the Master's Degree programme in Theatre and Theatre and Film Production is to apply scholarship and research to the advancement of knowledge in Theatre practice and media management.

VISION

It is the express purpose and vision of the Department to produce a cadre of professionals in the practice of Theatre and Theatre and Film Production that are aware of the technological trends and their place in them. Indeed, this is with respect to the demands of a modern economy that is competitive as it is one of expertise.

JUSTIFICATION

This MA programme is for the up-dating and re-training of students to meet the needs of the labour market in the present age especially as it concerns Drama and Media. In other words, the need to integrate the use of electronic equipment such as camera chain, editing suit, microphones, adequate lighting gadgets and installations in screen and stage performances to meet the challenges of times is the bedrock of this new programme.

PROGRAMME DURATION

The MA Programme has been designed to run for twelve (12) calendar months at the end of which students are expected to write an MA thesis.

AREAS OF SPECIALIZATION

The following are the areas of specialization in this programme:

1. Theory and Criticism
2. Performance Studies
3. Tourism and Cultural Administration
4. Theatre and Arts Administration
5. Theatre in Education
6. Theatre-for-Development
7. Screen and Playwriting
8. Film Production
9. Scenography and Lighting
10. Costume and Make-up Arts
11. Dance and Choreography
12. Radio and Television Production
13. Directing
14. Acting

MA PROGRAMME COURSE STRUCTURE

FIRST SEMESTER

COURSE	COURSE TITLE	Credit Unit
SGS 801.1	ICT & Research Methods	2
TFS 800.1	Research Methodology	3
TFS 801.1	Advanced Theories in Theatre and Film Production	3
TFS 802.1	Advanced Dramatic Theory/Criticism	3
Any two of the following		
TFS 803.1	Theories of Costume & Makeup Arts	
TFS 804.1	Directing I	
TFS 805.1	Women in African Theatre I	3
TFS 806.1	Topics in Theatre in Education	
TFS 807.1	Feminist Theories I	
TFS 808.1	Gender and the Media I	
TFS 809.1	Acting for the Media	
TFS 810.1	Advanced Theory of Theatre and Film Production	3
TFS 811.1	Ethics, Theatre and Society	3
Total		20

SECOND SEMESTER

COURSE	COURSE TITLE	Credit Unit
SGS 801.2	Entrepreneurship & Management	2
TFS 811.2	Advanced Theatre and Film Production History	3
TFS 812.2	Film Production Techniques	3
Any two of the following		
TFS 813.2	Theories of Costume & Make Arts II	
TFS 814.2	Gender and the Media II	
TFS 815.2	Topics in Creative Dramatics	
TFS 816.2	Directing II	
TFS 817.2	Women in African Theatre II	3
TFS 818.2	Acting for the Media II	
TFS 819.2	Theatre and Media Administration	
TFS 820.2	Advanced Sociology of Theatre and Film Production	
TFS 821.2	Advanced Playwriting for Stage and Film Production	3

And

TFS 822.2	Graduate Seminar	3
TFS 823.2	Dissertation	6
	Total	23
	Grand Total	43

FIRST SEMESTER: MA PROGRAMME

SGS 801.1: ICT & Research Methods

Rightly one can say that technology presently is the soul of development. Learning by means of information and communication technologies is one area students of this programme will benefit more since they will be taught how to appreciate and use tools of digital technology creatively.

TFS 800.1: Research Methodology

Regulation governing the presentation of scholarly works and the Modern Language Association (MLA) and American Psychological Association (APA) will be reviewed in details. Students will be introduced to the various approaches to research and their techniques e.g. library, historical, sociology or aesthetic models will be studied and practical exercises undertaken. Those exercises will relate to the student's projects.

TFS 801.1: Theories of Theatre and Film Production

This course introduces the students to media theories especially as they relate to production codes and conventions. This will involve an appraisal of their application in selected media programmes. The course will also examine the use of these theories, codes and conventions in programme censorship.

TFS 802.1: Advanced Dramatic Theory and Criticism

The course will expose students to contemporary concepts, theories and approaches to dramatic criticism. It will examine such theories. As post modernism, post-structuralism, Marxism, feminism etc. selected texts will be used as samples.

TFS 803.1: Theories of Costume & Make Arts

The course is an intensification of the principles of costume design, production and application for stage and media production specifically. Students are also expected to appreciate the design and application of make up for period plays. The ability of students to appreciate the psychology of perception of color and the principles of application to productions is of interest.

TFS 804.1: Directing I

This course, largely introductory, will examine the concept, history and theories of directing. Composition, picturization, rhythm, movement and pantomimic dramatization, as fundamentals of directing, shall be analyzed. The media component of the course will introduce the students to such production elements as camera, microphone, lights and sound.

TFS 805.1: Women in African Theatre I

This course is designed to introduce students to the works of both male and female African playwrights. The main objective is to critically examine how women are portrayed in these plays right from the pre-colonial to modern times. Students will be required to critically study select plays by African playwrights.

TFS 806.1: Topics in Theatre in Education

This course examines Topics in History of Theatre in Education and trends in theory and practice in the discipline.

TFS 807.1: Feminist Theories I

The course explores information on contemporary feminist debate as articulated in Structuralism, Marxism and Socio-cultural studies, to mention a few. The primary objective is to analyze unequal conditions of male and female sexes in society. It provides an opportunity to critical issues such as sexuality, values and identity. The African context of feminist theory is equally discussed.

TFS 808.1: Gender and the Media I

The course will critically examine different presentations of masculinity and femininity in respect to gender mainstreaming, role expectations, expected code of conduct, language, dressing and sexuality in a dynamic socio-economic condition. The course will also explore the different avenues through which social change can be achieved.

TFS 809.1: Acting for the Media

The course will examine the history, importance and theories of acting. The theories of such authorities as Constantine Stanislavsky, Jerry Grotowski, Michael Chekhov and Bertolt Brecht shall form the basis for appreciating the principles and techniques employed in acting over the ages.

TFS 810.1: Advanced Theory of

This course will expose students to the history, theory and practice of the different areas of the media. It will also expose them to further studies in Media Production Techniques. It will involve

lessons on related areas like censorship and copyright.

TFS 811.1: Ethics, Theatre, Film and Society

This course introduces students to some Classical, Modern and Contemporary theories of ethics as they relate to the theatre and society. The study will take into cognizance how emerging trends in the theatre affect the cultural and moral values of societies. Attention will be focused on how a proper understanding and application of ethical themes can shape and enhance cultural and moral values of societies through the theatre.

SECOND SEMESTER: COURSE DESCRIPTIONS FOR THE MA PROGRAMME

SGS 801.2: Entrepreneurship & Management

Students offering this course will be guided in how to be innovative in generating ideas regarding film production themes, distribution and marketing strategies. The course will also ground them in the skills of film business and enterprise.

TFS 811.2: Advanced Theatre and Film Production History

This course encourages the study of the periods in Theatre and Film Production History with a view to determining trends, ideological departures, breakthroughs in theatre and film practice practice and theories from pre-historic to modern times. The course also examines the development of theatre practice in Nigeria with particular reference to Yoruba, Igbo, Hausa and ethnic groups.

TFS 812.2: Film Production Techniques

This course examines the production techniques employed at the different stages of a media production. It introduces the students to the rudiments of camera work as involved in programme production and news gathering. It involves a practical segment whereby the students put their knowledge of the techniques into work.

TFS 813.2: Theories of Costume & Make Arts II

This is the continuation of Theories of Costume & Make Arts I, is an intensification of the principles of costume design, production and application for stage and media production specifically.

TFS 814.2: Gender and the Media II

The course will continue the exploration of how the media construct images of both men and women. It will examine the existence and extent of gendered

patters in media presentations and the impact of these expressions.

TFS 815.2: Topics in Creative Dramatics

This course investigates theories and applications of theatre for clinical and therapeutic functions in medicine, psycho-social and communication disorders. Students shall be required to carry out experimental projects where the remarkable impacts of creative exercises foster the correction of various disorders.

TFS 816.2: Directing II

This course examines the art and techniques of directing for stage and media (radio, television and film). It will focus on textual analysis (including story development, genre, conflict, dialectics, plot structure, time, form and style), rehearsal techniques, casting, screen grammar, voice and sound effects training, radio skills which include microphone techniques, radio acting, radio directing (sign language), cue rehearsal, broadcast and listening. For television and film, the course will, among other things, examine developing a crew, *mise en scene*, types of shots, camera angles, directing the actors, calling the shots, continuity and editing.

TFS 817.2: Women in African Theatre II

This is the continuation of Women in African Theatre I, designed to introduce students to the works of both male and female African playwrights. The main objective is to critically examine how women are portrayed in these plays right from the pre-colonial to modern times. Students will be required to critically study select plays by African playwrights.

TFS 817.2: Acting for the Media II

In continuation of work begun in the first semester, this course will concentrate on script, analysis, characterization, stage geography, actor and audience relationship, team spirit, the imaginary world of the actor, naturalistic/realistic acting techniques, the training of the actor, physical movement, vocal delivery, improvisation, imagination and exercises (physical, mental and vocal). The involvement of students in practical productions is mandatory to demonstrate their understanding of the course.

TFS 816.2: Theatre and Film Administration

This course is to expose students to advance management and administration of media institution such as theatre houses, TV/radio stations, cinema etc. Emphasis is on how performing and traveling

theatres are managed. Marketing principles and publicity strategies are also explored.

TFS 817.2: Sociology of Theatre and Film Production

This course shall investigate the relationship between social organizations and drama as an art form. The approach shall be through an examination of the various theories of the sociology of literature such as Marxism, the English School, popular Arts, structuralism, Hermeneutics and mass communication. It shall look at work of drama as social documents from the points of view of the socio-economic basis of the actions of man as they are expressed in conflicts involving characters and their resolutions. This shall be done with reference to selected texts.

TFS 818.2: Playwriting for Stage and screen

This course involves rapid introduction to the fundamentals of playwriting. Students will be encouraged in this course to appreciate basic theories of communication as they concern playwriting. The theories include the logics and existence of dramatic text. Ferdinand de Saussure's distinction between Langue and Parole, Jacobson's six factors of a communication process, semiology and Charles S. Pierces semiotics. The course will examine the formal peculiarities of Print, Radio, Television and Film as media of communication. Students will be exposed to practical playwriting workshop situations for the development of play writing skills in the above-mentioned media of communication.

TFS 819.2: Graduate Seminar

Students will be expected to present before the departmental postgraduate committee seminars on relevant topics approved for them.

TFS 820.2: Dissertation

This course involves a documentation of students' research efforts in their areas of specialization. Students will be expected to submit four bound projects that must have been read, supervised and approved by the Department Board of Post Graduate Studies.

DOCTORATE PROGRAMME IN THEATRE & FILM STUDIES

INTRODUCTION

This programme is designed to ground students in modern theories and practices that define the performing arts, and the stage and media avenues through which they can practice their trade. The

curriculum is designed to orient the students towards conceiving stage and media entertainments that will help to facilitate social, political and cultural development of the Niger Delta region. The programme is equipped to challenge the intellectual reasoning power of the students as young upcoming scholars in the discipline of performing arts. The orientation is towards independent reasoning, research conceptualization and general scholarship in the field.

PHILOSOPHY

The philosophy of the Ph.D. Degree programme in Theatre and Theatre and Film Production is to apply scholarship and research to the advancement of knowledge in Theatre practice and media management.

VISION

It is the express purpose and vision of the Department to produce a cadre of professionals in the study of Theatre and Theatre and Film Production that are aware of the technological trends and their place in them. Indeed, this is with respect to the demands of a modern economy that is competitive as it is one of expertise.

MISSION

While not narrowly concerned with Theatre Arts per se, it is the mission of the programme to provide a broad-based platform for facilitating academic research and professional excellence in the theory and practice of the discipline of the theatre and media arts. Its major concern, which is to project the humanities in the Niger Delta beyond its immediate confines, is seen in the context of identifying with other cultures of the Nigerian nation.

RATIONALE AND JUSTIFICATION

This Ph.D. programme is for the up-dating and re-training of students to meet the needs of the labour market in the present age especially as it concerns Drama and Media. In other words, the need to integrate the use of electronic equipment such as camera chain, editing suit, microphones, adequate lighting gadgets and installations in screen and stage performances to meet the challenges of times is the bedrock of this new programme.

AIM AND OBJECTIVES

The aim of this programme is to equip students for the media needs of the present century. Its specific objectives are:

- a) To provide a programme of studies that will facilitate teaching and research in theatre and media arts, focusing on skill acquisition of

- students in meeting the socio-economic demands of the modern era, nationally and internationally.
- To use the stage and other media platforms in projecting the cultural aspirations of the Niger Delta region and the generality of the Nigerian nation.
 - To train teachers in Theatre and Theatre and Film Production for meeting the needs of aspiring young artists in the creative arts particularly in the secondary and tertiary levels of education in Nigeria.
 - To arouse critical consciousness in students of Theatre and Theatre and Film Production through learning, academic publications and distribution.
 - To generate economic drive among students and scholars of Theatre and Theatre and Film Production through artistic and creative productions in Theatre and Theatre and Film Production as commodities.
 - To impact students and associates with intellectual and critical awareness through teaching, seminars and workshops as the case may be.

ADMISSION REQUIREMENTS

To qualify for admission into the Ph.D. Programme, the candidate must obtain a first degree in Theatre and Film Studies. The following CGPA scale will be used in admitting candidates to the Ph.D. programme:

- Candidates with Master's Degree on 5pt scale – with a CGPA not below 4.00
- Candidates with Master's Degree on 4pt scale – with a CGPA not below 3.20
- Candidates based on percentage - with not less than 60%

PROGRAMME DURATION

The Ph.D. Programme will run for the following duration:

- Full Time: 2 – 5 years
Part Time: 3 – 7 years.

AREAS OF SPECIALIZATION

The following are the areas of specialization in this programme:

- Theory and Criticism
- Performance Studies
- Tourism and Cultural Administration
- Theatre and Arts Administration
- Theatre in Education

- Theatre-for-Development
- Screen and Playwriting
- Film Production
- Scenography and Lighting
- Costume and Make-up Arts
- Dance and Choreography
- Radio and Television Production
- Directing
- Acting

TABLE OF LIST OF COURSES, CODES AND CREDIT UNITS IN PROGRAMME STRUCTURE

FIRST SEMESTER

Course	Course Title	Credit Unit
TFS 900.1	Methodology and Techniques of Research in Theatre and Film Production	3
TFS 901.1	Topics in Dramatic Theory & Criticism	3
TFS 902.1	Contemporary Theatre and Film Theory & Criticism	3
Total Credit Units for First Semester		9

SECOND SEMESTER

Course	Course Title	Credit Unit
TFS 903.2	Theatre, Film Production & Development	3
TFS 904.2	Contemporary Issues in Theatre and Film in Education	3
TFS 905.2	PhD Seminar	3
TFS 906.2	PhD Dissertation	12
Total Credit Units for First Semester		21

In addition to these courses, students from outside the University of Port Harcourt will be required to undertake the following courses if they did not take them in their master's programme:

SECOND SEMESTER

Course	Course Title	Credit Unit
SGS 801.1	ICT & Research Methods	2
SGS 801.2	Entrepreneurship & Management	2

COURSE DESCRIPTION

FIRST SEMESTER: Ph.D. PROGRAMME

TFS 900.1: Methodology and Techniques of Research in Theatre and Film Production

This course is designed to provide thorough understanding of methodology and techniques of research in Theatre Arts. Attention shall be drawn to the emphasis on the APA documentation style sheet, by College of Graduate Studies.

TFS 901.1: Topics in Dramatic Theory and Criticism

This course draws detailed attention to various topics in New Criticism, Contemporary theory and criticism, as well as shades of post-modern studies as they affect the discipline of Theatre Arts.

TFS 902.1: Contemporary Theatre, Film Theory and Criticism

This course examines contemporary trends in Media Theory and Criticism, particularly as they affect post-modern research inclinations and global media practice. Studies shall be exposed to in depth case studies in local and global practice.

SECOND SEMESTER: Ph.D. PROGRAMME

TFS 903.2: Theatre and Development

This course affords students the opportunity of training in development studies and how the performing arts can contribute to societal wellbeing and welfare.

TFS 904.2: Contemporary Issues in Theatre and Film in Education

This course is designed to expose students to contemporary issues in Theatre in Education Theory and Research. It examines relevant theories and practice in the applications of theatre studies to various contemporary professional practices in various disciplines.

TFS 905.2: Ph.D. Seminar

This course is a continuation of TFS 902.1. It affords students the opportunity of further training in the selection of seminar topics, the format of seminar presentations as approved by the College of Graduate Studies, and the preferred mode of delivery of a seminar to an academic audience.

TFS 906.2: Ph.D. Dissertation

SGS 801.1: ICT & Research Methods

Rightly one can say that technology presently is the soul of development. Learning by means of information and communication technologies is one area students of this programme will benefit more since they will be taught how to appreciate and use tools of digital technology creatively.

SGS 802.2: Entrepreneurship & Management

Students offering this course will be guided in how to be innovative in generating ideas regarding film production themes, distribution and marketing strategies. The course will also ground them in the skills of film business and enterprise.

LIST OF ACADEMIC STAFF

S/N	Name of Staff	Rank	Qualifications	Area of Specialization
1	Prof. E.C. Emasealu	Professor	B.A, MA, Ph.D.	Theatre/Media (Directing, Theatre for Development/ Community Theatre, Technical Theatre).
2	Prof. I.C. Ohiri	Professor	B.A, MA, Ph.D.	Theatre & Media, TV Production, and Theatre Management.
3	Prof. J.N.E. Umukoro	Professor	B.A, MA, Ph.D.	Theatre & Media (Semiotics) Acting, Technical Theatre (Costume & Makeup).
4	Prof. I. C. Krama	Professor	B.A, Msc, Ph.D.	Theatre and Media (Sociology of Drama, African Theatre, Theatre-for-Development)
5	Prof. J. E. Yeseibo	Professor	B.A, MA, Ph.D.	Gender Studies, Dramatic Theory and Criticism)
6	Dr. B.A. Ejiofor	Reader	B.A, MA, Ph.D.	Theatre and Media (Dramatic Theory & Criticism/Playwriting, Dramatic Literature, Theatre-in-Education).
7	Dr. F. Ken-Aminikpo	Reader	B.A, MA, Ph.D.	Theatre in Education, Costume and Makeup.
8	Dr. E. E. Imo	Senior Lecturer	B. A, MA, Ph.D.	Theatre and Media (Dramatic Theory/ Criticism, Dramatic Literature).
9	Dr. S. Ikiroma-Owiye	Senior Lecturer	B.A, MA, Ph.D.	Theatre (African Traditional Theatre).
10	Dr. A. G. Boyle	Lecturer I	Ph.D.	Technical Theatre, Dance and Choreography.
11	Dr. S. Edum	Lecturer I	B.A, MA, PhD	Directing for Stage and Film
12	Dr. M. T. Gasper	Lecturer I	B.A, Ph.D.	Theatre and Media (Directing).
13	Dr. N. G. Chidi-Ukagu	Lecturer I	B.A, MA, PhD	Theatre and Media (Theatre in Education).
14	Dr. R.A. Anyanwu	Lecturer I	BA, M.A, PhD	Theatre Management.
15	Dr. P. E. Ofora	Lecturer I	BA, M.A, PhD	Technical Theatre
16	Dr. E. E. Azunwo	Lecturer I	B.A, MA, Ph.D.	Theatre Playwriting
	Dr. P. Agha	Lecturer I	B.A, M.A, PhD	Theatrical Design/Film Documentary.

DEPARTMENT OF RELIGIOUS AND CULTURAL STUDIES

GRADUATE PROGRAMME ADMISSION POLICIES AND GUIDELINES FOR GRADUATE COURSES (PGD, M. A. & PhD)

POST GRADUATE DIPLOMA (PGD) RELIGIOUS AND CULTURAL STUDIES

Objectives

In view of the dynamic nature of academics, the Department of Religious and Cultural Studies has passed various changes and modifications in her curriculum aimed at meeting the changing needs of the society. With the growing population of candidates seeking for admission into the Graduate Programme of this Department from other disciplines, it becomes imperative to incorporate Diploma Programme to allow more students to attempt our existing graduate programmes.

Aim and Objectives

In recent years, there have been a growing number of non-Religious Studies Graduate applying for our graduate programmes both at the M.A. and Ph.D. levels. Most of them have been denied admission due to their non-religious studies background. This programme (PGD) in Religious and Cultural Studies is therefore designed to provide non-graduates of Religious and Cultural Studies with the basic essentials of Religious and Cultural Studies within 12 calendar months. It is also designed graduates of Religious and Cultural Studies (RCS) who had less than 2.00 CGPA in their bachelor degree, which will prepare them for Masters Programme. The aim is not only to prepare them for a Masters' Arts degree in Religious and Cultural Studies, but also to equip them careers in which a working knowledge of religious and culture essential, especially now that a Religious Ministry and problems a marketable fields in Nigeria. Moreover, the graduates in Humanities Education, Social Sciences, Law, Management Sciences and Tourism will find the programme as a beneficial blend. Among the addition targeted professionals to benefit from this programme are all forms protocol and public relation officers in the public service, staff of Public Affairs and Community Relations, Departments in multinational companies, Ministry of Culture and International Affairs, Tourism Development, Inter-Cultural and Religious Affairs and development in Religious Ministries.

Certificate Classification

The Certificate classification is as follows:
Class

Average (CGPA)	Cumulative Grade Point
Distinction	4.70-7.00
Credit	4.00-4.49 Upper Credit
Merit	3.70-3.99 Lower Credit
Pass	3.00-3.49 Merit
Fail	0.00-2.99 Fail

Course Codes and Titles

1. RCS 700.1 Theories of Religion
2. RCS 701.1 Research Methodology
3. RCS 702.1 Fundamentals of African Indigenous Religion
4. RCS 703.1 Fundamentals of African Christianity
5. RCS 704.1 Fundamentals of Islam
6. RCS 705.2 Advanced Philosophy of Religion
7. RCS 706.2 Fundamentals of Biblical Studies
8. RCS 707.2 Ethical Teachings in Three Major African Religious Tradition
9. RCS 708.2 Issues in Sociology of Religion
10. RCS 709.2 Religion and Cultural Tourism Resources
11. RCS 710.2 Project Writing

First Semester

1. RCS 700.1 Theories of Religion
2. RCS 701.1 Research Methodology
3. RCS 702.1 Fundamentals of African Indigenous Religion
4. RCS 703.1 Fundamentals of African Christianity
5. RCS 704.1 Fundamentals of Islam

Second Semester

1. RCS 705.2 Advanced Philosophy of Religion

2. RCS 706.2 Fundamentals of Biblical Studies
3. RCS 707.2 Ethical Teachings in Three Major African Religious Tradition
4. RCS 708.2 Issues in Sociology of Religion
5. RCS 709.2 Religion and Cultural Tourism Resources
6. RCS 710.2 Project Writing

Duration of Programme

Students for the PGD programme will be required to spend a minimum of twelve calendar months. This comprises of two academic semesters plus a period of long vacation in which they will write their projects.

Course Requirements

For the PGD in Religious and Cultural Studies, candidates will:

- [1] Take ten courses, five in each semester, including two general courses and eight in the specialty areas. All these courses will be taught courses at 3 credit units each.
- [2] Submit a project (long essay of 6 credit units) of not less than 10,000 words on A4 sheet, excluding notes, bibliography and appendices.
- [3] Candidates will have at least a "C" grade (Merit 3.00-3.49) for pass in the programme in accordance with the University regulations.

COURSE DESCRIPTION

RCS 700.1: Theories of Religion

The course will treat certain themes above the undergraduate level and below the advanced theories of religion at the M.A level-such issues as some contemporary theories like phenomenology, rational choice, economics of religion and cognitive perspectives, among others.

RCS 701.1: Research Methodology

This course is designed as a preparation for the project writing in all aspects, as it applies to the required standards for the Arts in the University of Port Harcourt. Special consideration may be given to some writing techniques like the use of information, design and administration of questionnaires, proper methods of documentation

and the different use of APA, MLA and other methods of academic writings.

RCS 702.1: Fundamentals of African Indigenous Religion

The course serves as the summary of the major issues in African Indigenous Religion such as the aspects of the data and interpretation of the indigenous religions of Africa, cosmology, terminology, myths and gender, major traditional beliefs and practices, and the effect of modernization on African Indigenous Religion.

RCS 703.1: Fundamentals of African Christianity

The course introduces the origin and development of African Christianity with an overview of Western Christianity in Africa. The course will lay a special emphasis on post-Christian era of Christianity in Africa. It will also have an overview of the Nigerian Church History and the emergence of new Religious Movements.

RCS 704.1: Fundamentals of Islam

This course examines the early history of Islam, its doctrines, sources and pillars of Islam. It also examines Islam and Science and modernization processes with reference to gender, economy, politics and evolution of Islamic groups.

RCS 705.2: Advanced Philosophy of Religion

The course examines the relationship of philosophy of religion to other disciplines; forms of religious experience; revelations and miracles in religion, religious language; religious pluralism and personal faith.

RCS 706.2: Fundamentals of Biblical Studies

This course examines the origin, forms and methods of Biblical Studies.

It exposes the students to the study of the various divisions of the Old & New Testament scriptures. It introduces the various literature and history of the Inter-Testamental biblical period and the sources of New Testament Studies and writings, including the Christian and Non Christian writings.

RCS 707.2: Ethical Teachings in Three Major African Religious Traditions

This course compares and evaluates the ethical teachings of Christianity, Islam and African Indigenous Religion. It examines the theories of ethics and the social function of ethics in these three

major African religions. Contemporary ethical issues in Africa are to be examined: such as leadership and accountability/responsibility; social justice, corruption, war and peace, racism, human rights, sanctity of life, suicide and euthanasia, poverty, greed, alcoholism, drug abuse, human sexuality, family values, marriage issues, inheritance, bio-ethical issues — abortion, family planning, surrogate motherhood and artificial insemination as taught, believed and practiced in the three major religions.

RCS 708.2: Issues in Sociology of Religion

The course examines the major patterns of religion such as aspects of primitive religion, Religion in Historical perspective; Religion in Modern Industrial Societies, and mixed patterns of religion in the Modern World. It also considers the issues of religious problems of analysis and interpretation; religion and social and cultural differentiation such as religion and social change; politics; social stratification; religious collectivities and religious authority and specialization.

RCS 709.2: Religion and Cultural Tourism Resources

The course deals with the interconnectivity of Religion, Culture and Tourism. It gives the basic definitions and concepts of Religion, Culture and Tourism. It examines culture as the resource and product of Tourism, how religion and culture shape tourism; impact of religion and culture on tourism, amongst others.

RCS 710.2: Project Writing

Students are required to write and submit a project (of 6 credit units) of not less than 10,000 words on A4 sheet, excluding notes, bibliography and appendices.

M.A. RELIGIOUS AND CULTURAL STUDIES

Objectives

- (i) To deepen the candidates' critical and analytical understanding of Religious and Cultural traditions of mankind and with special references to the African context.
- (ii) To encourage an in-depth study of specific areas within the subject with a view to specialized research.
- (iii) To produce graduates familiar with the methodological and theoretical developments in the relevant fields of

Religion and Cultural Studies who will be able to apply their knowledge to their environment and also make their own contribution to universal scholarship.

- (iv) To help students to develop independent thought and critical judgment and tolerance in the field of Religion and Culture with a view to greater understanding and harmonious living in society.

Area of Specialization

1. African Indigenous Religion
2. Biblical Studies: Old and New Testaments
3. Church History
4. Islamic Studies
5. Religious Ethics
6. Sociology of Religion
7. Philosophy of Religion

M. A. Admission Requirements

Admission to the M. A. programme will be open to candidates with the B. A. degree in Religious and Cultural Studies, Islamic Studies, Theology or other related disciplines such as Philosophy, History, Sociology and Anthropology, on a CGPA of 3 points on a 5-point scale, from the University of Port Harcourt or any other institution recognized by the Senate of the University of Port Harcourt.

The method of application will be as specified in the Graduate School's guidelines. Candidates will be admitted for both the full-time and part-time studies.

Duration of Programme

Students for the M. A. degree will be required to spend a minimum of twelve calendar months for the programme; i.e. two academic semesters plus a period of long vacation for full-time studies a maximum of twenty-four calendar months. Candidates for the part-time programme must provide evidence that they will be available for attendance at courses and for regular consultation with their academic supervisors. They will be required to spend a minimum of twenty-four calendar months and a maximum of forty-eight calendar months for the M. A. Programme.

Course Requirements

For the M.A. degree, candidates will:

- (1) Take six courses, including one (1) course in Special Methodology, three (3) courses in the General Area of Religious and Cultural Studies and two (2) courses in the Specialist Area. The six (6) courses will be taught courses (3 credit units each).

- (2) Present work as well as participate actively in Graduate Seminar (3 credit units), and pass same with at least a C grade.
- (3) Submit a thesis (6 credit units) of not less than 20,000 words or 60 A4 pages, excluding notes, bibliography and appendices.
- (4) In addition to the successful completion of the courses and seminar (with at least a C grade in each course and seminar), defend a thesis in an oral examination, before a panel of examinations to be set up in accordance with University regulations.

RCS 802.2	Entrepreneurship and Management	2
RCS 807.2	Seminar	3
RCS 808.2	Thesis	6

Specialization Courses (Any One of the following)

RCS 806.2	African Indigenous Religious Mythology and Cosmology	3
RCS 806.2	The Miracles and Parables of Jesus in the Gospels	3
RCS 806.2	Evolution and Growth of African Christianity	3
RCS 806.2	Muslim Revivalist Movements in Africa	3
RCS 806.2	Bio-Ethics and HIV/AIDS in Africa: The Religious Response	3
RCS 806.2	Society and Secular Alternatives to Religion	3
RCS 806.2	Issues in Philosophy of Religion	3
RCS 807.2	Seminar	3
RCS 808.2	Thesis	6
	Total Required	14

(a) M. A. Religious and Cultural Studies Course Outlines

First Semester

Compulsory Courses

Course Code	Course Title	Credit Units
RSC 801.1	Trends in Methodology of Religious Studies	3
RCS 802.1	Themes in Comparative Religion	3
RCS 803.1	New Religious Movement in Africa	3
RCS 801.1	Research Methodology and ICT	2

Specialization Courses (Any One of the following)

RCS 804.1	Perspectives and Issues in the Study of African Indigenous Religions	3
RCS 804.1	Old Testament and Covenant and Monarchy in Israel	3
RCS 804.1	The Origin and Growth of Western Christianity in Africa	3
RCS 804.1	Islam in African	3
RCS 804.1	Foundations of Religious Ethics	3
RCS 804.1	Social Theories of Religion and Human Relations	3
RCS 804.1	The Early Christians and Scholastic Philosophers	3
	Total Required	14

Second Semester

Compulsory Courses

Course Code	Course Title	Credit Units
RSC 805.2	Religions and Modern Change in Africa	3

COURSE DESCRIPTION

First Semester

RCS 801.1 Trends in Methodology of Religious Studies

The course aims at understanding the main issues and perspectives in the methodology of religious studies. It will pay particular attention to the initiatives and activities of the International Association for the History of Religions (I. A. H. R.) towards the evolution and promotion of a widely acceptable and viable methodology. In addition to examining in detail the phenomenological and historical methods, the course will review the other theoretical perspectives that are being utilized by scholars including the sociological, cultural, anthropological, psychological reasons for their rise with particular attention to Aladura Praying Movements, Healing Churches and Messianic Churches. The course deals with the place of Abiodun Emmanuel and Garrick Braide, the new wave of Pentecostalism, public response to New Religious Movement and concludes with New Religious Movements and Contribution to the modernization of Nigeria.

RCS 802.1 Themes in Comparative Religion

This course will try to identify and define some of the major aspects of religious life the world over, and to suggest how they are related to one another in the whole we call “a religion”. The following themes will be given special attention: Religious language, Divinity, God and Gods, Mythology and Cosmology, Ritual and Symbolism. Other themes include: Scripture and Oral Texts, Worship including Prayer and Sacrifice, Calling, Asceticism and Mysticism, Pilgrimage, Priesthood, Prophecy/Divination/Revelation and Ecstasy (spirit possession), Priesthood, etc. For each aspect, there will be brief working definition, followed by a critical review of current themes and an attempt to show its relations to other aspects.

RCS 803.1 New Religious Movements in Africa

The course examines the rise of New Religious Movements, the Typology of New Religious Movements in African Traditional Religions, Islam and Christianity. It also examines the first wave of the African Churches and reasons for their rise with particular attention to Aladura Praying Movements, Healing Churches and Messianic Churches. The course deals with the place of Abiodun Emmanuel and Garrick Braide, the new wave of Pentecostalism, public response to New Religious Movement and concludes with New Religious Movements and contribution to the modernization of Nigeria.

RCS 804.1 Perspectives and Issues in the Study of African indigenous Religions

The course will discuss in detail the historical evolution of the systematic study of African Indigenous Religions and highlight the different perspectives scholars have utilized in the study. It will also try to expose the general issues of methodology and conceptual framework in the study to date:

- i. The evolution of and general perspectives in the study of African Traditional Religion.
- ii. Issues in Methodology.
- iii. Implications of the nature and general features of African Indigenous Religion.
- iv. The challenge oral sources.
- v. Developing viable conceptual schemes for analysis.
- vi. Issues of current debate in scholarship.
- vii. Continuity and change in African Indigenous Religion.

RCS 804.1 Old Testament Covenant and Monarchy in Israel

This course is aimed at exposing the origins and development of Covenant and Monarchy in Israel, paying attention to their presence in the Book of Exodus and the Historical Books. It highlights the following areas:

- [a] Historical origin and development of Old Testament; Covenant concept and the Monarchy in Israel.
- [b] The Sinai periscope, Escape or Expulsion from Egypt.
- [c] Exegesis and Theology of Selected texts of Exodus, especially Chapters 12-15 and 18-24.
- [d] Study of the Covenant as Liberation and the relevance of the Covenant in African Society.
- [e] The narrative stories of kingship and the cycles of the monarchy in Israel from Samuel to Omri (the Books of Samuel and Kings).

RCS 804.1 The Origin and Growth of Western Christianity in Africa

This course is aimed at examining the origins and growth of Western missionary branch of Christianity in Africa. It thus attempts a survey of the early Christian beginnings in North, West, East-Central and South African sub-regions. It examines the European missionary patterns of evangelism and the African responses; the conflict and cohesion in mission communities in Africa; the interrelationships between the European missionaries and the colonial masters and settlers in the Christianization progress in Africa; the influence of colonialism on the growth of mission communities. The course concludes with a critical assessment of the European missionary contributions to the growth of Christianity in Africa.

RCS 804.1 Islam in Africa

The course is aimed at examining the role of Islam and Muslims in Africa. It highlights the Muslim brotherhood and Islamic activism in Africa, the state of Islam in Africa since independence in countries like Nigeria, Algeria, Egypt and others as focus. The course examines Islam and politics in Africa, Islamic attitude to women with emphasis on gender equality, education, dressing, seclusion and polygyny. It also includes contemporary issues like the OIC, the Shariah, Human Rights, globalization and crisis in Muslim education system.

RCS 804.1 Foundations of Religious Ethics

The course examines the historical development of religious ethical teachings: it investigates the sources of religious ethics, including God, divinities, natural laws, customs, education, taboos,

prohibitions, myths, folklores, fairy tales, fables, proverbs, professional codes of ethics, and oracle. The ethics is taught by methods of oral traditions, plays, storytelling, apprenticeship and imitation. Conflict with modern system of ethics and its decline will be examined comparatively. The course also analyses personality and legal models of ethical decision-making, including an investigation into the use of sources, scriptures, human reason, and experience. Theological notions of virtue and sin, good and evil, the nature and role of personal conscience and conversion are emphasized. The validity of moral norms and moral absolutes in a conceptualist age is investigated.

RCS 804.1 Social Theories of Religion and Human Relations

This course examines the religious theories of Comte, Marx, Durkheim, Weber and Freud as related to the meanings and functions of religion in society. It seeks to appropriate their insights as they apply to social development in Africa and religious factors underlying human personality and human relations.

RCS 804.1 The Early Christians and Scholastic Philosophers

This course is an investigation into the writings of some Christian philosophers from the early Church period to the Scholastic period (between the 111 and 131 centuries). It considers some philosophical schools of thought such as Epicureanism; Stoicism and neo-Platonism of Plotinus, which influenced early Christian thought and philosophy.

Second Semester

RCS 805.2 Religion and Modern Change in Africa

The course begins with the examination of Religion as a catalyst and recipient of change. The course discusses processes and patterns of socio-religious change and factors responsible for social change. The course also examines the modern trends in religious change and issues like Religion/State Relations in Africa, Religion and Politics in Africa, Religion and Economy in Africa, Religion and Education in Africa, and the issues of Religion and the family institution in Africa. The course provides insights into Secular Alternative to Religion, Religious Interaction and Dialogue in a Plural Society, and Religion and Globalization.

RCS 806.2 African Indigenous Religious Mythology and Cosmology

The course will discuss the inherent issues connected with the nature of African Indigenous Religions, as well as the evolution of the systematic

study and their implications for methodology and conceptual scheme. It will also treat various substantial aspects of the indigenous religions of the peoples of Sub-Saharan Africa, including:

- [i] General features of traditional African myths.
- [ii] Traditional cosmology and gender.
- [iii] Principal traditional religious beliefs.
- [iv] Traditional ritual, symbolism, iconography and festivals.
- [v] Traditional religious personages and officials.
- [vi] Divination, healing and witchcraft.

Efforts will be made, in discussing the topics, to account for the impact of social and religious change on the indigenous religious life of the continent. The course will also try to handle such issues as the place of indigenous religion in social control, religion and art in traditional African societies, as well as the portrayal of African traditional religions in contemporary literary works.

RCS 806.2 The Miracles and Parables of Jesus in The Gospels

The course will review the literary genres of the New Testament and thereafter discuss the Miracles and Parables of Jesus in the Gospels. The following areas will be highlighted:

- (a) Major contemporary approaches to the study of Gospel Miracles and Parables.
- (b) Gospel Miracles and the Laws of Nature.
- (c) Study of Parables in the literary sense in the Ancient Near-East.
- (d) Structure, purpose and meaning of Miracles and Parables of Jesus.
- (e) Use of Miracles and Parables in Jesus Ministry.
- (f) Parables and Proverbs: Comparisons and Contrasts.
- (g) Hermeneutic principles of Jesus Miracles and Parables in African context.

RCS 806.2 Evolution and Growth of African Christianity

This course attempts a study of the evolution and growth of African Christianity in its total religious, socio-political and cultural contexts with the aim of determining the African Christian spirituality since the attainment of religious independence from the mission churches. The course also helps to point the way for the church to exist in post-Christian era in Africa.

Thus the course begins by examining the basic causative factors responsible for the rise of independent churches in Africa (with case studies of

“African” and “Ethiopian” churches) and New Christian Religious Movements (with case studies of mass movements and initiatives of prototype prophets and evangelists). The course also examines such issues as continuity and unresolved conflicts in African Christianity; the origins and problems in African Christian Theology; enculturation and its obstacles in African cultural heritage; Liberation Theology and African Christianity. The course ends with a manifesto on the significance of modern African Christianity.

RCS 806.2 Muslim Revivalist Movements in Africa

The course is an in-depth study of the lives and works of African Muslim reformers and revivalists and the development of Islam. Prominent reformers and revivalists for study include the Sufi reformers like Ahmad Bamba, the Sokoto Caliphate reformers, Hassan al banna and the Muslim Brotherhood, Sayyid Qutb, Bamidele and Lanase Movement of Nigeria, Jamaldin al-Afghani, Muhammad Abduh, Rashid Rida and Muslim Modernist movement. The course also examines the formation of Salafiyah movements and particular attention will be placed on Hassan Turabi (Sudan), Mahmud Gumi and Izalah of Nigeria, the Nahdah Movement in Tunisia, Muslim Organizations in Nigeria and the formation of Nigeria Supreme Council for Islamic Affairs.

RCS 806.2 Bio-Ethics and HIV/AIDS in Africa: The Religions’ Response

The course will be concerned with both religious ethical methodology and with content questions. The course will investigate in detail moral responsibilities toward human life both in its inception, its care during life, and at death. Among the issues to be examined are those of the laboratory generation of human life, abortion, care of handicapped children, capital punishment, killing in war, care of the dying. The specific questions to be considered include sterilization, abortion, transplantation, experimental death, manipulation; other current concerns in bio-ethics. The course also examines human sexuality and HIV/AIDS: prevention, management and control of HIV/AIDS and the religious response in the light of religions’ attitude to the outcasts; counseling and care.

RCS 806.2 Society and Secular Alternatives to Religion

This is an advanced critical study of the alternatives offered to human religious traditions and heritage. Emphasis will be on understanding the nature of society/states and types of religious interaction in them; the concept of secularity and secularism; Modern challenges to religion; Secular alternatives

to religion: Science and positivism; Marxism and economic salvation; Humanism: August Comtes stages and religion of humanity, Rudolf Bultman’s demythologization, Jeremy Bentham and J. S. Mill’s Utilitarianism, Ludwig Feurbach’s humanism etc; Society and religion in contemporary society.

RCS 806.2 Issues in Philosophy of Religion

This course will first examine the problem of evil; various arguments for the existence of God; contemporary trends in Philosophy of Religion; the rapid changing contours of African religious life in the face of increasing and ever recurrent religious conflicts and the truth/claims of the major religions and reasons for religious conflict.

RCS 807.2 Seminar

RCS 808.2 Thesis

(B) Ph.D RELIGIOUS AND CULTURAL STUDIES

Areas of Specialization

- [1] African Indigenous Religion.
- [2] Biblical Studies: Old and New Testaments.
- [3] Church History.
- [4] Islamic Studies.
- [5] Religious Ethics.
- [6] Sociology of Religion.
- [7] Philosophy of Religion.

PhD Admission Requirements

Subject to the provision of the University-Wide regulations governing the admission of candidates into the PhD programmes, candidates seeking admission into the PhD degree programme of the Department of Religious and Cultural Studies will be required to meet the following conditions:

- [1] Admission to the PhD programme will be open to candidates with the M. A. degree in Religious and Cultural Studies, Islamic Studies, Theology or other related disciplines such as Philosophy, History, Sociology and Anthropology, on a CGPA of 3.5 points on a 5-point scale, from the University of Port Harcourt or any other institution recognized by the Senate of the University of Port Harcourt.
- [2] Candidates with the M. A. degree in related disciplines such as Philosophy, History, Sociology and Anthropology will be required to take all M. A. taught courses in Religious and Cultural Studies and score at least a C grade to advance to the PhD.
- [3] Candidates (from other universities) whose admission qualifications show deficiencies in the courses offered as shown in their

transcripts will be required to take some remedial courses from the courses available in the M. A. programme of the Department and score at least a C grade to advance to the PhD.

- [4] In addition to the above, candidates will be required to satisfy the Graduate Studies Panel of the Department at an oral interview before final admission can be offered.

The method of application will be as specified in the School of Graduate Studies Guidelines. Candidates will be admitted for both the full-time and part-time studies.

Duration of Programme

Students for the PhD degree will be required to spend a minimum of three years for full-time studies and a maximum of five years. Candidates for the part-time programme must provide evidence that they will be available for attendance at courses and for regular consultation with their academic supervisors. They will be required to spend a minimum of five years and a maximum of seven years for the PhD degree.

Course Requirements

- 1] Register for two (2) compulsory courses in General Religious Studies and four (4) courses in the Specialized Area (3 credit units each) and pass same with at least a C grade.
- 2] Register and present two (2) Departmental Seminars (3 credit units each) detailing research orientations in the discipline, and pass same with at least a C grade.
- 3] Pass with at least a C grade, a written comprehensive examination in two (2) papers: one in the major field, the other in a related minor field.
- 4] Present the mandatory seminar to the School of Graduate Studies.
- 5] Present a well-researched dissertation (6 credit units)
- 6] Defend the dissertation at an oral examination before a Panel of Examiners as stipulated by the School of Graduate Studies.

The comprehensive lists of courses for the PhD programme are as listed below:

Course Outline

First Semester

Core Compulsory Courses for all PhD Students

Course Code	Course Title	Credit Units
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RSC 901.1	Trends in Methodology of Religious Studies	3
RCS 902.1	Themes in Comparative Religion	3
RCS 905.1	New Religious Movement in Africa	3

Areas of Specialisation (Two Courses below, depending on Student's Area of Specialization)

1. African Indigenous Religion

Course Code	Course Title	Credit Units
RCS 903.1	Contemporary Issues in the study of African Traditional Religion	3
RCS 904.1	Symbolism in African Traditional Religion	3

2. Biblical Studies

The Old Testament

Course Code	Course Title	Credit Units
RSC 903.1	Methods and Perspectives in Old Testament Studies	3
RCS 904.1	Deuteranomic History and Theology OR The New Testament	3

3. Church History

Course Code	Course Title	Credit Units
RCS 903.1	Controversies and the Early Church Councils	3
RCS 904.1	The reformation and the Counter-Reformation	3

4. Islamic Studies

Course Code	Course Title	Credit Units
RCS 903.1	Heresiology	3
RCS 904.1	Objectives and Goals of Shari'ah (Maqaasid Ash-sharee' Ah) (Maqaasid Ash-Sharee'Ah)	3

5. Religious Ethics

Course Code	Course Title	Credit Units
RCS 903.1	Social Theories of Religion and Contemporary Moral Issues	3
RCS 904.1	Business Ethics in a Religiously Plural Society	3

6. Sociology of Religion

Course Code	Course Title	Credit Units
RCS 903.1	Religion and the Interaction of Social Institutions of Society	3
RCS 904.1	Religion, Culture and Gender Studies	3
7. Philosophy of Religion		
Course Code	Course Title	Credit Units
RCS 903.1	The Freewill/Determinism Debate	3
RCS 904.1	Metaphysical Issues in Religion	3
Total Required	=	15

Second Semester

Compulsory Course for all the PhD Students in their different areas of Specialisation

Course Code	Course Title	Credit Units
RSC 908.2	Seminar	3
RCS 909.2	Dissertation	3

Areas of Specialisation (Two Courses below, depending on Student's Area of Specialization)

1. African Indigenous Religion

Course Code	Course Title	Credit Units
RCS 906.2	Phenomenology of Religion and African Traditional Religion in the Diaspora	3
RCS 907.2	African Culture and Elements of Worship in African Traditional Religion	3

2. Biblical Studies

The Old Testament

Course Code	Course Title	Credit Units
RSC 906.2	Prophetic Movement in Israel	3
RCS 907.2	Wisdom Literature OR the New Testament	3
RCS 906.2	Johannine Literature and Hebrew	3

RCS 907.2	Paul's Theology and the Resurrection of Jesus in the New Testament	3
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3. Church History

Course Code	Course Title	Credit Units
RCS 906.2	Christianity in Africa	3
RCS 907.2	Jansenism in the Church	3

4. Islamic Studies

Course Code	Course Title	Credit Units
RCS 906.2	Ethics in Islam	3
RCS 907.2	Islam and Gender Studies in Africa	3

5. Religious Ethics

Course Code	Course Title	Credit Units
RCS 906.2	Ethics and the Natural Law	3
RCS 907.2	Virtue and the Religious Life	3

6. Sociology of Religion

Course Code	Course Title	Credit Units
RCS 906.2	Issues in Sociology of Religion	3
RCS 907.2	Religion and Culture Tourism	3

7. Philosophy of Religion

Course Code	Course Title	Credit Units
RCS 906.2	Religion and Science in Contemporary Society	3
RCS 907.2	The Logic and Consequences of Prosperity Preaching	3

Total Required = 18

COURSE DESCRIPTION

Core Compulsory Courses

RCS 901.1 Advanced Theories of Religion

The course aims at outlining and explaining the more recent theoretical developments and propositions of scholars both in the subject proper and in kindred disciplines bearing on Religious Studies. The developments include current findings in the historical method and phenomenology of religion, as well as issues arising from cognitive theories, neurobiological theories and sociological/anthropological theories of religion.

RCS 902.1 Contemporary Themes in Comparative Religion

The course will treat certain themes of current relevance in Religious Studies and interrelated fields. Such issues is Religious language, Religious fundamentalism, Religious life in Secular Societies, Modern Atheism, Religion and Gender Issues; Religion, Development and Ecology; Religion and Globalization/Free market Economy; Religion and Disease/Poverty Alleviation, Religion and Bio-Ethical Issues, Religion and the Mass Media, etc.

AREAS OF SPECIALIZATION

(1) African Indigenous Religion

RCS 903.1 Contemporary Issues in the Study of African Traditional Religion

This is a critical examination of issues about the nomenclature, such as African Traditional Religions, Ancestrlogy and some derogatory terms used in describing the religion. The resilience of the religion in contemporary society as the keeper of the Tradition, Sexuality, Commitment, Family life, Traditional Medicine and Bioethics, and major issues like poverty, war, gender, inequality, governance and corruption will also be studies from A. T. R. perspectives.

RCS 904 Symbolism in African Traditional Religion

This course investigates the nature and functions of symbols and signs, myths and rituals in religious beliefs and organizations. It also examines symbolic forms and processes of rites of passage and festivals; Symbolism of some religious and cultural events, symbolic religious communication such as colour, numerology, seasons and astrology.

RCS 905.1 Seminar

Presentation of academic seminar detailing research orientations in the discipline.

RCS 906.2 Phenomenology of Religion and African Traditional Religion in the Diaspora

This course deals with the study of the world major religions in a comparative manner within the context and framework of African Traditional Religion on one another and on man. The course also examines the development and practice of African Traditional Religion among the African Americans, particularly those in Brazil, Cuba, Mexico and the Caribbean.

RCS 907.2 African Culture and Elements of Worship in African Traditional Religion

This course is a comparative investigation of the African culture with examples from major cultures, highlighting their ideological, philosophical, anthropological practices and ways of life of the people. This course also studies the meaning and purpose of worship; types and occasions of worship; sacrifice. Different types of Divination and Sacrifice as well as the purpose and significance of confession in the liturgy are also examined.

RCS 908.2 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 909.2 Dissertation

Completed dissertations in respect of the programme shall be submitted at least three months before the stipulated completion date which should correspond to the date of the oral examination. A candidate for the degree shall be required to defend the dissertation at an oral examination before a panel of Examiners as stipulated by College of Graduate Studies.

(2) Biblical Studies

The Old Testament

RCS 903.1 Methods and perspectives in Old Testament Studies

The focus of this course is building interpretative skills. In addition to learning and applying critical methods and perspectives to various texts, students will also examine the philosophical and theological presuppositions of the methods and perspectives. Students will consider issues relating to the interpretation of the text, such as the canonical process, the authority of the text, the relationship of the Old Testament to the New, History of Old Testament, Biblical Criticism; methods and perspectives of the Old Testament: textual criticism, source criticism, form criticism and traditional history; reduction criticism, canonical criticism, rhetorical criticism, narrative criticism, psychological criticism, socio-scientific criticism, postmodernist criticism. The course will end with a review of notable Old Testament Biblical critics.

RCS 904.1 Deuteronomistic History and Theology

The course will involve an intensive examination of, as well as an attempt to evaluate the major theories concerning the composition and history of the Deuteronomistic history from North (1943) to the present; a consideration of the principal themes of Deuteronomistic theology, e.g. the Deuteronomist and his materials, basic principles and features of the Deuteronomist, covenant, Yahwehism, cult, land, etc.

RCS 905.1 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 906.2 Prophetic Movement in Israel

This course is aimed at exposing the origins and development of the Prophetic Movement in Israel, paying attention to their presence in the Historical Books and in the Prophets. It highlights the following areas:

- (a) Historical origin, nature and development of Prophecy in Israel and a reading of some books of the Major and Minor Prophets (e.g. Isaiah, Jeremiah, Ezekiel, Amos, Hosea, etc.).
- (b) The cycles of Prophetism in Israel.
- (c) The role of prophecy in Israelite society from the point of view of the Covenant.
- (d) The relevance of Prophetism in African Society.

RCS 907.2 Wisdom Literature

The course discusses Ancient Near-Eastern background, sources, origin and principal genres of Wisdom Literature in the Old Testament; Structural and stylistic analysis of selected passages; Development of principal themes, e.g. God perceived through nature, individual retribution, the nature of wisdom, Wisdom literature and proverbs in Africa, etc.

RCS 908.2 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 909.2 Dissertation

Completed dissertations in respect of the programme shall be submitted at least three months before the stipulated completion date, which should correspond to the date of the oral examination. A candidate for the degree shall be required to defend the dissertation at an oral examination before a Panel of Examiners as stipulated by the School of Graduate Studies.

The New Testament

RCS 903.1 Critical Problems and Methods

The course studies the synoptic problem, Relation between the Synoptic Gospels and the Fourth Gospel; Relation between the Acts of the Apostles and Paul's letters; background to Paul's letters; Third World Theologies; Contemporary Theological Issues (Gay, Stem Cell Research and Anglicanism and the Global South, etc);

Pentecostalism; Interpretation of the New Testament in African context.

RCS 904.1 Texts and Canon of the New Testament

The course examines the earliest Texts of the New Testament; types of texts versions and quotations: Principles and Methods of Textual Criticism (History and Exegetical methods); Formation of the Canon of New Testament (Apocryphal Gospels Polycarp, 1 Clement, Shepherd of Hermas, Epistle of Barnabas, and Didache); Apologetic, Marcionite Prologue, Muratorian Canon, Wisdom of Solomon; Early History of Undisputed Books (Hebrews, Apocalypse, Epistle of James, Marcion and Tetian, etc).

RCS 905.1 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 906.2 Johannine Literature and Hebrews

The course studies the structure, source, authorship and purpose of John's gospel; Johannine Epistles; The Epistle to the Hebrews (Exegesis and theology, Problem and Structure, Style and Kingship characteristics; Study of the theology and Ethics of the synoptic Gospels).

RCS 907.2 Paul's Theology and the Resurrection of Jesus in the New Testament

The course examines the basic features of Pauline mission, nature and polity of the church as well as ethics in Paul's theology; The Resurrection of Jesus in the gospel tradition and apostolic interpretation with particular reference to Paul (Appearances, Bodily Resurrection, Fable of the Empty Tomb, etc); The Resurrection and Reincarnation in the African context.

RCS 908.2 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 909.2 Dissertation

Completed dissertations in respect of the programme shall be submitted at least three months before the stipulated completion date, which should correspond to the date of the oral examination. A candidate for the degree shall be required to defend the dissertation at an oral examination before a Panel of Examiners as stipulated by the School of Graduate Studies.

(3) Church History

RCS 903.1 Controversies and the Early Church Councils

The course traces the origin of the early Church controversies and their impact on the Church in Africa, the roles played by various Church Councils, Nicea (323 AD, and Chalcedon (451 AD) in resolving the controversies as well as the legacy inherited from the decisions of these Councils by the Church.

RCS 904.1 The Reformation and the Counter Reformation

The purpose of the course is to examine the History of Christianity with special reference to the rise of Protestantism and Protestant theology. The course also examines the efforts of the Roman Catholic Church to deal with the Protestant Reformation.

RCS 905.1 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 906.2 Christianity in Africa

The purpose of this course is to examine the history of Christianity in Africa with special reference to its operation within the secular structures in Africa since its inception. The following topics will thus constitute the focus of the study: The characteristic features of the origin of Christianity in Africa; the missionary factor with emphasis on the dynamics of mission expansion, mission policies and practices; the missions, state and education; Christianity and nationalism; the missions and colonialism/imperialism; the church in socio-political crises in Africa; African responses to Christian missions; the mission and the rise of religious independence in Africa.

RCS 907.2 Jansenism in the Church

Special attention will be devoted to Jansenism as a generic term used to describe a certain type of religious principle and social behaviour in Europe during the seventeenth and eighteenth centuries. The course discusses Jansenism as a coherent movement, evolving from mysticism to revolt and from resistance to organized revolution. The course seeks to approach the issue by reconstructing the different aspects of Jansenism as they have been observed in the religious history of the period and in today's Church History.

RCS 908.2 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 909.2 Dissertation

Completed dissertations in respect of the programme shall be submitted at least three months before the

stipulated completion date, which should correspond to the date of the oral examination. A candidate for the degree shall be required to defend the dissertation at an oral examination before a Panel of Examiners as stipulated by the School of Graduate Studies.

(4) Islamic Studies

RCS 903.1 Heresiology

The objective of the course is to clarify the foundational principle in Islam as a call to unity and firm adherence to the Qur'an and Sunnah, emphasizing that division is always the product of extremism and deviant thought. Awareness of ancient sects which appeared in Muslim history enables the students to understand the present and the historical roots of contemporary sects. The course also provides students with a historical background of roles played by deviant sects during Islamic history and reasons for the appearance of sects. The groups to be examined include Khaarijites: their origin, opinions, and sub-sects; Shi'ites: Twelvers, Zaydites, Ismailites; Baatinites, past and present; Qaramantians, Babakites, Nusairites, Druze, Bahai, Qadianites. The scholastic sects: origins and teachings; including Jabrites, Qadarites, Murji'ites, Mu'tazilites, Ash'arites and Maatureedites.

RCS 904.1 Objectives and Goals of Shari'ah (Maqaasid Ash-Shari'ah)

The course examines the concept of Maqaasid alShari'ah, identifying the importance. The relationship between Maqaasid and Fiqh, Emergence, development, and analysis of main documented work in the domain; Ways of identifying the goals of Shari'ah. Kinds of goals: General and specific goals, comprehensive and partial goals. Relationship between bases of jurisprudence and Public Interest/Unrestricted Interest. Peculiarities of public interest/unrestricted interest. Steps/Stages of goals of Shariah according to its degree: essentials/ necessities (Daruriyyah), embellishment/comforts (Hajiyyat) and complementary/ Luxuries (Tashniyyat). The course concludes with goal of the Legislator in establishing the Shari'ah and the importance [in] prioritizing benefits, balancing, determining the more correct when benefits conflict.

RCS 905.1 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 906.2 Ethics in Islam

The course examines ethics and the basis of ethical teachings in Islam. The Qualities of believers in Qur'an, Muslim ethical teachings from Qur'an and Hadith, Muslim ethical teachings with reference to the work of al-Ghazali; Muslim and ethical issues in the Modern Age; Cloning, Euthanasia, suicide, capital punishment. Islam and Public life; transparency, accountability, justice, power and leadership, human rights/injustice, rule of law and the problem of absolute/dictatorial rulers among Muslim states; Ethical writings of Maududi and contemporary revivalist movements.

RCS 907.2 Islam and Gender Studies in Africa

The place of gender in Islam, Humanity from the same source, equality of the two sexes before Allah, the Prophet examples and teachings on women in Islam; Modesty and Hijab of women. Feminism, gender and Islam, role of women, men in Islamic society, women education, Muslim women and Public life; freedom and liberty within Islam; family planning, contraception and Muslim women; Gender and discrimination; Polygyny in Islam, female circumcision and child marriage; Muslim women domestic violence; adultery and rape laws, women voices and Islamic Movements in Africa, Muslim Women organization and Islamic Activism in Sub-Saharan Africa.

RCS 908.2 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 909.2 Dissertation

Completed dissertations in respect of the programme shall be submitted at least three months before the stipulated completion date, which should correspond to the date of the oral examination. A candidate for the degree shall be required to defend the dissertation at an oral examination before a Panel of Examiners as stipulated by the School of Graduate Studies.

(5) Religious Ethics

RCS 903.1 Social Theories of Religion and Contemporary Moral Issues

The course examines the religious theories of Comte, Marx, Durkheim, Weber and Freud as related to the meanings and functions of religion in society. It seeks to appropriate their insights as they apply to social development in Africa. The course also considers specific moral issues in areas of sexuality, unity, social justice, and bioethics within the context of Christian moral theology. Selected issues in personal and social morality will be

addressed within a framework of traditional and contemporary ethical teachings.

RCS 904.1 Religious Economy and Business Ethics in a Religiously Plural Society

The course is a sociological analysis of forms of the religious economy in a religiously plural society. Their foreign and local sources with special attention to the doctrine of prosperity in relation to spirituality, authority and power, will be examined. The course is also an analysis of the religious ideas and practices as they relate to production, distribution and marketing of goods and services. The study examines the effect of the religious beliefs and attitudes on trade and commerce. Attention will be given to the issues of the immoral practices in business.

RCS 905.1 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 906.2 Ethics and the Natural Law

The course will investigate the development of natural law thinking in Christian moral theology. After the study of the pre-Thomistic traditions in natural law thinking, it will focus on the work of St. Thomas, the shift in natural law thinking in such writers as Duns Scotus and Francis Suarez, and it will then take up major twentieth century developments in natural law thinking, including a discussion of natural law and the contemporary discussion among Christian authors in the natural law.

RCS 907.2 Virtue and the Religious Life

This course will begin with an investigation of the meaning of virtue in Aristotle's Nicomachean Ethics. It will then focus on the teaching of St. Thomas Aquinas on virtue in contemporary moral thought, with attention to the work of a. McIntyre, S. Hauerwas, G. Meilaender, and G. Grisez among others.

RCS 908.2 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 909.2 Dissertation

Completed dissertations in respect of the programme shall be submitted at least three months before the stipulated completion date, which should correspond to the date of the oral examination. A candidate for the degree shall be required to defend the dissertation at an oral examination before a Panel of

Examiners as stipulated by the School of Graduate Studies.

(6) Sociology of Religion

RCS 903.1 Religion and the Interaction of Social Institutions of Society

This is a comprehensive study of the religious content and understandings between religion and other institutions, structures and systems in different religious and spheres of the world. Emphasis will be on the following main and sub-institutions of society: Religion and economic institutions; Religion and political systems; judiciary, search monarchy/kingship, marriage and family, secret societies; Health, welfare institutions, age grade etc.

RCS 904.1 Religion, Culture and Gender Studies

This course is aimed at using religion to bring women into critical focus. However, our emphasis will be on African women theories of gender and sexuality; United Nations and Women Development; African concept and World View on sexuality; Culture and Women; values, status, labels and stereotypes; Cultural institutions of women's honour, dignity and of denigration of women in world religions; Women in African political economy: traditional and modern; women's protest; African women and modern gender ideals.

RCS 905.1 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 906.2 Issues in Sociology of Religion

This is a thematic study of selected theses and issues in sociological study of religion. Some of the issues include Liberation theology; religion and environment (ecotheology), religion and stratification, religious proliferation, prosperity preaching, mass media evangelism, religion and crime in society; social change, revivalism, fundamentalism and fanaticism in modern society. The course also includes sociological analysis of selected religious issues such as ritual/sacrifice, prayer, the sacred, religion and symbolic communication, functional theories of myth in religious societies.

RCS 907.2 Religion and Cultural Tourism

This course is a study of the interplay between religion and cultural tourism, with emphasis on Africa. Issues to be discussed are; the concept and content of cultural tourism; relationship between religion and culture; culture and tourism. Religion and tourism; policy, planning and strategies in cultural tourism; cultural tourism and culture

conflict (culture shock, religious arrogance etc.), religious festivals and cultural tourism research and forecast; cultural tourism services and ethics in African culture; Human relation strategies: cultural tourism and community relations; organization and management principles; cultural revival and community development (case studies like the Arugungun Festival; the Oshogbo Cline, Ifa Divination etc are discussed); Culture and development; UNESCO and World Tourism Organization.

RCS 908.2 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 909.2 Dissertation

Completed dissertations in respect of the programme shall be submitted at least three months before the stipulated completion date, which should correspond to the date of the oral examination. A candidate for the degree shall be required to defend the dissertation at an oral examination before a Panel of Examiners as stipulated by the School of Graduate Studies.

(7) Philosophy of Religion

RCS 903.1 Philosophy of Religion

This course is designed to provide an insight into the freewill debate from its beginning to the present stage. It will examine the works of Alvin Planting, Ninian Smart, J. L. Mackie and Antony Flew. There will be an attempt to solve some of the problems. There also be a close examination of the problems we are faced with when we try to reconcile religion and philosophy.

RCS 904.1 Metaphysical Issues in Religion

Metaphysical issues in religion are raised in this course. These include miracles, mythology, resurrection, the soul, and reincarnation. Witchcraft and allied beliefs are examined and their implications for religion discussed.

RCS 905.1 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 906.2 Religion and Science in Contemporary Society

The study traces the history of the contact of religion with science. It also examines what caused the strain in relationship in the last two centuries, and the role each played in their mutual development and interaction. A few of the new areas of contact between religion and science are discussed. This will

include such topics as cloning, transplant, blood transfusion, test-tube babies, etc.

RCS 907.2 The Logic and Consequences of Prosperity Preaching

The course is a philosophical examination of the premises and arguments leading to prosperity teaching and the consequences for the message of religions as well as for public and private morality;

RCS 908.2 Seminar

Presentation of academic seminar paper detailing research orientations in the discipline.

RCS 909.2 Dissertation

Completed dissertations in respect of the programme shall be submitted at least three months before the stipulated completion date, which should correspond to the date of the oral examination. A candidate for the degree shall be required to defend the dissertation at an oral examination before a Panel of Examiners as stipulated by the College of Graduate Studies.

ACADEMIC STAFF

S/No	Name of Staff	Qualifications	Field of Specialization	Designation
1.	C.I. Ejizu	B.D., Uban; PGD, M.A., PhD, UNN	Religions Studies; Interaction of Religions, African Religion	Professor and Had of Department
2.	W.O. Wotogbe- Weneka	B.A. Calabar, M.A., PhD, Ibadan	African Religions and Cultures	Professor
3.	A.R.O. Kilani	B.A., M.A., PhD, UPH	Islamic Studies & Contemporary Issues	Professor
4.	G.I.K. Tasié	B.Ed., Ibadan; MA., PhD, UPH	African Religions and Culture	Professor
5.	K.I. Owete	B.A., UPH; M.A., Jos; PhD, UPH	African Religions and Comparative Religion	Professor
6.	N.N. Iheanacho	B.A., Calabar; M.A., Uyo; PhD, UPH	Sociology of Religion	Senior Lecturer
7.	C. Mbonu	B.Sc., New York; M.A. New York; PhD, California	Greek, Gender and New Testament Studies	Senior Lecturer
8.	B.O. Onu	NCE, COE; B.Ed., M.A., PhD, UPH	Church History	Lecturer I
9.	J. Obineche	B.Th., M.Th., SBTS, PhD, UPH	Church History	Senior Lecturer
10.	A. Ahiamadu	B.Sc., M.Sc., Ibadan; PGD, M.Th., PhD, Stellenbosch	Old Testament Studies and Hebrew	Senior Lecturer

DEPARTMENT OF HISTORY & DIPLOMATIC STUDIES

INTRODUCTION

The Department of History and Diplomatic Studies occupies a pride of place in the annals of the University of Port Harcourt. It is one of the pioneer departments of the University. Again, it had the rare privilege of being the department into which the very first student of the University was admitted in 1976.

In the beginning, the programme was domiciled in the defunct School of Humanities with a Director of Studies administering it. In 1982, however, when the school system was discontinued and the Faculty/Department system was introduced by Senate, it metamorphosed into the Department of History. A further programme review in 2002 brought in the Diplomacy component, and thus, the change of nomenclature to the Department of History and Diplomatic Studies. It is important to note that from its inception, the Department consciously encouraged and promoted an inter-disciplinary approach to the study of History.

At its inception, this Department ran a graduate programme leading to the Masters and Doctorate Degrees in African History with emphasis on (a) *History of Nigerian Communities*, and (b) *History of West Africa*. Against the backdrop of recent realities this was no longer good enough and realistic as it led to the underutilization of the expertise and experience of the staff of the Department. It was the realization of this that made the Department to change its name and focus in 2002 from 'History' to 'History & Diplomatic Studies'. Its graduate programme was also reviewed in 2010 to make it more specialised and socially relevant, viz:

- (a) Post-Graduate Diploma in History and Diplomacy (PGDHD)
- (b) MA and PhD in Diplomacy
- (c) MA and PhD in Niger Delta Studies
- (d) MA and PhD in African History and Development Studies
- (e) MA and PhD in Cultural Heritage Management.

We have been able to admit only two sets of students into the above programmes, the first among which is concluding their studies.

In compliance, however, with the *'NUC Benchmark Minimum Academic Standard for Post Graduate Programmes in History and its variance'* over which we have little or no choice, we submit herewith a new, but in our view, not a very progressive programme.

POSTGRADUATE PROGRAMMES IN HISTORY AND ITS VARIANT

The broad view of the Benchmark statements indicate the minimum requirements which each University in Nigeria should attain in respect of the MA/PhD programmes in History and its variants

PHILOSOPHY

The M.A/PhD programme in History and Diplomatic Studies are designed to produce highly qualified and competent historians and experts in the discipline. It is intended that the products will be equipped with necessary skills with which to undertake critical analyses of issues to meet the challenges of modern society in a globalized world.

AIM AND OBJECTIVES

The aim of the M.A and Ph.D Programmes in History and Diplomatic Studies are:

- i) Providing students with requisite historical knowledge, highly developed sense of balance as well as considerable breadth and depth of knowledge of the local, national, African and international communities and environments,
- ii) To enable the students to develop the spirit of enquiry
- iii) To train the students in critical and rational thinking and judgment
- iv) To produce students who can assume leadership roles in the task of nation-building, in teaching and research, in policy decision making, in administration and management of affairs as well as in international and foreign relations
- v) To enable students to avail themselves of the lessons of history and apply them as appropriate to resolving national developmental challenges.

ADMISSION REQUIREMENTS

Basic Admission Requirements

- (a) The criteria for admission into the M.A. Programme will be as follows:
 - i) Candidates for the M.A. programme in History or its variants must have five (5) credit passes including English, History and/or Government at the 'O' Level as basic requirement.
 - ii) Candidates with Bachelors degree in Arts (BA) in History, History and International Studies, History and Diplomatic Studies, History and International Relations as well as History and Strategic Studies. The candidates must be graduates of approved

and recognized Universities, and must obtain a minimum of Second Class Lower Division.

- iii) Candidates must take and pass a qualifying examination administered by the University.

Ph.D PROGRAMME

Only candidates with a good Master's degree in History or its variants from a recognized* University, with a CGPA not below 3.5 on a five-point scale. Candidates who did not make up to 3.5 will be required to register for the M.phil/Ph.D programme. Such candidates must present two seminars and a research-proposal for grading and must score a minimum CGPA of 3.5 before preceding to the Ph.D, otherwise the M.phil Degree should be awarded upon the submission of the thesis. The thesis should be examined following the procedure: of Ph.D thesis.

AREAS OF SPECIALIZATION

Areas of specialization in which candidates could specialize include:

- Social and Political History
- Economic History
- Diplomacy & International Relations

DURATION OF PROGRAMMES

- a) M.A.**
- i) The full time M.A. programme would run for a minimum of three semesters (the final semester being fully devoted to writing the thesis) and a maximum of four semesters.
- ii) The Part-time M.A. programme would run for a minimum of six semesters and maximum of eight semesters.
- b) Ph.D**
- i) The full time Ph.D. programme would run for a minimum of six semesters and a maximum of eight semesters,
- ii) The part-time Ph.D programme would run for a minimum of eight semesters and a maximum of ten semesters.

REQUIREMENTS FOR GRADUATION

(a) M.A Programme

To be awarded the M.A. degree, candidates must have taken and passed the prescribed number of compulsory and required courses selected from the provided list, and totaling 30 units as follows:

Core Courses	24 units
Dissertation	6 units
Total	30 units

In all cases, M.A. students must write and submit to the Department a thesis duly supervised by a lecturer

in the Department whose qualification is not below the Ph.D. degree. Such a thesis must be defended before an external examiner nominated by the Department and appointed by Senate for that purpose.

b) Ph.D. Programme

To graduate, all Ph.D. candidates must take and pass all the requisite courses as prescribed in the Ph.D course list below totaling 27 units as follows: Core Courses 18 units (including Seminars I and II and two other compulsory courses)

Thesis	9 units
Total	27 unit

Every Ph.D. candidate must submit a Dissertation on a chosen and approved topic, supervised by a member of staff whose qualification is not below the Ph.D, and who is not lower than Senior Lecturer in rank.

The Ph.D. thesis must be defended before an external examiner duly nominated for that purpose and appointed by Senate.

POST-GRADUATE DIPLOMA IN HISTORY AND DIPLOMACY

(i) Objectives and Target

In recent years, there have been a number of non-history graduates applying to our graduate programmes both at the MA and PhD levels. Most of them have been denied admission due to their non-history background. This programme is designed, therefore, to provide non graduates of History & Diplomatic Studies with the basic essentials of History and Diplomacy within 12 calendar months. The aim is not only to prepare and qualify them for a Masters of Arts degree in Diplomacy but also to equip them for careers in which a work knowledge of History and Diplomacy is essential accordingly, the graduates in the Humanities, Social Sciences, Education, Law and the Management Sciences will find the programme beneficial. Among the additional targeted professionals expected to benefit from the programme are Protocol Officers in the Public Service, diplomatic correspondents in media houses, career diplomats and aspiring diplomats.

(ii) Qualification for Admission:

To be eligible for admission into the Post-Graduate Diploma programme in History and Diplomacy, a candidate must have good honour degree in the Humanities, Social Sciences, Education, Law and the Management Sciences.

(iii) Duration:

The Post-Graduate Diploma in History and Diplomacy is designed for 12 calendar months full time.

SGS 801.1	ICT and Research Methods	2
	Total	17

(vi) COURSE CODES AND TITLES (PGD)

FIRST SEMESTER

Course Code	Course Title	Credit Units
HDS 700.1	Themes and Methods in Pre-colonial African History	3
HDS 701.1	Introduction to Diplomacy	3
HDS 702.1	Fundamental French for Diplomatic Studies	3
HDS 703.1	The Political and Economic Development of Africa Since 1900	3
HDS 704.1	International Law, Security and Diplomacy	3
	Total	15

SECOND SEMESTER

Course Code	Course Title	Credit Units
HDS 705.2	The North and South in World Politics and Diplomacy	3
HDS 706.2	Political Developments in Nigeria Since 1900	3
HDS 707.2	Foreign Policy Formulations and Implementations in Nigeria Since Independence	3
HDS 708.2	International Organizations and Agreements	3
HDS 709.2	Human Rights and Environment in Contemporary Diplomacy	3
	Total	15

Course Code	Course Title	Credit Units
HDS 800.1	Theories and Methods of History	3
HDS 801.1	Advanced Studies in Philosophy of History	3
HDS 802.1	Colonialism, Nationalism and Independence in Africa	3
HDS 803.1	Evolution of Liberal Democratic Governments	3
HDS 804.1	Religion and the State in African History (Elective)	3

SECOND SEMESTER

Course Code	Course Title	Credit Units
HDS 805.2	Nation-Building in Post-Independence Africa	3
HDS 806.2	The Blacks in Diaspora	3
HDS 807.2	The Military and Politics in Nigeria	3
HDS 808.2	Urban History of Africa	3
HDS 809.2	Studies on Strategic Issues Since the 20th Century (Elective)	3
HDS 810.2	MA Thesis	6
SGS 801.2	Management and Entrepreneurship	2
	Total	23

Total Credit Units for Semesters 1 and 2 = 42 Units

B. ECONOMIC HISTORY OPTION

Course Code	Course Title	Credit Units
HDS 800.1	Theories and Methods of History	3
HDS 811.1	Economic History and Developments in Africa Since the 20th C	3
HDS 812.1	Economic History of Nigeria since 20th Century	3
HDS 813.1	Land and Labour in Africa	3
HDS 814.1	Africa and European Imperialism	3
SGS 801.1	ICT and Research Methodology	2
	Total	17

Course Code	Course Title	Credit Units
HDS 815.2	Comparative Industrial Growth and Development of Japan & China	3
HDS 816.2	Capitalism, Communism and Mixed Economy	3
HDS 817.2	Economic Role of Women in African History	3
HDS 818.2	Problems and Prospects of Reg Econ Co-operation in W/Africa	3
HDS 819.2	Development Theory and Practice; A study of Poverty in Africa	3
HDS 810.2	MA Thesis	2
SGS 801.2	Management and	

Entrepreneurship
Total 20
Total Credit Units for Semesters 1 and 2 — 42 Units

C. DIPLOMATIC & INTERNATIONAL STUDIES OPTION

FIRST SEMESTER

Course Code	Course Title	Credit Units
HDS 800.1	Theories and Methods of History	3
HDS 820.1	Theories of International Relations	3
HDS 821.1	International Institutions and Organizations	3
HDS 822.1	Contemporary History of the Middle East	3
HDS 823.1	The Conduct of Modern Diplomacy	3
HDS 824.1	Comparative Borderlands History	6
SGS 801.1	ICT and Research Methods	2
Total		20

SECOND SEMESTER

Course Code	Course Title	Credit Units
HDS 825.2	Trends in World Diplomacy	3
HDS 826.2	Africa and the Wider World	3
HDS 827.2	Modes of Diplomacy	3
HDS 828.2	Advanced Studies in Int'l Law and Diplomacy since the 19th Cent.	3
HDS 829.2	The Evolution of Nigerian Foreign Policy (Elective)	3
HDS 810.2	MA Thesis	6
SGS 801.2	Management and Entrepreneurship	2
Total		23

PhD COURSES OFFERED IN THE Ph.D PROGRAMMES

SOCIAL AND POLITICAL HISTORY OPTION

FIRST SEMESTER

Course Codes	Course Titles	Credit Units
HDS 900.1	Seminar I	
HDS 901.1	Africa and European Imperialism	3

HDS 902.1	Advanced Studies in Policies of Major World Powers	3
HDS 903.1	Modern African Political Thought	3

SECOND SEMESTER

Course Codes	Titles	Credit Units
HDS 904.2	Seminar 11	3
HDS 905.2	Themes in Social and Political History of Africa Since independence	3
HDS 906.2	Problems and Issues in African Historiography	3
HDS 907.2	Socio-Political and Economic Reforms and Democratic Rule in Nigeria since 1999	3
HDS 908.2	PhD Dissertation	12
Total		24

Total credit Unit for Semester 1 and 2 = 42 Units

B. ECONOMIC HISTORY

FIRST SEMESTER

Course Codes	Titles	Credit Units
HDS 900.1	Seminar 1	3
HDS 909.1	Advanced Studies in Economic History of Nigeria Since the 20th Cent.	3
HDS 910.1	Land and Labour in Africa	3
HDS 911.1	Comparative Economic History of Japan	3
Total		12

SECOND SEMESTER

Course Codes	Titles	Credit Units
HDS 904.2	Seminar II	3
HDS 912.2	Economic Reforms in Africa since the 1980s	3
HDS 913.2	Africa and the World Economic Order	3
HDS 914.2	Comparative Industrial Growth and Development of USA and Britain	3
HDS 908.2	PhD Dissertation	9
Total		21

Total credit Unit for Semester 1 and 2 = 39 Units

B. DIPLOMATIC AND INTERNATIONAL STUDIES OPTION

FIRST SEMESTER

Course Codes	Titles	Credit Units
HDS 900.1	Seminar 1	3
HDS 915.1	Advanced Studies in International Relations	3
HDS 916.1	War and Peace in Africa	3
HDS 917.1	Advanced Studies & Trends in World Diplomacy	3
	Total	12

SECOND SEMESTER

Course Codes	Titles	Credit Units
HDS 904.2	Seminar II	3
HDS 918.2	Evolution of Diplomacy International	3
HDS 919.2	Economic Relations Since 1945	3
HDS 920.2	East-West Relations since 1945	3
HDS 908.2	PhD Dissertation	9
	Total	21

Total Credit Units for Semesters 1 and 2 = 39 Units

PGD COURSE DESCRIPTIONS

FIRST SEMESTER

HDS 700.1 THEMES AND METHODS IN PRE-COLONIAL AFRICAN HISTORY

This is a survey course designed to familiarize the students with History as an academic discipline. The areas of emphasis will include issues such as the evolution of historical thought, the nature of History, methods of history and themes in the pre-colonial past, among others.

HDS 701.1 INTRODUCTION TO DIPLOMACY

The course is designed to introduce them to diplomacy as an adjunct discipline of history. As a result, it will also trace the origins of diplomacy from ancient to modern times. Students will be familiarized with the basic concepts and institutions through which foreign policy is executed.

HDS 702.1 FUNDAMENTAL FRENCH FOR DIPLOMATIC STUDIES

This is a beginner's course in French language. It is essentially communication-based, dwelling on basic French grammar and general vocabulary build-up. Using simple French texts with wide

thematic scope, students learn to read, speak and write.

HDS 703.1 THE POLITICAL AND ECONOMIC DEVELOPMENT OF AFRICA SINCE 1900:

The course seeks to explain why development seems to have eluded the African continent. The course will examine the historical roots of Africa's underdevelopment since its incorporation into the World economic system, as well as those internal factors within the African continent, such as the problems of apartheid and the liberation movements, which contributed to creating the crisis of development.

HDS 704.1 INTERNATIONAL LAW, SECURITY AND DIPLOMACY

This course seeks to examine the threat to law and security, international. It will examine the beginning of the arms race after the Second World War and the various efforts to reduce strategic arms. The course will also examine how the quest for national identity and religion constitute a threat to international security. The attempts of the US and UN to control nuclear proliferation and the consequences of these will also be examined.

SECOND SEMESTER

HDS 705.2 THE NORTH AND SOUTH IN WORLD POLITICS AND DIPLOMACY

This is an introductory course to international political economy. The course will examine how unequal exchange brought about a basic division of the world economy into a rich north and poor south and how the North uses its economic power to achieve its political goals in international relations. Other issues to be examined include trade, investment and monetary relations amongst the industrialized countries.

HDS706.2 POLITICAL DEVELOPMENTS IN NIGERIA SINCE 1900

This course deals with the major themes in Nigerian political history. These include the amalgamation, constitutional reforms, the nationalist movement, the formation of political parties, independence, military intervention, the civil war and States creation.

HDS 707.2 FOREIGN POLICY FORMULATIONS AND IMPLEMENTATIONS IN NIGERIA SINCE INDEPENDENCE

What are the objectives of Nigerian foreign policies, and what are the elements which influence policy making in Nigeria? This course will examine these factors and related questions

including the interest which African states seek to secure in international relations, both within and outside the continent. The foreign policy machinery in Nigeria under civil and military regimes will also be discussed, as well as the role of the bureaucracy in the policy making process.

HDS 708.2 INTERNATIONAL ORGANIZATIONS AND AGREEMENTS

This course seeks to teach students how world and regional organizations function in the conduct of diplomacy, as well as the role, privileges and immunities of international officials. Students will be taught the place of agreements in the conduct of diplomacy, the meaning of treaties and conventions; how agreements can be drawn up and ratified, as well as other technical matters pertaining thereto. Others are the entire spectrum of the functions and role of consular officials, how they are appointed as well as their immunities.

HDS 709.2 HUMAN RIGHTS AND ENVIRONMENT IN CONTEMPORARY DIPLOMACY

The protection of human rights and the natural environment have become key issues in contemporary international relations and diplomacy. Definitions of human rights have transcended the traditional notion of civil liberties and self-determination to include a widening range of economic, political and social rights. At the same time critical disappearance of an increasing range of plant and animal species, the rapid consumption raising concerns about the environment to new levels. This course deals with this wide spectrum of human rights and environmental issues. It examines how these issues are being played out in the diplomatic arena where national interests have often undermined the efforts to forge a common consensus.

M.SC COURSE DESCRIPTION

FIRST SEMESTER

HDS. 800.1 THEORIES AND METHODS OF HISTORY

This course takes a critical look at the rationale behind the various approaches adopted by historians in different societies and epochs, highlighting their strengths and weaknesses. It will also examine the fundamental questions of objectivity and truth in historical research. The potentials and limitations of the disciplines related to history, including archaeology, paleontology, biology, historical linguistics, the social sciences, statistics and computer science for historical reconstruction would also be highlighted. The course will also introduce the students to the essentials of Historical and Social

(environmental) Impact Assessment methodology, the use of archival sources, and the issues of documentation and copyright.

HDS 801.1 ADVANCED STUDY IN PHILOSOPHY OF HISTORY

The course examines the meaning, nature, significance and relevance of history to society. Topics like ultimate history, objectivity in history, causation in history, moral judgment in history, history as science and/or art as well as the history of history writing and the development of history as a discipline will be discussed and examined.

HDS 802.1 COLONIALISM, NATIONALISM AND INDEPENDENCE IN AFRICA

The course takes a critical look at the impact of colonialism in Africa; the internal and external factors of African nationalism nationalist movements in Africa: the philosophy of African nationalist leaders like Kwame Nkrumah, Nnamdi Azikiwe, Ahmed Ben Bella, Gamal Abdel Nasser and Houphouet-Boigny; nationalism in settler and non-settler colonies and attainment of independence by African countries.

HDS 803.1 EVOLUTION OF LIBERAL DEMOCRATIC GOVERNMENTS

The course examines the origins of liberal democratic forms of government namely: Parliamentary form of government practised in Great Britain and France and the Presidential system practised in USA and some African countries.

HDS 804.1 RELIGION AND THE STATE IN AFRICAN HISTORY

The course deals with the issue of religion and the State in Africa in time perspective. Indigenous religious traditions and beliefs, Islam and Christianity are the major religions to be examined.

SECOND SEMESTER

HDS 805.2 NATION-BUILDING IN POST-INDEPENDENCE AFRICA

The course examines approaches to nation-building in global comparative perspective. Case studies of plural societies illustrate how particular peoples and nations have dealt with the challenges of nation-building, drawing lessons for African countries. The problem of nation-building examined in this course include: the party systems; the problems of one-party system in a democratic polity; post-independence African political **economy**, **foreign policy issues**; **problems of political** stability, ethnic national boundaries; bilateral and multilateral relationships in Africa.

HDS 806.2 THE BLACKS IN DIASPORA

The focus here is on the history of Africans in the Americas. The course will specifically examine the trans-Atlantic slave trade, comparison of the status and treatment of slaves and the mulattoes in British French Spanish and Portuguese colonies; the abolition of the **slave** trade and slavery; the civil rights movement in the United States; African Americans and the political and economic development of Africa and Africa in America today,

HDS 807.2 THE MILITARY AND POLITICS IN NIGERIA

The course discusses military intervention and **Governance in Nigeria. Topics discussed here include** the various military' regimes in Nigeria beginning with **The** Major Nzeogwu Coup of 1966 to the regime of General Sani Abacha. Why each military regime came to **power**, what they achieved as well as their failures are highlighted; finally the opinion that military is an aberration and undemocratic is popularly expressed.

HDS 808.2 URBAN HISTORY OF AFRICA

The course deals with urbanization from prehistoric **time** to the present. It highlights changes wrought by technology, trade, warfare, migrations, imperialism and **other** factors. Issues to be examined include the **economy**, politics and social conditions in African cities, and the rise and challenge of mega-cities in Africa

HDS 809.2 STUDIES IN STRATEGIC ISSUES SINCE THE 20TH CENTURY

The course deals with events and issues in the 20th and 20th centuries that are of strategic relevance. The contributions of Hitler, Mao Zedong, Alfred Mahan, Thomas Schelling and Robert McNamara on the subject will be examined. Such modern concepts and theories as game theory, theory of conflict and conflict resolution, deterrent strategic planning, defence policies, foreign policy analysis and the role of science and technology in strategic thinking and planning will be discussed. In addition an attempt will be made to apply the various theories to selected case studies.

810.2 M.A. THESIS

The topic chosen by the candidate will be researched under supervision.

COURSE DESCRIPTION

FIRST SEMESTER

HDS. 800.1 THEORIES AND METHODS OF HISTORY

This course takes a critical look at the rationale behind the various approaches adopted by historians in different societies and epochs, high

lighting their strengths and weaknesses. It will also examine the fundamental questions of objectivity and truth in historical research. The potentials and limitations of the disciplines related to history, including archaeology, paleontology, biology, historical linguistics, the social sciences, statistics and computer science for historical reconstruction would also be highlighted. The course will also introduce the students to the essentials of Historical and Social (environmental) Impact Assessment methodology, the use of archival sources, and the issues of documentation and copyright,

HDS 811.1 ECONOMIC HISTORY AND DEVELOPMENTS IN AFRICA SINCE THE 20TH CENTURY

This course examines the Dependency Theory and post- independence African economies; problems and prospects of regional economic organizations; The role of the IMF and the World Bank; the place of Economic Commission for Africa (ECA) in the economic development of Africa; Africa and the global economy produce exports and strategic minerals

HDS 812.1 ECONOMIC HISTORY OF NIGERIA SINCE THE 20TH CENTURY

The themes to be discussed here include: the nature and pattern .of external influences on Nigeria's economic and political development; major trends and changes in the monetary and banking sectors of the economy, mining and manufacturing/industrial sector; agriculture, the Nigerian oil economy and OPEC; Indigenization, Commercialization, Deregulation and Privatization; Government agricultural development schemes, such as Operation Feed the Nation, Green Revolution, River Basin Development- Authorities; Agricultural Development Projects (ADPs); the Structural Adjustment Programme (SAP), National Directorate of Employment (NDE), DFRR1, Better Life for Rural Women; Family Support Programme, Poverty Alleviation Measures/ Programme; NEEDS, Corruption and the Economy, etc.

HDS 813.1 LAND AND LABOUR IN AFRICA

The courses discusses and analyses land and labour as factors of production in the economies of African societies since the advent of Europeans with their commercial and imperial interests in Africa. Land tenure systems, plantation agriculture versus peasant-based agricultural economy, colonial policies on land and labour, and African reactions to such policies will also be examined. Post-independence developments on land, labour and related issues will also be considered.

HDS 814.1 AFRICA AND EUROPEAN IMPERIALISM

This course makes a general survey of the internal and external developments and dynamics that prepared the setting in both Europe and Africa for European imperialism. Students are expected to study some of the theories of imperialism as propounded by thinkers like Hobson, Lenin, J.A. Schumpeter, Rosa Luxemburg, and D.K. Fieldhouse. Themes to be covered include historical origin of imperialism, colonialism and neocolonialism. Selected case studies shall be examined with particular to economic implications.

SECOND SEMESTER

HDS 815.2 COMPARATIVE INDUSTRIAL GROWTH AND DEVELOPMENT OF JAPAN AND CHINA

The course examines the different approaches adopted by the industrial nations and powers like Japan and China, compares and contrasts these approaches and uses them as example for the Third World countries to emulate.

HDS 816.2 CAPITALISM, COMMUNISM AND MIXED ECONOMY

The course analyses the three types of economic systems, namely Capitalism, Communism and Mixed Economy. It explains the mode of production and distribution adopted by each system as well as the problems associated with each system.

HDS 817.2 ECONOMIC ROLE OF WOMEN IN AFRICAN HISTORY

The course examines the contributions of women to the growth and development of African societies in the socio-economic development of Africa. Prominent female personalities like the legendary Queen Amina of Zaria, Omu Okwei, Mrs. Funmilayo Anikulapo Kuti: and Mrs. Margaret Ekpo are to be studied.

HDS 818.2 PROBLEMS AND PROSPECTS OF REGIONAL ECONOMIC CO-OPERATION IN WEST AFRICA

The course examines the features of the economy of West African Sub-region and issues in its underdevelopment. It further examines the various organizations in West Africa (such as the Mano River Union, the Benin Union and ECOWAS) which have been setup by joint effort of the states in the sub-region to facilitate economic development; the problems and prospects of these efforts are to be highlighted.

HDS 819.2 DEVELOPMENT THEORY AND PRACTICE, A STUDY OF POVERTY AND

DEVELOPMENT IN AFRICA

This course takes a critical look at the various theories of development propounded by development theorists, planners and administrators. The extent to which these theories have been found practicable in given historical, cultural and environmental contexts will also be examined. On the whole, the course will try to answer questions on the roots of poverty and underdevelopment; as well as the past and recent strategies for promoting sustainable human development in the developing world, especially Africa. Thus, the historical legacies that shape contemporary developments in Africa and the developing world, as well as the importance of culture, technology and the environment to Africa's development will also be emphasized.

HDS 810.2 M.A. THESIS

COURSE DESCRIPTION

FIRST SEMESTER

HDS. 800.1 THEORIES AND METHODS OF HISTORY

This course takes a critical look at the rationale behind the various approaches adopted by historians in different societies and epochs, high lighting their strengths and weaknesses. It will also examine the fundamental questions of objectivity and truth in historical research. The potentials and limitations of the disciplines related to history, including archaeology, paleontology, biology, historical linguistics, the social sciences, statistics and computer science for historical reconstruction would also be highlighted. The course will also introduce the students to the essentials of Historical and Social (environmental) Impac: Assessment methodology, the use of archival sources, and the issues of documentation and copyright.

HDS 820.1 THEORIES OF INTERNATIONAL RELATIONS

A plethora of theories arose as analytical tools in the Study of international relations after the Second World War. These theories hypothetically seek to establish the causes of conflicts and made suggestions on how to avoid them. The theories to be studied include: the realist theory; the game theory; the communication theory and radical political economy or Marxist theory

HDS 821.1 INTERNATIONAL INSTITUTIONS AND ORGANIZATIONS

This course examines the genesis and historicity, antecedents of International Institutions and Organizations. These Organizations include: The Congress of Vienna, The League of Nations; The UNO, The OAS, The EEC/EU, The OAU/AU,

ECOWAS, ASEAN and The Arab League.

HDS 822.1 CONTEMPORARY HISTORY OF THE MIDDLE EAST

This course discusses the major issues and crises in the Middle East since the European colonization of the area: the Arab-Israel conflict; relations among the Arab nations; the politics of oil; the Palestinian question, The Gulf Crises and the contemporary American invasion of Iraq and the Iran war.

HDS 823.1 THE CONDUCT OF MODERN DIPLOMACY

This course will introduce students to international law and its significance in the conduct of Diplomacy. The course will also examine the role of mediation in intra and inter-state conflicts.

HDS 824.1 COMPARATIVE BORDERLANDS HISTORY

The course deals with the theories and concepts of borderlands history. It highlights the factors in the making of internal and international boundaries, case studies of borderland communities and partitioned Peoples.

SECOND SEMESTER

HDS 825.2 TRENDS IN WORLD DIPLOMACY

The course traces the evolution of contemporary world diplomacy from the Congress of Vienna to the present. Principles and issues like balance of power, continentalism European imperialism and colonization are discussed. Also discussed are America's policy of isolationism and non-interference by external powers in American continental affairs. The failure of the League of Nations and Collective Security, The Second World War it and America's involvement in the war; the principle of self-determination and the Atlantic Charter, the Cold War. East/West relations, the collapse of the Soviet, Union (USSR), the new World Order and Globalization are also issues that come under focus.

HDS 826.2 AFRICA AND THE WIDER WORLD

Issues treated here include the foreign factor in the decolonization of Africa; Independence and neocolonialism in Africa; Africa and international organizations like the UNO, EEU/EU, social aspects of penalization; Africa and super power politics; Africa and the new World Order, etc.

HDS 827.2 MODES OF DIPLOMACY

The course is designed to introduce students to the principles and processes of negotiation as well as aspect of Diplomatic privileges and immunities. The course will also introduce students to diplomatic correspondence and language; as well

as the merits and demerits of summitry in Diplomacy.

HDS 828.2 ADVANCED STUDIES IN INT'L LAW AND DIPLOMACY SINCE THE 19TH CENTURY

The course examines the emergence of nation states in Europe and the growth of diplomatic intercourse among them. The issue of diplomacy and the emergence of international law in relation to the Holy Alliance, Vienna Congress of 1815, the Congress of Aix-la-Chapelle of 1818" the Hague system, the Concert of Europe, The Berlin Congress, Colonialism, Trade and diplomatic theories etc. will also be discussed.

HDS 829.2 THE EVOLUTION OF NIGERIAN FOREIGN POLICY

The course exposes students to the thrust and dynamics of Nigerian foreign policy since 1960. It also addresses major issues that determine the basis of Nigeria's foreign policies and how these have affected the development of Nigeria as a nation over the years.

HDS 810.2 MA THESIS

The topic chosen by the candidate will be researched under supervision.

PH.D COURSE DESCRIPTION

FIRST SEMESTER HDS 900.1 SEMINAR I

Topic to be chosen by the student or assigned by the lecturer

HDS 901.1 AFRICA AND EUROPEAN IMPERIALISM

The courses make a general survey of the internal and external developments and dynamics that prepared the setting both in Europe and Africa for European imperialism. The theories of imperialism propounded by renowned thinkers like A.J. Hobson, V.I. Lenin, Rosa Luxemburg, Antonio Gramsci, J.A. Schumpeter and D.K. Fieldhouse will be analyzed. Themes to be discussed include the historical origin of imperialism, colonialism, and neo-colonialism. Case studies will be made.

HDS 902.1 ADVANCED STUDIES IN THE POLICIES OF MAJOR WORLD POWERS

The course examines the foreign policies of the major world powers namely: USA, Russia, Britain, France, China, Japan and Germany within the context of world politics World War II.

HDS 903.1 MODERN AFRICAN POLITICAL THOUGHT

Like political and opinion leaders in other parts of the world, Africans and people of African descent have, in the course of their struggle against

imperialism and underdevelopment, introduced and popularized new political ideas that have inspired and guided them not only in Africa but also peoples and nations elsewhere. This course will examine the dominant political ideas generated and popularized by Africans in the context of their historical struggles, such as Pan-Africanism, African Socialism, African Renaissance, African Personality; Negritude; Consciencism; African Humanism, Positive Neutralism and Non Alignment etc. The course will also examine the historical forces that have impeded the success of some of these ideas. In particular, the political ideas of leaders like Nelson Mandela of South Africa, G.A. Nasser of Egypt (North Africa), Julius Nyerere of Tanzania (West Africa), Kwame Nkrumah of Ghana, as well Obafemi Awolowo and Nnamdi Azikiwe of Nigeria (West Africa) will be examined.

SECOND SEMESTER

HDS 904.2 SEMINAR II

Topic to be chosen by the student or assigned by the Lecturer

HDS 905.2 THEMES IN SOCIAL AND POLITICAL HISTORY OF AFRICA SINCE INDEPENDENCE

The course examines the following topics: political instability in Africa since independence; military rule; one-party system; ethnic conflicts and hegemony; minority rule; struggle for democracy in the 1980s and 1990s, etc.

HDS 906.2 PROBLEMS AND ISSUES IN AFRICAN HISTORIOGRAPHY

The course examines the ramifications of historiography: the meaning of history to Africans; written and non-written sources for the writing of African history such as archaeology, ethnography, linguistics, early writings on Africa, European sources of African history, including missionary and colonial archives; and the interdisciplinary approach-to the study of African history.

HDS 907.2 SOCIO-POLITICAL AND ECONOMIC REFORM AND DEMOCRATIC RULE IN NIGERIA SINCE 1999

The course deals with the major socio-political and economic developments in Nigeria since the return to civil rule in Nigeria in May 1999. Topics to be treated include: Constitutional Debate, Revenue Allocation, the Press and consolidation of democracy in Nigeria; relations among the three tiers (Federal-State-Local) or arms (Executive-Legislature-Judiciary) of government, labour and industrial management educational and health matters; external relations of Democratic Nigeria; the challenge of systemic corruption and

economic reforms in Nigeria.

HDS 908.2 DISSERTATION

The topic chosen by the candidate will be researched under supervision.

COURSE DESCRIPTION

FIRST SEMESTER

HDS 900.1: SEMINAR I

Topic to be chosen by the student or assigned by the lecturer

HDS 909.1 ADVANCED STUDIES IN ECONOMIC HISTORY OF NIGERIA SINCE THE 20TH CENTURY

The course discusses the nature and pattern of external influences in Nigeria's economic and political developments; the major trends and changes in the monetary and banking sectors of the economy, mining and manufacturing/industrialization sector; agriculture, Nigerian oil sector and OPEC; Indigenization, Commercialization, Deregulation and Privatization policies of government; Operation Feed the Nation, Green Revolution, River Basin Development Authorities; Agricultural Development' Projects (ADPs), the Structural Adjustment Programme (SAP), National Directorate of Employment (NDE), DFRRI. Better Life for Rural Women, Family Support Programme; Poverty Alleviation Programme; NEEDs. Corruption and the Economy.

HDS 910.1 LAND AND LABOUR IN AFRICA

The courses discusses and analyses land and labour as factors of production in the economies of African societies since the advent of Europeans with their commercial and imperial interests in Africa. Land tenure systems, plantation agriculture versus peasant-based agricultural economy, colonial policies on land and labour, and African reactions to such policies will also be examined. Post-independence developments on land, labour and related issues will also be considered.

HDS 911.2 COMPARATIVE ECONOMIC HISTORY OF JAPAN, SOUTH KOREA AND SINGAPORE SINCE WORLD WAR II

The course compares the differential experiences of the three Asian powers since World War II. It highlights the process of institutional reforms and economic development as 'captured by the term "Asian Tigers," with lessons for African countries.

SECOND SEMESTER

HDS 904.2 SEMINAR II

Topic to be chosen by the student or assigned by the lecturer

HDS 912.2 ECONOMIC REFORMS IN AFRICA SINCE THE

THE course examines the crisis of economic underdevelopment, national industrial policies (such as import-substitution), problems and prospects of regional economic organizations, the role of the IMF, the World Bank and the Economic Commission for Africa (ECA) in the economic development of Africa.

HDS 913.2 AFRICA AND WORLD ECONOMIC ORDER

The course examines African economics in the global context: the slave trade; "legitimate" trade; colonization and unequal economic relations of Africa and the imperial powers; the relevance of Dependency Theory; The World Bank, IMF and African economies; UNCTAD: foreign borrowing and foreign debts in the economic development of Africa; the information and communications technology (ICT) revolution; globalization and the African economy" intercontinental trade, theories of international trade, foreign and underdevelopment; the politics of the new international economic order, etc.

HDS 914.2 COMPARATIVE INDUSTRIAL GROWTH AND DEVELOPMENT OF USA AND BRITAIN

The course examines different approaches adopted by various industrial countries of the world, with particular reference to Britain and USA, against their different backgrounds and settings, to achieve industrial development. This contrasts with the dismal record of Third World countries.

HDS 908.2 DISSERTATION

Topic chosen by the candidate will be researched under supervision.

COURSE DESCRIPTION

FIRST SEMESTER

HDS 900.1 SEMINAR I

Topic to be chosen by the student or assigned by the lecturer.

HDS 915.1 ADVANCED STUDIES IN INTERNATIONAL RELATIONS

This course equips the students with a better understanding of interaction among nations in the international environment. It focuses on bilateral and multi-lateral relations, especially in the framework of international organizations. Themes examined include treaties and alliance formation as exemplified by the Entente Cordiale, Triple Alliance, and the Treaty of Versailles; the League of Nations, the United Nations, the Security

Council and use of Veto power, the North Atlantic Treaty Organization (NATO), Warsaw Pact, the Non-alignment Movement and Cold War.

HDS 916.1 WAR AND PEACE IN AFRICA

The course deals with the background to and the causes of wars; the nature, course and effects of conflicts, insurgency and counter-insurgency, peace and conflict resolution mechanisms; disarmament and arms control; the role of international organizations in peace initiatives, etc.

HDS 917.1 ADVANCED STUDIES IN TRENDS IN WORLD DIPLOMACY

The course traces the evolution of contemporary 'world diplomacy from the Congress of Vienna to the present. Principles and issues like *balance of power*, continentalism, European imperialism, globalization, American policy of isolationism and foreign noninterference in their affairs, the failure of the League of Nations and Collective Security; The Second World War and American involvement in the war; the principle of self determination; The Atlantic Charter; The Cold War; East/West relations; the Collapse of the Soviet Union (USSR); The New World Order and Globalization are all discussed.

SECOND SEMESTER HDS 904.2 SEMINAR II

Topic to be chosen by the student or assigned by the Lecturer

HDS 918.2 EVOLUTION OF DIPLOMACY

This is a critical examination of diplomacy as the vehicle through which nations interact. Accordingly, the course will focus on the evolution and the development of diplomacy from the classical period to the present. The institutional framework of modern diplomacy will also be taught.

HDS 919.2 INTERNATIONAL ECONOMIC RELATIONS SINCE 1945

The course examines the link between "economics" and "politics" in international relations. It also discusses the issue of International monetary arrangement; Politics of International trade. Theories of international trade relations; foreign Aid and underdevelopment; the politics of the new International Economic Order.

HDS 920.2 EAST-WEST RELATIONS SINCE 1945

This course discusses the history of the Cold War, with emphasis on relations between the Western and Eastern blocs; the roles of NATO and Warsaw Pact countries; China, Cuba and the Third World countries,

HDS 908.2 HDS 908.2 DISSERTATION

The topic chosen by the candidate will be researched under supervision.

ACADEMIC STAFF LIST

S/N	NAME	QUALIFICATION	AREA OF SPECIALIZATION	RANK
1.	Ebiegberi Joe ALAGOA, FHSN	B.A.;MA; Lond. Ph.D. Wis	'Oral Historiography 'African Studies 'African Philosophy of History	Emeritus Professor
2.	Ben B. B NAAENEN	BA MA; Ph.D Dalhousie	'Economic History 'International Economic Relations	Professor

3.	John Horace ENEMUGWEM, FHSN	BA; MA; Ph.D UPH	'Historiography 'Political History	Professor
4.	Emmanuel E. Obuah	Ph.D University of Sussex; LLM University of Sussex; MA International Relations; M.A	theory of International Relations International Political Economy 'Transnational Offending Comparative Political System	Professor
5.	Atei Mark OKOROBIA	BA; MA; Ph.D UPH	'Environmental and Development Studies 'African and Commonwealth History 'Afro-American History	Professor
6.	Emma M. GBENENYE	BA; MA; Ph.D. UPH	'European History 'Diplomatic Studies	Professor
7.	Stanley I. OKOROAFOR	BA;UPH MA Ib; PhD	'Early African History' 'African Archaeology	Professor
8.	Dr. Edward T. BRISTOL-ALAGBARIYA	Post-Doctoral Cert CEPMLP, Uni of Dundee, Scotland, UK, 2011); PhD CEPMLP, MILD, UniLag,	African History, International Law and Diplomacy	Senior Lecturer
9.	Dr. O.C. ASUK	BA; MA; Ph.D UPH	'International History 'African History	Lecturer I
10.	Dr. Mfon EKPOOTU	BA Unical MA, PhD UPH	'Social History 'Gender Studies	Lecturer I
11.	Dr. Mrs. P. A. GOBO	BA; MA, PhD Uyo	'Inter Group Relations 'African History	Lecturer I
12.	Mr Charles C. MENE	BA UPH MA Ibadan PGD (Journ) NIJ, Lagos	'African History 'International Affairs and Diplomacy'	Lecturer I
13.	Mr. Nnwobunwene SCF	BA. MSc; UPH	'International Relations 'Diplomacy'	Lecturer I
14.	Edwin C. ASSOR	BA; MA; UPH	'African History 'Economic History'	Lecturer I
15.	Dr. Mbadiwe Jeremiah	BA Unical MA, PhD UPH	'African Economic History '	Lecturer I

DEPARTMENT OF LINGUISTICS

GRADUATE PROGRAMMES

The department offers the following graduate programmes:

- Postgraduate Diploma in Linguistics
- MA and PhD Linguistics
- MA and PhD Linguistics /Igbo, Ikwere, Izon, Kalabari, Kana

POSTGRADUATE DIPLOMA IN LINGUISTICS

Aim and Objectives

The programme aims to provide the equivalent of the Linguistics content of the four-year

undergraduate programme in a single intensive year. It is a good qualification for any career that recognizes the central role of communication in all aspects of our everyday life. The programme is intended for the following categories of people:

- Graduates in a language subject or Education or any other discipline wishing to acquire basic linguistic knowledge in order to work on the development of a Nigerian Language;
- Language teachers wishing to strengthen their linguistics background in order to teach English;
- Those wishing to pursue a career in Linguistics Studies, e.g. professional speech writers.
- Editors, book publishers, press and company secretaries;
- Civil servants in the special education unit of the Ministry of Education.
- Information officers, etc.

Qualifications for admission

To be eligible for admission into the programme, a candidate must have a good honours degree in any field from any recognized university. Candidates with HND Upper Credit are also eligible for admission into the PGD programme.

Programme structure and content

The programme is designed for one academic session of course work comprising two (2) semesters. **A student is to register for 15 Credit Units per semester and pass them with grade of at least C.** Candidates who fail to meet the requirements for graduation may be allowed at most one academic session to repeat the courses they failed.

Classification of Certificate:

The classification is as follows:

Class	Cumulative grade Point Average (CGPA)
Distinction	4.60 – 5.00
Credit	3.80 – 4.59
Merit	3.50 – 3.79
Pass	3.00 – 3.49

List of Courses for the Postgraduate Diploma

First Semester

Course Code	Course Description	Credit Unit
LIN 700.1	Language and Linguistics	3
LIN 701.1	Basic Phonetics	3
LIN 702.1	Basic Phonology	3
LIN 703.1	Basic Morphology	3
LIN 704.1	Sociolinguistics	3

Second Semester

Course Code	Course Description	Credit Unit
LIN 720.2	Basic Syntax	3
LIN 721.2	Basic semantics	3
LIN 722.2	Study of a Nigerian Language	3
LIN 723.2	Applied Linguistics	3
LIN 724.2	Stylistics	3

COURSE DESCRIPTIONS

LIN 700.1 – Language and Linguistics

The course will focus on the uniqueness of human language and linguistics as the science of language. Lectures will cover basic characteristics of language, the organs of speech production, the analysis and description of human speech sounds, the structure of words, phrases and sentences, language and meaning, language variation from a purely synchronic point of view; the social considerations that influence language use, language variation from a diachronic perspective; methods for establishing genetic relationship among lects; language and human intelligence, language and artificial intelligence, etc. The close relationship between language and linguistics will be highlighted.

LIN 701.1 – Basic Phonetics

This course covers main issues of phonetic theory from a study of the different organs adapted for speech sound production, the respiratory system in speech to the ways in which they are co-ordinated to produce speech sounds; the main acoustic features of speech sounds and how these features are perceived by humans. The traditional description and classification of speech sounds, tones and other suprasegmentals. Implications for models of speech production for phonological theory will also be considered. Use of instruments in phonetics.

LIN 702.1 – Basic Phonology

This course covers a study of the basic principles of phonemic analysis; phonemes in minimal pairs, etc., allophones in free variation and complementary distribution; interpretation of doubtful segments and sequences; consonants and vowel systems of selected languages and major phonological processes. Students will be taught how to analyze phonological data from different languages; morphological alternation and neutralization; relationship between phonetics and phonology.

LIN 703.1 – Basic Morphology

This course introduces students to understand the structure of word and develop the ability to analyze the structure of different languages. At the end of the course, students should be able to describe the nature of word and different word formation processes.

LIN 704.1 – Sociolinguistics

The students will be acquainted with various concepts in language variation ('language', 'dialect', 'idiolect', 'accent', 'register', etc.). Multilingualism and related concepts ('diglossia', 'code-switching', 'code-mixing'). Language maintenance and shift. Language planning (with focus on the development of Nigerian languages). Indigenous lingua francas. English and Arabic in Nigeria. An overview of the principal theories concerning the origin, development, and sociolinguistic import of pidgin and creole languages. Basic characteristics of pidgins. More topics will be selected from the following: monogenesis, polygenesis, and hybridization; language contact and the influence of basilect and acrolect; pidginization, creolization and decreolization; linguistic universals, linguistic simplification and expansion, etc.

LIN 720.2 – Basic Syntax

This course introduces students to the fundamentals of syntax as a level of linguistics concerned with the study of the structure of phrases and sentences. Lectures will focus on the task of grammar, levels of grammatical adequacy, competence and performance, word-level categories, phrasal-level categories, intermediate categories, phrase markers, constituent analysis, generative grammar, finite state grammar, phrase structure grammar, transformational generative grammar, simple syntactic argumentation.

LCS 721.2 – Basic Semantics

This course is concerned with the study of meanings of words and sentences. The distinction between sense and reference; the role of meaning in communication; lexical and sentential semantics (e.g. synonymy, polysemy, homonymy, antonymy, ambiguity, paraphrase, entailment, presupposition, etc.); truth-conditional semantics, speech act theory.

LIN 722.2 – Study of a Nigeria Language

This course seeks to remedy the widespread illiteracy in languages which students already speak, and to apply the linguistic principles they are

learning in other courses to these languages. Lectures on general principles will be reinforced by practice in small groups based on the languages represented in the class. Students learn to transcribe their languages, to write them in the current linguistically acceptable orthography, and to analyze their basic grammar. Principles of a good orthography. Application of those principles to the writing of students' languages; vowel phonemes of the languages; phonetic and phonemic vowel charts; writing of vowels and vowel harmony; consonant phonemes of the languages; phonetic and phonemic consonant charts; tone in the languages including level and gliding tones, allotones, down drift and down step, tone classes of nouns and verbs, and tone changes in different environments; word division in writing, including the treatment of compounds, and conventions for the writing of clitics and of assimilated and contracted forms. Basic grammatical structure of the languages; SOV and SVO, position of inflectional markers, noun modifiers, adpositions, and adjuncts. Verbal categories; tense, aspect, perfect, mood, negation, interrogation. Nominal categories; number, gender, noun classes, case, definiteness. Emphasis will be placed on the categories represented in the languages spoken by the class.

LIN 723.2 – Applied Linguistics

The aim of this course is to introduce students to the practical applications of general linguistic theory to other disciplines outside the core area of linguistics, such as second or foreign language teaching, language planning and development, stylistics, lexicology and lexicography, book editing and publishing, mass media, public relations and advertising, communication disorders, etc.

LIN 724.2 – Stylistics

The course equips students with knowledge of the current theories of stylistics, paying particular attention to the place of aesthetics in media production. It will also help the students know the rudiments in book editing and publishing.

3.2 MA and PhD Programmes

Areas of Specialization

a) The following are areas of specialization for MA and PhD Linguistics majors:

- Descriptive Linguistics
- Applied Linguistics (Language Teaching)
- Applied Linguistics (Clinical Linguistics)
- Historical Linguistics

- Sociolinguistics

3.2.1 MA Programmes (Full-time & Part-time)

Admission Requirements: Candidates wishing to enroll in Linguistics must hold at least a Second Class Lower degree or a Merit pass with a CGPA of 3.50 on a 5 point scale in Postgraduate Diploma in Linguistics.

Part-time Registration: Candidates who register on a part-time basis must provide evidence that they:

- are engaged in regular employment,
- can devote a good proportion of their normal working year to their studies, and
- will be available for attendance at courses and for regular consultation with their supervisors.

Duration: The duration of the MA degree programme is 12 months (two semesters of course work plus a long vacation used for the writing of a thesis) for full-time students and 24 months for part-time students. Students who are unable to complete the thesis within the normal period must apply for an extension to the graduate studies Committee.

Degree Requirements: To obtain an MA, students must:

- pass all the registered courses for their programme with a grade of at least C
- present work at the graduate Seminar and participate in seminar discussions, obtaining at least a C grade.
- Submit a thesis of not less than 80 A4 pages, and obtain at least a C grade.

Pass an oral examination in defense of the thesis before a panel of examiners set up in accordance with University regulations.

List of Courses for the MA Programme

FIRST SEMESTER

MA in Linguistics

Course Code	Course Description	Credit Unit
SGS 801.1	ICT and Research Methodology	3
LIN 800.1	Advanced Phonetics	3
LIN 801.1	Advanced Phonology	3
LIN 802.1	Advance Morphology	3
LIN 803.1	Advanced Syntax	3
LIN 804.1	Advanced Semantics	

MA in Linguistics & a Nigerian Language

Course Code	Course Description	Credit Unit
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LIN 800.1	Advanced Phonetics	3
LIN 801.1	Advanced Phonology	3
LIN 802.1	Advanced Morphology	3
LIN 803.1	Advanced Syntax	3
SGS 801.1	ICT and Research Methods	3
LIN 841.1	Advanced Research Methods	3

Any One of the following:

Course Code	Course Description	Credit Unit
EST 801.1	Oral Literature	3
EST 836.2	Literary Theory and Criticism	3

SECOND SEMESTER

MA Linguistics

Course Code	Course Description	Credit Unit
SGS 801.2	Management and Entrepreneurship	3
LIN 841.2	Research Methods	3

Choose any four from the following:

Course Code	Course Description	Credit Unit
LIN 805.2	Sociolinguistics	3
LIN 806.2	Advanced English Grammar	3
LIN 807.2	Language Teaching & Learning	3
LIN 808.2	Language & Style in the Media/Stylistics	3
LIN 809.2	Communication Disorders	3
LIN 810.2	Historical Linguistics	3
LIN 811.2	Cognitive Linguistics	3

MA in Linguistics & A Nigerian Language Option

Course Code	Course Description	Credit Unit
SGS 801.2	Management and Entrepreneurship	3
LIN 841.2	Research Methods	3
Any Four of the following:		
LIN 805.2	Sociolinguistics	3
LIN 821.2	Language Teaching & Learning	3
LIN 826.2	Phonology of a Nigerian Language	3
LIN 827.2	Grammar of a Nigerian Language	3
LIN 828.2	The Development of a Nigerian Language	3

LIN 829.2	Comparative Study of an African Language Family	3
LIN 830.2	Dialectology of a Nigeria Language	3
LIN 831.2	Classification of an African Language Family	3
LIN 832.2	Written Literature in a Nigerian Language	3
LIN 811.2	Cognitive Linguistics	3

Third Semester (For all Options)

Course Code	Course Description	Credit Unit
LIN 840.3	Graduate Research Presentation	3
LIN 850.3	Dissertation	6

COURSE DESCRIPTIONS FOR MA PROGRAMMES

LIN 800.1 Advanced Phonetics: The course exposes students to the principles of articulatory and acoustic phonetics. Its main aim is to introduce students to phonetic fieldwork by teaching them how to carry out articulatory and acoustics analysis of speech sounds, engaged in instrumental methods of phonetic analysis and make empirical observations and theoretical generalizations. At the end of the course, students should be able to apply their knowledge of phonetic fieldwork to various research problems in both phonetics and phonology.

LIN 801.1 Advanced Phonology: This course focuses on the principles of establishing underlying forms predictability, economy, simplicity and naturalness; relating underlying forms to surface forms through phonological processes and rules. Ordering relationship; CV patterns and the association of tones; syllables and syllabification. The course will also involve the treatment of some suprasegmental phenomena such as tone, stress, intonation, etc. An overview of the progress of phonology from the theory of the phoneme through generative autosegmental and CV phonology, lexical phonology, metrical phonology, etc., to experimental phonology.

LIN 802.1 Advanced Morphology: This course focuses on topical issues in morphology. Topics that will be covered include: morphemes (affixes, bases and roots), morphs and allomorphy; word in typological perspective; types of word; inflection and derivation (number, person, verbal extensions, reduplication, compounding, incorporation, back-formation, clipping, conversion, etc.); properties of inflection and derivation; morphological change (pattern loss, coalescence, analogical change, etc.);

clitics and clitic phenomena; problems in isolating clitics; morphology and its relation to phonology and syntax.

LIN 803.1 Advanced Syntax: A study of syntax (within the framework of transformational generative gramme) not merely for its own sake, but also as a demonstration of argumentation in linguistics. A survey of transformational generative grammar from 1957 to the present. Emphasis will be laid on the relevance of the standard theory to subsequent frameworks, such as th the extended standard theory, revised extended standard theory, principles and parameters syntax: government-binding theory, minimalist program, etc. Students will also be encouraged (and guded) to study particular grammatical topics in some detail (e.g. relativization, complementation, serialization, nominalization, conjunctions, adjectives, adverbs, negation, interrogation, etc.).

LIN 804.1 Advanced Semantics: The course will examine various topics in lexical and sentential semantics and pragmatics, with focus on concepts and theories that are relevant to the relationship between syntax and semantics.

LIN 841.1 Advanced Research Methods: The course aims at taking advanced students through the fundamental issues involved in research presentation and the objectives and current approaches to research in Linguistics and social sciences. Differences in style-sheets (e.g. LSA, MLA, APA, etc.) will be examined. The course will be practice-oriented, and each candidate will be required to present a short research proposal applying the techniques they acquired in the course.

LIN 805.2 Sociolinguistics: Different approaches to language study (e.g. language as a stable structural system or language in terms of its relation to social factors); functions of language; the relationship between language variation and change (language loyalty and intelligibility; social and regional dialects; register; pidgins and creoles); language attitudes; bilingual and multilingual situations; diglossia; code-switching; language planning; speech function and speech acts; the structure of discourse, paralinguistic phenomena, research methods.

LIN 806.2 Advanced English Grammar: Building on the contributions of contemporary schools of linguistic theory, the course weeks to provide the kind of advanced academic study of

English grammar that will enable students to operate as well-informed users of descriptive and pedagogic grammars of English in the language-teaching classroom and elsewhere. Topics to be treated in detail include those that present special problems in the teaching of English as a second language or foreign language (e.g. tense and aspect, modals, the article system, phrasal verbs, Concordia relations, etc). The course will also offer individual students an opportunity to remedy the inadequacies of their previous learning of English grammar.

LIN 807.2 Language Teaching & Learning: The focus will be on second language teaching and learning or on mother-tongue teaching (with special focus on the teaching of Nigerian languages). The theories of language acquisition; the psychology of language teaching and learning; second language learning (error analysis, contrastive analysis, interlanguage, models of leaning and second language; course design and syllabus planning; evaluation of language teaching materials and programmes.

LIN 808.2 Language & Style in the Media/Stylistics: The course focuses on the principles and practice of textual analysis (especially media texts; covert communication, ostensive-inferential communication, semiotic and linguistic approaches in the study of style, figures of speech, pictorial metaphor in advertising. Language use in the various media.

LIN 809.2 Communication Disorders: The course presents the neuroanatomical and neurophysiological mechanisms that underlie the human communication process. Individual sections of the course are devoted to the neural mechanisms of speech, hearing and language along with the associated communication disorders. It studies, in particular, disorders associated with cleft, cleft palate/lip and craniofacial anomalies. The practical component involves experience with persons manifesting communication problems on the description of the disorder and assessment techniques with possible intervention strategies; language structure and function as it relates to the normal and variant population.

LIN 810.2 Historical Linguistics: Genetic relationship of languages. Mass comparison and lexicostatistics to establish subgrouping. Processes of phonological change. The comparative method

and the reconstruction of a protolanguage. Analogy and morphological change. Syntactic change. Lexicosemantic change. External influences: borrowing, language shift, pidginization and creolization.

LIN 826.2 Phonology of a Nigerian Language: A phonological study of a particular Nigerian language, relating it to current theories of phonology. Vowels; vowel harmony; consonants; syllable and word structure; tone and intonation; phonological processes.

LIN 827.2 Grammar of a Nigerian Language: A study of the grammar of a Nigerian language, with focus on topics of general typological interest; word classes, grammatical categories associated with nouns and verbs (e.g. gender, modality) sentence types (including verb serialization, relative clauses, causative constructions) word order (phrasal and sentential; basic and derived). Students will be required to apply the knowledge gained in the course to the description of particular grammatical phenomena in languages of their special interest.

LIN 828.2 The Development of a Nigerian Language: This course will relate general principles for language development to a particular Nigerian language. Orthography and its revision. Development of a standard language for writing. Technical terminology. The production of textbooks. Creative writing. Mass media.

LIN 829.2 Comparative Study of an African Language Group: A comparative – historical study of an African language group, applying recognized historical techniques. Lexicostatistics. The comparative method applied to the reconstruction of vowels, consonants and tones. Reconstruction of some major morphological and syntactic structures.

LIN 830.2 Dialectology of a Nigerian Language: The history of the study of dialectology; dialectology and related fields; techniques and methods of dialectology. Designs and uses of dialect atlases. An overview of the modern dialects of a chosen language; major isoglosses and dialect areas; the standard variety. Application of findings of dialectology. Students will design and carry out a small-scale dialect survey.

LIN 831.2 Classification of an African Language Family: History of the classification of the family up to Greenberg. Greenberg's classification. Development since Greenberg. Major

characteristics of the language family and its branches.

LIN 832.2 Written Literature in a Nigeria Language: The course uses specific texts from various genres (poetry, drama and fiction) of literature in a Nigerian language to dramatize the dominant traits of the literature. Attempts are made to point out the indebtedness of the literature to aspects of oral tradition.

LIN 811.2 – Cognitive Linguistics: This course examines language from the point of view of cognitive processes. Theoretical frameworks about language and cognition will be applied to the study of language, thought and culture. Students will learn about systems of conceptual organization through the study of categorization, metaphors, cultural models and grammar. Other topics include representation of space and time and cognitive motivations for language change and language universals. The approach is multi-disciplinary as evidence is drawn from text analysis, language acquisition, language change, psycholinguistic experimentation, and brain imaging, among others.

LIN 840.3 Graduate Research Presentation: The course will be concerned with methods of data collection, presentation and documentation, argumentation/reasoning. Students will be taught the major features of and techniques for academic papers, the differences between LSA,

APA/MLA style-sheets with particular focus on referencing for academic purposes, suitability of existing theories to one's data. At the end of the course, each student is required, with the assistance of a supervisor, to prepare and present a seminar paper before other graduate students and academic staff of the Department. The graduate seminar topic must be related to student's proposed thesis topic. Credit is given for content, presentation, and handling of discussion. Candidates who score below a C in their presentation will be given another chance to re-do the work.

LIN 850.3 Dissertation: The thesis is to present the results of an original research topic. Credit is given for originality, presentation, and use of previous literature in the area.

3.2.2 PhD PROGRAMME (FULL-TIME & PART-TIME)

Admission Requirements: Candidates wishing to enroll in the Communication component must hold

at a Masters degree with a CGPA of at least a CGPA of 3.50 on a 5 point scale in Mass Communication. Communication Studies/Arts. Candidates wishing to enroll in the Linguistics component must possess the same qualifications in Linguistics or a subject with a strong linguistic component. In addition, candidates seeking admission into the PhD programme in the Department must submit to the Departmental graduate Studies Committee a written proposal of a topic of their interest which they must defend before the admission can be granted.

Duration: The duration of the PhD programme is 24 months for full-time students and 36 months for part-time students. Students who are unable to complete the thesis within the normal period must apply for an extension to the Graduate Studies Committee.

Degree Requirements: To obtain a PhD in the Department, students must:

- Pass all the registered courses for their programme with a grade of at least C.
- Pass a comprehensive examination
- Present work at the graduate seminar and participate in seminar discussions, obtaining at least a C grade.
- Present a dissertation of not less than 200 pages to the Department.
- Pass an oral examination in defense of the dissertation before a panel of examiners set up in accordance with University regulations.

Programme Content:

First Year Semester 1

PhD Linguistics

Course Code	Course Description	Credit Unit
LIN 900.1	Topics in Phonetics & Phonology	3
LIN 901.1	Topics in Morphology	3
LIN 902.1	Topics in Syntax	3

First Year Semester 2

Second Semester

Course Code	Course Description	Credit Unit
LIN 903.2	Topics in Semantics & Pragmatics	3

LIN 904.2	Topics in Applied Linguistics	3
Any One of the following		
LIN 905.2	Topics in Language & History	3
LIN 906.2	Topics in Sociolinguistics	3

For All Options

LIN 912.3 – Comprehensive Examinations

Second Year

Course Code	Course Description	Credit Unit
LIN 913.3	Doctoral Research Presentation	3
LIN 914.3	Doctoral Thesis	6

COURSE DESCRIPTIONS FOR THE PhD PROGRAMMES

LIN 900.1 Topics in Phonetics & Phonology: This course focuses on areas and concepts in Phonetics and phonology that are difficult for students to grasp. The course is in two parts. The phonetics component will include: the production of glottalic and velaric sound, the nature of labial velar stops, aspiration, and the instrumental investigation of phonetic problems. The phonology component includes a brief review of the principles of phonological analysis, phonological processes, phonological representation and alternations; rule formalization, and rule ordering: feeding order, bleeding order, etc. also to be taught are a review of recent and current approaches to phonology: autosegmental representation of tone, vowel harmony and nasalization; the syllable: CV phonology, lexical phonology, metrical phonology and optimality theory.

LIN 901.1 Topics in Morphology: The course studies topics in morphology with respect to the students' areas of specialization situating them within dominant and current morphological frameworks. In addition, topics relevant to African linguistics such as verbal extensions, noun class systems, nominal and verbal compounding, ideophones, associative constructions, serialization, cliticization, etc. students would be taught to collect and process empirical data on morphology and its interfaces.

LIN 902.1 Topics in Syntax: This course explores current trends in syntactic theory and analysis as well as the interfaces of syntax. Topics to be taught include syntactic phenomena that are prevalent in

African languages, such as the expression of information structure, DPS, wh-questions, logophoricity, anaphora, relative clauses, complementation, Inherent Complement Verb, etc.

LIN 903.2 Topics in Semantics and Pragmatics:

Lectures in this course will examine aspects of lexical and sentential semantics. Focus will be on theories underlying different approaches to semantic investigation and current issues. Efforts will also be made to study the relationship between semantics and pragmatics.

LIN 904.2 Topics in Applied Linguistics: The course studies the practical application of linguistic theories to other fields of study. Special attention will be paid to the relevance of the linguistic science to language teaching; contrastive and error analyses, design of pedagogical materials; child language development, lexicology and lexicography, translation, speech therapy, stylistics, media issues, etc. students will be given the opportunity to address specific problems in these areas.

LIN 905.2 Topics in Language and History: The aim of the course is to study the interconnection between language and history. Efforts will be made to show how linguistic evidence can be used to arrive at some conclusions about the prehistory and history of a people. The course will cover the following: genetic relationships, language families and their characteristics, techniques for language classification: reconstruction, mass comparison, comparative methods, lexicostatistics and glottochronology; language spread and migration theory; language change; language shift; language endangerment and death.

LIN 906.2 Topics in Sociolinguistics: This course will examine some recurrent issues in language and society. Lectures will focus on such topics as: language variation (language and other speech forms); language and identity; language endangerment, language maintenance and shift, language death, language revitalization, ect; language and national development/underdevelopment; pidgin and creole languages (with particular reference to their influence and relevance in the Nigerian society); bilingualism and multilingualism; and any current sociolinguistic topics of interest.

LIN 912.3 Comprehensive Examinations: There will be two parts in the comprehensive examinations. Part A is for candidates that registered for PhD in linguistics/linguistics and a Nigerian Language options. It will test the students' general knowledge of language and linguistics. Part B is for PhD candidates of the Communication Studies option. It will test the students' knowledge of information and communication studies generally. Each part shall comprise three papers (A, B and C). The Chief Examiner for each year shall determine the contents of each paper and inform the candidates in advance. Any student who fails the comprehensive examinations will not be allowed to proceed with the next stage of the programme. The candidate can, however, be allowed to re-take the comprehensive examinations at the next available opportunity.

LIN 913.3 Doctoral Research Presentation: Every student must, with the assistance of a supervisor,

prepare and present a seminar paper before other graduate students and academic staff of the Department. The seminar paper must be related to the student's proposed thesis topic. Credit is given for content, presentation, and handling of discussion. Candidates who score below a C grade in their presentation will be given another chance to re-do the work. Candidates who have successfully presented their departmental graduate seminar shall be recommended to the School of Graduate Studies for the final doctoral seminar presentation. Only successful candidates at this stage shall be prepared to face the external examiner.

LIN 914.3 Doctoral Thesis: The doctoral dissertation is to present results of an original research topic. Credit is given for originality, the contribution of work to knowledge, presentation, and use of previous literature in the area.

TEACHING STAFF LIST

S/N.	NAMES OF ACADEMIC STAFF	QUALIFICATIONS	DESIGNATION/ RANK	AREA OF SPECIALIZATION
1.	Alerechi, R.I.C (Mrs.)	BA, MA, PGDE, PhD <i>UPH</i>	Professor (HOD)	General Phonetics & Phonology, Morphology, Dialectology, Historical Linguistics, Ikwere
2.	Ndimele, O.M	BA, MA, PhD <i>UPH</i>	Professor	Syntax, Semantics, Pragmatics, English Grammar, Igbo, Communication Studies, Editing & Book Publishing
3.	Ejele, P.E (Mrs.)	BA <i>Ife</i> , PGDL, MA, PhD <i>London</i>	Professor	Syntax, Semantics, English Grammar, Pragmatics, Human Communication & Stylistic analysis of texts (literary and media), Edoid (esp. Esan)
4.	V.C. Onumajuru	BA, MA France; PhD <i>UPH</i>	Professor	Phonetics/Phonology, Morphology, Igbo, French
5.	Isaac, BH	BA, MA, PhD <i>UPH</i>	Senior Lecturer	Linguistics & theory of Communi-cation/Morphology, Syntax; English Grammar, Applied Linguistics, Gokana
6.	Ayuwo, J.G.I	BA <i>UPH</i> , MA Ibadan, PhD. <i>UPH</i>	Senior Lecturer	Sociolinguistics, Applied Linguistics, Development Communication, Pragmatics, Obolo, Creoles Studies, Kiswahili, Onomastics.
7.	Oweleke, E.N. (Mrs.)	BA, MA, PhD. <i>UPH</i>	Senior Lecturer	Morphology, Semantics, Lexicography, Applied Linguistics, Igbo
8.	Obikudo, E. F.	BA, MA, Ph.D <i>UPH</i>	Senior Lecturer	Descriptive Grammar writing, Ijoid grammar, especially phonology&morpho-syntax
9.	Eze, E. A.	BA, MA, Ph.D <i>UNN</i>	Senior Lecturer	Morphology, Semantics, Lexicography, Igbo
10.	Ejeba, S. O.	BA ABU, MA, PhD <i>UPH</i>	Senior Lecturer	Morphology and syntax
11.	Osuagwu, E. C.	BA, MA, PHD. <i>UPH</i>	Senior Lecturer	Morphology and syntax
12.	Joshua S. F.	BA, PhD. <i>UPH</i>	Lecturer I	Syntax, Pragmatics and General Linguistics

DEPARTMENT OF MUSIC

A. MASTER OF ARTS PROGRAMME IN MUSIC

1.0 INTRODUCTION

The Master of Arts (M.A.) programme of the Department of Music is designed to produce highly skilled music specialists, researchers and music entrepreneurs capable of assuming artistic and leadership roles in the various areas of the music industry in Africa. With structured information, understanding, and acquired skills, graduates are expected to function maximally to elevate the musical and cultural milieu of humanity for which they are being prepared. Areas of instruction and mentorship include Ethnomusicology, Composition, Theory and Analysis, Musicology, Music Education, Music Therapy and Rehabilitation Services, Music Business Administration, Music Technology and Audio Engineering (Sound Engineering and Multimedia, Music Instrument Technology), Applied Instrument Performance Studies, Conducting and Ensemble Administration (Choral/Instrumental), Film Music, Sacred/Church Music Studies, and Popular Music Studies.

1.1 PHILOSOPHY

The Master of Arts Degree in Music, University of Port Harcourt, is intended for high skill acquisition and intellectual development. The programme is designed to train and equip students who desire to specialize in different areas of music. The programme provides an avenue for producing high quality teachers and leaders in the music profession in our society to be engaged in institutions of higher learning, ensemble organisations, media houses, research centres, religious establishments, arts and cultural centres, health and rehabilitation centres, policy and strategic agencies, the armed forces, and similar organisations.

1.2 VISION

To create opportunities to train interested qualified members of the society in musical scholarship that can enable them to be

Independent in their areas of specialisation within the global space.

1.3 MISSION

To provide an outstanding higher education programme for holders of first degree or its equivalent in Music in an environment that enriches the human mind and spirit.

1.4 RATIONALE

To meet the needs of the teeming population of graduates who desire to attain higher educational training in music scholarship.

1.5 AIM AND OBJECTIVES

The aim of the M.A. degree programme in Music is to develop the scholarship prowess of qualified music graduates in their different areas of specialisation. The objectives of the programme include to:

- Develop professional proficiency of students.
- Contribute knowledge to the development of music education in our community, as well as to build world-class musicians and music scholars.
- Train the graduate students to conduct research in their various areas of interest towards the development of the music industry in our society.
- Produce well-grounded musicians and scholars in their various areas of specialization capable of providing Nigerian music education a national identity as well as making it relevant to the African and global contexts.
- Equip graduates with competent creative contexts.

2.0 ADMISSION REQUIREMENTS

Candidates with a recognised University bachelor's degree in Music, with a minimum of second class lower division or as may be stipulated by the School of Graduate Studies from time to time. Bachelor of Church Music (BCM) holders from a recognized theological institution or any other accredited institution may be considered for admission into the M.A. programme if their transcripts reveal that the courses and tutelage covered in the BCM programme are equivalent to those in Bachelor of Music and Bachelor of Arts in Music programmes of conventional higher institutions. In cases where remediable deficiencies are discovered in the BCM programmes undertaken, the candidate shall audit relevant courses at the undergraduate level, or go through the PGDM programme.

NOTE: Shortlisted candidates for the M.A. programme shall be required to present themselves for oral and written interviews before the final determination of their applications. Admissions into these graduate programmes are considered on an individual basis. Interested candidates are advised to contact the Department of Music for necessary information regarding their intending areas of specialisation prior to application for admission.

3.0 PROGRAMME DURATION

The programme structure shall be in consonance with the policy of the School of Graduate Studies of the University of Port Harcourt. Without prejudice to the above policy statement, the duration of the M.A. Degree programme shall be a minimum of 18 months as full time, and 30 months as part time.

4.0 GRADUATION REQUIREMENTS

The requirements for graduation from the M.A. in Music programme shall be in consonance with the policy and guidelines of the School of Graduate Studies. In addition the students shall be expected to meet the peculiar departmental requirements.

5.0 TABLE OF LIST OF COURSES, CODES AND CREDIT UNITS

Students in the Master of Arts programme are required to take six compulsory core (general) courses. In addition to these general courses, students shall take 12 courses in their various areas of specialisation, as well as a graduate seminar and a thesis. A student may choose one or more elective courses under the guidance of the advisor. The required general courses are listed below:

- 1) SGS 801.1 – ICT and Research Methods
- 2) SGS 801.2 – Management and Entrepreneurship
- 3) MUS 800.1 – Advanced Theory of Music
- 4) MUS 801.1 – Perspectives in Western Music History
- 5) MUS 802.1 – Advanced African Music: Theory and Practice
- 6) MUS 803.1 – Research Methodology and Bibliography

The minimum credit units required for graduation in the M.A. are 50. The course schedule for each semester of the M.A. programmes is shown below.

5.1 PERFORMANCE STUDIES

- I. Music Instrument Performance (Keyboard (Piano/Organ), Voice, Strings, Woodwinds, Brass, Percussion, and African Melorhythm instruments)

a) First Semester

Course Code	Course Title	Credit Units
SGS 801.1.1	ICT and Research Methods	3
MUS 800.1	Advanced Theory of Music	3
MUS 801.1	Perspectives in Western Music History	2

MUS 802.1	Advanced African Music: Theory and Practice	2
MUS 803.1	Research Methodology and Bibliography	3
MUS 804.1	Score Study and Analysis	2
MUS 805.1	Ethics in Music and Performance Standards	2
MUS 806.1	Literature and Criticism in Context	2
MUS 807.1	Instrumental Techniques and Pedagogy	3
TOTAL =		22

b) Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Management and Entrepreneurship	3
MUS 800.2	Graduate Seminar	3
MUS 801.2	Performance History in Context/Societal context of African Music 1	3
MUS 802.2	Advanced Technical Proficiency and Delivery Methodology in Performance	3
MUS 803.2	Instrumental Aesthetics, Physiology and Performance Practices	2
MUS 804.2	Humanity Principles in African Music	3
MUS 805.2	Creativity and Performance	2
MUS ...	Recital I	2
	Electives (Choose any two courses from below)	2
TOTAL =		21

Elective Courses (Choose any two courses)

Course Code	Course Title	Credit Units
MUS 806.2	Choral/Vocal Techniques (Physiology and Diction for singers)	1
MUS 807.2	History of African Musical Arts (Theatre and Opera)	1
MUS 808.2	Studio Performance Techniques in Context	1

MUS 809.2	African Melorhythmic and Western Percussion Instruments	1	MUS 805.2	Recital I	2
			MUS 810.2	History and Practice of Choral/Instrumental Music up to the 21 st Century	3
c) Third Semester			MUS 811.2	Style and Technical Proficiency in Choral/Instrumental Conducting	3
Course Code	Course Title	Credit Units	MUS 812.2	Advanced Conducting Techniques II	3
MUS 800.3	Thesis	6	MUS 813.2	Vocal Aesthetics, Physiology and Performance Practices	2
MUS 801.3	Recital II	2	MUS ...	Electives (Choose any two courses from below)	2
	TOTAL =	8		TOTAL =	21

Additional Requirement for Graduation: Proficiency in ONE Nigerian/African language, and ONE foreign language other than English (German, French or Italian).

II. Conducting and Ensemble Administration (Choral, Orchestral, Concert Band)

a) First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT And Research Method	3
MUS 800.1	Advanced Theory of Music	3
MUS 801.1	Perspectives in Western Music History	2
MUS 802.1	Advanced African Music: Theory and Practice	2
MUS 803.1	Research Methodology and Bibliography	3
MUS 804.1	Score Study and Analysis	2
MUS 805.1	Ethics in Music and Performance Standards	2
MUS 808.1	Advanced Conducting Techniques I Rehearsal, Performance	3
MUS 809.1	Principles and Techniques	2
	TOTAL =	22

b) Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Management and Entrepreneurship	3
MUS 800.2	Graduate Seminar	3

Elective Courses (Choose any two courses)

Course Code	Course Title	Credit Units
MUS 814.2	Contemporary Choral/Instrumental Music Theory and Practice	1
MUS 815.2	Choral/Instrumental Repertoire: Sacred and Secular	1
MUS 816.2	Choral/Instrumental Ensemble Administration	1
MUS 817.2	Philosophical and Psychological Issues in Choral/Instrumental Music	1

c) Third Semester

Course Code	Course Title	Credit Units
MUS 800.3	Thesis	6
MUS 801.3	Recital II	2
	TOTAL =	8

Additional Requirement for Graduation: Proficiency in ONE Nigerian/African language, and ONE foreign language other than English (German, French or Italian).

5.2 THEORY AND COMPOSITION

a) First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Method	3
MUS 800.1	Advanced Theory of Music	3
MUS 801.1	Perspectives in Western Music History	2

MUS 802.1	Advanced African Music: Theory and Practice	2	MUS 802.3	Advanced Contrapuntal Techniques	2
MUS 803.1	Research Methodology and Bibliography	3	TOTAL =		8
MUS 810.1	Advanced Transcription and Analysis	3	Additional Requirement for Graduation:		
MUS 811.1	Common Practice Theory	2	Proficiency in ONE Nigerian/African language, and ONE foreign language other than English (German, French or Italian).		
MUS 812.1	African and Western Music Structures and Techniques in Composition	2	5.3 ETHNOMUSICOLOGY		
MUS 813.1	Advanced Composition: Fugue	2	a) First Semester		
TOTAL =		22	Course Code	Course Title	Credit Units
b) Second Semester			SGS 801.1	ICT and Research Method	3
Course Code	Course Title	Credit Units	MUS 800.1	Advanced Theory of Music	3
SGS 801.2	Management and Entrepreneurship	3	MUS 801.1	Perspectives in Western Music History	2
MUS 800.2	Graduate Seminar 20 th and 21 st Century	3	MUS 802.1	Advanced African Music: Theory and Practice	2
MUS 818.2	Music Theories, Principles, Techniques and Practices	2	MUS 803.1	Research Methodology and Bibliography	3
MUS 819.2	Schenkerian Theory and Analysis	2	MUS 814.1	Theory and Methods in Ethnomusicology	3
MUS 820.2	Perception and Cognition in Music Theory	2	MUS 815.1	Philosophy, Psychology and Aesthetics of African Music	2
MUS 821.2	African Soft Science of Functional Aesthetics and Theoretical Logic of Music	3	MUS 816.1	Field Investigation of Performance Practice in African Music	3
MUS 822.2	Orchestral Composition (African and Western)	2	MUS 817.1	African Music as Mass Media	2
MUS 823.2	Electroacoustic Music Composition and Performance	2	TOTAL =		22
MUS ...	Electives (Choose any two courses from below)	2	b) Second Semester		
TOTAL =		21	Course Code	Course Title	Credit Units
Elective Courses			SGS 801.2	Management and Entrepreneurship	3
Course Code	Course Title	Credit Units	MUS 800.2	Graduate Seminar African Music:	3
MUS 824.2	Analysis of Masterworks Chromaticism and	1	MUS 828.2	Transcription and Analysis	3
MUS 825.2	Extension of Tonal Principles	1	MUS 829.2	Organology and Theories of Notation	2
MUS 826.2	Presentation of Works in Concert	1	MUS 830.2	Social Content, Musical Styles and Performance Practices and Functional Essence in Africa	3
MUS 827.2	Sound Design for Theatre and Electronic Media	1	MUS 831.2	Indigenous Knowledge Systems: Principles and Practices	2
e) Third Semester			MUS 832.2	Music, Dance, Rituals and Theatre in African Culture	3
Course Code	Course Title	Credit Units	MUS ...	Electives (Choose any two courses from below)	2
MUS 800.3	Thesis	6			

TOTAL		22	MUS 800.2	Graduate Seminar Music Educational	2
Elective Courses (Choose any two courses)			MUS 837.2	Policy Development and Administration in Nigeria	3
Course Code	Course Title	Credit Units	MUS 838.2	Sociology of Music Education	2
MUS 833.2	African Art Music and Creativity	1	MUS 839.2	Music Education: Analytical Techniques, Assessment and Evaluation in Nigeria	3
MUS 834.2	African Music and the Diaspora	1	MUS 840.2	Multimedia Tools for Music Education	3
MUS 835.2	African Popular Music Styles and Performance Practices	1	MUS 841.2	Principles and practices of Music Education and Indigenous Knowledge Systems in Africa	3
MUS 836.2	African Music: Historical Perspectives	1	MUS ...	Electives (Choose any two courses from below)	2
c) Third Semester			TOTAL	21	
Course Code	Course Title	Credit Units	Elective Courses (Choose any two courses)		
MUS 800.3	Thesis	6	Course Code	Course Title	Credit Units
MUS 803.3	African and Global Perspectives in Music and Gender	20	MUS 842.2	Music Education and Child Psychology	1
TOTAL	8		MUS 843.2	Music Education and Gender in Africa	1
5.4 MUSIC EDUCATION			MUS 844.2	Applied Music Instruction and Pedagogy	1
a) First Semester			MUS 845.2	Advanced Survey in Developmental Psychology	1
Course Code	Course Title	Credit Units	c) Third Semester		
SGS 801.1	ICT and Research Method	3	Course Code	Course Title	Credit Units
MUS 800.1	Advanced Theory of Music	3	MUS 800.3	Thesis	6
MUS 801.1	Perspectives in Western Music History	2	MUS 804.3	Music Pedagogy in Special Education	2
MUS 802.1	Advanced African Music: Theory and Practice Research	2	TOTAL =	8	
MUS 803.1	Methodology and Bibliography	3	5.5 CHURCH AND SACRED MUSIC		
MUS 818.1	History of Music Education in Nigeria	2	a) First Semester		
MUS 819.1	Global Methods of Teaching Music Curriculum	2	Course Code	Course Title	Credit Units
MUS 820.1	Development and Implementation	3	SGS 801.1	ICT and Research Method	3
MUS 821.1	African Music Pedagogy	2	MUS 800.1	Advanced Theory of Music	3
TOTAL	22		MUS 801.1	Perspectives in Western Music	2
b) Second Semester					
Course Code	Course Title	Credit Units			
SGS 801.2	Management and Entrepreneurship	3			

MUS 802.1	Advanced African Music: Theory and Practice Research	2	MUS 854.2	Indigenous Patterns and Practices in Sacred Music	1
MUS 803.1	Methodology and Bibliography	3	c) Third Semester		
MUS 822.1	History of Christian Worship and Evangelism in Nigeria	3	Course Code	Course Title	Credit Units
MUS 823.1	Hymnology	2	MUS 800.3	Thesis Chants, Sacred	6
MUS 824.1	Development of Church Music from Medieval to Classical Periods	2	MUS 805.3	Sounds, and Spirituality	2
MUS 825.1	Church Music: Organ and other Instruments I	2	TOTAL = 8		
TOTAL =					

b) Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Management and Entrepreneurship	3
MUS 800.2	Graduate Seminar Church Music	3
MUS 846.2	Composition and Analysis	3
MUS 847.2	Development of Church Music from the Late Classical Period to the 21 st Century	3
MUS 848.2	Church Music, Programming and Administration	2
MUS 849.2	Fundamental Theology of Christian Liturgy and Performance Ethics	3
MUS 850.2	Church Music: Organ and other Instrument II	2
MUS ...	Elective (Choose any two courses from below)	2
TOTAL		21

Elective Courses (Choose any two courses)

Course Code	Course Title	Credit Units
MUS 851.2	Contemporary Trends, Theories and Practices in Worship	1
MUS 852.2	Church, Music and Politics	1
MUS 853.2	Indigenous African Church/Sacred Music Composers	1

5. DESCRIPTION OF COURSES

MUS 800.1 Advanced Theory of Music:

This course involves a review of the convention of music theory from the fundamentals – scales, keys, chords, cadences, rhythms, melodic and harmonic structures, notation – to modulations, forms, analysis, tonality and atonality. The course will cover diverse issues including practical investigation of the basic principles of tonal and atonal harmony, counterpoint, and composition through exercises in analysis, motivic development, phrase, rhythm, texture, form, performance, and model composition. A survey of contemporary issues in theory, genres, composers and their works in the 20th and 21st century and beyond will be an essential part of the course. Emphasis on ear training and dictation is fundamental to the theoretical discussions.

MUS 801.1 Perspectives in Western Music History:

This course is a detailed study the origin and development of Western Music, the principal styles of Western art music through examination of works by outstanding composers. It covers from the beginning of music writing from the neumes and medieval composers through the twenty-first century composers, including the various genres, and styles of music of these periods.

MUS 802.1 Advanced African Music: Theory & Practice:

This course is a survey of the study of the traditional, popular and contemporary art music of the north and sub-Saharan Africa. Focus is on selected music and music cultures of Nigeria, Egypt, Ethiopia, Tunisia, Guinea, Mali, the Gambia, Senegal, Ghana, Zimbabwe, and South Africa. This course involves a survey of the principal styles of African music through examination of the creative rationalization and performative processes traditional and popular music genres. Also, it will cover the development of contemporary art music in

Africa in the nineteenth- and twentieth-century: composers, genres, and styles of music in the continent.

MUS 803.1 Research Methodology and Bibliography:

This is a graduate-level research course that prepares students to identify and explore a wide array of research materials available for in-depth study of topics within the musical discipline. The course introduces the students to philosophical foundations and theories of naturalistic inquiry and experimental-type researches as well as their implications and methodologies/designs in music research. Also, it includes a review of important literature in music, proposal writing, design, data analysis and scholarly writing styles used in graduate research. It engages students in field-specific and interdisciplinary professional research literature, and develops ability to critically read and understand research literature. It is a writing intensive course requiring readings, writing assignments, guided online discussions and a series of short-term research projects requires the development of a research proposal.

MUS 804.1 Score Study and Analysis:

Advanced Score study and analysis develops strategic and analytical approaches to learning a piece of printed music. A variety of scores from different genres of music, both vocal and instrumental media are studied. Emphasis will be placed on the characteristics of music, historical background, socio-political and cultural influences, score signs and expression marks, tempo markings, expressive methods, styles, moods, theme, harmonic structure, cadences, forms, texture, instrumentation, and other features associated with the music. Approaches/Techniques of Score Analysis include melodic, harmonic, schematic, descriptive and graphic as well as semiotic semantic, cognitive and Schenkerian.

MUS 805.1 Ethics in Music and Performance Standards:

The focus of this course is on the ethics of music in relation to both creative and performance standards. It equips the student towards the promotion of the arts, industries, functional and entertainment quality. It is also intended to equip the students with ethical and legal knowledge that would better prepare them for professional music practice. This course involves research and seminar presentations.

MUS 806.1 Literature and Criticism in Context:

This course examines literatures on Music with emphasis on classical and contemporary

scholarship, philosophy, criticism, aesthetic theories utilitarian principles and their application in diverse areas of Music, including African and Western composition, performance, theory, analysis, history, and ensembles, etc.

MUS 807.1 Instrumental Techniques and Pedagogy:

This course investigates, at advanced level, the various techniques associated with sound productions in a particular instrument. It also explores the methods of acquiring these techniques and the soft science of African instruments.

MUS 808.1 Advanced Conducting Techniques I:

This course deals with advanced technical security of the baton, asymmetrical and divided beat patterns as well as mixed meters and other conducting challenges. Refinement of gestures towards performance, establishment of the musical work, and expressive conducting are considered.

MUS 809.1 Rehearsal, Performance Principles and Techniques:

This course exposes students to techniques of and strategies for planning rehearsals, modalities and performance preparations and principles. Methods of introducing new works are examined. Repertoire and concert programming are also considered.

MUS 810.1 Advanced Transcription and Analysis:

The purpose of this course is to familiarize students with various sound structures through intense listening, transcribing, and analysis of selected pieces from Western and non-Western music cultures. It includes the study of techniques of transcription and re-composition and visual representation of musical sounds are dealt with as it appears in Western and non-Western musical tradition as well as in current scholarly works. In addition, students will explore various analytical techniques, formalistic, semiotic and semantic among others using different theoretical approaches including cultural, philosophical, and critical. Assignments involve transcription of various musical styles and the classes focuses on discussing the validity and the problems of transcription in each case. Through transcription, analysis, and discussions, the course also aims to develop skill in listening and the appreciation of unusual melodic and rhythmic structures, providing an introduction to the folk music of several ethnic groups. The deep structures of indigenous African music theory will be explicated in practice.

MUS 811.1 Common Practice Theory:

This course aims at exposing students The course essentially focuses on the study of the Common

Practice period (ca. 1600-1900), its history and influence on musical practices across the globe as well as the analytical techniques for Tonal music. Also, it involves in-depth analyses of common-practice repertoire through multiple techniques, including the study both of pitch and of rhythm.

MUS 812.1 African and Western Music Structures and Techniques in Composition: This is an advanced course in composition dealing with various materials, structures and forms in musical creativity. Also, it exposes students to the techniques of composing music of different genres and their unique characterizations. Works of some of the major composers in the Romantic, Twentieth Century and Twenty-first Century periods as well as African-derived compositions will be studied in terms of their structures and compositional techniques such as African Pianism.

MUS 813.1 Advanced Composition: Fugue: This course explores the full application of counterpoint and fugue in the traditional sense of J.S. Bach. It also investigates how other composers from J.S. Bach to Stravinsky and, some contemporary composers have used the fugal methods in musical creativity.

MUS 814.1 Theory and Methods in Ethnomusicology: The course examines the formation of ethnomusicology through a survey of its intellectual history, theories, methodologies, and research practices. It discusses the works of major scholars in the field and reviews their intellectual contributions. The course explores some theoretical orientations and examines the interdisciplinary nature of ethnomusicology, particularly its relationship with historical musicology, anthropology, folklore, linguistics, communication, performance theory, media studies, philosophy and cultural studies. It discusses a range of musical styles, practices, and ways of thinking about sound in varied geo-cultural areas of the world. A few special projects will complement theoretical discussions and technical aspects of research activities commonly associated with the history of the field— such as fieldwork and transcription—will be briefly covered. The course will further focus on Africa, its systems, theories and methods.

MUS 815.1 Philosophy, Psychology and Aesthetics of African Music: African musical arts is grounded in firm philosophical and psychological rationalizations. These inform creative exploration and configurations, which are humanity framed. The result is that appreciation and evaluation focuses on

functional aesthetics ideology because African music does not reckon with flippant/purposeless entertainment as a creative intention and activity. The course will unpack these authoritative African musical arts ideations.

MUS 816.1 Field Investigation of Performance Practice in African Music: This course should emphasize fieldwork research in African music, which must privilege the explications of expert indigenous Knowledge practitioners encountered. Fieldwork should precede published literature in order not to prejudice researchers' minds and attitudes. The knowledge creators/practitioners can best explain what they do, which have strong, even though unnecessarily articulated, foundations and formulations. Observation and discussion of performance practice in African music must be conscious of the principle of Performance Composition, which is the African developmental ideology and practice of allowing contextual activities to inform spontaneous creative elaborations of a theme.

MUS 817.1 African Music as Mass Media: The course will investigate and explain how African musical arts fulfilled the divine role of impartially managing virtually all societal systems, critiquing and disseminating information as well as ensuring public discipline in indigenous Africa. It will then research the possibilities of repositioning, reconstituting and advancing musical arts practices in the contemporary milieu to be purposive with the collaboration of modern mass media, education and bureaucracy organs.

MUS 818.1 History of Music Education in Nigeria: This course defines the concept of Music Education starting from the traditional society of Nigeria, and looks at the concept as introduced at the emergence of the colonial education till the present day. The course will take statistics of level of independence between 1914 when Nigeria was forged into one nation and the contemporary Nigeria as an independent nation in 1960.

MUS 819.1 Global Methods of Teaching Music: This course takes a comprehensive look at the conventional methods of teaching – The Orf-Schulwerk, Kodaly, Dalcroze, Suzuki, Eclectic etc. The course stretches further to study how relevant these methods are to Nigerian music education system that will be conscious of humanity moulding integrity.

MUS 820.1 Curriculum Development and Implementations: This course focuses on principles in curriculum planning and stages of planning. Considerations of facilities and instructional materials shall be looked at in developing the curriculum towards achieving goals and objectives. The Nigerian society shall be considered in its holistic form in suggesting types of purposive curricular needed for stages of its educational system.

MUS 821.1 African Music Pedagogy: Music pedagogy in indigenous Africa is philosophically rationalized to transpire in play-mode formality, which obviates the stress and control syndromes of imported modern classroom learning. Musical arts knowledge in indigenous Africa was then systematically acquired in interactive experimental and creative forum from early childhood. This needs re-institution with advancement initiatives, which the course will debate. The indigenous African philosophy is that every normal human is born already musical. Cultural knowledge resources, which categorize age levels and gender specialties in practicalized knowledge lore acquisition as need be, have routinely been memorially and performatively recycled as well as updated over generations. Beyond babyhood impressions, adults are expected to be circumspect in intruding into children's autonomous learning sites, which in the musical arts emphasize learning through interactive, collaborative knowledge creations, performances and critiques. Such humanity framed learning sites, materials and experimentations engender exercising individuality in communality, which implant self-expression and self-confidence in other life situations. The course will require postgraduate students to mount expressive and creativity activities/projects in junior and secondary school sites adopted by the Department as outreach locations.

MUS 822.1 History of Christian Worship and Evangelism in Nigeria: The course is a study of music in Christian worship and evangelism, its biblical (Old and New Testament), historical development, impact of Reformation, and liturgical revival, cultural awakening in Nineteenth century Nigeria. It entails a comparative study of denominational worship patterns, the selection of music for worship and evangelism, inter-staff relationship in worship and evangelism in relation to preaching, music and growth of the participants in present day Nigeria.

MUS 823.1 Hymnology: The course is an in-depth and systematic study of Hymns, hymnology,

sacred choral literature, their performance structure and their related forms, which include their origin, development, classification, biblical and theological foundations, musical and poetic qualities, their use in worship and evangelism. It focuses on Christian congregational songs and singing, ranging from Old Testament psalms and psalmody to contemporary praise-worship songs/choruses, from traditional Western hymnody to global worship songs, with some attention to African cultural context and practical—African hymnody. In addition, it examines the 19th and 20th century Gospel hymns and their effective use in the Christian church of today.

MUS 824.1 Development of Church Music from Medieval to Classical Periods: The course is an advanced exploration of the development of Church music from the medieval to the classical periods. It covers the emergence of chant and its progression and use in the church, the Mass and its music repertoire, Liturgical plays and dramas, polyphonic tradition beginning with the organum of Notre Dame, Cathedral Schools, sacred music in the era of the reformation, oratorio, and cantatas. Instrumental music, composers (men and women) and their life and compositional styles will also be given in-depth attention.

MUS 825.1 Church Music: Organ and other Instruments I: The course introduces the student to the Organ or any other instruments used to accompany music in the liturgy or service. The student is guided by his/her instructor in the art of playing the organ that will enable the student to accompany simple hymns during the liturgy or services.

MUS 800.2 Graduate Seminar: This seminar course deals with research skills, sources and resources (libraries, internet, published items, etc.) pertinent to understanding, making, assessing and using different types of musical materials for graduate-level writing and presentations. Focus is on issues that reflect on the theoretical, analytical and performative discourses on all types of music, musicians (performers, historians, composers, etc.) and musical phenomena. Also, it involves more general 'study skills' component relevant to the final project works and the professional presentation of written works on the various pathways of the students' Master's program. In addition, it includes a survey and discussion of the many ways in which a composition and/or musical performance might be preserved (paper, recording, computer-file, oral tradition, etc.) and disseminated for further usage.

These discourses will focus strongly on the interface between theory and practice in music and students' presentations and participations in the seminar are core part of the entire program.

MUS 801.2 Performance History in Context/Societal context of African Music: This course deals with the instruments, staging, patronage, composition, and performance styles in the history of the development of music.

MUS 802.2 Advanced Technical Proficiency and Delivery Methodology in Performance: This course focuses on prospecting for high technical proficiency in applied music and performance. Students are guided to acquire advanced skills and the methods of delivering these skills in interpreting the score/music through the relevant instruments.

MUS 803.2 Instrumental Aesthetics, Physiology and Performance Practices: This course deals with human vocal structures, and the organs responsible for sound production and sound generation, articulatory phonetics and principles of phonology. It also examines the proper ways and techniques of pronunciation of words for singers. Students will investigate places and manners of articulation, as well as consonant and vowel classifications. Ear training and performance practices in sound production are key indices for this study. As an important aspect of applied music vocal performance, English phonetics and the phonetics of selected Nigerian/African and Western languages are also examined. These descriptions also apply to instruments (other than the voice) of the students' choice.

MUS 804.2 Humanity Principles in African Music Creativity and Performance: The course will establish how the indigenous African philosophical and theoretical rationalizations in music are circumscribed by humanity ideology and principles: African musical arts is conceived, created and practiced as a utility organ that aims to entrench fellow humanity consciousness in life attributes and societal systems. The theories of creativity, conformation, expression and application of the sonic phenomenon as well as its siblings of dance and drama derive from humanity ideologies experienced for instance in the Ensemble Thematic Cycle logic that captures ideal family construct, and performance composition in thematic elaboration, which commands situation/contextual consciousness that ignites purposive intellection as a life attribute.

MUS 805.2 Recital I: Students are expected to embark on performances reflective of their areas of specialization. As the first of two recitals, the recital shall showcase the student's skills and competence. It shall not be less than 45 minutes in duration. Students are guided by their advisors.

MUS 806.2 Choral/Vocal Techniques (Physiology and Diction for singers): This course is a study of vocal function, anatomy and pedagogical methodology of the voice with focuses on its application to choral singing and directing. Activities in this class create the development of quality repertoire in the diverse styles of choral literature appropriate in difficulty and range for the students. Students will be exposed to the choral compositions/repertoire of various composers from the baroque to contemporary music of living composers. Consequently, students will develop the ability to understand and convey the composer's intent in order to connect, as performer, with the audience. Also, the course explores the natural and variable vocal, musical and personal qualities for the different age-brackets and appropriate, age-optimal techniques to nurture singing. With these techniques and information, both teachers and choral conductors can strive to work within realistic limits, yet neither below nor beyond them. Vocal physiology, vocal health and development, vocal qualities and textures, music literacy skills, including sight-singing and rhythmic reading will be taught alongside music repertoire. Students must participate in performance opportunities outside of the school day that support and extend learning in the classroom.

MUS 807.2 History of African Musical Arts (Theatre and Opera): The course entails unpacking how the conception and theory of the musical arts result in a creative and performative synthesis of the sonic, the choreographic, the dramatic and the expressive, texted materials, which identify artistic productions that are authoritatively indigenous African. Hence the idea of the modern operatic or musical theatre has original African conceptualizations and practice. The artistic creations were deployed, experienced and evaluated as utilitarian total theatre media, which managed virtually all aspects of societal living. The substructural African commonalities as well as the superstructural cultural peculiarities will then be analysed as deriving from cosmic and environmental sensitizations as well as inter-cultural mixing, which are critical factors of creativity. The course will historically track the cultural contacts and human movement experiences among traditional Africans

up to the external hegemonic factors that imposed Northern operatic and musical styles, which have since colonial mind-domination severely impacted modern musical arts education and experiencing in contemporary Africa.

MUS 808.2 Studio Performance Techniques in Context: This course enhances skills in a range of studio and performance techniques as well as creative methods, supported by an understanding of related key concepts. These include recording, editing and mixing, field recording, spectral manipulation, sound synthesis and placement, and electroacoustic compositional methods. Emphasis will include an understanding the fundamentals of digital audio and studio-based production as well as the acquisition of working knowledge of a professional audio editor/mixer (e.g. at least one of the following: Pro Tools, Logic, Digital Performer, Cubase) as well as the ability to compose studio-based or electronic music that demonstrates an understanding of contemporary techniques and concerns. The soft wares to be used include Pro Tools, Audiosculpt, and Metasynth among others. Special attention is given to multi-channel sound work using the EMS Multi-channel Studio and 5.1 Studio. Also, issues related to technology-based composition are explored, such as listening, spatialization, transformation, site/location and context. Readings in performance practices as related to periods, analytical reports and practical applications would be integral in the course delivery.

MUS 809.2 African Melorhythmic and Western Percussion Instruments: The course will explicate the prevalent African concept of melorhythm instruments, which is misconceived and misconstrued in Western instruments classification categories as percussion. Grounded perception and literacy study of melorhythmic musicking necessitates modifying the conventional staff notation system to capture the sonic peculiarities of notating music for African melorhythm instruments. The course will underscore methods and expertise in creating, notating and performing music for melorhythm instruments.

MUS 810.2 History and Practice of Choral/Instrumental Music up to the 21st Century: This course looks at the history and practice of choral and instrumental music in terms of their developments and distinctive characteristics. Performance practices throughout music periods, diverse genres and settings up to the present century are investigated.

MUS 811.2 Style and Technical Proficiency in Choral/Instrumental Conducting: The art of Conducting, whether choral or instrumental, requires certain musical training, styles and technical proficiency for effective conveyance of gestures. This course exposes these requirements through secured baton techniques, score study and analysis, practical application, as well as the administrative responsibilities and duties.

MUS 812.2 Advanced Conducting Techniques II: This course deals with advanced technical security of the baton, asymmetrical and divided beat patterns as well as mixed meters and other conducting challenges. Refinement of gestures towards performance, establishment of the musical work, and expressive conducting are considered.

MUS 813.2 Vocal Aesthetics, Physiology and Performance Practices: This course is designed to teach students advanced singing techniques and how to use these techniques to expand their vocal range, sight-reading skills and music theory concepts that will enable them to perform with more confidence. Studying a wide variety of repertoire from the Renaissance to contemporary living composers, students will develop the ability to understand and convey the composer's aesthetical intent in order to connect them as performer with the audience. Vocal physiology, vocal health and development, vocal qualities and textures, music literacy skills will be taught alongside music repertoire.

MUS 814.2 Contemporary Choral/ Instrumental Music Theory and Practice: This course explores the nature and practices of contemporary choral and instrumental music. It lays emphasis on the theoretical, analytical and performative issues associated with choral and instrumental music practice in the contemporary times.

MUS 815.2 Choral/ Instrumental Repertoire: Sacred and Secular: The course focuses on the study of choral and instrumental music repertoires from the renaissance era to the contemporary times. Students are exposed to a survey both secular and sacred music repertoires.

MUS 816.2 Choral/Instrumental Ensemble Administration: In this course, students engage in the study of the rubrics of the organization and administration of choral and instrumental music ensembles ranging from small chamber to large-scale choral and instrumental groups.

MUS 817.2 Philosophical and Psychological Issues in Choral/Instrumental Music: This course exposes students to the philosophical foundation and debates in choral and instrumental music practice. Also, themes for discussion include the psychological issues that bother on the organization and functioning of choral and instrumental music in context.

MUS 818.2 20th and 21st Century Music Theories, Principles, Techniques and Practices: The dynamics and complexities of the modern music, materials and techniques of 20th and 21st centuries' music are studied under this course. Arnold Schoenberg's dodecaphonic series, Olivier Messiaen and Pierre Boulez's serialism, John Cage's chance music (indeterminacy), Steve Reich and Philip Glass' minimalism, quotations, cultural borrowings, and so on are dealt with in terms of their theoretical concepts, principles and creative and performance techniques especially as derived from African theoretical constructs.

MUS 819.2 Schenkerian Theory and Analysis: This course examines the nature and application of the theory and analytical method of Heinrich Schenker for the music of 18th and 19th centuries. It provides students with high-level skills in Schenkerian theory and analysis with all the required technicalities (including the system of graphic notation) for graduate-level discussions. Focus will be on such themes as, the instrumental or vocal cycle, the status of the motive in the structural levels and the validity of Schenkerian analysis as a tool for interpreting twentieth-century tonal music. Students will engage substantial readings of works by Beethoven and his contemporaries (mainly Clementi, Hummel, Czerny, and Weber), the theoretical question governing the work being the possibility of a "Beethoven counterpoint" to substitute for the Fuxian species and figured bass as the foundation of an analytic method for traditional European tonal music. The course will provide the opportunity to develop Schenkerian analytic skills to a level approaching that of a professional practitioner through the study of works that emphasize a pragmatic poetics, that is to say, a critical, hands-on approach.

MUS 820.2 Perception and Cognition in Music Theory: This course provides in-depth study of historical and current approaches to questions about the perception and cognition of music theory. Topics include psychoacoustics; the cognitive neuroscience of music; relationships between music and language; the nature of musical knowledge; and debates about

aesthetics as well as discussions on the sensory, perceptual, and cognitive foundations of listening, performing, and composing. Other topics include relations among various acoustical and perceptual characterizations of sound; perceptions of pitch, time, temporal relations, timbre, stability conditions, and auditory space; auditory scene analysis and perceptual grouping mechanisms; perceptual principles for melodic, rhythmic, and harmonic organization; orchestration as spectral composition. Also, the course will involve the study a number of cognitive models for various aspects of music. The exact topics will be determined in part by the interests and backgrounds of the class participants, but may involve musical grammars, categorization, similarity, representation, segmentation, and Gestalt theory. Musical domains studied may include tonality, atonality, and rhythm and meter. Emphasis will be on cognitive, perception and production, models. It is hoped that the course will include a balance of students within and outside of music, which will allow for some collaborative work involving "content experts" from both music and cognitive science-related areas. The course research project should involve the analysis of musical examples or perceptual and cognitive issues in music theory.

MUS 821.2 African Soft Science of Functional Aesthetics and Theoretical Logic of Music: Indigenous African musical arts is conceived, designed and actualized as a soft science of societal and humanity management focussing principally on mind management. Structural logic researches scientific idioms that impact and manage the mind. African music objective and evaluation reckon with functional aesthetics.

MUS 822.2 Orchestral Composition (African and Western): This course provides the student the opportunity to create high artistic and technically competent works under the guidance of the lecturer, leading to such large-scale forms as Sonata-Allegro, Concerto, Rondo, Cantata and Oratorio forms, as well as multimedia and film music. In the second part of this course, the student continues to create diverse music with advanced techniques. Operatic music and other theatrical/large stage works are studied. Students are guided to compose accordingly, engaging in contemporary music creative practices and debates.

MUS 823.2 Electroacoustic Music Composition and Performance: Students are taught the concept, dynamics and performance techniques of electronic music. The history and literature of, and instruments

used for electroacoustic music compositions are discussed. Music concrete and digital music synthesis and processing techniques, sound designs and devices, as well as the major composers of this genre are considered.

MUS 824.2 Analysis of Masterworks: The course aims at exposing students to the study of major works of Western and African music composers. Examples of works to be studied in the course will be representative of diverse genres (such as motet, madrigal, Mass, concerto, fugue, symphonies, and African pianism) and their composers.

MUS 825.2 Chromaticism and Extension of Tonal Principles: The development and inclusion of Chromatic principles from the Renaissance to the twilight of the 20th century are considered. The chromatic extension and application of the tonal principles are reviewed.

MUS 826.2 Presentation of Works in Concert: Compositions written while enrolled in M.A. programme at the University of Port Harcourt are expected to be performed. Under the student's examining committee, the duration of the concert shall be a minimum of 45 minutes.

MUS 827.2 Sound Design for Theatre and Electronic Media: The course provides deep understanding of the techniques and processes of sound design for theatre and video productions. Students are guided to explore and develop their creative potentials and talents, while acquiring resource and people management skills necessary for successful planning and execution of sound design projects. Student teams are required to undertake and manage sound design for productions of the Department of Music, and other creative arts departments in the university.

MUS 828.2 African Music: Transcription and Analysis: The contemporary literacy approach to African musical arts education should imperatively derive from grounded knowledge of indigenous epistemology. The course will emphasize capability to transcribe and analyse extant and recorded indigenous samples and models for purposes of analyses and contemporaneous re-deployment in both classroom education and public enlightenment practices. As such the course is expected to be practice-intensive deriving from cognitive understanding of the basic African Ensemble Thematic Cycle, which enables perceiving and isolating structural inter-relationships that factor indigenous creative matrix and idiomatic

rationalizations for transcription and analysis exercises.

MUS 829.2 Organology and Theories of Notation: The fact that not all African music instruments fit into the conventional taxonomy of music instruments (idiophones, chordophones, membranophones and chordophones) warrants the cognizant knowledge of the peculiar performative and sonic specifications that distinguish such prevalent indigenous African instruments as membrane and slit drums and bells. The available notation systems so far invented by scholars do not capture the sonic peculiarities of the instruments and misinterpret African creative theory. This course will take note of such exogenous notation attempts, which distort cognizant perception and transcription. Then the students will learn the appropriate drum notation symbols, which have been designed to authoritatively capture the creative and structural intentions and sonic features of African drum music. Modern African classical drumming notation accommodates already appropriate staff notation stave along with unique drumming symbols especially since metric order in African indigenous music are either 4/4 or 12/8 time with rare exceptions.

MUS 830.2 Social Content, Musical Styles and Performance Practices and Functional Essence in Africa: The two major categories of musical arts ideation in indigenous Africa are Event Music and Music Event. Event Music, which commands functional creativity, is predominant. The course will delve into the philosophy, psychology and creative ideology distinguishing the two categories. It will specify the Event typologies. Event Musical arts commands that the theoretical rationalization, conformation and deployment of an Event type must signify, interpret and marshal the societal context, scenaric activities and moods of the event that warranted its creation. In short, creative formulation and procedure make meaning in the context of identifiable functional objectives and attributes. Musical arts items within the Event style are collectively identified with the name of the event. Assessment will then be based on how effectively a performance has enabled the accomplishment of its Event assignment. The Music Event category is the few instances of entertainment-intended musical arts types, which most times still serve humanity purposes, often psychological.

MUS 831.2 Indigenous Knowledge Systems: Principles and Practices in World Music: African indigenous musical arts are theoretically stable, always having a systematic format for form and

structural idioms. The developmental principle is Performance Composition, which captures and sonically translates the procedure and interactive contingences of an event it is transacting. The standard theoretical formula for the structural conformation of ensemble music in indigenous Africa is Ensemble Thematic Cycle: Instruments play individuality Roles, which yield the composite ensemble theme (microform -Ensemble Thematic Cycle) instead of the Principal and Subordinated instrument parts, which mark Western music theory. The indigenous African knowledge principles will then be projected into world music creative formulae.

MUS 832.2 Music, Dance, Rituals and Theatre in African Culture: The course covers the study of African performing arts ranging from vocal and instrumental music, dance and theatre to pantomime, sung verse and beyond. These include varied cultural expressions that reflect human creativity found in most African traditional music. It will further elaborate on ritual and its connectedness with dance, a complex phenomenon that deals with physical body movements, steps and gestures, which express and illustrate specific events and/or daily acts such as rites of passage, religious, hunting, warfare, *inter alia*. Music, dance and theatre are often major features of cultural promotion intended also to attract tourists.

MUS 833.2 African Art Music and Creativity: This is a practical course, which will engage a student in major original compositions the creative configurations of which will be analysed, and possibly performed. A creative product could be an advancement-oriented updating of an existing, studied indigenous musical arts style/type.

MUS 834.2 African Music and the Diaspora: The course will trace the movement of African musical arts heritage through slave trade to the United States of America and Latin American countries. The psychical survival of the slaves was ensured by the psychic-sustenance science of indigenous African musical arts idioms which accorded them mental coping at labour and leisure. The culturally dislocated Africans then used their inherent African musical arts idioms as creative foundations, which they merged with their virtual perceptions of host countries' music resources to configure new, authoritative musical arts genres that birthed jazz, capoeira, samba etc. The course will decipher the African structural idioms that mark Diaspora music styles, as well as the incorporated elements. It will further discuss how their new music creations were

first resisted and derogated by host nations (e.g. jazz as 'rubbish'), and then adopted into world music exemplars.

MUS 835.2 African Popular Music Styles and Performance Practices: This course examines the development of African popular music, its genres and styles as well as performance practices from their roots to the present. It will involve the study of literature on the trends in the history and practice of the said genres and expressive practices that create senses of community at the same time that they may reinforce political and religious differences, with special attention to modern issues and processes. Discussions will include the cultural, social, economic, technological, and political conditions surrounding that music. Also, the course will engage popular music culture as a means to identify newly emerging publics across the continent in a bid to facilitate the theorization of the intersection of aesthetics, politics and religion and also utilize social media and theorize its role in disseminating creative practices. In addition, this course will develop historical and theoretical perspectives on materials ranging from literature and satirical comedy to protest song and slogans, including hiphop, dabke, and other forms of African culture. Students will explore various case studies from the continent and develop tools to interpret their musical value and contextual meaning.

MUS 836.2 African Music: Historical Perspectives: The course will discuss features of pre-colonial African musical arts ideations, creativity and practice, which warrant the use of the referential and discursive expression AFRICAN MUSIC encompassing all music expressions authentically sub-Saharan African. The sub structural commonness in the basic sound of music that sounds authoritatively African resulted from ancient history of human movements in Africa, and the normative integration of expressive practices engineered by other-human disposition and inter marriages between natives and the new, fellow human arrivals who were re-locating. Generally, then, the fact is that at the sub structural level of creativity and practice all African cultures share common creative ideology, theory as well as basic structural conformations in music. Cultural peculiarities at the super structural level of theory and creativity feature and factor preferential cultural sounds derived from cosmic and environmental factors of habitation location. Then the course will consider the negative impacts of colonization and foreign religions on African minds, life systems and creative imagination. These have resulted in African

minds and life systems becoming overwhelmed by puppet/mimic mentality, which overwhelm virtually all aspects of contemporary African sense of history, cultural identity and human integrity - with respect to systems practices and life orientations as well creative originality, including the current over-riding commodity/entertainment oriented musical arts imagination and practices.

MUS 837.2 Music Educational Policy Development and Administration in Nigeria:

This course looks at various educational policies from the independence era till date, and evaluates how these policies have been effectively implemented in the context of Nigerian cultural integrity.

MUS 838.2 Sociology of Music Education: This course focuses on the effects of the social context of music upon musical meaning, musical ability, and access to musical opportunity. This course looks at the degree of relationship between music production and the society. It focuses on issues with relationship to the multiplicity of musical styles available in a multi-ethnic society like Nigeria. It will also provide a window for comparative analysis of the general social, political and economic factors and institutions that influence the form, content, acquisition and development of music education in different countries, paying particular attention to the development and social context of the music curriculum and music educational practices.

MUS 839.2 Music Education: Analytical Techniques, Assessment and Evaluation in Nigeria: This course focuses on techniques and procedures of research in music education with special emphasis on basic statistical concepts in assessment and evaluation. Foundational attention will be given to the values and benefits of indigenous African assessment and evaluation process.

MUS 840.2 Multimedia Tools for Music Education: This course discusses multimedia tools involved in Music Education and their effectiveness in teaching and learning in the contemporary society. Emphasis is on the knowledge of multimedia hardware and software systems, essentially as they relate to music. The course combines reading, discussion, and hands-on projects to achieve an understanding of how computers work and how they can be incorporated effectively in the music classroom. Also, it examines various innovative ideations, development of new tools and patterns of implementation. Development of

multimedia projects by students is an integral part of the course.

MUS 841.2 Principles and Practices of Music Education and Indigenous Knowledge Systems in Africa:

An appraisal of educational policies on music education in Nigeria and Africa at large shall be studied and reviewed *vis-a-vis* current state of music education in all tiers of the educational system.

MUS 842.2 Music Education and Child Psychology:

This course examines how various developmental processes of the child are enhanced through appropriate blend of psychology and music in the child's education. The course focuses is on the child's cognitive, physical and affective/emotive domains using music platform.

MUS 843.2 Music Education and Gender in Africa:

This course studies historically the involvement of men and women as listeners, performers, teachers, and technologists in musical studies in Africa noting that in indigenous African conceptual philosophy and functionality music is a woman.

MUS 844.2 Applied Music Instruction and Pedagogy:

This course aims at exposing students to advanced proficiency on one musical instrument/voice. Emphasis is on the study of the art of teaching musical instruments and techniques for voice including discussions on the philosophy of teaching, learning process itself, teaching of musical interpretation, individualized study of various considerations (for example physical/technical aspects and pedagogical repertoire, peculiar to the teaching student's major instrument). Students will engage in a thorough investigation of vocal mechanism and its use as well as the study of noted teachers of past and present.

MUS 845.2 Advanced Survey in Developmental Psychology:

This course involves and in depth study of the processes of human development across the lifespan with an emphasis on psychosocial and emotional development. Major theories and models of normal development from infancy to old age are discussed. Development of ego functions and personality as well as deviations from normal development, are also covered in a lifespan framework. Also, philosophical, conceptual, theoretical and research issues pertinent to human development from prenatal life to adulthood are presented. The core conceptual issues of development, such as the nature-nurture controversy, the continuity-discontinuity issue, and

the issue of stability-instability, are discussed, and their relationships to the major theories in developmental psychology are examined.

MUS 846.2 Church Music Composition and Analysis: This course focuses on the theoretical and practical study of church music compositional techniques and procedures. Selected works from the Medieval, Renaissance, Baroque and classical era will be used. In addition, African compositional techniques and analysis will be used in evaluating contemporary African church music compositions

MUS 847.2 Development of Church Music from the Late Classical Period to the 21st Century: The course is an advanced exploration of the development of Church music from the Late Classical to the 21st century periods. It examines the development of various genres of sacred/church music of these eras including oratorios, choral music and choral societies, Catholic sacred music and Protestant church services music, the use of sacred texts in operas, symphony of Psalms, music and spirituality as evident in the works of Olivier Messiaen. Relevant examples of composers and their music styles, instrumental music, and sacred music in the Americas—Spirituals, will be discussed in detail.

MUS 848.2 Church Music, Programming and Administration: This course provides a range of effective programming and administration skills to support essential operation and on-going activities in the church. The course focuses on the development of financial, operational and managerial skills to maintain good leadership. It deals with Church music programming in the context of church (government) administration, which includes, graded ensembles: choral and instrumental, congregational activities, training for and promotion of music ministry, and the role of the minister of music as a staff member in a multi-staff context. The student will gain experience in creating effective management frameworks that prepares him/her to further their church's mission through spiritual formation, communications plans/planning and human resource practices.

MUS 849.2 Fundamental Theology of Christian Liturgy and Performance Ethics: This course is an exploration of the meanings of theology, Christian liturgy (worship): its history, principles and practice, spirituality, prayer and their relevance in the church, institutions and the society. It explains the role of theology and prayer in Christian worship, demonstrating how sound theology of worship and

prayer can enhance the ethical performance of Christian liturgy and thus improve the life of the Christian faithful.

MUS 850.2 Church Music: Organ and other Instrument II: The course is a continuation of Church Music: Organ and other instruments I. The history and development of the organ or other instruments of the students' choice, notable church music composers and repertoires will be studied. The student is expected to play some of these repertoires, especially those suggested by the course lecturer.

MUS 851.2 Contemporary Trends, Theories and Practices in Worship: This course is focused on current trends and issues in Christian worship discourses so as to engender critical thinking and other analytical skills. Such issues include but not limited to theoretical basis for diverse kinds of worship practices, impact of worldviews/philosophies on worship styles and music, use of multimedia and lighting in contemporary worship, practices that aid manipulation and extortion in worship by means of the arts.

MUS 852.2 Church, Music and Politics: A study of the doctrine of the church, giving a careful attention to biblical traditions, historical development of ecclesiology; the use of music in the church worship, proclamation of the gospel, Christian education, pastoral care and fellowship. Also, the course will emphasize on the discourses of power play within and between stakeholders in administration of the church and its music. The course further highlights the influences of politics in the Church, the orthodox and others.

MUS 853.2 Indigenous African Church/Sacred Music Composers: The course is an in-depth survey and study of African Church/Sacred music composers of Nigeria specifically, those of the Niger Delta region of Nigeria. Their historical background, denominational affiliations, collection/documentation of choral, congregational and instrumental works will be given prime focus. In addition, the liturgical function of the compositions of these church musicians will be examined. The distinctive characters and idioms unique to African sacred music shall be explored.

MUS 854.2 Indigenous Patterns and Practices in Sacred Music: This course examined the emergence and development of indigenous patterns, practices and performance styles of music(s) of

African initiated churches. Influence of cultural identity, indigenous method of communicating biblical messages by means of such identities leading to African church spirituality will be exposed. Further, the course investigates the local patterns, contents and practices inherent in indigenous Sacred Music in Nigeria in particular, and in Africa in general, including the instrumental resources.

MUS 800.3 Thesis: The student, in consultation with the supervisor/advisor, is expected to complete a project thesis during the final semester of his/her M.A. studies.

MUS 801.3 Recital II: (See MUS 813.2: Recital I) This is the final recital/performance for students in Performance Studies (Music Instrument Performance, and Conducting and Ensemble Administration).

MUS 802.3 Advanced Contrapuntal Techniques: The course focuses on the compositional processes and analyses of various contrapuntal forms ranging from small chamber to large-scale works such as the fugue. Representative works in these forms are included in the course materials.

MUS 803.3 African and Global Perspectives in Music and Gender: The course will discuss the nature of gender and age delineations in African life philosophy and practices. In music, as terminological evidences from culture groups instruct, is a Woman as much as men could feature more visibilities in instrumental performances for gender role and mystical reasons. African metaphorical ideology rationalizes that in the process of performances a man transforms into feminine gender attributes and emotions; hence indigenous African terminology encrypts mother musicianship/instrument instead of the modern conventional master musicianship/instrument as the

attributive label for specialist expertise in music-ness. The impact of modern Western gender theories, imaginations and prejudices on contemporary African mentality and societal practices will then be discussed as they deviate from or contradict original African perceptions/prescriptions that ensured mutual gender consciousness, respect and practices.

MUS 804.3 Music Pedagogy in Special Education: This course focuses on psychology of students with various disabilities and methods of impacting on them. The characteristics of each of the 'special children' (mentally retarded, behaviour disorders, speech disorders, visual and auditory impairment) shall be studied.

MUS 805.3 Chants, Sacred Sounds, and Spirituality: Music and religion are two universal features of human life. Across a broad spectrum of cultures around the world, music and musical practices have been an integral part of spirituality and religion. Focusing on the music and religious phenomena, this course aims at exploring the various kinds of music used in major world religious traditions (Hinduism, Buddhism, and the Abrahamic religions of Judaism, Christianity, and Islam) and how these sacred sounds are employed to enable the individual(s) discover the essence and values of their being. Although diverse in theological orientation, the preceding religions share some common traits including chant. The course is, thus, organized around two related sections. The first part of the course will be devoted to chant since chants play a vital role in the rituals and worship of these major world religions. The second section focuses on the music of composers (particularly Judeo-Christian composers) whose works are imbedded with spiritualized sonic and aesthetic appeals.

ACADEMIC STAFF

S/N	Name	Qualification	Designation	Area of Specialization
1.	Meki Nzewi	B.A. (Hons) (Nigeria) Ph.D. (Belfast)	Professor	Ethnomusicology, African Music Theory & Performance
2.	Onyee N. Nwankpa	B.A. (Hons) (Nigeria), M.A. (Lagos), M.Mus & Ph.D. (Calgary), GDFA (Calgary), Dip. Mus.Ed. (Nigeria) PAMTA, SOCAN	Professor	Composition, Theory, Conducting, Performance, Music Therapy & Music Business
3.	AdeOluwa A. Okunade	B.A. (Hons) Nigeria, M.A. (LASU), M.A. (OAU), Ph.D. (Ibadan), Dip.Mus.Ed. (Nigeria)	Professor	Ethnomusicology, Educational Management & Church and Sacred Music
4.	Ngozi V. Okonkwo	B.A. (Hons.) Nigeria, M.A. & Ph.D. (Abraka)	Associate Professor	Voice Pedagogy, Performance & Music Business
5.	Patience U. Oguoma	B.A. (Hons) Nigeria, M.A. Awka, M.A. Nigeria Ph.D. (Awka) Dip.Mus.Ed. (Owerri)	Associate Professor	Ethnomusicology, Music Education, African Music,
6.	Marie Agatha Ozah	N.C.E. (Uyo), B.A. & B.M. (PIMS, Rome), Licentiate (PIMS, Rome), M.A. (PIMS, Rome), Doc. Certificate (Pittsburgh, U.S.A), Ph.D. (Pittsburgh, U.S.A)	Senior Lecturer	Ethnomusicology (African Music), Cultural Studies, Sacred Music & Performance
7.	Isaac O. Ibude	BCM (Hons), MCM M.A. & Ph.D. (Ibadan), PGDE (Calabar)	Senior Lecturer	Ethnomusicology Performance Church & Sacred Music
8.	David Bolaji	N.C.E. (Oyo) B.A. (Abraka) M.A. (Abraka) Ph.D. (Abraka)	Senior Lecture	Composition, Theory, Operatic Studies and Production
9.	Eyiuche R. Modeme	B.A.Ed. (Nigeria), M.A. (Nigeria)	Senior Lecturer	Music Education & Music Therapy
10.	Rita Sunday-Kanu	B.A. (Nigeria), M.A. (Lincoln), M.A. (NAU)	Senior Lecturer	Music Media and Culture, & Ethnomusicology

FACULTY OF COMMUNICATION AND MEDIA STUDIES

DEPARTMENT OF FILM AND MULTI MEDIA

M. Sc. PROGRAMME IN FILM & MULTI MEDIA STUDIES

INTRODUCTION

The Master's Degree Programme in Film & Multi Media Studies is conceived to pragmatically expose the students to the core historical, theoretical issues, and best practices in the discipline of Film & Multi Media Studies. The Programme is deliberately designed to strike a balance between theory and practice. The intention is to produce skilled manpower that will be able to completely discuss issues related to the discipline as well as empower them to be able to set up independent production outfits to provide employment to the teeming population of the Nigerian youths. The Department believes that this programme will encourage the students to take up the challenges of improving their skills and proficiency in communication with the larger society through the medium of film and multi Media studies.

PHILOSOPHY

The philosophy of this programme is to combine education and applied research for the advancement of knowledge in filmmaking, marketing and media management generally.

VISION

It is the express purpose and vision of the Department to produce a cadre of professionals in the practice of Film & TV production that are aware of the technological trends in the discipline. Indeed, this is with respect to the demands of a modern economy that is competitive and responsive to societal development.

MISSION

While not narrowly concerned with Film/TV per se, it is the mission of this programme to provide a broad based platform for facilitating academic research and professional excellence in the theory and practice of the discipline of Film & TV Studies. Its major concern, which is to project the humanities in the Niger Delta beyond its immediate confines, is seen in the context of identifying with other cultures of the Nigerian nation.

RATIONALE/JUSTIFICATION

The Nollywood film industry in Nigeria has been labelled the second largest film industry in the

world, given the number of productions it releases annually. However, many stakeholders in the industry are yet to come to terms with its professional demands. Thus, the idea of this programme is to create a platform for an industry-driven professional collaboration in the area of film production in the country in order to create, educate and train the next generation of Nigerian filmmakers.

AIM AND OBJECTIVES

The aim of this programme is to equip students for the media needs of the present century. Its specific objectives are:

- a) To provide a programme of studies that will facilitate teaching and research in theatre and media arts, focusing on skill acquisition of students in meeting the socio-economic demands of the modern era, nationally and internationally.
- b) To apply the medium of film and television in projecting the cultural aspirations of the Niger Delta region and the generality of the Nigerian nation.
- c) To train teachers for meeting the needs of aspiring young artists in the creative arts particularly in the secondary and tertiary levels of education in Nigeria.
- d) To arouse critical consciousness in students of Film/TV Studies through learning, academic publications and distribution of media products.
- e) To generate economic drive among students and scholars of creative productions to see their arts as commodities.
- f) To positively impact students and associates with intellectual and critical awareness of phenomena through seminars and workshops.

ADMISSION REQUIREMENTS

To qualify for admission into the MSc programme, the candidate must obtain a first degree in Film/TV Studies or a related discipline with a result not below second class lower division.

PROGRAMME DURATION

The MA programme has been designed to run for twelve (12) calendar months, at the end of which students are expected to write an MSc thesis.

**AREAS OF SPECIALIZATION/
CERTIFICATION**

The following are the areas of specializations in the Graduate Studies programme of the Film & Multi Media Studies:

- i. Film History
- ii. Film Theory & Criticism
- iii. Film & Gender Studies
- iv. Film & Popular Culture
- v. Film/Video & Globalization

TABLE OF LIST OF COURSES, CODES AND CREDIT UNITS IN THE MA COURSE PROGRAMME STRUCTURE

FIRST SEMESTER

Course	Course title	Credit Unit
SGS 801.1	ICT & Research Methods	2
FMS 800.1	History and Principles of Film Criticism	3
FMS 801.1	West African Cinemas/Videos (1900-2010)	3
FMS 802.1	African Diaspora Cinema (North America)	3
FMS 803.1	Hollywood Cinema (1903-1960)	3
FMS 804.1	Film Theory and Criticism	3
FMS 805.1	Ethics, Cinema and Society	3
FMS 806.1	Research Methodology	3
	Total	23

SECOND SEMESTER

Course	Course Title	Credit Unit
SGS 801.2	Management & Entrepreneurship	2
FMS 805.2	Narrative Theories & the Cinema	3
FMS 806.2	Film Criticism/Textual Analysis	3
FMS 807.2	European Cinemas – A Case Study of Two Countries	3
FMS 808.2	African Diaspora Cinema (Western Europe)	3
809.2	Graduate Seminar	3
810.2	MA Research Dissertation	6
	Total	23
	Grand Total	46

COURSE CONTENT (MASTER’S DEGREE)

FIRST SEMESTER: MA PROGRAMME

SGS 801.1: ICT & Research Methods

Rightly one can say that technology presently is the soul of development. Learning by means of information and communication technologies is one area students of this programme will benefit more since they will be taught how to appreciate and use tools of digital technology creatively.

FMS 800.1: History and Principles of Film Criticism

In this course, students will be taught the key topics in the course, which includes: Historical Criticism, Political/Marxist Criticism, Third Cinema Theories, Theories of National Cinema, Genre Theories, Auteurist Theories and Psychoanalytic Theories.

FMS 801.1: West African Cinema/Videos (1900-2014)

This course will expose students to the history of West African film and video industries. The scope includes both Anglophone and Francophone West African cinemas. In teaching this topic, students will be exposed to the French colonial policy of assimilation and the British colonial policy of association, in terms of their responses to traditional African socio-political institutions, belief-system and moral values. The study will also deal with the context of the emergence of the film/video industries in the West African sub-region.

FMS 802.1: African Diaspora Cinema (North America)

This course will expose students to the history of African American filmmaking, from the silent era, with special emphasis on the works of Oscar Micheaux, Richard Edward Norman, Richard D. Maurice, George and Noble Johnson, Zora Neale Hurston and Eloyce King Patrick Gist. The course would equally give an outline history of Black Independent filmmakers.

FMS 803.1: Hollywood Cinema (1903-1945)

In this course, students will be taught the history of Hollywood cinema, beginning with Edwin S. Porter, through the Nickelodeon boom, Motion Picture Patents, the rise of the feature film, the star system, Hollywood classicism, up to the Hollywood studio system.

FMS 804.1: Film Theory & Criticism

In this course, students will be taught the key concepts and authorities of the following theories: Spectatorship Theories, Feminist Theories, Structuralism, Post-Structuralism/Deconstruction, Post-Colonial Theories and Queer Cinema Theories, Genre Theories, etc.

FMS 805.1: Ethics, Cinema and Society

This course introduces students to some Classical, Modern and Contemporary theories of ethics as they relate to the cinema and society. The study will take into cognizance how emerging trends in the cinema affect the cultural and moral values of societies. Attention will be focused on how a proper understanding and application of ethical themes can shape and enhance cultural and moral values of societies through the cinema.

FMS 806.1 Research Methodology

This course has to do with teaching students how to carry out research and the different kinds of documentation style sheets.

SECOND SEMESTER: MA PROGRAMME

SGS 801.2: Management & Entrepreneurship

Students offering this course will be guided in how to be innovative in generating ideas regarding film production themes, distribution and marketing strategies. The course will also ground them in the skills of film business and enterprise.

FMS 805.2: Narrative Theories and the Cinema

This course is intended to ground the students in the history of narrative theory in terms of its genealogy and early developments, beginning from structuralism to the present.

FMS 806.2: Film Criticism/Textual Analysis

In this course, students will be taught how to apply the various theoretical approaches in critical analysis of selected film (texts taken from filmmaking cultures across the world).

FMS 807.2: European Cinemas – A Case Study of Two Countries

In this course, students will be grounded in history and production contexts of filmmaking in the selected cinemas: British Cinema, French Cinema, Italian Neo-Realism, Scandinavian Cinema, German Cinema and Russian Cinema.

FMS 808.2: African Diaspora Cinema – Western Europe

This course will examine the socio-political context within which Black British Cinema flourished in the 1980s. The key figures of the period such as Isaac Julien, Maureen Blackwood, Coco Fusco, Kobena Mercer, etc., and the film workshops which nurtured their works such as Sankofa and the Black Audio Film Collective, will be examined in detail. Films such as *Territories* (Isaac Julien, 1984, 25 mins), *Passion of Remembrance* (Isaac Julien and Maureen Blackwood, 1986, approx. 80 mins), *Looking for Langston* (Isaac Julien, 1989, 40 mins) and *Handsworth Song* (Black Audio Collective – John

Akomfrah, Reese Auguiste, Lina Gopaul and Avril Johnson, 1985, 60 mins) will be analyzed.

FMS 809.2: Graduate Seminar

Students are exposed to the rudiments of writing seminar and upon completion of their course work, will present a Departmental seminar on their research project.

FMS 810.2: MA Research Dissertation

Students will write and defend their dissertations before a team of assessors at the end of their course work.

**MFA (PROFESSIONAL)
PROGRAMME IN
FILM & MULTI MEDIA STUDIES**

INTRODUCTION

The Department of Film and Multi Media Studies espouses the philosophy of pragmatic assessment of this programme from time to time to meet the demands and realities of the moment. In doing so, the department believes that by this new programme, students will be persuaded to take up the challenges of improving their skills and proficiency in communication with the larger society through the medium of television and film. This we believe has in-built power to reach mass audiences – in that a global outreach is envisaged through the window of the programme offered in this reviewed curriculum.

PHILOSOPHY

The philosophy of the MFA (professional) programme is to combine education and applied research for the advancement of knowledge in film/television production, marketing and management through hands-on training.

VISION

It is the express purpose and vision of the department to produce a cadre of professionals in the practice of Film production that are aware of the technological trends and their place in them. Indeed, this is with respect to the demands of a modern economy that is competitive as it is one of expertise.

MISSION

While not narrowly concerned with Film & TV per se, it is the mission of this programme to provide a broad based platform for facilitating academic research and professional excellence in the theory and practice of the discipline of Film and Television Studies. Its major concern, which is to project the humanities in the Niger Delta and beyond its immediate confines, is seen in the context of identifying with other cultures of the Nigerian nation.

RATIONALE/JUSTIFICATION

While the Nollywood film industry in Nigeria has been labelled the second largest in the world given the number of productions it releases annually, many stakeholders in the industry are yet to come to terms with its professional demands. Thus, the idea of this programme is create a platform for an industry-driven professional collaboration in the area of film production in the country in order to create, educate & train the next generation of Nigerian filmmakers.

AIM AND OBJECTIVES

The aim of this programme is to equip students for the needs of the present century in the area of film and Multi Media production. Its specific objectives are:

- a) To provide a programme of studies that will facilitate teaching and research in Film & TV Studies, focusing on skill acquisition of students in meeting the socio-economic demands of the modern era, nationally and internationally.
- b) To use the medium of radio, television and film in projecting the cultural aspirations of the Niger Delta region and the generality of the Nigerian nation.
- c) To arouse critical consciousness in students through learning, production and distribution of media products.
- d) To generate economic drive among students and scholars of Film and TV studies through artistic and creative productions in arts as commodities.
- e) To impact on students and associates the intellectual and critical awareness through seminars and workshops and the imitation of projects as the case may be.

ADMISSION REQUIREMENTS

To qualify for admission into the MFA (professional) programme, the candidate must obtain a first degree in a related discipline to Film and TV Studies with a minimum of second class lower division.

PROGRAMME DURATION

The programme is designed to run for twelve (12) calendar months at the end of which students are expected to write a dissertation.

AREAS OF SPECIALIZATION

The following are the areas of specialization:

- Film/Video Production Management
- Film/Video Directing
- Film Acting
- Screen Writing
- Cinematography/Still Photography
- Costume Design & Production/Make Up
- Film Editing
- Film Advertisement/Publicity
- Film Marketing/Distribution, and
- Documentary Film.

ADMISSION REQUIREMENTS FROM MFA TO Ph.D. PROGRAMME

Students wishing to proceed for the Ph.D. programme after the MFA (professional programme) are required to take all the First Semester courses in the M. Sc. (Film/Multi Media Programme) with the exception of SGS 801.1 (ICT & Research Methods) and FMS 805.1 (Ethics, Cinema and Society).

TABLE OF LIST OF COURSES, CODES AND CREDIT UNITS IN THE MFA (PROFESSIONAL) PROGRAMME COURSE STRUCTURE

FIRST SEMESTER

Course	Course Title	Credit Unit
SGS 801.1	ICT & Research Methods	2
MFA 800.1	Screen Writing	3
MFA 801.1	Techniques and Methods of Film Directing	3
MFA 802.1	Techniques and Methods of Film Acting	3
MFA 803.1	Film Editing (Linear/Non-Linear)	3
MFA 804.1	Documentary Film Production	3
MFA 805.1	Ethics, Cinema and Society	3
Total		20

SECOND SEMESTER

Course	Course Title	Credit Unit
SGS 801.2	Management & Entrepreneurship	2
MFA 805.2	Film/Video Production Management	3
MFA 806.2	Cinematography/Still Photography	3
MFA 807.2	Film Distribution/Advertisement/Publicity	3
MFA 808.2	Costume Design, Production Design & Make Up	3
MFA 809.2	Graduate Seminar	3
MFA 810.2	MFA Production Dissertation	3
Total		20

MFA COURSE CONTENTS

FIRST SEMESTER

SGS 801.1 - ICT & Research Methods

Rightly one can say that technology presently is the soul of development. Learning by means of information and communication technologies is one area students of this programme will benefit more since they will be taught how to appreciate and use tools of digital technology creatively

MFA 800.1 – Screen Writing

This course will guide students in the development of storylines and different methods of treating them. It will take into cognizance, the art of developing storyboards and shooting scripts for various media purposes.

MFA 801.1 – Techniques and Methods of Film Directing

This course will examine the concept and methods of directing in terms of composition, picturization, rhythm, movement and pantomimic dramatization. It will also explore production values of proper use of camera, microphone, lights and sound in film/tv art.

MFA 802.1 – Techniques and Methods of Film Acting

The course will examine the techniques and methods of Acting especially as propounded by such authorities as Constantine Stanislavsky, Jerry Grotowski, Michael Chekhov and Bertolt Brecht.

MFA 803.1 – Film Editing (Linear/Non-Linear)

The art of editing is one area the students of this programme will be exposed to so as to equip them with the different strands of its components and how the syntactic principles of mise-en-scene and montage are implicated in the illusion of continuous motion in Film/TV construction.

MFA 804.1 – Documentary Film Production

Students will be taught the rudiments of documentary filmmaking and its various strands. They will be expected to undertake some practical assignments as well during the course.

MFA 805.1 – Ethics, Cinema and Society

This course introduces students to some Classical, Modern and Contemporary theories of ethics as they relate to film, television and society. Attention will be focused on how a proper understanding and application of ethical themes can shape and enhance cultural and moral values of societies through the screen representations.

SECOND SEMESTER

SGS 801. 2 – Management & Entrepreneurship

Students offering this course will be guided in how to be innovative in generating ideas regarding film production themes, distribution and marketing strategies. The course will also ground them in the skills of film business and enterprise.

MFA 805. 2 – Film/Video Production Management

This course examines the production techniques employed at the different stages of film and video production. It introduces the students to the rudiments of camera work as involved in programme production and news gathering. It also involves a practical segment whereby the students will be expected to put their knowledge of the techniques into work.

MFA 806. 2 – Cinematography/Still Photography

In this course, students will be taught the rules of engagement in cinematography and photography. This will help them appreciate beauty in arts, especially as it pertains to aesthetics and semiotics in media production.

MFA 807. 2 – Film Distribution/ Advertisement/Publicity

The course will introduce students to the rudiments of turning their arts into commodities. They will also be exposed to the principles of art evaluation as well as practical steps in publicizing productions through everyday contacts and the social media platforms.

MFA 808.2 - Costume Design, Production Design & Make-Up

The course is an intensification of the principles of costume design, production and application for screen specifically. Students are also expected to appreciate the design and application of make-up for period plays. The ability of students to appreciate the psychology of perception of color and the principles of application to productions is of interest here.

MFA 809. 2 – Graduate Seminar

Students are exposed to the rudiments of writing seminar and upon completion of their course work, will present a Departmental seminar on their research project.

MFA 810. 2 – MFA Production Dissertation

Students will write and defend their dissertations before a team of assessors at the end of their course work.

Ph. D PROGRAMME IN FILM & MULTI MEDIA STUDIES

INTRODUCTION

The PhD Degree Programme in Film & Multi Media

Studies is conceived to pragmatically expose the students to the core historical, theoretical issues, and best practices in the discipline of Film & TV Studies. The intention is to produce skilled manpower that will be able to completely discuss issues related to the discipline.

PHILOSOPHY

The philosophy of this programme is to combine education and applied research for the advancement of knowledge in film and television studies generally.

VISION

It is the express purpose and vision of the Department to produce a cadre of professionals in the area of Film & Multi Media studies that are aware of the technological trends in the discipline. Indeed, this is with respect to the demands of a modern economy that is competitive and responsive to societal development.

MISSION

While not narrowly concerned with Film/Multi Media per se, it is the mission of this programme to provide a broad based platform for facilitating academic research and professional excellence in the theory and practice of the discipline of Film & Multi Media Studies. Its major concern, which is to project the humanities in the Niger Delta beyond its immediate confines, is seen in the context of identifying with other cultures of the Nigerian nation.

RATIONALE/JUSTIFICATION

The Nollywood film industry in Nigeria has been labelled the second largest film industry in the world, given the number of productions it releases annually. However, many stakeholders in the industry are yet to come to terms with its professional demands. Thus, the idea of this programme is to create a platform for an industry-driven professional collaboration in the area of film production in the country in order to create, educate and train the next generation of Nigerian filmmakers.

AIM AND OBJECTIVES

The aim of this PhD programme is to equip students for the media needs of the present century. Its specific objectives are:

- a) To provide a programme of studies that will facilitate teaching and research in film and television studies, focusing on skill acquisition of students in meeting the socio-economic

demands of the modern era, nationally and internationally.

- b) To apply the medium of film and television in projecting the cultural aspirations of the Niger Delta region and the generality of the Nigerian nation.
- c) To train teachers for meeting the needs of aspiring young artists in the creative arts particularly in the secondary and tertiary levels of education in Nigeria.
- d) To arouse critical consciousness in students of Film/Multi Media Studies through learning, academic publications and distribution of media products.
- e) To generate economic drive among students and scholars of creative productions to see their arts as commodities.
- f) To positively impact students and associates with intellectual and critical awareness of phenomena through seminars and workshops.

ADMISSION REQUIREMENTS

To qualify for admission into the Ph.D. programme, the candidate must obtain a master's degree in Film/TV Studies. The following CGPA scale will be used in admitting candidates to the Ph.D. programme:

- Candidates with Master's Degree on 5pt scale – with a CGPA not below 3.50
- Candidates with Master's Degree on 4pt scale – with a CGPA not below 3.20
- Candidates based on percentage - with not less than 60%

PROGRAMME DURATION

The Ph.D. Programme will run for the following duration:

- Full Time: 2 – 5 years
Part Time: 3 – 7 years.

AREAS OF SPECIALIZATION/ CERTIFICATION

The followings are the areas of specializations in the Graduate Studies programme of the Film & TV Studies:

- i. Film History
- ii. Film Theory & Criticism
- iii. Film & Gender Studies
- iv. Film & Popular Culture
- v. Film/Video & Globalization

TABLE OF LIST OF COURSES, CODES AND CREDIT UNITS IN THE Ph.D. COURSE PROGRAMME STRUCTURE

FIRST SEMESTER

Course	Course Title	Credit Unit
MFA 900.1	Film/Video Textual Analysis	3
MFA 901.1	History of African Cinema/Video	3
MFA 902.1	Cinema & Society in Africa	3
Total Credit Units for First Semester		9

This course will expose students to the history of West African film and video industries. The scope includes both Anglophone and Francophone West African cinemas. In teaching this topic, students will be exposed to the French colonial policy of assimilation and the British colonial policy of association, in terms of their responses to traditional African socio-political institutions, belief-system and moral values. The study will also deal with the context of the emergence of the film/video industries in the West African sub-region.

SECOND SEMESTER

Course	Course Title	Credit Unit
MFA 903.2	PhD Seminar	3
MFA 904.2	African Popular Culture & Cinema	3
MFA 905.2	Gender, Society & Cinema	3
MFA 906.2	PhD Thesis	12
Total Credit Units for Second Semester		21
TOTAL CREDIT UNITS		30

FMS 902.1: Cinema & Society in Africa

This course will examine the interface between the cinematic institution and the society.

SECOND SEMESTER: PhD PROGRAMME

FMS 903.2: PhD Seminar

FMS 904.2: African Popular Culture/Cinema

This course will examine the relationship between film/video and popular culture within the context of transglobalization and in terms of identity construction in Africa. The issues are examined within the broad contexts of historical and theoretical frameworks.

FMS 905.2: Gender, Society & Cinema

This course will ground the students in the history and theories of gender studies in terms of their relationship to the cinema.

FMS 906.2: PhD Thesis

SGS 801.1: ICT & Research Methods

Rightly one can say that technology presently is the soul of development. Learning by means of information and communication technologies is one area students of this programme will benefit more since they will be taught how to appreciate and use tools of digital technology creatively.

SGS 801.2: Management & Entrepreneurship

Students offering this course will be guided in how to be innovative in generating ideas regarding film production themes, distribution and marketing strategies. The course will also ground them in the skills of film business and enterprise.

*In addition to these courses, students from outside the University of Port Harcourt will be required to undertake the following courses if they did not take them in their master's programme:

SECOND SEMESTER

Course	Course Title	Credit Unit
SGS 801.1	ICT & Research Methods	2
SGS 801.2	Management & Entrepreneurship	2

FIRST SEMESTER: PhD PROGRAMME

FMS 900.1: Film Criticism/Textual Analysis

In this course, students will be taught how to apply the various theoretical approaches in critical analysis of selected film (texts taken from filmmaking cultures across the world).

FMS 901.1: History of West African Cinema/Video

ACADEMIC STAFF

	Names	Qualification	Field of Specialization	Designation
1.	Prof. F.O. Shaka	BA (Benin) MA (Ibadan) Ph.D. (Warwick, UK).	Film History, Theory & Criticism/Mass Media Theories	Professor
2.	Prof. I. E. Uwah	B. Phil, B.Th. (Rome) MA (Calabar), Ph.D. (Dublin)	Media Theories and Film Criticism	Reader
3.	Prof. F. Nwafor	BA, MA, Ph.D. (UPH)	Film Documentary Production and Management	Senior Lecturer
4.	Dr. (Mrs). C. Ekhaeyemhe	BA, MA, Ph.D. (UPH)	New Media and Internet Studies	Senior Lecturer
5.	Dr. (Mrs.) E.O. Godspresence	BA, MA, Ph.D. (UPH)	Feminist Film Criticism and Gender Studies	Senior Lecturer
6.	Dr. (Mrs). N. Bature- Uzor	BA, MA, Ph.D. (UPH)	Film Semiotics and Costume Design/Makeup Design	Senior Lecturer
7.	Dr. O. Ihunwo	BA, MA, Ph.D. (UPH)	Film Acting and Criticism	Senior Lecturer
8.	Dr. S. Dede	BA (Benin), MA, Ph.D. (UPH)	Film Acting and Criticism	Senior Lecturer

TECHNICAL HANDS/ PROFESSIONAL PRACTITIONERS

1.	Grace Ogbonnaya	BA, MA (UPH)	Producer 11

PREAMBLE

The communication subsector has remarkably changed since the middle of the last century and that change has become even more rapid in the last few decades. The strategic role of communication and particularly broadcasting, in contemporary times has necessitated the training of students and broadcast practitioners who would be well positioned not only to appreciate and respond to the changing media space but also be able to deploy the evolving media technologies to tackle contemporary challenges especially in developing nations which are in urgent need of catching up with the rest of the world. A Graduate programme in Broadcasting therefore will prepare another set of management level manpower for an industry that is increasingly dynamic where people are either interested in applying communication principles in dealing with contemporary issues in communication or have found themselves in broadcasting but desire to acquire additional skills to better position themselves for today's realities. This consciousness explains and justifies the running of Graduate programme in Broadcasting. This is also in compliance with the directive of NUC to Nigerian universities to unbundle the rather wide mass communication discipline for greater efficiency.

Philosophy

The Graduate programme in Broadcasting has been designed to provide advanced hands on experience and theoretical knowledge in broadcast media management and production as well as scientific research approaches needed to appreciate and expand the frontiers of theory and practice of broadcasting.

Vision

In accordance with the vision of the Faculty of Communication and Media Studies and University of Port Harcourt, the proposed Department of Broadcasting shall strive to build and develop a model Department of Broadcasting in Nigeria and contribute in making the University of Port Harcourt a citadel of excellence among other Universities in Nigeria, offering high quality and standard broadcasting education that would lead to the production of broadcast professionals who would advance and utilize such knowledge for service to humanity.

Mission

To achieve the above vision, the proposed Department of Broadcasting has the mission of pursuing academic excellence through quality teaching, academic research, training and community service as well as promote the grooming

of well-rounded broadcast professionals and researchers.

Rationale

The rapid expansion in broadcasting both as a profession and academic discipline, the increasing interest of people in this area as well as its complex nature and role in the economy, politics, governance and all other aspects of today's society makes it necessary to train practitioners, scholars and researchers in this area. This is the justification for a graduate programme in broadcasting.

Aim and Objectives

The aim of the programme is to produce senior cadre manpower in the broadcast industry who will be able to respond to the information need of contemporary society in the area of broadcasting. The specific objectives of the programme are:

- a. to produce senior level staff to man the ever-challenging broadcast industry and respond to global challenges requiring up-to-date skills in broadcasting and media studies as well as package programmes on radio and television to meet the standards in our changing world;
- b. to provide students with both the basic techniques of broadcasting analysis and with the practical tools for media in the global village for today and tomorrow;
- c. to produce post-graduate students with well-rounded education, who are not only professional broadcasters but also experts in media studies
- d. to give students broader understanding of the scientific studies of broadcasting in both theory and practice.
- e. to produce students who are up to date with current trends in the field of broadcasting and competently serve in the industry in senior positions.
- f. expose students to contemporary and advanced research techniques needed to analyse broadcasting and development issues.

PGD PROGRAMME IN BROADCASTING

The programme is designed to provide students with a range of requisite knowledge, skills and understanding of broadcasting and media studies terrain with the objectives of:

- i. generating sensitivity to the broadcast environment and its impact upon decision-making in the sphere of development-oriented affairs;
- ii. introducing knowledge and providing an understanding of the relationship between broadcasting for development planning and human resources;

- iii. providing broadcast practitioners in the field who do not have the relevant academic requirement for further studies at higher levels and opportunity to do so;
- iv. providing the opportunity for a foundation in rigorous, systematic, high-quality communication research for those interested in further studies.

Admission Requirements

- a. In addition to the university matriculation requirement of five credits including English Language and Mathematics at O/Level, a candidate seeking admission into this programme shall possess any of the following:
- b. Higher National Diploma of Upper Credit classification in Mass Communication or any other related discipline in Communication or Social Sciences/Business Administration from a recognized polytechnic or university approved by the Senate of the University of Port Harcourt
- c. Bachelor's degree with at least second-class division from areas not related to Communication.
- d. Bachelor's degree not lower than third class division in a Communication related discipline of a recognized university.

Programme Duration

The duration of the programme shall be a minimum of two semesters and a maximum of four semesters for full-time students.

LIST OF COURSES AND UNITS

First Semester

Course Code	Course Title	Units
BMS 701.1	Principles of Mass Communication and the Media	2
BMS 702.1	News reporting and writing	2
BMS 703.1	Principles and Practice of Broadcasting	3
BMS 704.1	Announcing and Performance	3
BMS 705.1	Indigenous African Media Systems	2
BMS 706.1	Broadcast Communication, Culture and Society	3
BMS 707.1	Research Methods and Statistical Analysis	2
Total		17

Second Semester

Course Code	Course Title	Units
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BMS 708.2	The State, the Media, Law and Ethics	2
BMS 709.2	Mass Communication Theory	2
BMS 710.2	Broadcast Media Management	3
BMS 711.2	Writing for the Broadcast Media	2
BMS 712.2	Digital Broadcasting	3
BMS 713.2	Radio and Television Production Technique	3
BMS 714.2	Research Project	6
Total		21

COURSE DESCRIPTION

BMS 701.1: Principles of Mass Communication and the Media

This course exposes students to the fundamentals of mass communication: rudiments of communication in general; conceptual definition and explication of mass communication; basic processes, dimensions and adjuncts of mass communication; forms of the mass media; normative and functional theories of mass communication; time/space perspectives on the advent of mass communication and its relationship with and departure from public sphere communication.

BMS 702.1: News Writing and Reporting

Since some students in the programme may not have mass communication background, this course will take learners from the rudimentary to the advanced and contemporary stages of news writing and reporting. Topics will include rudiments of news reporting; information-gathering techniques and problems; types of reporting including investigative journalism; organizing news stories using both the conventional and the hourglass, circle and block styles of reporting stories; reporting for print and broadcast media; and computer-assisted reporting. Course should cover skills in and approaches to reporting activities in such specialized areas of human endeavour as the economy, government and politics, crime and security, aviation, labour, sports, the courts, the environment and science and technology. Enterprise or creative reporting shall also be highlighted.

BMS 703.1: Principles and Practice of Broadcasting

A review of basic elements of broadcast production, namely, the studio, camera movements and shots, control room techniques and editing, sound; the dynamics of the microphone, sound effects, music techniques and terms, will be taught. The formats and styles of scripting for broadcasting will be discussed in-depth. News and current affairs, programming and production will also be covered.

Equally covered are issues of ownership and control as well as regulation of broadcasting.

BMS 704.1: Announcing and Performance

The course considers the fundamentals of voicing and the nature of speech for professional broadcasters. Examination of performance types, including the announcer, the actor, the jockey, the reporter, the interviewer, the moderator, and the narrator. Review of performance techniques with regard to the microphones and the camera, as well as with regard to the performance types. The course covers practical performances by students using the studio facilities.

BMS 705.1: Indigenous African Media Systems

Lectures will cover African culture and communication forms, oral-media, African oral literature, the functions and characteristics of traditional media, communication in transition, traditional media in mass communication, proverbs as the language of social communication in traditional societies, influence of political culture on African communication systems, indigenous communication systems in media globalization and strengths and weaknesses of indigenous media.

BMS 706.1: Communication, Culture and Society

Examination of the media of communication as social institutions with particular attention to pertinent sociological concepts, themes and problems; the role and relationship of the broadcast media vis-à-vis other major social institutions. Focus on the sociology and professionalism of media communicators, media contents and the issue of cultural imperialism and media dependency; internal dynamics and control of broadcast organizations and mass communication politics. The media as instrument for the promotion and transfer of cultural values are examined, along with the relationship between the media and popular culture. The role of communication in development is critically examined.

BMS 707.1: Research Methods and Statistical Analysis

The various social science research designs including content analysis as well as quantitative and qualitative methods of data analysis should be discussed. Students shall be exposed to basic statistical tools that will sharpen their understanding of data analysis.

BMS 708.2: The State, the Media, Law and Ethics

Politics, government and governance, public policy, the environment and Nigeria's contemporary economy will be analyzed through the mirror of the

media. The law and ethics of Mass communication vis-à-vis the state will be emphasized in such a way that will eliminate uncertainties for young media practitioners and entrepreneurs.

BMS 709.2: Mass Communication Theory

An examination and critical analysis of major Mass communication theories as well as the theories of the construction of social reality will be covered in a manner that is hinged on the reciprocity of theory and practice.

BMS 710.2: Broadcast Media Management

The course will examine economic principles and theories applicable to mass media (especially broadcast) businesses, including production cost, audience promotion and advertising revenue. It will also discuss management theory that fits the broadcast media industry. Case studies will be used to help students deal with ethical work dilemmas. Among the topics to be discussed are: history, theory and practice of management, media ownership patterns, characteristics of organisations, organisation of broadcast newsrooms and the communication structures in media organisations; leadership styles, public and private ownership of media houses, staff management, financial management, advertising and distribution.

BMS 711.2: Writing for the Broadcast Media

This course provides a framework for instruction on writing the broadcast media script. It seeks to help students develop and improve their general journalistic writing skills, acquaint themselves with journalistic style and improve their proficiency in grammar and the use of language. Emphasis is placed on scripting the different genres of broadcast programmes such as drama, commercials, documentary, writing to piece and other formats.

BMS 712.2: Digital Broadcasting

This course will expose students to the dynamics of internet broadcasting. It will also appraise Web 2.0 including social networking sites/social media such as Facebook; Twitter, LinkedIn, etc. and their impact on news gathering and reportage, peddling of harmful information, citizenship power; connectivity and access. The course also covers digital postproduction software packages, working with timelines, continuity and complexity editing. It also examines screen space visualization, time and motion, meaning and types of animation (2D & 3D animation), computer animation, combining computer animation and live action, working and synchronizing sound and outputting edited work.

BMS 713.1: Radio & Television Production

The course covers comprehensive analyses of the production processes in radio and television; intense practical exercises in the design, production and

evaluation of radio and television programmes and commercials for radio and television services will also be covered. It discusses the techniques involved in sending signals from the studio to receivers at home as well as put the students through operations in the studio and use of broadcast equipment. The film angle of the course seeks to expose the student to the philosophical and practical aspects of aesthetics as applied to film and video production. The plot structure of a story and how the story could be converted to screen script will be taught. Students will be expected to probe into the process of producing the Nigerian video film and familiarize themselves with the regulations and policy of the Nigerian Film and Video Censors Board (NFVCB). For drama and documentary, topics will include the basics of pre and post- production formalities, processes and editing. Planning, casting, performance and budgeting will also be covered. The course is largely a practical course.

BMS 714.2: Research Project

Students will be required to write and submit a well-researched project in any aspect of broadcasting.

M.Sc. PROGRAMME IN BROADCASTING

Admission requirements

For admission into this programme, a candidate is required to possess any of the following:

1. Upper credit level in HND and above whose holder has successfully completed PGD programme in Communication Studies with a CGPA of not less than 3.50
2. A Bachelor's Degree not lower than Second Class Lower Division with a Broadcast Media Studies or any related discipline in Communication from a recognized University approved by the Senate of the University of Port Harcourt.
3. MA Degree in communication related discipline with a CGPA of not less than 3.50 on a 5point scale or 3.00 on a 4point scale.

Duration

The duration of the M.Sc. programme in Broadcasting and Media Studies shall be a minimum of four semesters and a maximum of six semesters for full time students and a minimum of six semesters and a maximum of eight semesters for part-time students.

LIST OF COURSES AND UNITS

First Semester

Course Code	Course Title	Units
SGS 801.1	ICT and Research Methods	2
BMS 802.1	Advanced Broadcast Media and Development Studies	3

BMS 803.1	Advanced Studies in Media and Society	3
BMS 804.1	Advanced Studies in Community and Public Service Broadcasting	3
BMS 805.1	Advanced Communication Research	2
BMS 806.1	Advanced Studies in Announcing and Performance	3
BMS 807.1	Advanced Broadcast Studio Operations	3
Total		19

Second Semester

Course Code	Course Title	Units
SGS 801.2	Management and Entrepreneurship	2
BMS 808.2	Advanced Studies in Communication Theories	2
BMS 809.2	Advanced Digital Communication	2
BMS 810.2	Advanced Broadcast Production Techniques	3
BMS 811.2	Advanced Broadcast Media Management	3
BMS 812.2	Advanced Studies in International Communication	3
BMS 813.2	Advanced Drama Production in Broadcast Media	3
BMS 814.2	Dissertation	6
Total		24

COURSE DESCRIPTION

SGS 801.1 ICT and Research Methodology

This course should cover essentials of spreadsheets, Internet technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of hypothesis formulation and testing, organization of research and report writing.

BMS 802.1 Advanced Broadcast Media and Development Studies

This is an advanced course aimed at offering current knowledge on development and how broadcast media can be used to approach aspects of development in the society. Students will be taken to appreciate how the broadcast media can be used to mobilize supports for development. It will also expose students to models of development and how they can be applied to solve specific development challenges.

BMS 803.1 Advanced Studies in Media and Society.

The course will focus on the relationship between media and society; the media and the socio-political and economic environments, media organizations and their various publics, the relationship between broadcast media and culture, international communication, a comparative study of media politics and policies in selected countries of the world; communication and conflict management and designing information system for a developing economy.

BMS 804.1. Advanced Studies in Community and Public Service Broadcasting

This course is designed to provide advanced analysis of community (rural and urban) needs and problem with regards to the power of radio and television.

The course will further explore advanced knowledge in planning and designing community development projects for implantation through community radio, television and webcasting. It also discusses issues of public service and public interest broadcasting in the era of digitization.

BMS 805.1 Advanced Communication Research

The course aims at taking students through the advanced issues involved in research presentation and objectives as well as current approaches to research in broadcasting and social sciences. It will expose the students to the different research designs, analysis and presentations as well as an examination of the APA style sheets. The course will be practical oriented, and students will be required to present a short proposal applying the techniques acquired in the course.

BMS 806.1 Advanced Studies in Announcing and Performance.

The course will offer advanced training in voicing and speech production. The course will take students further into advanced training in announcing, acting, jockeying, reporting, interviewing, live commentaries and moderation of different programme formats on radio and television.

BMS 807.1 Advanced Broadcast Studio Operations.

This course is designed to provide students with advanced knowledge of radio and television studio and control room principles, technologies and disciplines. The course will provide further insight into the nature of sound and light as they relate to studio production values. It will encourage practical exercise in studio setup, standard operation procedures, use of studio facilities and equipment.

SGS 801.2 Management and Entrepreneurship

This course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

BMS 808. 2 Advanced Studies in Communication Theories

This course is an exploration and analysis of major theories that deal with the nature, uses and effects of media and communication; the relationship between theory and research and the relevance of the latter to the success of the former are discussed at an advanced level.

BMS 809. 2 Advanced Digital Communication

This is an intensive and practice oriented course in which students will learn the technical and conceptual tools to understand the basics of digital communication. Students will develop their own blog and websites as means of communicating and presenting work to a wider audience. Also, students will be introduced to the dynamics of social media platforms and their applications in broadcasting. Emphasis will be placed on using digital media channels as broadcast media.

BMS 810.2 Advanced Broadcast Production Techniques.

The aim of this course is to provide students with advanced and comprehensive knowledge and analysis of the production processes in radio and television. Attention will be focused on design and evaluation of broadcast programmes and commercials for radio and television. Critiques of radio and television programmes will also be a part of the course.

BMS 811.2 Advanced Broadcast Media Management.

This course is designed to provide advanced analysis of the principles, structures and processes of management and organization of broadcasting stations. Issues of licensing, frequencies, resources, structure will be in focus in great details. Current challenges of broadcast media management will be discussed in detail. Management principles and theories as applicable to the running of broadcast stations will also be taught.

BMS 812.2 Advanced Studies in International Communication.

This course is designed to provide a framework for students to be schooled in the operations of wire services, the mass media worldwide, globalization of media corporations and contents; intercultural communication, historical background of foreign broadcasting and socio-economic, political and ideological characteristics of international broadcasting.

BMS 813.2 Advanced Broadcast Media Drama Production.

This course is designed to provide students with advanced knowledge in writing of different types of

radio and television drama script such as serials, romcom, sitcom and docudrama; the techniques for editing drama scripts; casting, the production and presentation of broadcast drama are studied.

BMS 814.2. Dissertation

The thesis shall present results of an original work anchored on contemporary and systematic methodology. Data should be analysed using highly scientific tools and consideration will be given to the contribution of the work to knowledge.

PhD IN BROADCASTING

Degree in view

The programme design is built on the pedagogy and epistemology that systematically leads to the award of Doctor of Philosophy (PhD) in Broadcasting and Media Studies.

Admission requirements: Candidates wishing to pursue a PhD programme in the department must hold a Master's degree with a CGPA of 3.50 on a 5-point scale in Mass communication, Communication Studies/ Arts. In addition, candidates seeking admission into PhD programme in the department must submit to the Departmental Graduate Studies Committee, a written proposal of a topic of their interest which they must defend before the admission can be granted.

Membership of professional bodies such as APCON, NIPR, ACCE, etc may not be compulsory but may be an advantage. To this end, all successful candidates must at the time of admission or upon completion show prove of membership.

Duration: The duration of the PhD programme is a minimum of 24 calendar months for full time and 36 calendar months for part time students. Students who are unable to complete the thesis within the normal period must apply for a fresh admission from the Graduate School as stipulated by the Graduate School prospectus.

Graduation Requirements: To obtain PhD in the department of Broadcasting, students must:

- i) Pass all the registered courses for their programme with a grade of at least C.
- ii) Pass a comprehensive examination;
- iii) Present a seminar work at the Graduate Seminar and participate in seminar discussion, obtaining at least a C grade;
- iv) Present a thesis of not less than 50,000 word count to the department;
- v) Pass all oral examination in defence of the dissertation before panel of examiners set up in accordance with University regulations.

Other Graduation Requirements

The programme shall essentially be segmented into:

i. Course work – Lecturers/Seminars

This will feature classroom interface on a semester basis for a maximum of two semesters. Assessment will be:

1. Continuous Assessment (term paper, seminar, etc) 30%
2. Examination (written). 70%
3. 100%

Course load

Candidates must take and pass a minimum of thirty-four (35) units made up of twenty-five (26) units of compulsory courses, three (3) units of seminar and six (6) units of research report writing (thesis)

COURSE STRUCTURE

First Semester

Course Code	Course Title	Units
BMS 901.1	Advanced Research Methods Techniques	2
BMS 902.1	Seminar in Digital media production	3
BMS 903.1	Seminar in Media and Society	3
BMS 904.1	Seminar in Broadcasting and Development	3
BMS 905.1	Seminar in Broadcast Studio Operation	3
Total		14

Second Semester

Course Code	Course Title	Units
BMS 906.2	Seminar in Broadcast Production Techniques	3
BMS 907.2	Seminar in Broadcast Media Management	3
BMS 908.2	Seminar in International Communication	3
BMS 909.2	Seminar in Sports & Specialized Broadcasting	3
BMS 910.2	Doctoral Seminar Presentation	3
BMS 910.2	Thesis	6
Total		21

COURSE DESCRIPTION

BMS 901.1 Advanced research methods and techniques.

This course focuses on basic concepts in research with emphasis on social science research methodologies bearing in mind qualitative and quantitative dimensions. Design such as surveys, content/textual analysis, focus group

discussions/participant observations in data collection, analysis and reporting are highlighted. Ethical issues in social science research covering areas like voluntary participation, anonymity and confidentiality of sources are also highlighted as well as the use of software packages in both qualitative and quantitative research.

BMS 902.1 Seminar in Digital Media Production

This course is designed to provide students with knowledge and application of digital software and hardware in online Broadcast media production. The course will treat tele-conferencing, globalization and impact of ICT on news credibility and ethical and legal concerns in the use of ICTs in broadcast media among others.

BMS 903.1 Seminar in Media and Society

Discussion will be on the relationship between media and society, media and culture, issues of ideology, the media and the socio-political and economic environments, media organizations and their various publics, family and community in communication advocacy and marginal communities; communication and conflict management, designing information system for a developing economy and other issues affecting the society.

BMS 904.1. Seminar in Broadcasting and Development.

This course will provide students with knowledge in areas such as the role of broadcasting in development projects with particular interest in cultural differences and their influence in the acceptance and rejection of any new idea. The emphasis will be on how to design broadcast media campaigns in agriculture, nutrition, sanitation, hygiene, education, community self-help projects, family planning and birth control in order to achieve the campaign objectives in a multi-cultural country like Nigeria. The course also covers design and execution of special projects and syndication especially for development purposes.

BMS 905.1. Seminar in Broadcast studio operation

This course is designed to enhance students' knowledge of broadcast studio and control room management and principles. Practical exercises will be given on camera operations for effective production, achievement of special effects, editing techniques and related subject matters.

BMS 906.2. Seminar in Broadcast Production Techniques

The course provides an overview of the various aspects of research in the broadcast media and

expanded knowledge in the understanding of the broadcast media production, production philosophy, programming and the technologies involved in modern day productions. It explores special effects applicable in the various broadcast techniques as well as criticism of productions in the broadcast industry.

BMS 907.2. Seminar in Broadcast Media Management.

This is designed to provide students with advanced knowledge in the principles of broadcast media management. Focus will be on the classical and contemporary theories of management; planning and leadership as important concepts in management. It also discusses management approaches and broadcast media economics in contemporary times.

BMS 908.2. Seminar in International Communication

This course highlights the major issues of international communication; the disparity in media coverage of the developed and developing world; international discourse on the dimensions to media and politics. The course will also treat economics of media ownership and financing and the position of national and regional media agencies in bridging the gap in the coverage of development and emerging issues between developed and developing nations. It will also treat issues relating to international politics and broadcasting among others.

BMS 909.2. Seminar in Sports and Specialized Broadcasting.

This course is designed to focus on practical experience in writing, reporting and presentation of sports news and other special programmes in the broadcast tradition. The course will also deal with sports commentary, management of outside (ceremonial) broadcast, and others. It treats the various ways that sport broadcasts can be used for integration. It explores youths attitude towards the broadcast of foreign sports such as premierships, La Liga etc.

BMS 910.2. Doctoral Seminar Presentation

Every student must, with the assistance of a supervisor prepare and present a seminar paper before other graduate students and academic staff of the Department. The seminar paper must be related to the student's proposed thesis topic. Credit is given for content, presentation, and handling of discussion. Candidates who score below a C grade in their presentations will be given another chance to re-do the work. Candidates who have successfully presented their departmental graduate seminar shall be recommended to the Faculty Seminar Committee and then to the School of Graduate Studies for the final doctoral seminar presentation. Only successful

candidates at this stage shall be prepared to face the external examiner.

BMS 912.2. Thesis:

The thesis to be presented is expected to take the structure, mechanics and style and be patterned after

the guidelines of the school of postgraduate studies. At this stage, candidates will be expected to be conversant with trends in research and be able to write and report on well researched subjects in broadcasting.

ACADEMIC STAFF

S/N	Name	Qualification	Rank	Mode	Area of Specialization
1	Ihejirika, Walter	B.A., M.A., Ph.D. (Rome)	Professor	FT	Communication Theory, Dev. Communication
2	Okon, Godwin B.	B.A., M.A. (UNN), Ph.D. (Uyo)	Professor	Adjunct	Communication Theory, Dev. Broadcasting
3	Shaka, Femi O.	B.A. (Benin) M.A. (Ibadan) Ph.D. (UK)	Professor	FT	Film History, Theory & Criticism, Mass Media Theories
4.	Uwah, Innocent E.	B. Phil, B. Th. (Rome), M.A. Calabar, Ph.D. (Dublin)	Reader	FT	Media Theories and Film Criticism
5	Ntiense J. Usua	B.A. Calabar, PGD NIJ Lagos, M.A. Abuja, Ph.D. (UPH)	Senior Lecturer	FT	Broadcasting, Radio/TV Prod., Journalism & Cultural Communication,
6	Ochonogor, C. I.	B.A., M.A., (UNN), Ph.D. (UPH)	Senior Lecturer	FT	Journalism, Dev. Comm.
7	Sado, A. A.	B.A., PGDPR, M.Sc., (UNN), Ph.D. (UPH)	Senior Lecturer	FT	Media Law and Ethics, Dev, Comm., Advertising
8	Mbazie, Sunny	BA, M.A. (UNN), Ph.D. (UPH)	Senior Lecturer	FT	Journalism, Broadcasting
9	Konye C. Ikems	B.A. M.A. Ph.D. (UPH)	Senior Lecturer	FT	Journalism & Development Communication
10	Osuagwu, T.R.	B.A., (Zaria), PGD, M.A., Ph.D. (UPH)	Senior Lecturer	FT	Development Communication, Electronic Media Prod.
11	Kasarachi, Innocent	B.A. (UNN) M.A. Ph.D. (UPH)	Lecturer I	FT	Mass Communication, Communication Theory
12	Ekhaeyemhe, C	B.A, M.A, Ph.D. (UPH)	Senior Lecturer	FT	New Media and Internet Studies

DEPARTMENT OF JOURNALISM AND MEDIA STUDIES

Introduction

This is a description of programme contents and courses for the award of higher degrees in Journalism and Media Studies..

Philosophy

To provide knowledge-based interactions geared towards facilitating effective research into journalism and social economic and political development in Nigeria; with journalism and media serving as catalysts. This is premised on the belief that journalism and media studies should be provide a platform for popular enlightenment and social transformation, anchored on advanced media instruction in pursuit of high quality media research, training and vibrant professional acculturation.

Vision

To produce high-level researchers, consultants and media administrators that will change the face of national and global journalism and media studies landscape.

Aim and Objectives

The programme aims at producing high calibre journalism researchers, experts and consultants who will be able to ventilate credible ideas on issues of social and national concern. To this end, the specific objectives include the need to:

- i. Train graduates to develop ability for critical judgment through a broad knowledge of theoretical and practical issues in media work.
- ii. Enable graduates acquire advanced skills and competences in media research geared towards responding to the socio-economic and political needs of an evolving nation like Nigeria.
- iii. Train skilled manpower for educational institutions and professional media organizations in both the public and private sectors and by extension, international organizations.
- iv. Acquaint graduates with the dominant ethics of professional practice as well as orientations on the notions of social responsibility.

POSTGRADUATE DIPLOMA IN JOURNALISM AND MEDIA STUDIES

Admission Requirements

- e. In addition to the university matriculation requirement of Five Credits including English Language and Mathematics at O/Level, a candidate seeking admission into this programme shall possess any of the following:
- f. Higher National Diploma of Upper Credit classification in Mass Communication or any other related discipline in Communication or

Social Sciences/Business Administration from a recognized polytechnic or university approved by the Senate of the University of Port Harcourt

- g. Bachelor's degree with at least a **Second Class Division** from areas not related to Communication.
- h. Bachelor's degree of not lower than **Third Class Division** in communication studies of a recognized university.

Programme Duration

The duration of the programme shall be a minimum of **two semesters** and a maximum of **four semesters** for full-time students.

Graduation Requirements

To obtain a PGD in Journalism and Media Studies, students must:

- a) Pass all the registered courses for the programme with at least a 'C' Grade
- b) Present a Seminar at the Department and obtain at least a 'C' Grade.
- c) Present a Project of not less than 60 pages to the Department

The programme shall essentially be segmented into:

i. Course work – Lectures/Seminars

This will feature classroom interface on a semester basis for a maximum of two semesters. Assessment will be:

- | | |
|------------------------------------------------------|-------------|
| a. Continuous Assessment (term paper, seminar, etc.) | 30% |
| b. Examination (written) | 70% |
| Aggregate | 100% |

LIST OF COURSES AND UNITS

First Semester

Course Code	Course Title	Units
JMS 701.1	Principles of Journalism and Media Studies	2
JMS 702.1	News Reporting and Writing	2
JMS 703.1	Elements of Style in Journalistic Writings	2
JMS 704.1	Printing and Publishing	2
JMS 705.1	Indigenous Media Systems	2
JMS 706.1	Feature Writing	2
JMS 707.1	Research Methods and Statistical Analysis	2
	Total	14

Second Semester

Course Code	Course Title	Units
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JMS 708.2	The State, the Media, Law and Ethics	2
JMS 709.2	Mass Communication Theories	2
JMS 710.2	Print Media Production	2
JMS 711.2	Journalistic Writings	2
JMS 712.2	Editorial Writing	2
JMS 713.2	Print Journalism Seminar	2
JMS 714.2	Specialized Reporting	6
	Total	18

COURSE DESCRIPTION

JMS 701: Principles of Journalism and Media Studies

Course exposes students to the fundamentals of communication. Here, the rudiments of communication in general; conceptual definition and explication of communication studies and basic processes will be explained. The studies will also include the dimensions and adjuncts of mass communication; forms of the mass media; normative and functional theories of mass communication; time/space perspectives on the advent of Mass communication and its relationship with and departure from public sphere communication.

JMS 702: News Writing and Reporting

Since some students in the programme may not have communication studies background, this course will take learners from the rudimentary to the advanced and contemporary stages of news reporting and writing. Topics will include rudiments of news reporting; information-gathering techniques and problems; types of reporting including investigative journalism; organizing news stories using both the conventional and other styles of reporting stories. A distinction will be made between reporting for print and broadcast media; and computer-assisted reporting. Course should cover skills in and approaches to reporting activities in such specialized areas of human endeavour as the economy, government and politics, crime and security, aviation, labour, sports, the courts, the environment and science and technology. Enterprise or creative reporting shall also be highlighted.

JMS 703 Elements of Style in Journalistic Writings

This course introduces the students to the intricacies of style in media writing. Emphasis will be laid on house style or style guide for reporters and how to prepare copies for the media houses. Issues like sentence structure, diction, spellings, punctuation and paragraphing, Headline writing and journalese would form an integral part of this course.

JMS 704: Printing and Publishing

Students are expected to have a firm knowledge of types of printing, presses, the publishing process,

kinds of book publishing, problems and prospects of publishing in Nigeria. The place of graphics in printing and publishing as well as binding, finishing operations and marketing, will be treated. Desktop publishing shall be emphasized while legal aspects of publishing shall also be examined.

JMS 705: Indigenous Media Systems

Lectures will cover African culture and communication forms, oral-media, African oral literature, the functions and characteristics of traditional media, communication in transition, traditional media in mass communication. Issues like the place of proverbs as the language of social communication in traditional societies, influence of political culture on African communication systems, indigenous communication systems in media globalization and strengths and weaknesses of indigenous media.

JMS 706: Feature Article Writing

Course will teach the students the basic principles and practices in feature writing as well as explain the differences between feature and other genre of print media writings. Emphasis, here, will be on the relevance of investigation in feature writing, the types of feature articles, topics and how to generate ideas for feature article and of course, the techniques for writing an interesting and readable feature article.

JMS 707: Research Methods and Statistical Analysis

The various social science research designs including content analysis as well as quantitative and qualitative methods of data analysis should be discussed. Students shall be exposed to basic statistical tools that will sharpen their understanding of data analysis such as spreadsheets and SPSS.

JMS 708: The State, the Media, Law and Ethics

Politics, government and governance, public policy, the environment and Nigeria's contemporary economy will be analyzed through the mirror of the media. The law and ethics of communication, media and journalism vis-à-vis the state will be emphasized in such a way that it will eliminate uncertainties for a young media entrepreneur.

JMS 709: Mass Communication Theories

An examination and critical analysis of major mass communication theories as well as the theories of the construction of social reality will be covered in a manner that is hinged on the reciprocity of theory and practice.

JMS 710: Print Media Production

This is a practical-oriented course that exposes the students to hand on experience in print media production. It takes the student through the

rudiments of copy editing, headline writing and counting, page planning and make up, copy fitting, photo cropping and scaling and marking of the copy while taking cognizance of balance, focus and aesthetics.

JMS 711: Journalistic Writings

This course provides a framework for instruction on writing for the Mass media with major emphases on development of the journalistic style and proficiency in grammar and the use of language.

JMS 712: Editorial Writing

The course takes an in-depth excursion into the world of editorial and editorial writing. It exposes the student to an understanding of the need for editorial writing in print media, types and functions and how to generate ideas for an editorial as well as the structure.

JMS 713: Print Journalism Seminar

In this course, students will be required to present well-researched seminar papers for discussion and assessment. Such seminars will centre on media ownership and control, censorship, media laws and ethics, new media convergence and media entrepreneurship.

JMS 714: Specialized Reporting

This course gives advanced instruction and practice in writing news stories, especially on specialized subjects such as population, environment, agriculture, fashion, freight and automobiles, medicine, religion, sports, crime, technology, entertainment and the arts and the like.

M.SC. PROGRAMME IN JOURNALISM AND MEDIA STUDIES

Admission Requirements

For admission into this programme, a candidate is required to possess any of the following:

- Upper Credit level in HND and above whose holder has successfully completed a **PGD** programme in Communication Studies with a CGPA of not less than **3.50**
- A Bachelor's Degree not lower than a **Second Class lower Division** in Communication Studies from a recognized university approved by the Senate of the University of Port Harcourt.

Programme Duration

The duration of the M.Sc. programme in Journalism and Media Studies shall be a minimum of four semesters and maximum of six semesters for full-time students and a minimum of six semesters and a maximum of eight semesters for part-time students.

Graduation Requirements

To obtain an M.Sc. in Journalism and Media Studies, students must:

- Pass all the registered courses for the programme with at least a 'C' Grade
- Present a Seminar at the Department and obtain at least a 'C' Grade.
- Present a Dissertation of not less than 100 pages to the Department
- Pass an oral examination in defence of the Dissertation before a panel of examiners set up in accordance with University's regulations and conducted by the School of Graduate Studies.

The programme shall essentially be segmented into:

- Course work – Lectures/Seminars
- This will feature classroom interface on a semester basis for a maximum of two semesters. Assessment will be:
- | | |
|-----------------------------------------------------|-------------|
| a. Continuous Assessment (term paper, seminar, etc) | 30% |
| b. Examination (written) | 70% |
| Aggregate | 100% |

NOTE: To qualify for external Examination:

- The student must have published one article from his/her Dissertation with his/her supervisor(s) in a reputable journal; and
- submit the Dissertation to the School of Graduate Studies for Plagiarism test which must not exceed 20 Points

LIST OF COURSES & UNITS

First Semester

Course Code	Course Title	Units
SGS 801.1	ICT and Research Methodology	2
JMS 801.1	Advanced Studies in Communication	3
JMS 802.1	International Journalism and Correspondence	3
JMS 803.1	Studies in Media, Society, Gender and human rights Studies	3
JMS 804.1	Community Journalism and Child Rights Reporting	3
JMS 805.1	Print Media Seminar	3
MCS 806.1	Advanced Communication Research Methods	3
JMS 807.1	Digital Media Technology, Selection and Adoption	3
Total		23

Table 2: Second Semester

Course Code	Course Title	Units
SGS 801.2	Management and Entrepreneurship	2

JMS 808.2	Comparative Media Systems	3
JMS 809.2	Advanced Studies in Environment, Health and population Reporting	3
JMS 810.2	Studies in Language in the Media	3
JMS 811.2	Studies in Intercultural Media Dynamics	3
JMS 812.2	Advanced Print Media Reporting And Production	3
JMS 813.2	Journalism and Peace Building	3
JMS 814.2	Dissertation	6
	Total	26

COURSE DESCRIPTION

SGS 801.1: ICT and Research Methodology: This course should cover essentials of spreadsheets, Internet technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of hypothesis formulation and testing, organisation of research and report writing.

JMS 801.1 : Advanced Studies in Journalism and Communication

Lectures for this course will take a panoramic view of communication and journalism. Focus will be on the meaning, models, modes and role of communication and the media in society. It will also include a discourse on the traditional systems of communication as well as the legal and ethical implications for journalism and media practice in Nigeria

JMS 802.1: International Communication/ Journalism

The course shall provide a framework for students to be schooled in the operations of wire services, the Mass media worldwide; globalization of media corporations and content; intercultural communication; historical background of foreign media and their socio-economic, political and ideological characteristics.

JMS 803.1: Studies in Media, Society and Gender Studies

This course will entail the examination of the media of communication as social institutions with particular attention to pertinent societal developmental needs. Focus will be on the media and peace building, gender equality, societal coexistence, especially among the different socio religious and political groups in the Nigerian polity. Issues of professionalism of media communicators, internal dynamics and control of media

organizations and mass communication politics, will be discussed.

JMS 804.1: Community Journalism and Child Rights Reporting

The focus of this course will be on grass roots reporting of events by community-based media and media practitioners who live and report from the community. Special attention will be paid to rural reporting techniques and the seeming difficulties. On the other hand, the discourse will dwell on the basic rights of the child and the techniques and ethics of reporting these rights in Nigeria

JMS 805.1: Print Media Seminar

The course focuses on the history of print journalism production in Nigeria; media management and ethics with particular focus on the Nigerian media law; news editing, planning and production in the print media; editorial objectives and policies; techniques in news gathering and writing: news, features, photojournalism the importance of language in news; news values, social and economic factors in news selection; social semiotics in news discourse; ideological roles in the press; practice in news casting.

JMS 806.1: Advanced Communication Research Methods

The course aims at taking advanced students through the fundamental issues involved in research presentation and the objectives and current approaches to research in communication and media studies. It will expose the students to the different research designs, analysis and presentations as well as an examination of the APA style-sheets. The course will be practice-oriented, and each candidate will be required to present a short research proposal applying the techniques they acquired in the course.

JMS 807.1: Advanced Digital Communication

This course provides an in-depth discuss on New Communication Technologies (NCTs). Special attention will be paid to online journalism, multi-media convergence, webcasting, twittering, face booking, multi-casting and ethical issues in digital journalism plus advanced insights in streaming media techniques. Lectures will include procedures in computer operation, components of the computer (hardware and software), application software; digital and analog systems for persuasion.

SGS 801.2: Management and Entrepreneurship:

This course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving

JMS 808.2 Comparative Media Systems

The course focuses on world press systems (e.g. paternalistic, authoritarian.): their tenets, strengths, weaknesses, politics where practiced, how practiced and implications for their political systems.

JMS 809.2: Advanced Studies in Environment, Health and Population Reporting

The focus of this course is on the relationship between the media and the environment and the socio-political and economic milieu of media organizations and their various audiences: Special attention will be on the maintenance of environmental sustainability for healthy society and the designing of information system for developing a healthy population.

JMS 810.2: Language & Style in the Media

The course focuses on the discourse of the language used in the media. Specifically, the course exposes the students to the language used in the different media and adjuncts of the mass media. It studies the language of advertising for instance, which does not obey fully the rules of grammar e.g. hooklines, puns and other attention-getting devices. It also explains the many devices used by media producers for the different genre of the media, including public relations to convey meanings to their audiences. The course also explains the dos and don'ts in media language use.

JMS 811.2: Studies in Intercultural Media Dynamics

This course will seek an understanding of the intercultural intricacies in media practice. The focus shall be on the need to observe the cultural tenets of the different ethnic groups in the reportage of events to ensure harmony among the various ethnic and linguistic groups in Nigeria. Issues to be discussed among others, how the media can influence cultural hegemony and ameliorate culture shock among audiences etc.

JMS 812.2: Advanced Print Media Reporting and Production

The course will focus on Print Journalism production and media management in Nigeria. Particular focus on news editing, planning and production; editorial objectives and policies; techniques in gathering and writing: news, features, photojournalism; the importance of language in news; news values, social and economic factors in news selection; social semiotics in news discourse; ideological roles in the press.

JMS 813.2: Journalism and Peace Building

Although conflict is an inevitable occurrence within interacting groups, but constant conflicts is detrimental to society. This course aims at equipping the students with practical communication tools towards conflict management for a peaceful society.

Major themes to be handled in the course include: types of conflict, necessary communicative skills for dialogue and negotiation; and culturally fluency.

JMS 814.2: Dissertation

The dissertation shall embody the results of an original research work anchored on contemporary and systematic methodology. Data should be analysed using highly scientific tools and consideration should be given to the contribution of the work to knowledge.

PHD IN JOURNALISM AND MEDIA STUDIES

Degree in View

The programme design is built on the pedagogy and epistemology that systematically leads to the award of: Doctor of Philosophy (PhD) in Journalism and Media Studies.

Admission Requirements

Candidates wishing to pursue a PhD programme in Journalism and Media Studies must hold a Master's Degree with a CGPA of at least 3.50 on a (five) 5-point scale in Mass Communication, Communication Studies/Arts. In addition, candidates seeking admission into the PhD programme must submit to the Departmental Graduate Studies Committee a written proposal on a topic of their interest which they must defend before the admission can be granted.

Membership of professional bodies such as APCON, NIPR, ACCE, etc., may not be necessary but may be an advantage.

Programme Duration

The duration of the PhD programme is a minimum of 24 and not more than 60 months for full-time students. For part-time, it is 36 and not more than 84 months.

Graduation Requirements

To obtain a PhD in Journalism and Media Studies, students must:

- d) Pass all the registered courses for the programme with at least a 'C' Grade
- e) Present a Seminar at the Department and Faculty and obtain at least a 'B' Grade.
- f) Present their thesis at the School of Graduate Studies Seminar obtaining at least a 'B' Grade.
- g) Present a thesis of not less than 150 pages to the Department
- h) Pass an oral examination in defence of the thesis before a panel of examiners set up in accordance with University regulations and conducted by the School of Graduate Studies.

The programme shall essentially be segmented into:

- i. *Course work – Lectures/Seminars*

This will feature classroom interface on a semester basis for a maximum of two semesters. Assessment will be:

a. Continuous Assessment (term paper, seminar, etc.)	30%
b. Examination (written)	70%
Aggregate	100%

NOTE: To qualify for external Examination:

- i. The student must have published two articles from his/her thesis with his/her supervisors in reputable journals; and
- ii. submit the thesis to the School of Graduate Studies for Plagiarism test which must not exceed 15 Points.

Course Load

Candidates must take and pass a minimum of thirty-four (34) units made up of twenty-five (25) units of compulsory courses, three (3) units of seminar and six (6) units of research report writing (thesis).

COURSE STRUCTURE

Courses for First Semester

Course Code	Course Title	Units
MCS 901	Advanced Communication Research Methods and Techniques	3
JMS 902	Journalism and Society	3
JMS 903	Global Media System	3
JMS 904	New Media Dynamics and Journalism practice	3
Total		12

*Each course shall normally be examined at the end of the semester in which it is offered. The minimum pass mark shall be 50%.

Courses for Second Semester

Course Code	Course Title	Units
JMS 905	Media Economics and National Politics	3
JMS 906	Media Ownership, Professionalism and Objectivity in Journalism Practice	3
JMS 907	Journalism and Environmental Matters	3
JMS 908	Ethical and legal issues in journalism studies	3
Total		12

Departmental, Faculty, and School of Graduate Studies Seminars

Pre-field Seminar
(Department) Chapters 1-3+ instruments

JMS 909	Graduate Seminars in Department) Complete Thesis Faculty PhD Seminar School of Graduate Studies Seminar	3
JMS 910	Thesis /External Examination	6
Total		9

***A clear standing on all semester courses is a precondition for the research phase of the programme. In other words, only students who have passed all their course examinations, on the programme listing, with a minimum of 50% (C Grade) shall be eligible for seminars in research areas (JMS 909 & JMS 910).**

3.6 COURSE CONTENT/DESCRIPTION

MCS 901 – Advanced Communication Research Methods and Techniques

Content will focus on basic concepts in research with emphasis on social science research methodologies bearing qualitative and quantitative dimensions. Designs such as survey, content/textual analysis, focus group discussions/participant observations in data collection, analysis and reporting will be highlighted. Ethical issues in journalism and media research covering such areas like voluntary participation, anonymity and confidentiality of sources will be highlighted and the use of software packages in both qualitative and quantitative analysis will be stressed.

JMS 902: Journalism And Society: This course is intended to acquaint students with the expertise in undertaking research into the relationship between journalism practice and the various strata of the society. It will highlight the indispensable contributions of journalism to the society just as the society determines the kind of journalism that is practised. The society's products inform the viability of journalism practice in such society and in return, journalism contributes to the society in terms of construction of realities and Gross Domestic Products.

JMS 903: Global Media Systems: The discourse on this course will focus on the various systems and climes under which the media operate in the different societies of the world. From indigenous media systems in traditional communities to modern societies in which media practice is technologically driven, global media systems are determined by people's needs, economic and socio-political factors operational in such societies. This therefore, makes possible the application of the normative media theories upon which different media systems form their bases.

JMS 904: New Media Dynamics And Journalism

Practice: The course focuses on the place of the new information and communications technologies (ICTs) on modern journalism and media practice. The emphasis of the course will include application of digital software and hardware in-online media production, issues of citizens reporting and social media as news sources and User Generated Content (UGI), tele-conferencing; globalization and impact; ICTs on news credibility, authenticity and ethical and legal concerns in the use of digital media in news management.

JMS 905: Media Economics and National

Politics: The course focuses on the emerging issues in print journalism management. It discusses the prospects and challenges of establishing and managing a print media organisation in a globalized economy, especially in the face of new media convergence. Emphasis shall be placed on the new frontiers and the opportunities and challenges they present for managing a media organisation profitably. Issues of staffing, funding, collaborations and political affiliations as well as the role of professional organisation and regulation agencies in the success and survival of a print media organisations will be discussed.

JMS 906: Media Ownership and Objectivity in Journalism Practice. This course shall enable students to carry out research into the theories of media ownership, control and objectivity. Objectivity which is claimed to be the hallmark of journalism practice has always been subjected to the debate of relativity. The course shall highlight factors applies to the press as the watchdog of the society and the extent to which this maxim is applicable. With this knowledge, students will be able, at the completion of the course, to serve as consultants to print media owners, as well as managers of print media organizations.

JMS 907 Journalism and Environmental Matter

This course exposes students to the needs of researching into application of journalistic tactics to solving environmental issues such as the ones in Nigeria, in general and in the Niger Delta in particular. Emphasis shall be placed on how journalists and media organizations can through editorial policies make use of journalism practice to sensitize the people and draw the attention of concerned authorities to environmental needs of the society, especially effects of man-made devastations in order to engender environmental friendly practices.

JMS 908: Ethical and Legal Issues in Journalism

Studies. The dominant feature of this course is a discourse on the legal and ethical considerations in journalism and media practice. Attention shall be focused on politics, government and governance, public policy, the environment and Nigeria's contemporary economy will be analyzed through the mirror of the media.

JMS 909 Doctoral Seminar Presentation

Every student must, with the assistance of supervisors, prepares and presents a seminar paper before other graduate students and academic staff of the Department. The seminar paper must be related to the student's proposed thesis topic. Credit is given for content, presentation, and handling of discussion. Students who score below a 'C' grade in their presentation will be given another chance to redo the work. Candidates who have successfully presented their departmental graduate seminar shall be recommended to the Faculty Seminar Committee and then to the School of Graduate Studies for the final doctoral seminar presentation. Only successful candidates at this stage shall be prepared to face the external examiner.

JMS 910 – Thesis

Structure, mechanics and style shall be patterned after the guidelines of the School of Postgraduate Studies.

ACADEMIC STAFF LIST

S/N	Name of Staff	Discipline	Area of Specialization	Qualification	Rank
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1	Christopher I. OCHONOGOR	Journalism/ Dev.Comm	Print Journalism & Development Communication,	BA, MA (Mass Comm) NIG, Ph.D (Comm Studies) UPH	Professor
2	Christie Ulumma OMEGO	Language/ Journalism and Media Theories	Journalism and Media Studies. Communication Studies	BA, PGDC MA, Ph.D., UPH	Professor
3	Aniefiok Jackson UDOUDO	Journalism/ Cultural Studies	Print Journalism, Public Relations, Advertising	BA, MA, PhD Uyo	Professor
4	Clement Afamefuna ASADU	Journalism/ Dev.Comm.	Journalism, Digital Comm./ New media	BA, MA (Mass Comm) NIG, PhD UPH	Senior Lecturer
5	Beynald Chukwuemeka IROHAM	Print Journalism	Print Journalism Development Communication	PGDC, MA (Mass Comm) UPH	Lecturer I
6	Ngozi OMOJUNIKANBI	Journalism/ Public Relations	Print Journalism, New Media, Public Relations,	B.A. PGD. M.A (Mass.Comm). Ph.D. (UPH)	Lecturer I
7	Ben-Collins NDINOJUO	Journalism/ Digital Media	Journalism, Development Communication	B.A. M.A. Ph.D. (Comm Stud) (UPH)	Lecturer I
8	Otiko Njanubok SAMUEL	Print Journalism/ Cultural Studies	Journalism, Development Communication	BSc,(RSU) MA, (Mass Comm) PhD (UPH)	Lecturer I
9	Edith James EPOKE	Journalism/ Digital Media	Journalism, Development Communication	BA, MA (Global Media)	Lecturer II,

DEPARTMENT OF PUBLIC RELATIONS & ADVERTISING

Introduction

The Department of Public Relations and Advertising awards graduate degrees in Public Relations and Advertising to qualifying candidates. Below are the

philosophy, vision, mission, rationale, aim and objectives, admission requirements, programme duration, graduation requirements, list of required

courses, course descriptions and list of staff qualified to teach the programmes.

Philosophy

Relationship and reputation management have become dire needs for many companies and organisations operating in a world laden with environmental, natural and operational crisis. Learning the skills necessary to establish and maintain goodwill and mutual understanding between corporate bodies and their stakeholders is always critical, especially in contemporary society. Therefore, Public Relations is one of the most sought-after degree programmes in media and communication training schools in Nigeria and across the world. Many people want to major in public relations primarily due to the exciting, prestigious and lucrative nature of this discipline. The field of public relations is rapidly evolving because the business of creating favourable images for organizations is still the only business, and image remains everything for both commercial and non-profit making organizations.

The philosophy underlying the discipline of Public Relations is to produce professionals imbued with the ability to understand and make contribution to the development of Nigeria and the global community.

Vision

The Department of Public Relations and Advertising of the University of Port Harcourt aspires to be truly a citadel of theoretical cum practice oriented learning. We are poised to deliver excellent education in Public Relations, keeping alive the vision of the founding fathers of the University of Port Harcourt. It is our dream to provide equal and unlimited opportunities for our students in this lucrative discipline of Public Relations.

Mission

To translate our vision to action we are committed to training communication professionals who are highly knowledgeable in theory and practice in strategic and corporate communication at advanced levels. Specifically we are focused on producing Public Relations Professionals who will demonstrate expertise in reputation and corporate relationship management skills.

Rationale

The graduate degree in Public Relations is designed to produce highly knowledgeable, skilfully and socially responsible, and self-reliant individuals, who are equipped with entrepreneurial knowledge and proficiency in Public Relations or other components of strategic/corporate communication

to enhance development in all sectors of the Nigerian society.

Aim and Objectives

The aim of offering these graduate degree programmes is to empower our graduates with the requisite knowledge and competency for either a career enhancement/job placement in Public Relations. To this effect, the programme objectives are to:

- i. Train students to have a good balance of theoretical and practical knowledge of strategic communication at advanced levels.
- ii. Empower students with the skills required to become professionals in Public Relations.
- iii. Give the students advanced training in corporate reputation and relationship management skills.

A POSTGRADUATE DIPLOMA IN PUBLIC RELATIONS & ADVERTISING

Admission Requirements

In addition to the university matriculation requirement of Five Credits including English Language and Mathematics at O/Level, a candidate seeking admission into this programme shall possess any of the following:

- i. Higher National Diploma of Upper Credit classification in Mass Communication or any other related discipline in Communication or Social Sciences/Business Administration from a recognized polytechnic or university approved by the Senate of the University of Port Harcourt.
- ii. Bachelor's degree with at least second class division from areas not related to Communication.
- iii. Bachelor's degree not lower than third class division in a Communication related discipline of a recognized university.

Programme Duration

The duration of the programme shall be a minimum of one academic session (two semesters) and a maximum of two academic sessions (four semesters) for both part time and full-time students.

Graduation Requirements

To qualify for the award of a Postgraduate Diploma in Public Relations and Advertising students must obtain at least a 'C' Grade in all the 16 courses offered by the department for the Postgraduate programme.

LIST OF COURSES

First Semester

Course Code	Course Title	Units
PRAD 701.1	Principles of Mass Communication	3
PRAD 702.1	Research Methods and Statistical Analysis	3
PRAD 703.1	Principles and Practice of Public Relations	3
PRAD 704.1	Corporate Social Responsibility	3
PRAD 705.1	Community Relations	3
PRAD 706.1	Principles and Practice of Advertising	3
PRAD 707.1	Introduction to Branding	3
PRAD 708.1	Introduction to Copy Writing	3
	Total	24

Second Semester

Course Code	Course Title	Units
PRAD 709.2	The State, the Media, Law and Ethics	3
PRAD 710.2	Mass Communication Theory	3
PRAD 711.2	Media Relations	3
PRAD 712.2	Writing for Public Relations	3
PRAD 713.2	Business Writing & Presentation Skills for PR	2
PRAD 714.2	Organizational Communication	2
PRAD 715.2	Fundamentals of Integrated Marketing Comm	2
PRAD 716.2	Project Research	6
	Total	24

11. COURSE DESCRIPTIONS

PRAD 701.1: Principles of Mass Communication

The course exposes students to the fundamentals of Mass Communication: rudiments of communication in general; conceptual definition and explication of Mass Communication; basic processes, dimensions and adjuncts of Mass Communication; forms of the Mass Media; time/space perspectives on the advent of Mass communication and its relationship with and departure from public sphere communication.

PRAD 702.1: Research Methods and Statistical Analysis

Students are taught various social science research designs such as survey, content analysis,

experimental and ethnographic approaches. Quantitative and qualitative methods of data collection and analysis should be discussed. Students shall be exposed to basic statistical tools that will sharpen their understanding of data analysis.

PRAD 703.1: Principles and Practice of Public Relations

The course will survey definitions, concepts, theories, models, problems and prospects of public relations in contemporary society. Students should be made to understand the underlying philosophies/principles of Public Relations.

PRAD 704.1 Corporate Social Responsibility

Students will be taught the place of Corporate Social Responsibility (CSR) as the anchor of corporate philanthropy as well as the tenets and uses of CSR. Such tenets include corporate social investment, patronage, donations, and endorsement. How these are used to uplift the society will be exposed, so is how corporate organizations can use them to leverage its reputation, brand, personality, etc.

PRAD 705.1 Community Relations

An understanding of the principles and techniques of profitable engagements with community publics are examined. The concept of community, theories of community relations, managing community issues and concerns, historical development of community relations in Nigeria, planning and execution of community relations programmes and case studies in community relations are discussed.

PRAD 706.1: Principles and Practice of Advertising

The course will survey definitions, concepts, theories, models, problems and prospects of advertising in contemporary society. Students should be made to understand the underlying philosophies/principles of Advertising.

PRAD 707.1 Introduction to Branding

The course explores strategic and creative decisions to manage, build, and measure brands. Brand management issues to be investigated include consumer perceptions, competitive analysis, new product development, crafting communication messages, etc.

PRAD 708.1 Introduction to Copy Writing

This is a skills oriented course which focuses on the creative aspects of advertising. Students will learn how to write advertisement copies as well as develop advertising plans and executions. Though this process, students will learn how to research for information on the product, the consumer and apply these information in developing campaign strategy.

Students will learn to write advertising messages for print and broadcast, design print ad layouts, and plan and prepare broadcast story boards. Internet advertising will also be studied.

PRAD 709.2: The State, the Media, Law and Ethics

Politics, government and governance, public policy, the environment and Nigeria's contemporary economy will be analyzed through the mirror of the media. The law and ethics of Mass communication vis-à-vis the state will be emphasized in such a way that will eliminate uncertainties for a young media entrepreneur.

PRAD 710.2: Mass Communication Theory

An examination and critical analysis of major Mass Communication theories as well as the theories of the construction of social reality will be covered in a manner that is hinged on the reciprocity of theory and practice.

PRAD 711.2 Media Relations

The course exposes students to knowledge and skills in their engagement with media stakeholders, including journalism, broadcasting, entertainment media, media regulatory bodies and media publics.

PRAD 712.2 Writing for Public Relations

Students are to learn how to write specific public relations items. These include press release, feature articles, proposals, re-joinders, letter, speech/address, invitation card and how to produce educational literatures like diary, calendar, annual reports, corporate brochures, direct mail, leaflets and handbills.

PRAD 713.2: Business Writing and Presentation Skills for Public Relations

The course equips students with the knowledge and skills for business writing and presentation. It includes writing for internal communications in business, government and non-governmental organisations. It also equips students with skills for speech delivery, writing newsletters, business proposal writing and making pitches in PR, Advertising and other promotional areas.

PRAD 714.2: Organizational Communication

The course takes the student deep into the various forms, modes and channels of communication in an organization: written, spoken and mediated communication; official letters, memoranda, minutes; speech and report writing. Lectures will also include formal and informal communication networks like vertical and horizontal communication as well as rumour, gossip and the

grapevine. The effects of the various communication media on productivity should be analyzed. Emphasis should be placed on personal marketing/communication in such area as curriculum vitae, job applications, interview and public address/presentation mannerisms.

PRAD 715.2: Fundamentals of Integrated Marketing Comm.

This course introduces students to the fundamentals of Integrated Marketing Communications (IMC). Brief introductions on various components of IMC are offered, including advertising, public relations, sales promotion, word-of-mouth, direct marketing, events management, etc. Students acquire basic knowledge of the workings and expectations of the IMC programme; traditional media in IMC; digital media in IMC; importance and techniques of integration of communication strategies in corporate and public communications.

PRAD 716.2 Project Research

On completion of course work students write and submit an original well-researched project work on either Public Relations or Advertising related topic which will be assessed internally.

B M. Sc. PUBLIC RELATIONS

Admission Requirements

Candidates wishing to enroll in M. Sc. Programmes must hold at least a Second Class Honours degree (BSc or BA) in Public Relations, Advertising, and any Mass Communication related area or a merit pass with a CGPA of 3.5 on a 5 point scale in Postgraduate Diploma in Public Relations and Advertising.

Candidates who register on part-time basis must provide evidence that they

- i. Are engaged in regular employment,
- ii. Can devote a good proportion of their normal working year to their studies, and
- iii. Will be available for attendance at course and for regular consultation with their supervisors.

Programme Duration

The duration of M Sc. degree programmes is one academic session (two semesters of course work plus a long vacation used for the writing of a dissertation) for full-time students and two academic sessions for part-time students. Students who are unable to complete the dissertation within the normal period must apply for an extension to Graduate Studies Committee.

Graduation Requirements

To obtain an MSc, a student must:

- i. Pass all the required courses for their programme with at least a 'C' grade.
- ii. Present work at the Graduate Seminar and participate in Seminar discussions, obtaining at least a 'C' grade.
- iii. Submit a dissertation of not less than 100 A4 pages, and obtain at least a 'C' grade.
- iv. Pass an oral examination in defense of the dissertation before a panel of examiners set up in accordance with University regulations.

Total **23**

COURSE DESCRIPTIONS

SGS 801.1 ICT and Research Methodology

This course should cover essentials of spreadsheets, Internet technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of hypothesis formulation and testing, organization of research and report writing.

PRS 801.1 Advanced Communication Research

This course is aimed at teaching the graduate students the academic research processes in communication. The students will be taught the scientific process in research, how to generate a research problem, preliminary studies and issues related to the choice of theories and their implication to a research would be elucidated. Other areas to be covered include statistical tools employed in analyzing data in communication research; various levels of measurement such as nominal, ordinal, interval, ratio, mean, mode, median/average etc.; measurements of relationships including chi square, Z-test, R-test, ANOVA etc.; measurements of correlation using Person moment correlation coefficient, Ps formular etc; frequency and simple percentage measurements. This course will also teach students the rigours of effective and efficient data presentation such as tables building, graphs, histogram, pie chart, bar chart, graphs and illustrations as means of data presentation. The student would also learn how to manipulate data following prescribed procedures to arrive at acceptable results.

At the end of the course the students are expected to have very clear understanding of how to go about conducting the project. The course also aims at taking advanced students through the fundamental issues involved in research presentation; the objectives and current approaches to research in social sciences. Differences in style-sheet will be examined especially the style sheet adopted for communication research – the APA will be carefully examined. Practical application of what has been learned would be required by assigning the student to conduct a mini research which would be presented possibly as part of the continuous assessment for the course.

PRS 802. 1 Advanced Digital Communication

This is an intensive and practice oriented course in which students will learn the technical and conceptual tools to understand the basics of digital communication. Students will develop their own blog and websites as means of communicating and presenting work to a wider audience. Also, students will be introduced to the dynamics of social media platforms and their applications in public relations.

LIST OF COURSES

First Semester

Course Code	Course Title	Units
SGS 801.1	ICT and Research Methodology	2
PRS 801.1	Advanced Communication Research	3
PRS 802.1	Advanced Digital Communication	3
PRS 803.1	Advanced Studies in Public Relations	3
PRS 804.1	Advanced Studies in Media Relations and Publicity	3
PRS 805.1	Issues and Crisis Communication	3
PRS 806.1	Advanced PR Campaign Planning and Execution	3
PRS 807.1	Advanced Studies in Stakeholder Relations	3
	Total	23

Second Semester

Course Code	Course Title	Units
SGS 801.2	Management and Entrepreneurship	2
PRS 808.2	Advanced Studies in Communication Theories	3
PRS 809.2	Advanced Studies in International Public Relations	3
PRS 810.2	Advanced PR Prod. Techniques(Multimedia/Interactive)	3
PRS 811.2	Organisation and Management of PR firms	3
PRS 812.2	Media and Communication Planning & Strategy	3
PRS 813.2	Dissertation	6

Emphasis will be placed on using digital media channels as public relations media.

PRS 803.2 Advanced Studies in Public relations

The course broadens the knowledge of the students in public relations’ concepts, principles, models, theories, tools, techniques, developments and general public relations processes.

PRS 804.1 Advanced Studies in Media Relations and Publicity

This course is designed to broaden the students understanding and perspective on media relations as a distinct component of public relations. The student would become abreast of contemporary issues in media relations and modern day fundamental issues in media relations practice. Issues related to ethical dealings of organizations with media establishments are taught. Lectures would inculcate in the student professional standards of practice in dealing with the media in the effort to build good and mutually beneficial relationships with media. The media should be presented to the students as important institutions in facilitating the job and accomplishment of the objectives of public relations practitioners in the face of a digitally globalized world.

PRS 805.1 Issues and Crisis Communication

This course is designed to acquaint students with the theoretical and operational approaches to crisis management in corporate bodies. It also examines the nature, causes and methods of handling crisis in organisations through professional use of PR. It also examines the nature and methods of handling issues being discussed in public domain to enable organizations generate better policies and avert crisis.

PRS 806.1 Advanced PR Campaign Planning and Execution

The course is designed to teach the students the processes and procedures of developing and executing public relations campaigns. It involves issues in environmental impact assessment, funding, planning, execution and post campaign evaluation procedures.

PRS 807.1 Advanced Studies in Stakeholders Relations

Efforts will be made to differentiate publics of a firm from the stakeholders of the firm. Also, what stake is the stakeholder holding in an organisation will also be identified; community relations and other significant or critical stakeholders of an organization will also be identified here and relationship management techniques will also be examined. Other stakeholder related concepts such as active and passive stakeholders, stakeholder legitimacy

and power, stakeholder theories, etc. are covered in this course.

C M. Sc. ADVERTISING

LIST OF COURSES

First Semester

Course Code	Course Title	Units
SGS 801.1	ICT and Research Methodology	2
ADV 801.1	Advanced Communication Research	3
ADV 802.1	Advanced Digital Communication	3
ADV 803.1	Advanced Studies in Advertising	3
ADV 804.1	Fundamentals of Marketing	3
ADV 805.1	Ad Copy writing and Creative Content Development	3
ADV 806.1	Case Studies in Advertising	3
ADV 807.1	Integrated Marketing Communication	3
Total		23

Second Semester

Course Code	Course Title	Units
SGS 801.2	Management and Entrepreneurship	2
ADV 808.2	Advanced Studies in Communication Theories	3
ADV 809.2	Adv. Production Techniques (Multimedia/ Interactive)	3
ADV 810.2	Media Planning, Buying and Execution	3
ADV 811.2	Ad Campaign and Execution	3
ADV 812.2	Organization and Management of Ad Firms	3
ADV 813.2	Dissertation	6
Total		23

COURSE DESCRIPTIONS

SGS 801.1 ICT and Research Methodology

This course should cover essentials of spreadsheets, Internet technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of hypothesis formulation and testing, organization of research and report writing.

ADV 801.1 Advanced Communication Research

This course is aimed at teaching the graduate students the academic research processes in communication. The students will be taught the scientific process in research, how to generate a research problem, preliminary studies and issues related to the choice of theories and their implication to a research would be elucidated. Other areas to be covered include statistical tools employed in analyzing data in communication research; various levels of measurement such as nominal, ordinal, interval, ratio, mean, mode, median/average etc.; measurements of relationships including chi square, Z-test, R-test, ANOVA etc.; measurements of correlation using Person moment correlation coefficient, Ps formula, etc.; frequency and simple percentage measurements. This course will also teach students the rigours of effective and efficient data presentation such as tables building, graphs, histogram, piechart, barchart, graphs and illustrations as means of data presentation. The student would also learn how to manipulate data following prescribed procedures to arrive at acceptable results.

At the end of the course the students are expected to have very clear understanding of how to go about conducting the project. The course also aims at taking advanced students through the fundamental issues involved in research presentation; the objectives and current approaches to research in social sciences. Differences in style-sheet will be examined especially the style sheet adopted for communication research – the APA will be carefully examined. Practical application of what has been learned would be required by assigning the student to conduct a mini research which would be presented possibly as part of the continuous assessment for the course.

ADV 802.1 Advanced Digital Communication

This is an intensive and practice oriented course in which students will learn the technical and conceptual tools to understand the basics of digital communication. Students will develop their own blog and websites as means of communicating and presenting work to a wider audience. Also, students will be introduced to the dynamics of social media platforms and their applications in advertising. Emphasis will be placed on using digital media channels as advertising vehicles.

ADV 803.1 Advanced Studies in Advertising

The course broadens the knowledge of the students in advertising's concepts, principles, models, theories, tools, techniques, developments and general advertising processes.

ADV 804.1 Fundamentals of Marketing

This course would further advance and deepen the students' understanding of the fundamentals of marketing in relation to local marketing practices. Emphasis would be given to marketing environments and market forces in Nigeria, features of industrial products, challenges of distributive trade, market segments, theories of marketing, marketing research and intelligence, international marketing etc.

ADV 805.1 Ad Copy Writing and Creative Content Development

This course is aimed at widening the students' idea about Ad copy conception/ideation, creation and production taking into consideration the growth and advancements in technology and the taste of the contemporary consumers. The course would teach the student about contemporary processes in ad copy writing design and production etc. Students will enhance their knowledge of writing advertising messages for print, broadcast and digital media. They will design print ad layouts, and plan and prepare broadcast story boards.

ADV 806.1 Case Studies in Advertising

Selected foreign and indigenous cases of Advertising campaigns in several sectors of the economy, business, politics and social / behavioural change communications are examined. Each student presents a discussion on a selected case.

ADV 807. 1 Integrated Marketing Communication

The aim of this course is to advance the students' knowledge in understanding current trends in the operation and application of the principles of IMC in products and organizational promotion and marketing. The course will give consideration to IMC programmes management, workings and expectations. It will also x-ray the techniques of integration of communication strategies in corporate and public communications.

SGS 801.2 Management and Entrepreneurship

This course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

ADV 808. 2 Advanced Studies in Communication Theories

This course is an exploration and analysis of major theories that deal with the nature, uses and effects of media and communication; the relationship between theory and research and the relevance of the latter to the success of the former are discussed at an advanced level.

ADV 809.2 Advanced Advertising Production Techniques (Multimedia/Interactive)

This is an advanced practical course that allows students to plan, produce and present communication campaigns suitable for the various challenges of advertising, using multimedia and interactive devices. Skills in PowerPoint Presentation, use of Excel, Photo shopping and animation schemes are acquired.

ADV 810.2 Media Planning, Buying and Execution

This course is designed to give the students advanced knowledge and skills in advertising media planning, placement, monitoring and evaluation. Issues controlling choice of media and media planning would be discussed. There would be an elucidation on media research and regulatory agencies.

ADV 811.2 Ad Campaign and Execution

The course is designed to teach the student the processes and procedures of developing advertising campaigns. It involves issues in environmental impact assessment, funding, planning and execution and post campaign evaluation procedures. Key issues to be treated include campaign planning, execution and evaluation, Advertising agency business and operations, coordination and integration of advertising with other promotional activities, assessing advertising information processing trends in the face of competition, feasibility studies etc.

ADV 812.2 Organisation and Management of Ad firms

Students are exposed to theories and practice of management. Specific attention is devoted to management issues in advertising and related IMC firms. Client-agencies relationships are discussed, along with accounts management. The crux of this course is to keep the advanced students of advertising awake to the demands of the times in managing advertising processes and activities. The student would learn how to effectively manage and coordinate corporate strategic communications using the instrumentality of the new media. The course would treat issues related to advertising consultancy affairs, advertising planning, billing methods, monitoring and evaluation of advertising campaigns, theoretical implications in the face of advancing technologies, the need to advance new theories to meet the exigencies of time etc.

ADV 813.2 Dissertation

Students are required to present the results of an original research topic. Credit is given for originality, presentation and use of previous literature in the area.

SGS 801 .2 Management and Entrepreneurship

This course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

PRS 808. 2 Advanced Studies in Communication Theories

This course is an exploration and analysis of major theories that deal with the nature, uses and effects of media and communication; the relationship between theory and research and the relevance of the latter to the success of the former are discussed at an advanced level.

PRS 809.2 Advanced Studies in International Public Relations

This course focuses on the analysis of trends, issues and problems confronting Public Relations organisations in international trade and politics. It also covers principles of Public Relations in various countries, cultural norms and choosing of appropriate symbols and image.

PRS 810.2 Advanced PR Prod. Techniques (Multimedia/Interactive)

This is an advanced practical course that allows students to plan, produce and present communication campaigns suitable for the various challenges of public relations, using multimedia and interactive devices. Skills in PowerPoint Presentation, use of Excel, Photo shopping and animation schemes are acquired.

PRS 811.2 Organisation and Management of PR firms

Students are exposed to theories and practice of management. Specific attention is devoted to management issues in public relations and related IMC firms. Client-agencies relationships are discussed, along with accounts management. The crux of this course is to keep the advanced students of public relations awake to the demands of the times in managing public relations processes and activities. The student would learn how to effectively manage and coordinate corporate strategic communications using the instrumentality of the new media. The course would treat issues related to Public relations consultancy affairs, public relations planning, billing methods, monitoring and evaluation of public relations campaigns, theoretical implications in the face of advancing technologies, the need to advance new theories to meet the exigencies of time etc.

PRS 812.2 Media and Communication Planning and Strategy

The course addresses the role of media analysis and planning in Public Relations. It covers basic media terminology and media math, the distinctions between media objectives, strategies and tactics and

the different ways of allocating resources in media. Students will be introduced to tools of strategic planning like SWOT, TOWS, PEST, Porter's Five Forces, etc.

PRS 813.2 Dissertation

Students are required to present the results of an original research topic. Credit is given for originality, presentation and use of previous literature in the area.

POST DOCTORAL PROGRAMMES

D. Ph.D. PUBLIC RELATIONS

Admission Requirements

Candidates wishing to enroll in any of these two doctoral programmes offered by the department must hold a Master's degree with a CGPA of not less than 3.00 on a 5 point scale in any of these areas: Mass Communication, Public Relations, Advertising, and any Mass Communication related area. Such candidates must also submit a written proposal on a topic of interest in their desired area of study to the Departmental Graduate Studies Committee. The proposal must be satisfactorily defended before the committee prior to admission shortlisting.

Candidates who register on part-time basis must provide evidence that they

- i. Are engaged in regular employment,
- ii. Can devote a good proportion of their normal working year to their studies, and
- iii. Will be available for attendance at course and for regular consultation with their supervisors.

Programme Duration

The duration of the PhD degree programme in either of the disciplines is a minimum of 24 months and not more than 60 months for full time students. For part time programme the minimum is 36 months while the maximum is 84 months. Students who are unable to complete the thesis within the normal period must apply for an extension to Graduate Studies Committee.

Graduation Requirements

To obtain a PhD in either Public Relations or Advertising, a student must:

- i. Pass all the required courses for their programme with at least a 'C'. Grade.
- ii. Present their work at the Department and Faculty Graduate Seminars and participate in Seminar discussions, obtaining at least a 'B' grade.

- iii. Present their work at the Graduate Seminar and participate in Seminar discussions, obtaining at least a 'B' grade.
- iv. Submit a thesis of not less than 150 A4 pages, and obtain at least a 'B' grade.
- v. Pass an oral examination in defense of the thesis before a panel of examiners set up in accordance with University regulations.

The programme shall essentially be segmented into:

i. Course work – Lectures/Seminars

This will feature classroom interface on a semester basis for a maximum of two semesters. Assessment will be:

a. Continuous Assessment (term paper, seminar, etc.)	30%
b. Examination (written)	70%
Aggregate	100%

NOTE: To qualify for external Examination, the student must:

- i. have published two articles from his/her thesis with his/her supervisors in reputable journals; and
- ii. submit the thesis to the Graduate School for Plagiarism test which must not exceed 15 Points.

LIST OF COURSES

First Semester

Course Code	Course Title	Units
PRS 901.1	Case Studies in Public Relations	3
PRS 902.1	Corporate Social Responsibility and Stakeholder Relations	3
PRS 903.1	Corporate Communication	3
PRS 904.1	Public Relations Writings and Presentations	3
	Total	12

Table 2: Second Semester

Course Code	Course Title	Units
PRS 905.2	PR Campaign Planning and Execution	3
PRS 906.2	Topics in Public Relations	3
PRS 907.2	Legal and Ethical Issues in Public Relations	3
PRS 908.2	Thesis	6
	Total	15

COURSE DESCRIPTIONS

PRS 901.1 Case Studies in Public Relations

This course would handle specific selected cases in Public Relations campaigns in different sectors of the economy, business, politics and social/behavior communication change. Topic assigned to each student would be written and presented during a class discussion.

PRS 902.1 Corporate Social Responsibility and Stakeholder Relations

This course will underline the place of corporate social responsibility as the anchor of corporate philanthropy and bring out the tenets and their uses. Such tenets include corporate social investment, patronage, donations, and endorsement. How these are used to uplift the society will be exposed, so is how corporate organizations can use them to leverage their reputation, brand, personality, etc.. The course identifies critical stakeholders of an organization and relationship management techniques with each stakeholder group. Efforts will be made to differentiate publics of a firm from the stakeholders of the firm as well as what stake the stakeholder is holding in an organization.

PRS 903.1 Corporate Communication

The strategies, techniques, tools and communication process which corporate bodies adopt for relating with their internal and external publics are highlighted with emphasis on issues and crises management, relationship and reputation management, and management approaches.

PRS 904.1 Public Relations Writings and Presentations

The course equips students with knowledge and skills for business writing and presentation. It includes writing for internal communications in business, government and non-governmental organisations. It also equips students with skills for speech delivery, writing newsletters, business proposal writing and making pitches in PR, Advertising and other promotional areas.

PRS 905.2 Advanced PR Campaign Planning and Execution

The course is designed to teach the students the processes and procedures of developing and executing public relations campaigns. It involves issues in environmental impact assessment, funding, planning, execution and pre/post campaign evaluation procedures.

PRS 906.2 Topics in PR

This course is designed to expose the students to the various issues raised in PR. The student would be expected to choose a topic on any public relations

issue of interest for examination and analysis and present findings in a class.

PRS 907.2 Legal and Ethical Issues in Public Relations

This course refreshes the students understanding and application of ethics in Public Relations practice. The student is abreast of the legal and ethical issues, the implications and the enforcement procedures involved in the practice of PR.

PRS 908.2 Thesis

Students are required to present the results of an original research topic. Credit is given for originality, presentation and use of previous literature in the area.

E. Ph.D. ADVERTISING

LIST OF COURSES

First Semester

Course Code	Course Title	Units
ADV 901.1	Case Studies in Advertising	3
ADV 902.1	Art Direction and Design	3
ADV 903.1	Advertising Media Planning, Buying & Execution	3
ADV 904.1	Advanced Studies in Brands and Brands Building	3
Total		12

\Second Semester

Course Code	Course Title	Units
ADV 905.2	Creative Content Marketing for Advertising	3
ADV 906.2	Integrated Marketing Communications and Digital Media	3
ADV 907.2	Legal and Ethical Issues in Advertising	3
ADV 908.1	Thesis	6
Total		15

COURSE DESCRIPTIONS

ADV 901.1 Case Studies in Advertising

This course would handle specific selected cases in advertising campaigns in different sectors of the economy, business, politics and social/behavior communication change. Topic assigned to each student would be written and presented during a class discussion.

ADV 902.1 Art Direction and Design

This course broadens the knowledge of the student to gain expertise in the practical aspects of graphic design, related to the communication of concepts. Issues related to the role of the Art Director/Creative Director in developing and realizing ideas through leadership, management and commissioning of individuals and teams of designers, photographers, film makers, advertisers, illustrators or other media specialists in the creative industry.

ADV 903.1 Advanced Studies in Advertising Media Planning, Buying and Execution

This course encourages further practical production of student-initiated projects in any chosen area of concentration under the supervision of academic staff. At this level students are expected to carry out projects independently.

ADV 904.2 Advanced Studies in Brands and Brands building

This course stabilizes the students' ability to understand the process of building brands identity, image and franchise, brand loyalty, brand positioning and brand acceleration. The course also explores the impact of current advertising/marketing issues from business, economic, political, social, legal, and ethical perspectives.

ADV 905.2 Creative Content Marketing for Advertising

Content marketing is a strategic marketing approach to attract and retain clearly defined audience and

ultimately, to drive profitable customer action. Students will therefore be exposed to the various process, techniques and skills of writing to sell ideas, products or brands across multi channels.

ADV 906.2 Integrated Marketing Communication and Digital Media

This course teaches students Integrated Marketing Communications (IMC) approaches such as advertising, public relations, sales promotion, word-of-mouth, direct marketing, events management, etc. applied as a mix of marketing tools. Students acquire basic knowledge of the workings and expectations of both the traditional and contemporary IMC strategies and media; importance and techniques of integration.

ADV 907.1 Legal and Ethical Issues in Advertising

This course refreshes the students understanding and application of ethics in Advertising practice. The student is abreast of the legal and ethical issues, the implications and the enforcement procedures involved in the practice of Advertising. The place and role of APCON and other key control agencies is emphasized and discussed.

ADV 908.2 Thesis

Students are required to present the results of an original research topic. Credit is given for originality, presentation and use of previous literature in the area.

TEACHING STAFF LIST

S/N	Name	Qualifications	Rank	Mode	Area of Specialization
1.	Ihejirika, W. C.	BA, MA, PhD (Rome)	Professor	FT	Communication Theory, Dev. Communication.
2.	Okon, G.B.	BA, MA, UNN, PhD Uyo	Professor	Adjunct	Public Relations, Advertising, Corporate Communication.
3.	Udoudo, A. J.	BA, MA, PhD Uyo	Professor	FT	Public Relations, Advertising, Print Journalism.
4.	Emeji, Michael J.	BFA, USA M. Sc. U.S.A Ph D. U. S.A.	Professor	Adjunct	Graphic Communication, Advertising.
5.	Ohiagu, O. P.	BA UNN, MSc Unilag, PhD UPH, PG Cert in Corporate Comm. CHE (NL)	Senior Lecturer	FT	Public Relations, Advertising, Corporate Communication, Digital Comm./New media.
6.	Ochonogor, C.I.	BA, MA UNN, PhD UPH	Senior Lecturer	FT	Print Journalism, Dev. Communication.
7.	Mbazie, S. J.	BA, MA, UNN, PhD UPH	Senior Lecturer	FT	Advertising, Public Relations.
8.	Sado, A. A.	BA, PGDPR, MSc, UNN, PhD UPH	Senior Lecturer	FT	Public Relations, Advertising, Dev. Communication.
9.	Agbo, B.O.	BA, MA, UNN, PhD ESUTH	Senior Lecturer	FT	Advertising, Public Relations.
	Nwachukwu, F. G	BA, MA, PhD, Uyo	Senior Lecturer	FT	Advertising, Public Relations, General Communication.
11.	Usua, +Ntiense J.	BA Calabar, PGD NIJ Lagos MA Abuja, PhD (UPH)	Senior Lecturer	FT	Broadcasting, Radio/TV Prod., Journalism, Cultural Communication,
12.	Inyang, Etiido E.	B.A. ABU, MFA Uyo PhD UPH	Senior Lecturer	FT	Graphic Communication, Advertising

FACULTY OF SOCIAL SCIENCES

DEPARTMENT OF ECONOMICS

GRADUATE PROGRAMMES IN ECONOMICS

The revised graduate courses offered in the department of economics, Faculty of Social Sciences, University of Port Harcourt include the under listed courses using the Bench Mark Approved by the NUC.

ECO 752.2	Labour and Manpower Economics	3
ECO 718.2	Industrial Relation	3
ECO 717.2	Economics of Petroleum and Energy	3
ECO 702.2	Agricultural Economics and Rural Development	3

ADMISSION REQUIREMENTS

To be admitted into M.Sc. programme, candidates must have a minimum of second class honours lower division in Economics. For the Ph.D. in Economics, an overall CGPA of 3.5 on a 5-point scale is required. Students with good honours degrees in any discipline can be admitted into the PGD programme.

NOTE: The successful completion of the programme requires a total of 27 credit units.

PGD IN ECONOMICS

FIRST SEMESTER

Course Code	Course Title	Credit Units
ECO 701.1	Microeconomics	3
ECO 703.1	Mathematics for Economics	3
	<i>Any two other course from area of Specialization</i>	6
Total		12

SECOND SEMESTER

Course Code	Course Title	Credit Units
ECO 701.2	Macroeconomics	3
ECO 704.2	Basic Research and Computer Application	3
	<i>Any two other course from area of Specialization</i>	6
	<i>Project to be defended</i>	6
Total		18
Grand Total		30

AREAS OF SPECIALIZATION

Course Code	Course Title	Credit Units
ECO 702.1	Theories of Development	3
ECO 716.1	Economic Planning	3
ECO 750.1	Issues of Monetary Economics	3
ECO 749.1	Nigerian Financial System	3
ECO 718.1	Human Resources Economics	3
ECO 715.2	Public Sector Economics	3
ECO 751.2	International Finance	3

M.SC. ECONOMICS

FIRST SEMESTER

Course Code	Course Title	Credit Units
ECO 801.1	Advanced Microeconomics	3
ECO 800.1	History of Economic Thought and Method (Qualitative Method)	3
ECO 831.1	Mathematical Economics	3
ECO 812.1	Issues in Entrepreneurship	3
SGS 801.1	ICT & Research Method	2
	Two elective courses in area of specialization	6
Total		20

Electives

Course Code	Course Title	Credit Units
ECO 820.1	Monetary Theory and Policy	3
ECO 870.1	International Economics	3
ECO 810.1	Economic Development	3
ECO 811.1	Economic Planning	3
ECO 880.1	Industrial Economics	3
ECO 830.1	Advanced Mathematical Economics	3
ECO 850.1	Labour Economics and Industrial Relation	3

SECOND SEMESTER

Course Code	Course Title	Credit Units
ECO 801.2	Advanced Macroeconomics	3
ECO 805.2	Quantitative Research Method – Econometrics	3
ECO 840.2	Seminar on the Nigerian Economy	3
SGS 801.2	Management & Entrepreneurship	2

	Three elective courses in area of specialization	9
ECO 899	Dissertation	6
Total		26
Grand Total		46
Electives		
Course Code	Course Title	Credit Units
ECO 821.1	Nigerian Financial System	3
ECO 870.1	International Monetary and Financial System	3
ECO 812.2	Project Analysis and Evaluation	3
ECO 814.2	Problems and Policies of Development	3
ECO 860.2	Agricultural Economics and Rural Development	3
ECO 813.2	Public Sector Economics	3
ECO 893.2	Theory and Practice of Economic Policy	3
ECO 830.2	Advanced Econometrics	3
ECO 883.2	Environmental Economics	3
ECO 882.2	Petroleum and Energy Economics	3
ECO 852.2	Manpower Planning	3

NOTE: Total credit units needed for Graduation
42

Ph.D IN ECONOMICS

FIRST SEMESTER

Course Code	Course Title	Credit Units
ECO 900.1	Selected Topics in Microeconomics	3
ECO 901.1	Advanced Project Management I	3
	Seminar I	3
	Seminar II	3
Total		2

SECOND SEMESTER

Course Code	Course Title	Credit Units
ECO 900.2	Selected Topics in Macroeconomics	3
ECO 901.2	Advanced Project Management II	3
	Seminar III	3
	Seminar IV	3
ECO 999	Thesis	6
Total		18

NOTE: Seminar on ECO 904.1 (History of Economic Thought) is compulsory for all students. Thereafter students are free to choose the remaining

three from among the under listed courses for seminars II, III, and IV.

Course Code	Course Title	Credit Units
ECO 904.1	History of Economic Thought	3
ECO 905.1	Reading in Economic Development	3
ECO 906.1	Macroeconomics of the Open Economy	3
ECO 907.1	Manpower Economics	3
ECO 908.1	Reading in Public Policy Economics	3
ECO 904.2	Advanced Economics	3
ECO 905.2	Agriculture and Economic Development	3
ECO 906.2	Petroleum and Energy Economics	3
ECO 907.2	International Trade and Finance	3

NOTE:

1. Before proceeding to the Thesis stage, the student must have passed all the approved courses.
2. The student must have also passed a qualifying examination which comprises Economic Theory and area of specialization.
3. Total credit units required for graduation is 30

COURSE DESCRIPTION

ECO 801.1 Advanced Microeconomics

The objective of this course is to deepen and widen the critical and analytical understanding of theoretical and methodological issues in microeconomics as well as problems of application of microeconomics models to real phenomena beyond the undergraduate training. Accordingly, it is aimed at exploring advanced literature, material and methodology. The audience is assumed to possess sound mathematical background. To benefit from the course, students need to have or to develop a reasonable amount of mathematical sophistication. That is, the need to understand the concept of a proof and to be able to construct simple proofs themselves. The foundation for developing this skill is a good understanding of calculus and familiarity with elementary linear algebra analysis.

Course schedule

1. Introduction: The Role of Theory, Microeconomics and the Role of mathematics
2. Demand and supply functions
3. Elasticity of Demand and supply functions
4. Theory of Consumer Behaviour
 - i. Cardinal Unity Approach

- ii. Ordinal Utility or Indifference Curve Approach
- iii. Revealed Preference Approach
- 5. Theory of Production
 - i. Production function
 - ii. Short-run Production function / analysis
 - iii. Long-run Production function / analysis
- 6. Theory of costs and revenue
 - i. Short-run cost functions
 - ii. Long-run cost functions
 - iii. Cost minimization
 - iv. Total Marginal and Average Revenue Function
- 7. Theory of Market Structure
 - i. Perfect competition
 - ii. Monopoly-pure monopoly, price Discriminating Monopoly, Multi-plant Monopoly
 - iii. Monopolist competition
 - iv. Oligopoly, duopoly
- 8. Theory of distribution and factor pricing
- 9. Theory of General Equilibrium
- 10. Welfare Economics

ECO 801.2 Advanced Macroeconomics

Macroeconomics as the study of the behavior of aggregate magnitudes including that of the macroeconomy as a whole in this presentation is aimed at achieving three substantive objectives. The basic objectives relate to the substance, methodology and organization of the material presented. Specifically, it presents skeleton of the macroeconomy and how its parts relate and interact.

Course schedule

- 1. Macroeconomic framework
- 2. Macroeconomic supply function
- 3. The expenditure sector
 - i. Consumption function and equilibrium national income
 - ii. Investment function and equilibrium income/IS curve
 - iii. Government expenditure / taxation and equilibrium national income / IS curve
 - iv. Expenditure and tax multipliers
- 4. The monetary sector
 - i. Money Demand
 - ii. Money Supply
 - iii. Equilibrium in the Monetary sector / LM curve
- 5. General Equilibrium Analysis
- 6. The External Sector
 - i. Foreign Exchange market
 - ii. Imports, Exports and the Balance of Payments
 - iii. Balance of Trade and the Income Determination Model

- 7. Macroeconomic Problems / Objectives
- 8. Macroeconomic policy measures or theory of stabilization policy.

ECO 800.1 History of Economic Thought and Method (Qualitative Method)

The course involves an in-depth and critical examination of the major schools of economic thought spanning from the ancient to the current era. Special attention is paid to the pre-capitalist 17th century mercantilist economists to the contemporary mainstream and alternative economic viewpoints.

Course Outline

- 1) Method and Introduction of History of Economic Thought
- 2) Family Tree of Economics
- 3) The Ancients and Middle Ages
 - a) Judaic and Greek Thought
 - b) Scholastics, Christianity and Islam
- 4) The Age of Reason Emergence of Modern World Perspective and “Science”
- 5) Classical Economics
 - a) Scottish Renaissance
 - b) Adam Smith
 - c) Jeremy Bentham and Utilitarianism
 - d) Thomas Malthus
 - e) David Ricardo
 - f) Jean Baptist Say
 - g) Nassau Senior
 - h) John Stuart Mill
- 6) Marxian Critique of Capitalism
 - a) Pre-Socialist Commentators (Utopians)
 - b) Karl Marx
 - c) Other Socialists
- 7) Historical School
 - a) German Historical
 - b) British Historical School
- 8) Marginalis School
 - a) Forerunners
 - b) French Engineers
 - c) British Utilitarian’s
 - d) Austrians and Methodenstreit
- 9) Neo – Classical Synthesis
 - a) Alfred Marshall
 - b) Leon Walras
 - c) Vilfredo Pareto
 - d) John Bates Clark
- 10) Critique of Neo-Classicism
 - a) Pragmatists
 - b) Thornstein Veblen and the Old or Original Institutionalists
 - c) John R-Commons

- d) Richard T. Ely
- e) John Maurice Clark
- f) Clarence Ayres

- 11) Microeconomics and the Great Depression
 - a) Joan Robinson
 - b) Edward Chamberlin Cycles
 - c) Gardner C. Means Keynes

- 12) Macroeconomics and the Great Depression
 - a) Money
 - b) Business Cycles
 - c) John Maynard Keynes
 - d) Frederich Hayek

- 13) Return to Individualism and the Market Ideology
 - a) The Chicago school
 - i) Old Chicago School
 - ii) Chicago School
 - b) Monetarism and Rational Expectations
 - c) Public Choice, Property Rights and law
 - d) The New Institutionalists

- 14) What next?

- 9. Special kind of linear programming- Assignment model and transportation model
- 10. Games theory
- 11. Network analysis and application
- 12. Applications of Static and Dynamic programming in theories of household and Firm Behaviour theories of Household and Firm Behaviour
- 13. Dual programming
- 14. Simulation model and applications
- 15. Queuing theory and application
- 16. Partial and General equilibrium and Welfare Economics
- 17. First Order Difference Equation
- 18. Higher Order Difference Equation
- 19. Differential Optimal Growth path
- 20. The Application of Wairasian competitive economics and the Jacobain Matrix and Global Univalence

ECO 831.1 Mathematical Economics

This course is designed to enhance the technical ability and competence of specialists in economic theory and quantitative economics in particular and the analytical ability and logical thought structure of doctoral students in general. Given that mathematical logic principles and techniques would unveil the secrets of economic relationship through abstract by logical argumentation and thereby illuminate the intuitive understanding of economic events. Mathematical treatment of economics uncovers the economic truth in a strictly logical fashion deducing propositions about the economic world from few premises or axioms. Unfortunately, however, the advantages of this procedure are accessible only to the initiated. Hence all graduate students are encouraged but doctoral students are required to stand the long endurance test in mathematics.

Course Schedule

The topics to be covered here include:

1. Logarithms, Exponents and Growth mathematics
2. Differential calculus and application to economic analysis.
3. Integral Calculus and applications to economic analysis.
4. Matrix Algebra and applications
5. Input-output Analysis
6. Comparative Statics
7. Optimization Theories
8. Linear programming and non-linear programming

ECO 812.1 Issues in Entrepreneurship

The course issues in entrepreneurship, seeks to equip graduate students, with entrepreneurial knowledge and skills in a vast and rapidly changing world, where paid employment is going into extinction.

The knowledge and skills so imparted are to be concretized in practical case studies, delivered in seminar presentation.

Specifically, the course provides the student with an overview of the concepts, principles, theoretical and methodological foundations and techniques, and would have learnt how to identify project opportunities, formulate business project and test them for technical, financial, economic, social, political viability and sustainability.

Course Schedule

- 1) An introduction to entrepreneurship: who is an entrepreneur?
- 2) Entrepreneurship and wealth creation
- 3) Entrepreneurship theory and practice: inter-disciplinary perspectives
- 4) Distinguishing entrepreneurial from organization behavior
- 5) Persons, process, choice: the psychology of new venture creation
- 6) A finance view point in Entrepreneurship
- 7) Marketing interface to advance Entrepreneurship
- 8) Differentiating entrepreneurs from small business owners
- 9) Entrepreneurial risk and strategic decision – making.
- 10) Environmental influence on Entrepreneurship
- 11) Government/legal influences of Entrepreneurship

- 12) Entrepreneurial strategy making and firm performance: tests of contingency and configurationally models
- 13) Evaluation of organizational performance in small business research
- 14) Competing change: strategies for industrial and technological innovation
- 15) Entrepreneurship issues in a digitalized economy
- 16) Existing business models and pioneers
- 17) Preferred solutions to some issues in entrepreneurship in Nigeria

ECO 820.1 Monetary Theory and Policy

Monetary Theory and Policy is both a theoretical and applied science. The course therefore aims to thoroughly integrate into a theoretical structure substantial history and institutional material in analyzing the effects of money and finance on goal variables – output, prices and economic growth and the complex dynamics of growth and decay and policy action and reaction within the changing orientation of Monetary control on real economics.

Course Schedule

1. The role of money in the economy
2. The role of Financial institutions and credit
3. International Banking Monetary theory
4. Determinants of the Money Supply- Monetary base, money multiplier
5. Control of the Money supply
6. Relationship between the Money supply and credit
7. The demand for money
8. Money in General Equilibrium
9. The monetarists controversies
10. Structure of Interest Rates
11. Economic Problems: Inflation, Unemployment, Recession.
12. Goals of monetary Policy, Instruments of and Targets of Monetary Policy.
13. Theory of monetary Policy
14. The Politics of Money
15. The Political Economy of Monetary Policy Making
16. The implementation of Monetary Policy
17. History of Monetary Policy in Nigeria
18. Effectiveness of Monetary Policy
19. Rules Versus Discretionary Policy
20. Empirical Evidence
21. Finance and the Allocative Mechanism
22. The Transmission process and Policy Implication
23. Expectations, Stagflation and Monetary Policy
24. Balance of Payments and Monetary Policy
25. Money and the World Economy.

ECO 870.1 International Monetary and Financial System

The course seeks to discuss in detail balance of payments concepts and measures, international monetary systems, floating as opposed to fixed exchange rates, internal and external balance, monetary integration, foreign exchange markets, international liquidity and reform of the international monetary system, determinant of demand for money in developing combine comparison of banking systems in selected advanced and developing countries.

ECO 810.1 Economic Development

This is an advanced survey of basic literature is the field. It is directed towards providing a base from which intending specialists in this field can acquire technical competence. The methodological principle allows for lectures and discussions which provide each student with an opportunity to present a review of new developments in one of the areas of topical literature covered.

Prerequisites

The expositional principles assume broad training core theory-Macro and Micro-economics and competence in using quantitative techniques.

Course schedule

1. General Approaches to Development Process: Methodological issues, Measuring Economic Development, Patterns of Development, Inductive Approaches.
 - (a) Changes in Economic Structure (Clark, Kuznets, Chenery).
 - (b) Social and Political Concomitants (Adelman, Moris)Theories of Development: (a) Traditional Theories, (b) Radical and Marxian Approaches
2. Development as Generalized (Macro) Economic Growth: Neoclassical and Keynesian Growth Theory, Capital Formation and Development, the monetary system and Development, the Public Sector and Development.
3. Development as Structural Change: models of Dualistic Development, Agriculture and Development, Industry and Development, Labour Force Transfer and Urbanization, Income Distribution, Demographic Change, Skill Creation, The human Capital Approach.
4. Development in a World Economy: models of Trade and Development, the “Vent”, “Dualistic” and “Unequal Exchange” Approaches, Trade Policy, Openness Vs autarchy, XP Vs ISI. The use of External resources.
 - (a) Aid and Indirect Investment
 - (b) Direct Foreign Investment: The multinational corporation and its Consequences

5. Issues in Nigerian Development Policy and the Millennium goals.

ECO 811.1 Economic Planning

The quest for ordered socioeconomic development is predicted on economic planning because as Abraham Lincoln puts it, “if we could first know where we are, and whether we are tending to, (relative to where we want to be), we could better judge what to do and how to do it (and possibly do it well). “it is therefore not surprising that planning as an instrument of stock-taking, analysis and mechanism of management has been viewed as essential and perhaps the only institutional and organization mechanism for overcoming the major obstacles to development and for ensuring sustained high rate of economic growth and desired structural transformations. The course therefore provides a survey of the basic literature on theoretical concepts, principles, theories and models or development planning focusing on economic problems and issues of policy significance.

Course Schedule

1. The meaning, nature and scope of Development Planning
2. Basic Concepts.
3. The rationale for development planning
4. The Role of Theory, Quantitative Policy and Economic Planning
5. National Accounts
6. The Planning process
7. Ends-Means-Instruments Consistency and measurability.
8. Models of Development Planning and Policy: Short-term macroeconomic models, based on national accounts Economy-wide models, Medium and Long run macro Growth Models.
9. The mehalanobis and Two-Gap models, Dualistic Models, mathematical techniques-input-output Models, Linear programming and Dynamic optimization models.
10. Closing input-output Models inter-industry Planning models for Multi-Regional economy Tinbergen’s approach and multiple goals; substitution and nonlinear-rites in Planning Models.
11. Models for Employment and Educational Planning
12. Organization and implementation process
13. The crisis in planning computable general equilibrium models
14. An overview of the Historical Development of the Nigerian Economy.
15. The Nigerian Experience with Planning.
16. Lessons from other Experiences
17. Problems and prospects for development planning in Nigeria.

ECO 880.1 Industrial Economics

This course provides an application of theoretical and analytical tools of economics useful in management decision making. The course offers rigorous treatment of economics theory and analysis with a focus on the tools and techniques that are useful and useable for decision making purpose. Examples and problems are used to illustrate the application of theory to a variety of decision situation. The nature of the decision process and the role that economic analysis plays is the focal point of emphasis.

Topics to be discussed include: Nature, scope and methodology of industrial economics, fundamental concepts, industrial structure, and definitions of problems and measurement theories of the firm, economic optimization, the growth of the firms. It will also cover diversification, mergers, innovation and investment, economic risk, and uncertainty analysis, demand theory and forecasting analysis, industrial pricing and marketing price and marketing of public goods, cost of capital, source of finance, resources allocation and production of economic cost, theory of linear programming, market structure analysis of profitability of output changes, short-term and long-term planning, capital budgeting, industrial location practices, problems of regulation and policies in Nigeria. Pre-requisite – mathematical methods of economics, intermediate microeconomics.

ECO 830.1 Advanced Mathematical Economics

1. The topics to be discussed include:
2. Economic applications of graphs and equations
3. Derivatives and rules of differentiation
4. Uses of derivatives in economics
5. Calculus of multivariable functions in economics
6. Exponential and logarithm functions in economics
7. Fundamentals of linear – matrix algebra
8. Matrix inversion
9. Special determinants and matrices and their uses in economics
10. Linear programming! Simplex algorithm and the dual theorem
11. Integral calculus and economic analysis
12. Differential and difference equations
13. Calculus of variations

ECO 850.1 Labour Economics and Industrial Relation

This is a graduate level survey extensive literature, methodologies, analytical concepts, principles and theories applicable to a wide variety of labour issues.

Course Schedule

1. Theories of Labour Market Behaviour: Determinants of the Size, Structure and dynamics of Labour Supply and Demand.

2. Analysis of Contemporary Trends in Wages, Employment and Unemployment.
3. The Role of Education and Training
4. Intervening Variables: Institutional Variables Collective Bargaining, Labour Union and Employers Association.
5. Arbitration and Contract Administration Panels
6. Other Government Agencies, Minimum Wage Laws, Safety Regulations, Conditions of work and Work Conditions, Mandatory retirement and Benefit Issues.
7. Issues in productivity, income and Employment

ECO 801.2 Advanced Macroeconomics

This seeks to provide rigorous and structures mathematical treatment of macroeconomic issues and phenomena, concepts, principles and theories. Topics covered include basic macroeconomic concept's, principles and theories, basic models of income determination, extension from the simple closed two-sector model to open four-sector model of macroeconomics theories of consumption, business fixed investment, residential investment, inventory investment, replacement investment and the foreign sector, rigorous and critical survey of the various macroeconomic schools of thought, classical, neo-classical, Keynesian, structuralists, supply side models of the macroeconomic with particular focus on employment, output, growth and price stability, theories of the supply of money and financial sector equilibrium. The government sector and the budget constrained. Theories of money, prices and interest. Theories of general equilibrium, theories of growth and business cycle macroeconomics. Policies stabilization adjustment and resources allocation.

ECO 805.2 Quantitative Research Method – Econometrics

This course is designed to provide non-specialists in quantitative economics with skills in the understanding and application of mathematical reasoning and quantitative methods in order to follow modern developments in economic theory and understand the empirical results derived in econometrics which reflects the growing reliance upon mathematical and statistical techniques in economic analysis. Since the more recent evolution of economics has encompassed a remarkable development of econometric techniques and their uses in empirical economic analysis, econometrics is no longer the preserve of a select few but has now become a basic ingredient in the training of virtually all students of economics. Because these methods are integral aspects of the methods of scientific inquiry through which hypotheses are developed and tested. Therefore, maturity in quantitative methods

is expected of the products of all our graduate programmes.

Course schedule

1. Nature and scope of Econometrics
2. Methodology or Econometrics Research
3. Correlation Theory
4. Simple Linear Regression Model
5. Statistical Tests of Significance of Estimates
6. Properties of the Least square Estimates
7. Multiple Regression Model
8. Regression and Analysis of Variance
9. Regression Analysis Extensions and Dummy Variable
10. Heteroscedasticity
11. Multicollinearity
12. Autocorrelation
13. Cointegration Theory and Error Correction Model
14. Lagged Variables and Distributed-Lag Model
15. Vector Autoregression Models (VAR)
16. Simultaneous Equation Models
17. Identification Problem
18. Mixed Estimation Technique
19. Maximum Likelihood Method
20. Three Stage Least Squares

ECO 821.1 Nigerian Financial System

The course covers the overview of the Nigerian financial industry, Nigerian financial markets, money, capital and foreign exchange markets, performance of the financial service industry, the relationship between global financial and the Nigerian financial environments.

ECO 870.1 International Monetary and Financial System

The course seeks to discuss in detail balance of payments concepts and measures, international monetary systems, floating as opposed to fixed exchange rates, internal and external balance, monetary integration, foreign exchange markets, international liquidity and reform of the international monetary system, determinant of demand for money in developing combine comparison of banking systems in selected advanced and developing countries.

ECO 812.2 Project Analysis and Evaluation

The art of project analysis or the ability to identify, formulate, appraise, and select desirable and feasible development and social change projects, has long been, and continues to remain in critically short supply. This course therefore seeks to provide an opportunity to learn the core of this vital art through a graduate level survey of methodological foundations of project planning and evaluation and to consider a number of its problems and issues.

Courses Schedule

The proposed course schedule includes;

1. Introduction and overview
2. Project planning contexts and perspectives
3. Project identification and formulation.
4. Project feasibility dimensions
5. Technical and Environmental aspects
6. Cost-Benefit Analysis
7. Financial and Economic aspect
8. Social Cost-benefit Analysis and impact Assessment
9. Organization, Managerial and Institutional Aspect
10. Risks and uncertainties
11. Sensitivity Analysis
12. Major project Planning problems and issues
13. Review and Evaluation
14. Network analysis and application to project management.

ECO 814.2 Problems and Policies of Development

Topics include the general nature of the development problems, some case studies, general theories of development, the classical theory of capitalist of development, growth model of growth and collapse, other theories of growth lessons of history, theories of underdevelopment, geographic determination, dualistic stabilization and adjustment policies.

ECO 860.2 Agricultural Economics and Rural Development

The subject of agricultural economics involves the application of economics to the operations of the agricultural industry. It deals with the organization of farms, the study of demand and supply of agricultural products, the availability of inputs and their prices, such as labour use on the farm, wage rate and incentives to farm workers, capital and its availability, marketing system for agricultural products, policies and programs of government. The organization of both producing and marketing cooperatives are also within the area of agricultural economics.

The following subject matter will be introduced in this course:

- 1) Farm management
- 2) Farm records and accounts
- 3) Farm budgeting
- 4) Agricultural business management
- 5) Agricultural development and agricultural policy
- 6) Agricultural finance
- 7) Agricultural cooperatives
- 8) Agricultural marketing
- 9) Human resources management in agriculture.

ECO 813.2 Public Sector Economics

The course shall cover nature and scope of public sector economics, measurement of social welfare, welfare maximization and pareto optimality, market failure and government intervention, theories of public goods, externalities, theory and empirical evidence on expenditure development and tax structure, fiscal policy and non-fiscal policy and economic revenue of some selected countries, federalism and fiscal adjustment theory and practice in selected countries.

ECO 893.2 Theory and Practice of Economic Policy

This course aims at deepening the student's understanding of the theories and principles of fiscal economics and the tools for analyzing the implications of alternative fiscal proposals and institutional changes.

Course Schedule

1. Review of Basic Concepts
2. Fiscal Functions and Institutions
3. Economic Aspects of Government
4. Budgeting as a policy and Programme Instrument, fiscal Intervention and the Allocation of Resources
5. Legal and Basic principles of taxation and tax administration in Nigeria.
6. The Sequence of fiscal Policy in Nigeria and the Underlying Socioeconomic.
7. Political and Institutional forces
8. Monetary Policy.

ECO 830.2 Advanced Econometrics

Having offered introductory econometrics this course is designed as 400 level econometrics, in year 3, which seeks to expose the students to high level econometric tools to enable them apply the techniques in their research work. The topics include multiple regression and analysis of variance, dummy variable regression models, heteroscedasticity, autocorrelation, multicollinearity, simultaneous equation models and methods, concepts in time series econometrics, stochastic processes, unit root stochastic process, stationarity and non-stationarity, stationarity and unit root test, cointegration and error correction mechanism as well as vector autoregression.

ECO 883.2 Environmental Economics

This course is aimed at exposing the students to fundamental issues in environmental economics.

The course shall cover the following areas:

- (1) The economy and its management
- (2) The framework for understanding the ecological perspective
- (3) Environmental micro-economics and macroeconomics
- (4) Resources, environment and economic development in the Niger Delta

- (5) The future of economic growth and the environment in the Niger Delta
- (6) Economic analysis of environmental issues in the Niger Delta
- (7) Valuing the environment
- (8) Ecological economics of the Niger Delta Region
- (9) National income and environmental accounting
- (10) Modeling economic and ecological systems
- (11) Environment trade and development
- (12) Pollution analysis, policy and sustainable development in the Niger Delta region

ECO 882.2 Economics of Petroleum and Energy

The course shall expose the students to theoretical and methodological issues in economics of natural resources (petroleum resources), world energy demand and supply, externalities of oil production in Niger Delta Region as well energy consumption and sustainable development.

The course shall cover the following topics:

- (1) Energy and energy source in Nigeria
- (2) The dimension of energy problem in Nigeria
- (3) Energy consumption and sustainable development in Nigeria
- (4) Energy supply and utilization in Nigeria
- (5) Energy planning in Nigeria
- (6) Oil production and sustainable development in the Niger Delta Region
- (7) The economics of gas flaring

ECO 852.2 Manpower Planning

Manpower planning is a technique designed to ensure that the right people are in the right place at the right time. Therefore, the primary purpose of this course is to introduce students to various techniques used in manpower planning in both developed and developing countries.

The course will cover Principles, Theories and Techniques of Manpower Planning and Programming, as well as why study Manpower Development.

NOTE:

1. The Department of Economics has the following areas of specialization for its M.Sc. and Ph.D. programmes:
 - i. Monetary Economics
 - ii. Development Economics
 - iii. Quantitative Economics
 - iv. Energy and Petroleum Economics
 - v. Public Policy Economics
 - vi. Labour and Industrial Economics
 - vii. Project Planning and Evaluation
 - viii. International Trade and Finance
2. Total Credit Units required for M.Sc. graduation is 42. However, students are advised to audit at least one additional course.
3. Total Credit Units for Ph.D. is still 30.

LIST OF ACADEMIC STAFF

S/N	NAME OF STAFF	RANK	QUALIFICATION	AREA OF SPECIALIZATION
1	Willie J. Okowa	Professor	B.Sc. Lagos Ph.D. Uppsala	Development Economics
2	T.J. Agiobenebo	Professor	B.Sc. ABU M.Sc. and Ph.D. Pittsburgh	Microeconomics/ Mathematic
3	Steve O. Tamuno	Professor	B.Sc., MBA and Ph.D. UPH	Rural Development Economics
4	Okechuku Onuchuku	Professor	B.Sc., M.Sc. and Ph.D. UPH	Economic Theory/ Quantitative Economics
5	Lawrence Ohale	Professor	B.Sc., M.Sc. UPH Ph.D.	Development Economics
6	Ijeoma E. Kalu	Professor	B.Sc., M.Sc. and Ph.D., UPH	Development Economics
7	Godly Otto	Professor	B.Sc. and M.Sc. UPH, Ph.D., Nigeria	Development Economics
8	Clever A. Gbanador	Professor	B.Sc., M.Sc., and Ph.D. UPH	Monetary Economics
9	Monday O. Robinson	Professor	B.Sc., M.Sc. Jos and Ph.D. Calabar	Development Economics
10	Peter N. Medee	Reader	B.Sc., M.Sc., and Ph.D. UPH	Monetary Economics
11	Ezaal Okowa	Reader	B.Sc., M.Sc. and Ph.D. UPH	Monetary Economics
12	Alwell Nteegah	Reader	B.Sc., M.Sc. and Ph.D. UPH	Development/ Quantitative Economics
13	Henry U. Agbarakwe	Senior Lecturer	B.Sc., and M.Sc., UPH, Ph.D., Nigeria	Development Economics
14	Simeon G. Nenbee	Senior Lecturer	BED, Ibadan M.Sc. and Ph.D. UPH	Monetary/ Quantitative Economics
15	Sylvester F. Udeorah	Senior Lecturer	B.Sc., M.Sc. and Ph.D. UPH	Labour/Human Resource Economics
16	Chioma Chidinma B. George-Anokwuru	Senior Lecturer	B.SC., IMSU, M.Sc. and , Ph.D. UPH	Monetary Economics
17	Emeka Nkoro	Senior Lecturer	B.Sc. UNIBEN,, M.Sc., and Ph.D. , UPH	Monetary Economics/Econometrics
18	Ito. E. Bosco	Lecturer I	B.Sc., M.Sc., UPH	Monetary Economics
19	Stanley Okorie	Lecturer II	B.Sc., M.Sc. UPH	Energy/Transport Economics
20	Boma Tubotamuno	Lecturer II	B.Sc., M.Sc., UPH	Monetary Economics
21	O'Neal E. James	Research Fellow I	B.Sc., M.Sc., UPH	Econometrics/Health Economics
22	Moses O. Vincent	Research Fellow I	B.Sc., M.Sc., UPH	Development Economics/ R & D
23	Kelechi C. Nnamdi	Lecturer II	B.Sc., Nigeria; B.Sc., UPH; M.Sc., Uyo; Ph.D. RSU	Econometrics and Development Economics

DEPARTMENT OF POLITICAL SCIENCE AND ADMINISTRATIVE STUDIES

The History of the Department

The foundation for the Department of Political and Administrative Studies was laid by the late Professor Claude Ake who, until September 1983, was Dean of the Faculty of Social Science. Himself, a Political Scientist of international repute, Professor Ake assembled a team of competent lecturers and provided valuable leadership which gave the Department a clear focus.

The Department has continued to maintain the standard for which Professor Ake laid the foundation. From the 1983/84 session the Department started a graduate programme with the following specializations

- (a) Theory and Methodology
- (b) International Relations
- (c) Development Studies
- (d) Nigerian Government and Politics
- (e) Public Administration
- (f) Peace and Conflict Studies

The Department has been an active voice in the University of Port Harcourt. In 2015 the Department successfully hosted the Annual Conference of the Nigerian Political Science Association (NPSA).

THE PHILOSOPHY OF THE DEPARTMENT

The Department of Political and Administrative Studies derives its philosophy from the ideals which inform the *raison d'être* of the University of Port Harcourt as a centre of excellence in learning and research which is at once relevant to our environment and operates with the best international standards. The Department contributes to the achievement of the vision of the University through the training of such manpower in Political and Administrative Studies as well as contribute to the development of Nigeria and who will project it internationally by their intellectual and other achievements. Because scholarship is a serious enterprise, the Department will ensure it has the right calibre of staff, who will inspire and excite students by their work, world view and general conduct.

The Department's curriculum will always be sensitive to the gross underdevelopment of Nigeria and the African continent, and the urgent need to find lasting solutions to the resulting misery of the majority of the population. It will therefore contribute in producing graduates who can critically understand the problems of underdevelopment from a holistic perspective, so that they can offer practical solutions to those problems; graduates who have the

requisite knowledge and skills to make informed choices and decisions and thus live useful lives and impact positively on their immediate and larger communities. Thus, the Department encourages students to understand and use as many skills as possible from other social science disciplines.

Objectives of the Department

The objectives of the Department follow from the above general philosophical disposition. Specifically, the objectives are:

- * To make an outstanding contribution in the training of manpower that can propel Nigeria's development.
- * To help create critical awareness among students and enable them appreciate their political, economic and social environments.
- * To contribute to the understanding of the cause and nature of Nigeria's and Africa's underdevelopment.
- * To foster a nationalist and African perspective in social, economic and political problems.
- * To stimulate students' interest in the discipline in particular and enhance their thirst for scientific knowledge in science engineering in general.
- * To actively participate in the programmes and activities of such regional organizations as African Association of Political Science (AAPS), Nigerian Political Science Association (NPSA), etc. in order to strengthen the intellectual and scholarly bond in Nigeria and Africa in general. To make the Department, its students, graduates and the staff the pride of University of Port-Harcourt by creating a good image, through unrelenting efforts, in quality teaching, research and community service. As steps towards achieving the above objectives, the Department:
 - (a) Has designed courses, which are relevant in analyzing Contemporary Nigeria and Africa;
 - (b) Emphasizes the scientific method in making analysis and arriving at conclusions and
 - (c) Encourages students through lectures, seminars, essays and through formal and informal interactions among themselves and with lectures to develop the habit of thinking critically.

The Academic Content of Higher Degree Programmes is as outlined below:

Admission for Diploma Programmes

Admission Requirements: Subject to the general regulations of the School of Graduate Studies the

following requirements guide admission into higher degree programmes:

- i. All candidates for higher degrees shall be admitted to the Masters Programme in the first instance.
- ii. Admission is open to holders of First or Second Class Honours Degree of the University of Port Harcourt or any other recognized University.
- iii. Every applicant shall:
 - a. Fill the prescribed application form.
 - b. Have a CGPA of at least 3.0 on a scale of 5 on first degree graduation.
 - c. Provide, under confidential cover, at least two letters of recommendation, one of which must be from the University where the Bachelor's degree was awarded. A copy of the candidate's academic transcripts must also be sent.
 - d. For the PhD degree, submit a copy of the Masters thesis/graduate research paper.
 - e. Be found admissible after an evaluation by the Graduate Studies Committee.
 - f. Part-time candidates must provide evidence that they are engaged in approved:
 - (i) Employment
 - (ii) Can devote a good proportion of their normal working year to their studies,
 - (iii) Will be available for attendance at course lectures and for regular consultation with their supervisors.

POST-GRADUATE DIPLOMA (PGD) PROGRAMME

The Department runs PGD Programmes for now only in its

International Relations area of specialization.

a) Duration of Programme

- i. Full-Time PGD shall run for a minimum of two (2) Semesters (one academic session) and a maximum of four (4) Semesters (or two academic sessions).
- ii. The Part-Time shall run for a minimum of four (4) semesters and a maximum of six (6) Semesters.

b) Requirements for Graduation

A candidate must have fulfilled the following conditions to be awarded the Postgraduate Diploma: The candidate must pass a minimum of 30 credit units made up of the following:

- 15 units of core courses
- 9 units of elective courses
- 6 units project.

c) Programmes Requirements

1. A student cannot withdraw from a course after five weeks of lectures in a given semester without permission from the Dean

of School of Graduate Studies.

2. A student who fails to sit for more than two courses at the end of a given semester shall be deemed to have withdrawn voluntarily from the programme.
3. A student must, in each semester, have a Cumulative Grade Point Average (CGPA) of not less than 3.00
4. A Candidate with less than 3.00 CGPA shall remain in the programme for the 1st semester but shall be withdrawn if he/she fails to attain 3.00 CGPA at the end of the second semester.
5. In order to be eligible for examination, in a particular course, a student should have attended a minimum of 75% of the total period of formal instructions delivered for the course.

MASTER OF SCIENCE (M. Sc.) PROGRAMME

a) Areas of Specialization

Candidates can specialize in any of the following areas:

1. Theory and Methodology
2. Nigerian Government and Politics
3. International Relations
4. Development Studies
5. Public Administration

b) Duration of Programme

- i) A full time Masters programme should run for a minimum of 4 Semesters and a maximum of 6 semesters,
- ii) Part-time Masters programme should run for a minimum period of 6 Semesters and a maximum of 8 Semesters.
- iii) For extension beyond the specified maximum period, a special permission of the Board of Graduate School shall be required.

c) Requirements for Graduation

To be awarded a Masters degree a student must obtain a minimum of 33 credit units made up as follows:

- Five core courses of 15 credit units.
- Three elective courses of 9 credit units.
- A student shall carry out research in any area of specialization in his/her discipline and submit an acceptable dissertation of 6 credit units.
- A student shall present at least one seminar of 3 credit units.

d) Programme Requirements

1. A student who withdraws or who fails to seek the permission of the Dean of the Graduate School shall be deemed to have failed the course. A student who fails to sit for more than 2 courses at the end of a given semester shall be deemed to have

- withdrawn from the programme.
2. To be in good standing, a student must, in each session, have a Cumulative Grade Point Average (CGPA) of not less than 3.00. A student whose cumulative grade point average is below 3.00 at the end of two consecutive semesters shall be deemed to have withdrawn from the Programme.
 3. In order to be eligible for examination in a "particular course, a student shall have attended a minimum of 75% of the total period of formal instructions after five (5) weeks.

DOCTORATE (PhD) PROGRAMME

a) Areas of Specialization

In addition those listed above for the Masters degree is Peace and Conflict Studies.

b) Duration of Programme

- i) A full-time Doctoral programme shall run for a minimum of six (6) semesters, (three academic sessions) and a maximum of ten (10) semesters (five academic sessions),
- ii) A part-time Doctoral programme shall run for a minimum of eight (8) semesters and maximum of twelve (12) semesters.
- iii) For extension beyond the specified maximum period, a special permission of the Board of the Graduate School shall be required.

c) Requirements for Graduation

Doctorate (PhD) programme primarily consists of course work (12 units) Seminars (6 units), and Thesis (12 units). Students must present at least three (3) major seminars; one in their area of specialization and one each in any two areas of specialization other than theirs, as well as a Thesis Proposal. In addition, candidates must pass a comprehensive examination in their major and minor areas of specialization. Candidates must also present a seminar paper constituting an interim report from their field work.

Where courses are prescribed:

- i) A student who fails to sit for more than 2 courses at the end of a semester shall be deemed to have withdrawn voluntarily from the programme.

d) Requirements for Graduation

To be awarded a Masters degree a candidate must obtain a minimum of 33 credit units made up as follows:

- Five Core courses of 15 credit units.
- Three Elective courses of 9 credit units.
- A student shall carry out research in any area of specialization in his/her discipline and submit an acceptable Thesis of 6 credit units.
- A student shall present at least one seminar of 3 credit units.

e) Programme Requirements

- i. A student who withdraws or who fails to seek the permission of the Dean of the Graduate School shall be deemed to have failed the course. A student who fails to sit for more than 2 at the end of a given semester shall be deemed to have withdrawn the Programme.
- ii. To be in good standing, a student must, in each session, have a Cumulative Grade Point Average (CGPA) of not less than 3.00. A student whose Cumulative Grade Point Average is below 3.00 at the end of two consecutive semesters shall be deemed to have withdrawn from the Programme.
- iii. In order to be eligible for examination in a particular course, a student should have attended a minimum of 75% of the total period of formal instructions after five (5) weeks.

C. The Dissertation

The M.Sc. Dissertation shall be original work, presented in accordance with regulations set by Senate on the recommendation of the Graduate School. The Dissertation shall be graded by at least three examiners which must include the thesis supervisor and one external examiner. A minimum grade of C for the thesis and for its defence is required for a pass.

AWARD OF THE PhD DEGREE

A. General Requirement

To qualify for the award of the PhD degree, a student must:

- i. Earn 30 additional credits (beyond the M.Sc.) of which 18 shall be in a course work and twelve for a thesis.
- ii. Remedy any deficiencies in courses as may be determined by the DGSC.
- iii. Satisfy the DGSC of his/her proficiency in a relevant modern language or in lieu of such language, special skills such as statistical methods. Proficiency will be determined by a test approved by the DGSC. The proficiency test approved by the DGSC. The proficiency test must be passed before the dissertation prospectus can be approved.
- iv. Pass with a minimum of C grade in each of a written comprehensive examination in 2 papers one in the major field the other in a minor field.
- v. Successfully complete and defend a thesis on a topic approved by his/her Dissertation Committee, (See section D below).
- vi. Satisfy all financial obligations to the University, as well as other requirements relating to residence and character as may be prescribed by Senate on the recommendation of the Graduate School. At present the residency requirement is four

- semesters for full-time students and eight semesters for part-time students. To that the 4 semester residency requirement is minimum to prepare for candidacy for the degree, that is, to complete all requirements but the dissertation.
- vii. No student may be registered for the PhD degree for more than five years if he/she is a full-time student or for more than seven years is a part-time student. In special circumstances, students may apply to the FGSC for extension/reduction.

B. THE COURSE WORK

The course work shall comprise:

- i. Three elective courses in the major field or distributed between the major and minor field and
- ii. One doctoral seminar on a theme/selected themes in a sub-field of the major filed. The doctoral seminar is intended to prepare the student for his/her PhD Thesis. Although students register with individual lecturers offering doctoral seminars in their area of specialization their final paper will be faculty approved.
- iii. Students preparing for their comprehensive examination or at the threshold of writing their proposals are advised to register for Directed Readings in their major field. Directed Readings for us and the fundamental literature in each of major areas of specialization in the major field are invaluable to the advanced student. Directed Readings are not credit earning but can be counted towards residency requirement.

C. THE COMPREHENSIVE EXAMINATION:

The PhD comprehensive examination is made up of two papers one in a major field; the other in a minor field. Except for students whose major field is Political Theory and Methodology, the minor field for all PhD students shall be Political Theory and Methodology. Students for whom Theory and Methodology is the major field shall choose a minor outside that field. Each paper shall be graded by three examiners. A minimum grade of C is required for pass in each paper.

D. THE THESIS:

a. PROPOSAL:

- i. The proposal shall be publicly defended at a faculty-wide forum. The purpose of this is to invite constructive criticism and gain useful insights.
- ii. The defence will be the second major public appearance of the PhD student. The defence of the proposal shall take place after and not

before passing the comprehensive Examination and satisfying the language/special skills requirements.

- iii. The Thesis Committee decides whether the proposal passes or not.
- iv. The Thesis Committee shall consist of;
 - (a) The Major adviser who shall be the Thesis supervisor and chairman of the committee.
 - (b) The minor field adviser
 - (c) Another Senior member of the Department
 - (d) One senior member of the faculty outside the Department

B. THE THESIS ITSELF

- i. The Thesis shall be original work, presented in accordance with regulations approved by Senate on the recommendation of the College of Graduate Studies.
- ii. The Thesis will be accepted only if it is deemed to make a substantial contribution to knowledge and shows evidence of originality.
- iii. The Thesis shall be graded by at least five people, namely the Thesis committee of four and one examiner, minimum grade of C for the Thesis and for its defence is required for a pass.

INTERNATIONAL RELATIONS PROGRAMME

POST GRADUATE DIPLOMA (PGD)

FIRST SEMESTER

CODE	TITLE	UNIT
POL 701	Development of Political Thought	3
POL 702	International Political Economy	3
POL 707	Theories of International Relations	3
POL 708	International Organizations	3
POL ***	ELECTIVE	3
TOTAL		15

Elective

POL 703	Political Behaviour	3
POL 705	Contemporary Political Analysis	3
POL 710	Sources and Responses to International Conflict	3

SECOND SEMESTER

CODE	TITLE	UNIT
POL 704	Research Methods	3
POL 709	Intro. to International Law	3
POL 711	Diplomacy and World Affairs	3

POL ***	ELECTIVE	3
POL 716	PGD Research Project	6
TOTAL		18

Elective

POL 712	Global and Regional Organisation	3
POL 713	Government and Politics in Nigeria	3

COURSE DESCRIPTION OF PGD INTERNATIONAL AFFAIRS

POL 703: Political Behaviour

Seeks to understand how actors behave and what defines and underlies their behaviour, this course deals with the diverse contexts of behaviouralism. Drawing from quantitative and qualitative forms of empirical analysis, it looks at the activities of interest groups, political parties, and citizen political participation. On the international plane it examines the behaviour of states and non-state actors.

POL 705: Contemporary Political Analysis

Discussion of major trends in Western political theory since about 1770. Topics include schools of thought such as Liberalism, Socialism, Marxism, Nationalism, and Feminism.

POL 707: Theories of International Relations

This is a presentation of the varied interdisciplinary theories of International Relations, classical and behavioural theories, realism and idealism as they explain the outcome of peace and war; the formation of international organizations with a focus on the UN and NATO and the prospects for regional and global-peace.

DIA 713: Research Methods & Statistical Process

Covers the elements of both the qualitative and quantitative methods of political analysis. Critically reviews the apparent dichotomy between them, and illustrates the benefit of combining them. It also explains the role of each method of analysis in the discipline; illustration and management of quantitative data.

POL 707: International Relations

An analytical presentation of the interlocking factors of geography, population, race, nationalism, and economics as fundamental forces in international relations. The study of diplomacy, ideology, imperialism and military rivalries in the contest for world power and dominance.

POL 708: International Organizations

An analysis of the origins and mission of international organizations and non-governmental organizations; their roles in peace and conflict

resolution with emphasis on the processes of rehabilitation, reconstruction and reintegration; disarmament, demobilization and reconstruction in territories where there had been conflict.

POL 709: Introduction to International Law

Sources of international law, customs, conventions, declarations, functions, peaceful resolution of disputes; International Court of Justice (ICJ), etc. International economic law, state responsibilities in international law.

POL 710 Sources and Responses to International Conflict

POL 711: Diplomacy and World Affairs

POL 712: Global and Regional Organization

POL 713: Modern Political Theory

The course covers essentially the major concepts and theoretical assumptions of liberal democracy, from the works of Hobbes, through Locke, Rousseau and the utilitarians. It will also include some examination of a contrary approach to democracy, by Marx. Emphasis will be on students reading and analyzing the original works by these theorists.

POL 714: Government and Politics in Nigeria

A study of the evolution of the Nigerian Political system from colonial period to the present; the emergence and growth of political institutions; Nigerians' participation in governance; political parties and the electoral process; military rule in Nigeria; oil, politics and the development crisis.

POL 721: PGD Project

THE ACADEMIC CONTENT OF MSC INTERNATIONAL RELATIONS

INTERNATIONAL RELATIONS MASTERS DEGREE (MSC)

FIRST SEMESTER

CODE	TITLE	UNIT
POL 830	Theories of International Relations	3
POL 811	Research Methods and Techniques	3
POL 856	Seminar on Comparative African Foreign Policy	3
POL ***	ELECTIVE	3
SGS 801.1	ICT & Research Methods	3
TOTAL		15

Elective

POL 851	International Organisations Imperialism &	3
POL 854	International Relations	3

POL 850	International Security and Conflict Management	3
POL 812	Statistics & Mathematical Methods	3

Familiarizes the student with the basic computer programmes – Word, Spreadsheet, Power-point and Excel – and how these can facilitate research and data management.

SECOND SEMESTER

CODE	TITLE	UNIT
POL 871	Modern Political Theory	3
POL 852	International Law	3
POL ***	ELECTIVE	3
SGS 801.2	Entrepreneurship & Management	3
POL 823	MSc Thesis	6
TOTAL		18

Elective

	The World System & International Trade Patterns	
POL 853		3
POL 855	International Relations of African Union Seminar on Regional	3
POL 857	Integration in the Third World	3

COURSE DESCRIPTION OF MSC INTERNATIONAL RELATIONS

CORE COURSES:

POL 850: Theories of International Relations

An analytical and critical presentation of Traditional behavioral and post-behavioural approaches to the study of international relations; concepts of foreign policy behaviour and decision-making; Utopian and realist approaches; theories of integration and conflict; systems theory and the interplay between nationalism and internationalism. The relationship between theories of international relations and the assumptions of policymakers international plane it examines the behaviour of state and non-state actors.

POL 811: Methods & Techniques of Political Inquiry

The course deals with the logic, methods and philosophy of scientific inquiry as they relate to the social sciences in general and political science in particular, methods of data analysis, survey techniques as well as the process of theory building and model construction.

POL 812: Statistics & Mathematical Models

Focuses on basic mathematical concepts essential for formal and quantitative political analysis; probability theory; linear algebra and some calculus; use of theory of statistical inference; application of statistical procedures in political science research; game theory and related modelling techniques.

POL 813: Computer & Political Science Research

POL 814: Issues in Entrepreneurship

Electives:

POL 851: International Institutions

Theories regarding the nature and functions of international institutions; the idea of supranationalism; functional approach to integration; the theory of collective security; institutions as the highest forms of multilateral diplomacy, as exercised in community building and as instruments of change. Types and patterns of international organisations. The constitution, structure and experiences of institutions such as the League of Nations, the United Nations, ECOWAS, etc., as illustrating some of the major ideas and issues of international organisation.

POL 852: International Law

Development, functions, theories and sources. Prescriptions as rules of Law. Custom and general principles. The nature of horizontal legal order. International personality. Sovereignty and immunity. Exhaustion of local remedies and denial of justice. Recourse to force; the seas, airspace, Human Rights and minimum standards of justice. Limits of territorial sovereignty. Treaties and agreements; the role of diplomacy.

POL 853: The World System and International Trade Patterns

A critical analysis and assessment of the structure and patterns of international trade and investment with special emphasis on producer associations, balance of payments, debt burden, international lending policies and commodity agreements.

POL 854: Imperialisms and International Relations

An examination of the role of multinational corporations and international financial institutions in the development of the world new economic order; the scramble for African resources.

POL 855: Nigeria's International Relations

Detailed theoretical and empirical analysis of Nigeria's regional and global relations with emphasis on bilateral and multilateral treaties of economic, military and cultural nature; the role of Nigeria in global institutions and bilateral relations with small, medium, and great powers.

POL 856: Africa's International Relations

Pan-Africanism and the first phase of Africa's decolonization and neo-colonialism. The African regional order; the formation and operation of the OAU; boundary disputes; irredentism and secession

and external intervention in African conflicts. The role of African states in the international system; Africa and globalization.

POL 857: Foreign Policy Analysis

This course deals with ways in which international actors – primarily but exclusively states – formulate decisions and strategies for dealing with other members of the international community. Emphasis is on the interplay between domestic and external forces; on the organisation, psychology, and politics of small group decision-making; on the purposes behind foreign policy and on the instruments available to those who make it. Problems of comparison, choice, evaluation and rationality are also dealt with.

POL 858: The Middle East and North Africa in Global Politics

An analysis of the conflicting relationship between socio-political and economic interests and conflicts among regional groups and nations; the reaction of global powers to such conflicts; the interplay between religion, culture, economy and history.

SEMINARS

POL 859: Seminar on Comparative African Foreign Policy

Comparative analysis of the external and domestic sources of foreign policy in Africa. Focus on African international interests with developed states, examining attempts to improve African international status, the strategies used and the impact of competitive interaction of the global system on African states.

POL 860: Seminar of Regional Integration in the Third World

Theories and case studies of integration and customs unions in the third world. A study of integration as strategy for development with special focus on experiments in Africa.

POL 861: Seminar on Arms Control and Disarmament

Disarmament – concept, critique of theory. History, Arms control – concept; arms and control talks – SALT, NTP, etc.; basic requirements of viable arms control. Arms race, arms trade with the Third World. The Nigerian debate for the nuclear option; usefulness of arms control talks to the world.

POL 862: Seminar on Theories of Conflict and International Security

A review of the evolution of modern strategic thinking; major criticism of the subject and assessment of their validity. Use of force in the nuclear age. Theories of deterrence and crisis management; brinkmanship and escalation; conflicts and threat analysis relevant to the strategic

theory of African revolutionary warfare and the new revolutionary warfare alliance.

POL 828: Masters Dissertation

DOCTORATE DEGREE

PhD INTERNATIONAL RELATIONS

FIRST SEMESTER

CODE	TITLE	UNIT
POL 951	Seminar on Nigeria's Foreign Policy	3
POL 952	Seminar on International Security	3
TOTAL		6

SECOND SEMESTER

CODE	TITLE	UNIT
POL 953	Seminar on Selected Themes in IR	3
POL 928	Seminar on Theories of International Relations	3
TOTAL		6

SEMINARS

POL 951: Seminar on Nigeria's Foreign Policy

A critical analysis of the dynamics of Nigeria's foreign policy since independence. Societal sources and external pressures as they bear on policy with a focus on the relation of internal and external variables in national adaptation and national interest. The impediments imposed by the forces of imperialism and dependency.

POL 952: Seminar on International Security

POL 953: Seminar on Selected Themes in International Relations

POL 954: Seminar on Theories of International Relations

POL 913: Doctoral Thesis

THE ACADEMIC CONTENT OF MSC POLITICAL THEORY

POLITICAL THEORY

MASTERS DEGREE (MSC)

FIRST SEMESTER

CODE	TITLE	UNIT
POL 873	Medieval Political Thought	3
POL 811	Research Methods and Techniques	3
POL 872	Contemporary Political Theory	3
POL 875	Democratic Theory & Practice	
POL ***	ELECTIVE	3

SGS	ICT & Research	
801.1	Methodology	3
TOTAL		15

Elective

POL 877	Seminar on Themes in Political Theory	3
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SECOND SEMESTER

CODE	TITLE	UNIT
POL 871	Modern Political Theory	3
POL 813	Normative Political Theory	3
POL ***	ELECTIVE	3
SGS 801.2	Entrepreneurship & Management	3
POL 823	MSc Dissertation	6
TOTAL		18

Elective

POL 874	African Political Thought	3
POL 878	Seminar on Classical & Modern Political Thought	3
POL 879	Seminar on Marxist Political Thought	3

COURSE DESCRIPTION OF MSC INTERNATIONAL RELATIONS

CORE COURSES:

POL 810: Theory and Methods of Political Inquiry

This deals with the logic, methods and philosophy of scientific inquiry as it relates to the social sciences, and particularly political science, methods of data analysis and survey techniques are examined as well as the processes of theory building and model construction.

POL 811: Methods & Techniques of Political Inquiry

The course deals with the logic, methods and philosophy of scientific inquiry as they relate to the social sciences in general and political science in particular; methods of data analysis; survey techniques as well as the process of theory building and model construction.

POL 812: Statistics & Mathematical Models

Focuses on basic mathematical concepts essential for formal and quantitative political analysis: probability theory, linear algebra; and some calculus; use of theory of statistical inference; application of statistical procedures in political science- research. Game theory and related modeling techniques.

POL 813: Computer & Political Science Research

Familiarizes the student with the basic computer programmes - word, spread sheet; power point and excel - and how these can facilitate research and data management.

POL 814: Issues in Entrepreneurship

Elective Courses:

POL 863: The Citizen and the State

Using the social contract and the traditional African concept of society and the individual, the course examines the nature of political society and within it the tension between citizen, the community and the state. It seeks to answer the question of the relationship between individuals and between them and the state. What are the individual's rights and what is the extent of his freedom/liberty? If the state in advanced capitalist state holds together because it is based on some kind social contract, could this concept be meaningfully applied to the post-colonial state?

POL 864: Democratic Theory and Practice

Explores the theoretical and practical/empirical points of view, the gap between the normative ideals embedded in the theory of democracy and the evident gap between it and the democratic experience. Seeks to understand the obstacles against popular participation in democratic politics in both the advanced capitalist societies and in the post-colonial societies.

POL 865: Normative Political Theory

The state, power, freedom, equality, social class: those are the major issues which concern modern political theory. However, interpretations differ considerably. The focus here will therefore be on two influential and contrasting schools of thought - Positivism and Marxism. An introduction to their respective general methodologies will be studied. This will be followed by a consideration of the positivist and Marxist analyses of contemporary societies, concentrating on their different approaches to the issues outlined above. Finally, their views on the future will be assessed.

POL 866: Themes in Political Theory

Drawing from both ancient and modern theories, this course will survey of a number of themes including but not limited to the nature of authority, sovereignty, consent and obligation, justice based on the writings of Plato, Aristotle, Hobbes, Weber, and Arendt, among others.

POL 867: Political Philosophy

A critical analysis of selected problems in Political Philosophy. The nature of the state, authority and power. Theories of democracy, equality and freedom.

SEMINARS:

POL 868: Seminar on Classical and Modern Political Thought

Political thought from Plato to Mao Tse-Tung and other contemporary thinkers.

POL 869: Seminar on Marxist Political Thought

A survey of the development of Marxist thought in and outside Europe - adaptations in Russia, China, North Korea and in some African countries (especially Guinea Bissau, Angola, Mozambique and Namibia).

POL 870: Seminar on Democracy

Examines the historical development of democracy, from being criticized by the theorists like Plato and Aristotle to its contemporary status as the most desired form of government. Will bring into focus the impact of liberalism on the evolution of democracy.

POL. 872: Contemporary Political Theory

POL 873: Medieval Political Thought

A critical review of major themes and thinkers of the medieval era such as St. Augustine, St. Thomas Aquinas, Marsilius of Padua, Dante, William of Ockham, Catholicism & Protestantism, etc.

POL. 874: African Political Thought

Examination of selected themes in African Political thought such as Nkrumah, Nyerere, Mandela, Danquah, Sekou Toure, Azikiwe, etc.

POL 828: The M. Sc Dissertation

DOCTORATE DEGREE

PhD POLITICAL THEORY

FIRST SEMESTER

CODE	TITLE	UNIT
POL 960	Seminar on Liberty and Equality	3
POL 961	Seminar on Selected Themes in Marxism	3
TOTAL		6

SECOND SEMESTER

CODE	TITLE	UNIT
POL 932	Seminar on Hobbes, Locke and Rousseau	3
POL 933	Seminar on Civil Society and the State	3
POL 913	PhD Thesis	6
TOTAL		12

DOCTORATE (PhD) PROGRAMME

POL 930: Seminar on the Philosophy of Plato

Examines Plato's thoughts and his major contributions in metaphysics, epistemology; cosmology and ethics.

POL 931: Seminar on Variants of Marxism

Explores the roots of Marxist theory and its variants / adaptations in Europe and the Third World. Based on the works of Marx and Engels, Lenin, Luxemburg, Sorel, Mao, Gramsci, etc.

POL 932: Seminar on Hobbes, Locke and Rousseau

Theories by these thinkers have long shaped debate and politics of liberalism and democracy. This seminar provides an in-depth exploration of their work in order to better appreciate their ideas on the enduring questions of representation, rights of the sovereign and obligations of citizens, and individual freedom.

POL 933: Seminar on Civil Society and the State

Focuses on the civil society-state nexus. It will provide a critical analysis of the civil society construct, its value for understanding democratization in African countries as well as its role in societies of advanced capitalism.

POL 913: The PhD Thesis.

**DEVELOPMENT STUDIES
MASTERS DEGREE (MSC)**

FIRST SEMESTER

CODE	TITLE	UNIT
POL 830	Political Economy of Development	3
POL 811	Research Methods and Techniques	3
POL 831	Colonialism and Social Formation in Africa	3
POL ***	ELECTIVE	3
SGS 801.1	ICT & Research Methodology	3
TOTAL		15

Elective

POL 833	The Peasantry & the Development Process	3
POL 835	Urban Poverty and Politics	3
POL 837	Seminar on Selected Problems in Third World Social Formations	3
POL 838	Seminar on Issues in Rural Development	3

SECOND SEMESTER

CODE	TITLE	UNIT
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POL 871	Modern Political Theory	3
POL 832	Third World Socialism, Theory & Practice	3
POL ***	ELECTIVE	3
SGS 801.2	Entrepreneurship & Management	3
POL 823	MSc Dissertation	6
TOTAL		18

Elective

POL 834	Public Administration	3
POL 836	Seminar on Politics of Development Strategies	3

CORE COURSES:

POL 830: Theories of Development

This course surveys the major theories and concepts currently used to explain social change and political development. Basic models of political change formulated by Karl Marx, Max Weber W.W. Rostow, and their offshoot will be examined.

POL 811: Methods & Techniques of Political Inquiry

The course deals with the logic, methods and philosophy of scientific inquiry as they relate to the social sciences in general and political science in particular; methods of data analysis; survey techniques as well as the process of theory building and model construction.

POL 812: Statistics & Mathematical Models

Focuses on basic mathematical concepts essential for formal and quantitative political analysis: probability theory, linear algebra; and some calculus; use of theory of statistical inference; application of statistical procedures in political science research. Game theory and related modeling techniques.

POL 813: Computer & Political Science Research

Familiarizes the student with the basic computer programmes - word, spread sheet; power point and excel - and how these can facilitate research and data management.

POL 814: Issues in Entrepreneurship

Electives Courses:

POL 831: The Political Economy of Nigeria

This deals with the nature of the state, society and economy in Nigeria, the underlying basis of production and distribution and the role of the Nigerian state and social classes in the process; Nigeria and the world economy.

POL 832: Political Economy of Development

Entails a critical study and analyses of the theories of development and underdevelopment. It

will examine questions of alternative paths to development: private and state-capital or socialism. It will examine the methods and rationale of development planning and will analyze industrialization strategies and agricultural policies in selected African countries.

POL 833: Urban Poverty & Politics

Analysis of the causes and patterns of migration and the formation of towns under colonialism, focusing on the contemporary working poor and the lumpen elements, their nature and links with state and capital. There will be special emphasis on the persistence of petty commodity production, its relationship with the formal sector of the economy in national aggregate production and its place and significance in national policies and development theory.

POL 834: The Peasantry & the Development Process

In the clash between tradition and modernization the peasantry is caught in-between. This course will examine the changing political, social and economic conditions of the peasantry in Nigeria. It will seek to understand the how the peasants have participated or can participate in the development that affects their lives; peasant economic practices; changing cultural values as well as peasant responses to government development programmes.

POL 835: Development Economics

This course is a macro-economic survey of classical and modern thoughts and trends of economic development. It treats, among others the concepts of economic development; the problems of the measurement of development. The development of macro-economic thought and practice from the mercantilists and classical/laissez-faire thinkers to socialists/Marxist analysis and Keynesian theory; validity and relevance; analyses of selected major models and theories, of economic growth and development, such as the Ricardian, Rostow, Harod-Domar, Kaldon and the structuralist models. Finally, the development planning and implementation process in Nigeria will be reviewed as a case analysis in terms of the need to plan for economic development, types of planning, the planning machinery and, the planning process.

POL 836: Development Policy & Social Change

This course will focus on Nigeria's national development; case studies of different development policies over time e.g. Education, Health, Agriculture, Housing, Industrialization, etc. The relationship between this and social change in Nigeria will be the focus.

Seminars

POL 837: Modern Political Theory

The course covers essentially the major concepts and theoretical assumptions of liberal democracy, from the works of Hobbes, through Locke, Rousseau and the utilitarians. It will also include some examination of a contrary approach to democracy, by Marx. Emphasis will be on students reading and analyzing the original works by these theorists.

POL 838: Development Strategies

Exposes students to different strategies and theories of development; to the relationship between political and economic factors in development planning and implementation, as well as to the international dimension in determining development policies and strategies. Examples will be drawn from Nigeria and other African countries.

POL 839: Selected Problems in Developing Social Formations

Some of the problems to be examined here include internal colonialism, democracy, democratization and governance, management of diversity, fragile state systems, economic and political (under)development, etc.

POL 840: The Environment & Sustainable Development

Examines contending issues in the debate about climate change and its implications for human survival. It focuses on the Nigerian situation to demonstrate the dynamic link between development and the environment; issues of environmental degradation (oil spillages and gas flaring; erosion and deforestation) and sustainable development. Special attention will be paid to the situation in the Niger Delta and especially to the UNEP report on the Ogoni environment.

**DOCTORATE DEGREE
PhD DEVELOPMENT STUDIES**

FIRST SEMESTER

CODE	TITLE	UNIT
POL 919	Seminar on Selected Themes in Development Studies	3
POL 914	Seminar on the Politics of Resource Development in Africa	3
POL 920	Seminar on Political Economy of Development	3
POL 916	Selected Themes in African Development	3
TOTAL		6

SECOND SEMESTER

CODE	TITLE	UNIT
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POL 915	Seminar on Peasants and Society	3
POL 917	Seminar on Dev. Policy and Social Change	3
POL 917	State and Society in China	3
POL 918	Seminar on Environmental Politics	3
POL 913	Doctoral Thesis	6
TOTAL		18

POL 914: Seminar on the Politics of Resource Development in Africa

POL 915: Seminar on Policy and Change

Critically examines the use of policy as a tool in social engineering; Impact of specific policies and their implicit and explicit change implications for the polity - empirical reviews of such policy areas as Agriculture, Industrialization, Infrastructure; Health and Education will be undertaken.

POL 916: Selected Themes in African Development

Will examine, among others, the impact of such policies as indigenization, import-substitution; regional integration; structural adjustment; NEPAD, APRM, etc.

POL 917: State and Society in China

Seeks to understand the impact of China's industrialization policies and strategies and how the state manages the attendant regional and generational tensions

POL 918: Special Seminar on Environmental Politics

Combining empirical, theoretical and moral perspectives, this course will seek to understand problems of climate change and biodiversity changes. It will emphasize the impact of industrial and other economic activities on national and the global environment, and their implications for social reproduction and human survival. Special attention will be paid to the environmental situation in the Niger Delta region.

POL 919: Seminar on Selected Themes in Dev. Studies

POL 920: Special Seminar on Political Economy of Development Studies

POL 913: Doctoral Thesis

**NIGERIAN GOVERNMENT AND POLITICS
MASTERS DEGREE (MSC)**

FIRST SEMESTER

CODE	TITLE	UNIT
POL 815	Nigerian Federalism	3

POL 811	Research Methods and Techniques	3
POL 816	Nigerian Political Parties	3
POL ***	ELECTIVE	3
CGS 801	ICT & Research Methodology	3
TOTAL		15
Elective		
POL 822	Seminar on the Political Economy of Nigeria	3
POL 821	Seminar on Structure on Political Conflict Nigeria	3

SECOND SEMESTER

CODE	TITLE	UNIT
POL 871	Modern Political Theory	3
POL 818	Public Policy Process	3
POL 819	The Nigerian Constitution	3
POL ***	ELECTIVE	3
CGS 814	Entrepreneurship & Management	3
POL 823	MSc Thesis	6
TOTAL		15
Elective		
POL 821	Seminar on Selected Themes in Nigerian Government and Politics	3
POL 820	Structure and Process of Local Politics	3

CORE COURSES:

POL. 810: Theoretical Approaches to the Study of Nigerian Politics

An examination of the tools and frameworks that have been employed by scholars in the study of Nigeria Politics, and an assessment of their respective explanatory potentials. Works by eminent scholars like Billy Dudley, Claude Ake, Peter Ekeh, Okwudiba Nnoli, Ikenna Nzimiro, Sam Oyovbaire, Bala Usman, Adele Jinaidu and Bala Mohammed, among others, will form the basis of discussions.

POL. 811: Methods & Techniques of Political Inquiry

The course deals with the logic, methods and philosophy of scientific inquiry as they relate to the social sciences in general and political science in particular; methods of data analysis; survey techniques also well as the process of theory building and model construction.

POL. 812: Statistics & Mathematical Models

Focuses on basic mathematical concepts essential for formal and quantitative political analysis:

probability theory, linear algebra; and some calculus; use of theory of statistical inference; application of statistical procedures in political science research. Game theory and related modeling techniques.

POL. 813: Computer & Political Science Research

Familiarizes the student with the basic computer programmes - word, spread sheet; power point and excel - and how these can facilitate research and data management.

POL. 814: Issues in Entrepreneurship

ELECTIVE COURSES:

POL. 815: Nigerian Federalism

A study of federalism as a form of union with emphasis on the historical development of Nigerian federalism from a historical, legal form to political-administrative form of union. The dynamics of the federal system focusing on federal-state relations in Nigeria and their impact on political and policy processes.

POL. 816: Nigerian Political Parties

Political parties are amongst the more pervasive organizational forms for the aggregation and articulation of political interests, and thus are of enormous import in shaping political processes of nation-states. This course will seek to analyze the social basis of Nigerian Political Parties and their role in the political and legislative processes.

POL. 817: The Political Economy of Nigeria

This deals with the nature of the state, society and economy in Nigeria, the underlying basis of production and distribution and the role of the Nigerian state and social classes in the process; Nigeria and the world economy.

POL. 818: Public Policy Process

The policy-making process. The factors influencing the content and consequences of public policies. Problems of evaluation of public policy. Examination of specific issues.

POL. 819: The Nigerian Constitution

An analysis of the relationship between constitutions, social structure and socio-economic power in Nigeria. Constitutional change, decolonization and the evolution of state forms in Nigeria. The role of Constitutions in regulating the internal relationships between organs of the state.

POL. 820: Structure and Process of Local Politics

Analysis of leaderships with mass, occupational groups, etc. and their impact on government and politics at the local level.

SEMINARS:

POL. 821: Seminar on the structure of political conflict in Nigeria

POL. 822: Seminar on the Political Economy of Nigeria. Examines in details Nigeria's economy, the changing class structure; the dynamics between economy, class and politics.

POL. 823: M.Sc. Dissertation

NIGERIAN GOVERNMENT AND POLITICS DOCTORATE (PhD) DEGREE

The Doctor of Philosophy degree programme is being proposed for consideration and approval, to run in the sub-fields of Peace and Conflict in the Department of Political and Administrative Studies, as provided by the National Universities Commission (NUC) Benchmark Minimum Academic Standards for Postgraduate Programmes in Social Sciences in Nigerian Universities. The subject matter of Peace and Conflict entails understanding the causes of violent conflict such as wars and other eruptions. The inevitability of conflict in human life, suggests high-level capacity building in tackling threats to peace and managing conflicts non-violently.

Philosophy

The proposed Peace and Conflict training at the doctoral level in the Department of Political and Administrative Studies, aims to produce researchers and teachers in the field. In addition, the field is designed to equip students with skills to respond to violent conflicts and manage conflict to prevent them from becoming violent. Finally, the programme is crucial both for analysis and practice in relation to policy and handling of conflict issues at inter-personal, group, local, national and international fronts.

Aim and Objectives

The overall goal of the Doctor of Philosophy degree programme is to provide quality graduate level training that enable students to analyse peace and conflicts. Furthermore, students are expected, to be able to analyse the underlying causes of violent conflicts and apply appropriate strategies to managing or resolving them. The specific objectives of the programme are:

1. Train a pool of candidates with capacity for cutting-edge research in the field of peace and conflict.
2. Train a pool of candidates with capacity and critical thinking to generate and transfer knowledge in conflict and peace dynamics through research, teaching, seminars and professional workshops.
3. Provide high-quality postgraduate programmes at the Doctor of Philosophy

level for the bureaucracy, academia, non-governmental sector, business, multilateral, and inter-governmental organizations.

4. Give students theoretical, methodological, and practical grounding in the emerging field of peace and conflict studies.
5. Train students in research on the causes of intra-state and international armed conflict; security; conflict resolution and post-conflict peace-building with special reference to Africa.
6. Introduce students to practical projects that build local capacities for sustainable development, community engagement, governance, and conflict transformation.
 - i. A full-time Doctoral programme in Peace and Conflict shall run for a minimum of twenty four (24) months and a maximum of sixty (60) months.
 - ii. A part-time Doctoral programme shall run for a minimum of thirty six (36) months and maximum of eighty four (84) months

a) Requirement for Graduation

PhD students shall be required to pass 12 units compulsory courses. In addition, students are expected to pass a comprehensive examination and do a presentation of field report seminars. Also, all students must successfully defend their thesis.

Mission

To build a team of people with capacity for cutting-edge research, analysis and teaching, who will also be able to work for the peace of society, at inter-personal, organizational, group, local, national and international fronts.

Vision

A world with nonviolent problem-solving people, governments, groups and organizations.

Rationale

Conflict is inevitable in human relations. This alone suggests a need for society to be proud of people with capacity and skills for explaining and understanding the nature of conflict, causes and how to manage them, such that they do not degenerate into violence. Violent conflict, involving governments, non-state groups, and use of dangerous weapons continue to threatened security and prosperity of communities and countries. Peace is an ingredient of development. Development itself easily relates to social, economic, political and other conditions that explain conflicts requires high-level training which the PhD programme in Peace and Conflict studies can provide.

Admission Requirements

In addition to admission requirements of the School of Graduate Studies, the following regulations shall

govern the award of the PhD in Peace and Conflict studies:

- a) Candidates for admission into the programme shall possess an appropriate Master of Science degree of the University of Port Harcourt or any other recognized university. Appropriate degree here means an MSc or Master of Arts (MA) degree in Peace and Conflict, in addition to a good Bachelor's degree. Preference shall be given to candidates doing related jobs in Government Ministries, the Private sector, and Security services.
- b) Candidates for admission shall possess a good Master of Science or Master of Arts degree with at least 3.5 CGPA, to qualify for admission obtained from University of Port Harcourt or any other recognized university.

FIRST SEMESTER

CODE	TITLE	UNIT
POL 912	Seminar on Identity and Ethnic Politics	3
POL 910	Seminar on Democratization and Governance	3
TOTAL		6

SECOND SEMESTER

CODE	TITLE	UNIT
POL 924	Seminar on Selected Themes in Nigerian Government and Politics	3
POL 925	Seminar on Nigeria's Fiscal Federalism	3
POL 913	Doctoral Thesis	6
TOTAL		12

POL. 924: Seminar on Selected Themes in Nigerian Government and Politics

Themes to be covered include identity and ethnicity; governance and government responsiveness; democratization; military in politics, etc.

Pol. 925: Seminar on Nigeria's Fiscal Federalism

Will focus on issues around fiscal centralization/ decentralization: reviews of revenue and financial management; state and federal revenue generation sources and capabilities; resource ownership and derivation debate; economic and political viability of states; federal-state-local government financial relations.

POL. 926: The PhD Thesis

PUBLIC ADMINISTRATION MASTERS DEGREE (MSC)

FIRST SEMESTER

CODE	TITLE	UNIT
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PAC 861	Comparative Public Administration	3
PAC 862	Inter-Governmental Relation	3
PAC 863	Development Planning	3
CGS 801	ICT & Research Method	3
POL 811	Research Methods And Techniques	3
POL ***	Elective	3
TOTAL		18

Elective

POL 832	Public Personnel Management	3
POL 834	Urban and Regional Development	3
POL 836	Administrative Law	3
POL 834	E-Government in the Public Sector	3
POL 836	Public Enterprises Management	3

SECOND SEMESTER

CODE	TITLE	UNIT
PAC 864	Public Policy Analysis	3
PAC 865	Local Government Administration	3
PAC 866	Public Finance Management	3
PAC 867	Development Administration	3
CGS 814	Entrepreneurship & Management	3
POL 823	MSc Thesis	6
TOTAL		21

Ph.D. PUBLIC ADMINISTRATION

ADMISSION REQUIREMENTS: Candidates for the Doctor of Philosophy Degree in Public Administration must have a Master of Science Degree in Public Administration or related disciplines, from a recognized University with a cumulative grade point average of at least 3.5 on a scale of 5 points.

PROGRAMME DURATION: The duration of the programme is at least 24 months and at most 36 months full-time. It has a minimum of 48 and maximum of 60 calendar months for part-time.

GRADUATION REQUIREMENT: Students must pass at least four courses, present and defend a doctoral thesis relevant to Public Administration. Students need a total of 18 credit units to graduate of which 6 are from Thesis.

TABLE OF LIST OF COURSES, CODES AND CREDIT UNITS

First Semester

COURSE CODE	COURSE TITLE	CREDIT UNIT
PAD 901	Seminar on Politics and Public Administration in Africa	3
PAD 902	Advanced Public Personnel Management	3
PAD 903	Advanced Public Policy Analysis	3

Second Semester

COURSE CODE	COURSE TITLE	CREDIT UNIT
PAD 904	Seminar on International Public Administration	3
PAD 905	Budgeting and Public Finance Management	3
PAD 906	Advanced Research Methodology	3
PAD 907	Thesis	6
		24

COURSE DESCRIPTION:

PAD 901- Seminar on Politics and Public Administration in Africa: It is a seminar course intended to expose students to the theories and main themes of the relationship between politics and African public administration. Students will become familiar with conversations about key issues in the areas of public administration of some African countries from a decolonial perspective in the post-colonial state.

PAD 902- Advanced Public Policy Analysis: This course is intended to introduce students to theories of public policy analysis and the art of policy analysis in the context of developed and developing countries. Students are expected to understand the public policy-making process at the various levels of government. At the end of the course, students should be able to critically analyse various public policies of the Federal, State and Local Governments in Nigeria, to ascertain their strengths and weaknesses, successes and failures and be able to proffer solutions to strengthening such policies.

PAD 902- Advanced Public Personnel Management: This course will explore the theories of public personnel management. It will focus on Nigeria, the development of the public service, manpower planning, unionization of public employees and recent trends in public personnel relations.

PAD 903- Seminar International Public Administration: Students will be exposed to the bureaucracy and policymaking processes and implantation in international organisations such as the United Nations, African Union, ECOWAS, European Union, etc), implementation of

international policies, procedures of their activities over the years, successes, and challenges.

PAD 904- Advanced Budget and Public Finance Management: This is course will expose Students to advanced concepts of public finance, processes of mobilizing public revenue, and principles of public finance. The course will cover topics such as taxation, borrowing, expenditure, fiscal policy, budgeting process, revenue etc.

PAD 906-Advanced Research Methodology: This course will take students through series of important themes in the research process and how to convert research outputs into publications and revenues. It will focus of qualitative and quantitative approaches to effective doctoral research.

PCS 805.2 - Nonviolent Conflict Transformation (3 Credit units)

The goal of this course is to provide students with the ideas, principles, techniques, or frameworks necessary to understand and apply nonviolent conflict transformation. The origins and causes of conflict, nonviolence, reconciliation, conflict analysis, the framework for intervening in conflicts and developing interventions, DDR, and other related topics will all be covered.

PCS 806.2 Contemporary Peacekeeping Operations (3 Credit units)

M.SC DEGREE IN PEACE AND CONFLICT STUDIES

Admission Requirements

Candidates for the Master’s Degree in Peace and Conflict Studies must have one of the following:
A good first-degree, honours, in any discipline with a minimum of a second-class lower division.

A minimum of a third-class honours degree from a recognized university plus Postgraduate Diploma in International Affairs (PGDIA), Public Administration or Peace and Conflict Studies.

An Upper Credit in HND with Postgraduate Diploma in Public Administration, Political Science, International Relations or Peace and Conflict Studies from a recognized university.
Evidence of NYSC discharge or exemption/exclusion certificate is required.

Duration of Programme

The Full-time Master degree in Peace and Conflict Studies shall run a minimum of 12 and a maximum of 24 calendar months. The Part-time programme shall run for a minimum of 24 and a maximum of 36 calendar months.

Requirements for Graduation

To qualify for the award of master's degree in Peace and Conflict Studies, a candidate must pass a minimum of 37 credit units comprising a core, elective and seminars courses and the Thesis.

1ST SEMESTER

Course Code	Course Title	Credit Unit
SGS 801.1	ICT and Research Methodology	2
PCS 800.1	Introduction to Conflict, Peace and Strategic Studies	3
PCS 801.1	Research Methodology in Peace and Conflict Studies	3
PCS 802.1	Theories in Peace and Conflict Studies	3
PCS 803.1	International Conflict and Security	3
PCS 804.1	Alternative Dispute Resolution	3
Total		17

2ND SEMESTER

Course Code	Course Title	Credit Unit
SGS 802.2	Management and Entrepreneurship	2
PCS 805.2	Advanced Seminar on Nonviolent Conflict Transformation	3
PCS 806.2	Advanced Seminar on Post-conflict Recovery Processes	3
PCS 807.2	Advanced Seminar on Politics and Violent Conflict	3
PCS 808.2.	Advanced Seminar on Contemporary Peacekeeping Operations	3
PCS 809-2	M.Sc. Thesis	3
Total		17

Elective Courses

Students must take at least one of the following elective courses each semester:

- PCS 811.1 International Organisations and Conflict Resolution
- PCS 812.2 Gender and Conflict Management

COURSE DESCRIPTION

SGS 801.1: ICT and Research Method (2 Credit Units)

This course should cover the essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing, Organization of Research and Report Writing.

PCS 800.1 Introduction to Peace and Conflict Studies (3 Credit units)

This course seeks to familiarize students with the fundamental ideas and theories in the subject so they may comprehend conflict causes, especially in terms of its violent manifestations, actors, and results. From a multidisciplinary standpoint, the concepts of conflict, peace, nonviolence, conflict transformation, conflict analysis, conflict management, etc. will be examined alongside other perspectives. The history of the field of peace and conflict studies as well as its connections to other academic disciplines including economics, political science, and international relations will also be covered in this course.

PCS 801.1 Research Methodology in Peace and Conflict Studies (3 Credit units)

The goal of this course is to introduce students to peace and conflict studies methodologies. Students will receive guidance as they investigate the key ideas in research. It discusses challenges with qualitative and quantitative research designs and instructs students on how to do research, gather data, analyse data using qualitative and statistical techniques, and write up research reports.

PCS 803.1. International Conflict and Security (3)

Theories of international conflict shall be examined in this course. International issues of terrorism, counterterrorism, sanctions, the application of force, the nature of strategy and international law will be explored.

PCS 804.1 Alternative Conflict Resolution (ADR) (3 Credit units)

The course explores the theory, practice, and applications of Alternative Dispute Resolution (ADR). This course prepares students to analyse, design, and implement effective ADR processes in various conflict situations. The focus of the course is on non-adversarial methods of conflict resolution such as mediation, negotiation, and cooperative problem-solving. It also examines the ethical considerations, cultural dynamics, and legal frameworks surrounding ADR practices. Students will be encouraged to register for certification as Mediator or Conciliator during their studies or after graduation, with the Chartered Institute of Mediators and Conciliators of Nigeria.

SGS 801.2 Management and Entrepreneurship (2 Credit Units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

PCS 805.2 - Nonviolent Conflict Transformation (3 Credit units)

The goal of this course is to provide students with the ideas, principles, techniques, or frameworks necessary to understand and apply nonviolent conflict transformation. The origins and causes of conflict, nonviolence, reconciliation, conflict analysis, the framework for intervening in conflicts and developing interventions, DDR, and other related topics will all be covered.

PCS 806.2 Contemporary Peacekeeping Operations (3 Credit units)

Contemporary peacekeeping operations and outcomes will be explored in this course. The role of the United Nations, ECOWAS, and nongovernmental organisations shall be explored in relation to 'Responsibility to Protect' civilians in times of conflict. It will look at case studies

PCS 807.2 M.Sc. Dissertation (3 Credit units).

The M.Sc. dissertation should be an original work presented following the regulations of the Graduate School. It shall be accepted and deemed necessary to have contributed to knowledge.

Elective Courses

PCS 811.1 International Organisations and Conflict Resolution (3 Credit units)

This course explores the role of state and non-state international organisations in the response to national and international conflict. This also involves multilateral and inter-governmental organisations.

PCS 812.2 Gender and Conflict Management (3 Credit units)

Students will be provided with an opportunity to explore how gender matters in conflict management across levels of human interactions. Many violent conflicts in Africa are natural resource-based. The course is intended to highlight the role as well as the impact of violent conflicts on women and men how both are crucial in peace building processes

DOCTORATE DEGREE

PhD PEACE AND CONFLICT STUDIES

FIRST SEMESTER

CODE	TITLE	UNIT
POL 909.1	Advanced Theories in Peace and Conflict Studies and Management	3

POL 913.1	Alternative Dispute Resolution (ADR)	3
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TOTAL 6

ELECTIVE

POL 910.1.	Research Methodology in Peace and Conflict Studies	3
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POL 911.1.	International Mediation	
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SECOND SEMESTER

CODE TITLE UNIT

POL 915.2	Seminar on African Conflict	3
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POL 916.2	Seminar on Structure of Society, Conflict and Post Conflict Peace Building Processes	3
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TOTAL 6

ELECTIVE

POL 917.2	Seminar on Gender, Natural Resources and Conflict in Selected Countries in Africa.	3
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POL 918.2	Theories of International Relations	
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POL 913.1. Alternative Dispute Resolution (ADR)

This is a seminar course intended to introduce students to various concepts and the spectrum of alternative dispute resolution methods. Mediation, conciliation, negotiation, among others, will be explored. Students in the Peace and Conflict programme will be expected to register for certification as Mediator or Conciliator during their studies or after graduation and encouraged to take up internship at the Multi-Door House in Rivers State or any other state, or private mediation and conciliation company.

POL. 911.1. International Mediation

This is a seminar course aimed at exploring the meaning, nature and issues in international mediation, using specific case studies.

POL. 910.1 Research Methodology in Peace and Conflict Studies

This course will revisit key issues in research in the social sciences, including research philosophical traditions with implications for methods of data collection and analysis. It will explore practical ways of doing qualitative and quantitative research in the field of Peace and Conflict Studies. The role of theory in research, field data collection in conflict zones, technology and data analysis, proposal writing, research report writing, statistics, are among the issues that this course will revisit.

POL. 909.1 Advanced Theories in Peace and Conflict Studies

This course will revisit major themes, concepts and theories in peace and conflict studies. It will explore the interdisciplinary nature and development of the field, looking specifically into relationships between it and political science, sociology, economics, international relations etc. Furthermore, the state of the discipline from a comparative perspective will be explored in order to access its growths and impact in the overall management of conflict across several countries or continents. The social, economic, environmental, psychological, and political and gender dimensions of conflict will be explored. Alternation Conflict Resolution (ADR) and other western models of conflict management will be explored.

POL. 910.1 Research Methodology in Peace and Conflict Studies

This course will revisit key issues in research in the social sciences, including research philosophical traditions with implications for methods of data collection and analysis. It will explore practical ways of doing qualitative and quantitative research in Peace and Conflict. The role of theory in research, field data collection in conflict zones, technology and data analysis, proposal writing, research report writing, statistics, are among the issues that this course will revisit.

POL. 912.1. Theories of International Relations.

This course is intended to explore the nature of international relations in context of peace and conflict studies, theories of international relations, and address key issues of conflict; the use of force, interstate wars; nuclear proliferation and global peace; new actors in the international system; transnational networks; and terrorism.

POL. 915.1. Seminar on African Conflicts

This course is intended to examine in detail conflicts in selected African countries. The course will address the issues, causes, management and effects of the conflicts.

POL. 917.2 Advanced Seminar on Gender, Natural Resources and Conflicts in Selected Countries in Africa

Seminar on natural resources conflicts; concept of resource curse in relation to Africa; impacts on countries, and management. Gender and conflict management, post-conflict peace-building processes; United Nations, African Union and the women in conflict management.

POL. 919.2 Thesis

The Ph.D Thesis should be an original work presented in accordance with the regulations of the Graduate School. It shall be accepted and deemed necessary to have contributed to knowledge.

TEACHING STAFF

S/N	NAME	QUALIFICATION	RANK	SPECIALIZATION
1	Prof. H. E. Alapiki	BSc, MSc, PhD	Professor	Pol. Theory & Dev. Studies
2	Prof. O. C. Nwaorgu	BA, MA, PhD	Professor	Int'l Rls / Dev. Studies
3	Prof. E. C. Ndu	BSc, MSc, PhD	Professor	Pol Theory/Comp. Pol
4	Prof. N. J. Nna	BSc, MSc, PhD	Professor	Comp. Pol/ Dev. Studies
5	Prof. K. K. Aaron	BSc, MSc, PhD	Professor	Dev. Studies / Pub Admin
6	Prof. L. D. Gilbert	BSc, MSc, PhD	Professor	Int'l Relations [Adjunct]
7	Prof. Fidelis Allen	BSc, MSc, PhD	Professor	Dev. Studies/Pub Admin/Conflict

8	Prof. O. S. Amadi	BSc, MSc, PhD	Professor	Pol Theory/Comp. Pol
9	Dr. Ukiwo Ukoha	BSc, MSc, PhD	S/L	Int'l Rls / Comp Pol
10	Dr. I. B. Barikor	BSc, MSc, PhD	S/L	Dev. Studies / Comp. Pol
11	Dr. T. U. Nte	BSc, MSc, PhD	S/L	Int'l Rls / Peace & Conflict
12	Dr. K. Nyiayaana	BSc, MSc, PhD	S/L	Int'l Rls / Peace & Conflict
13	Dr. M. D. Ogali	BSc, MSc, PhD	S/L	Pol Theory/Dev. Studies
14	Dr. E. Obomanu	BSc, MSc, PhD	S/L	Pol Theory/Dev. Studies
15	Dr. E. Wonah	BSc, MSc, PhD	S/L	Dev. Studies / Nig. Govt.
16	Dr. A. O. Osaro	BSc, MSc, PhD	S/L	Int'l Rls / Comp Pol
17	Dr. R. D. Chukwu	BSc, MSc, PhD	L1	Int'l Relations
18	Chimaroke Mgba	BSc, MSc	L1	Int'l Rls / Comp Pol
19	Nelson V. C Okene	BSc, MSc	L1	Pub Admin / Dev Studies
20	Dr. U. Onyeukwu	BSc, MSc, PhD	L1	Pol Theory/Comp. Pol
21	Dr. V. N. Azu	BSc, MSc, PhD	L1	Pub. Admin/ Dev. Studies
22	Dr. E. C. Macalex-Achinulo	BSc, MSc, PhD	L1	Dev Studies / Pub. Admin
23	Dr. R. U Adah	BSc, MSc, PhD	L1	Dev Studies / Pub. Admin
24	Dr. Chioma Ugwu	BSc, MSc, PhD	L1	Pub Admin / Nig. Govt.
25	Dr. O. Nwodim	BSc, MSc, PhD	L1	Dev Studies / Pub. Admin
26	Dr. F. O. Chujor	BSc, MSc, PhD	L2	Pub Adm/Local Govt Studies
27	Dr. T. Lilly	BSc, MSc, PhD	L2	Pub Admin / Int'l Rls

DEPARTMENT OF SOCIOLOGY

Graduate Diploma in Sociology

The Post-Graduate Diploma in Sociology (PGDS) was established in the year 2001/2002 session. It was designed as a bridge between the B.Sc and M.Sc degrees for those whose B.sc graduation grades in Sociology do not qualify for a direct admission into the M.Sc programme. The PGDS remedies deficiencies in undergraduate sociological knowledge. Students must pass the PGDS with not less than Upper Credit to qualify for admission into the master's programme

The programme is also designed to enable students from other disciplines acquire knowledge of the methods of Social Science research, as a result the PGDS qualification may not be used as entry requirements into the masters programme in sociology.

Aim & Objectives of Programme:

The Post-Graduate Diploma in Sociology is designed to:

- Enhance knowledge of Sociology and training skills of Social Work practitioners for effective performance in public and private economy sectors of the economy.
- Serve as a pre-condition for the eventual admission into the M.Sc Sociology programme.
- Provide opportunity for non-sociology students in related disciplines especially those that are working to update their academic profile.

Eligibility:

The following categories of candidates are eligible to apply for admission into the One-year PGDS Programme.

- Candidates who possess a minimum of a Third Class Degree in Sociology from any recognized university.
- Candidates who possess at least Second Class lower degrees in related disciplines.

Duration of Programme:

The Full-Time PGDS programme is designed to last for one academic session of two (2) semesters and no. longer than four (4) semesters. For a Part-Time programme, it is for a minimum of (4) semesters and maximum of six (6) semesters, commencing from the normal University of Port Harcourt Calendar year and ending at the end of the normal session.

Mode of Application:

(a) Requests for application forms should be made to the School of Post-Graduate Studies (SPS), The requests must be accompanied by

the stipulated fee made payable to the University of Port Harcourt with the candidate's name, address and course applied for, written at the reverse side.

Courses and Credit Load:

To qualify for the award of the Post-Graduate Diploma in Sociology a Candidate must; **Take and Pass**

- Five (5) core courses of three (3) credit units each:

Course Code	Course Title
SOC701.1	Fundamentals of Sociology
SOC 702.1	History of Social Thought
SOC 703.1	Research Methods in Sociology
SOC 704.1	Computer Appreciation
SOC 705.1	Social Work Issues in Entrepreneurship

- Three (3) Required courses of three (3) credit units each:

Course Code	Course Title
SOC 701.2	Sociology of Development
SOC 702.2	Criminology, Police Science & Social Work
SOC 703.2	Nature & Challenges of Human Resources Management

- Seminar and Project (in any of these areas) of five (5) credit units.

Course Code	Course Title
SOC 704.2	Sociology of Development & Social Change
SOC 705.2	Criminology & Sociology of Deviance
SOC 706.2	Human Resources Management
SOC 707.2	Demography & Population Studies
SOC 708.2	Industrial Relations

- Write a Project Report (3 Credit Units) on any of the Specialized Areas of Sociology stated in (b) above.

The total credit load per student required for graduation is 30 credit units.

Good Standing:

In each semester, a student must have a Cumulative Grade Point Average (CGPA) of not less than 3.00.

Withdrawal:

A Candidate with less than 3.00 CGPA shall remain in the programme for First semester, but shall be withdrawn if he/she fails to attain 3.00 CGPA at the end of the second semester.

Attendance:

A student is required to attain a minimum of 75% in attendance out of the total period of formal instructions delivered for the course in order for him/her to be eligible for examination in that particular course.

Completion of PGDS Programme:

Candidates must complete a total of 30 credit hours to complete the PGDS programme.

Course Assessment:

Each course will be assessed on the basis of:

- (a) 30% continuous assessment
- (b) 70% end of semester written examination, Candidates are expected to obtain a minimum grade of C (50%) in each course they registered and a seminar in order to qualify for the award of the Post Graduate Diploma in Sociology. Grades per performance shall be:

A	=	70-100
B	=	60-69
C	=	50- 59
F	=	0-49

Withdrawal:

A Candidate with less than 3.00 CGPA shall remain in the programme for First semester, but shall be withdrawn if he/she fails to attain 3.00 CGPA at the end of the second semester.

Attendance:

A student is required to attain a minimum of 75% in attendance out of the total period of formal instructions delivered for the course in order for him/her to be eligible for examination in that particular course.

Completion of PGDS Programme:

Candidates must complete a total of 30 credit hours to complete the PGDS programme.

Course Assessment:

Each course will assessed on the basis of:

- a) 30% continuous assessment
- b) 70% end of semester written examination. Candidates are expected to obtain a minimum grade of C (50%) in each course they registered and a seminar in order to qualify for the award of the Post-Graduate Diploma in Sociology. Grades per performance shall be:

A=	70-100
B=	60-69
C	= 50-59

F	=	0-49
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Diploma Classification

The PGD in Sociology will be awarded with Distinction, Credit and Merit and it will be based on the Cumulative Grade Point Average (CGPA) earned at the end of the programme. It shall be classified as:

Distinction	-	4.50-5.00
Upper Credit	-	4.00-4.49
Lower	-	3.50-3.9
Merit	-	3.00-3.49
Fail	-	0.00-2.99

COURSE DESCRIPTIONS

SOC 701.1: Fundamentals of Sociology

The study of the Social System and its relationship to other systems, particularly the political and economic evolve differentiate, cohere or disintegrate. Introduction to basic concepts or Sociological analysis, such as roles, Social structure, function, conflict, class consensus, power, value, authority and culture.

SOC 702.1 - History of Social Thought:

An intensive review of the contributors to social thought and the rise and development of modern sociology. Emphasis will be placed on the impact made by the classical scholars in sociology and contemporary African Theorists on the theories of the social system.

SOC 703.1 - Research Methods in Sociology:

This course reviews the theoretical and methodological foundations of Social Science research. Issues treated include the nature of science; problems of scientific explanations; methodological problems of social science; concept formation theories and paradigms; the existential determination of knowledge and social science research techniques and procedures.

SOC 704.1 - Computer Appreciation:

Introduction to basic computer concepts. Hardware and software, programming languages and data capture techniques. Computer networks use of operating systems Microsoft windows and windows applications. Data processing and the internet system.

SOC 705.1 - Social Work Issues in Entrepreneurship:

Contemporary issues of entrepreneurship in social work will be discussed in the form of a colloquium. Some of the issues to be debated will include legal and ethical principles, economic and political issues; the issues of training, education and provision of social services.

SOC 701.2 Sociology of Development:

Major theoretical perspectives in development study and their relevance to understanding the development Crisis of third world countries.

SOC 702.2 - Criminology, Police Science & Social Work:

Sociological perspectives relating to various facets of criminal justice systems; such as socio-cultural foundation of criminal law, law enforcement function, operation and functions of courts and social institutions. The nature and scope of social work and

SOC 708.2 -Industrial Relations

A review and consideration of the major issues and problems in Industrial Sociology in modern society. It involves debates-discussions and an intensive analysis of selected topics by, the instructor.

GRADUATE DEGREES IN SOCIOLOGY:

The Department shall offer the MSc and PhD Degrees 'in the following areas of specialization:

- a) Industrial Relations & Human Resources Management (IRHRM)
- b) Criminology and Police Science.
- c) Sociology of Development

Admission Requirements:

Subject to the general regulations of the School of Postgraduate Studies (SPS), the following requirements govern admission into the higher degree programme.

Admission Requirement for MSc Programme:

Subject to the general regulations of the School of Postgraduate Studies, (SGS), the following requirement govern admission into the higher degree programme:

Candidate must have graduated with a minimum of Second Class honors lower division, or PGD in Sociology with a minimum of Credit pass, that is 3.5 on a five-point scale, from any recognized University in Nigeria.

AWARD OF DEGREE

The M.Sc

To qualify for the award of the M.Sc Degree, a candidate must.

- (a) Complete 33 semester hours of taught courses including seminar and score not less than C in any of the courses. It is required that candidates should take a course in their areas of specialization.
- (b) Satisfactorily defend a Dissertation written in his/her area of specialization. The Dissertation shall be computed as six (6) Credit Units.

- (c) Meet all financial obligations to the University as well as other requirements relating to residence, character as may be prescribed by Senate recommendation of the School of Postgraduate Studies. At present the residency requirement 12 months. (i.e 2 semesters, with the long vacation inclusive for full-time students, and 2 calendar years for part-time students.
- (d) No candidate will be registered for the MSc Degree for more than three calendar years, if a full-time student or for more than five years, if a part-time student. In exceptional circumstances Senate may on the recommendation of the Graduate Studies Committee and approved by the School of Postgraduate Studies waive this rule.

MASTER OF SCIENCE (MSc) IN SOCIOLOGY

Candidates must take and pass five (5) Core Courses of 3 credit units each.

- (a) Five (5) core courses of three (3) credit units each:

Course Code	Course Title
SOC 801.1	Advanced Sociological Theories
SOC 802.1	Advanced Sociological Research Methods
SOC 805.1	Statistical Methods in Sociology
SGS 801.1	ICT & Research Methods
SGS 801.2	Management & Entrepreneurship

A) INDUSTRIAL RELATIONS AND HUMAN RESOURCES MANAGEMENT (IRHM)

First Semester:

Course Code	Course Title	Credit Unit
SOC 801.1	Advanced Soc Theories	3
SGS 801.1	ICT & Research Methods	2
SOC 805.1	Statistical Methods in Sociology	3
SOC 816.1	Foundations of Ind. Relations	3
SOC 818.1	Human Resource Mgt.	3
Total Credit Units		14

Second Semester:

Course Code	Course Title	Credit Unit
SOC 802.2	Adv. Sociological Res. Methods	3
SGS 801.2	Management & Entrepreneurship	2
SOC 819.2	Seminar in IRHRM	3
SOC 817.2	MSc Dissertation	36

Total Credit Units	17
GRAND TOTAL CREDIT UNITS	= 31

B) CRIMINOLOGY & POLICE SCIENCE

First Semester:

Course Code	Course Title	Credit Unit
SOC 801.1	Advanced Sociological Theories	3
SGS 801.1	ICT & Research Methods	2
SOC 801.1	Statistical Methods in Sociology	3
SOC 822.1	Advanced Criminology	3
SOC 823.1	Legalistic Criminology	3
And/or	Victimology & the Criminal Justice System	3
SOC 824.1	Police and Policing the Society	3

Second Semester:

Course Code	Course Title	Credit Unit
SOC 802.2	Advanced Sociological Res. Methods	3
SGS 801.2	Mgt. & Entrepreneurship	2
SOC 822.2	Juvenile Justice and the Admin. Of Criminal Justice	3
And/or	Persons and Juvenile Institutions (Treatment of Offenders)	3
SOC 823.2	Persons and Juvenile Institutions (Treatment of Offenders)	3
And/or	Sociology of Deviance	3
SOC 824.2	Sociology of Deviance	3
SOC	MSc Dissertation	6

GRAND TOTAL CREDIT UNITS = 31

C. SOCIOLOGY OF DEVELOPMENT:

First Semester:

Course Code	Course Title	Credit Unit
SOC 801.1	Advanced Soc. Res. Methods	3
SGS 801.2	ICT & Research Methods	2
SOC 833.1	Soc. of Deve & Social Change	3
SOC 844.1	Capitalism & Dev. Of the third world	3
SOC 835.1	Demographic Resource Mgt.& Dev.	3
	Total Credit Unit	14

Second Semester:

Course Code	Course Title	Credit Unit
SOC 802.2	Advanced Sociological Res. Methods	3
SGS 801.2	Mgt.&Entrepreneurship African Agrarian Systems & Sustainable Rural Development	2
SOC 835.2	Seminar in Sociology of Development &	3
SOC 839.2	Social Change	3
SOC	MSc Dissertation	6
	Total Credit Unit	17

GRAND TOTAL CREDIT UNITS = 31

DOCTOR OF PHILOSOPHY (PhD) IN SOCIOLOGY

B. The PhD Programme:

Candidates for the Ph.D Programme should have a Masters' Degree and should normally have had a minimum of 3.5 on a five (5) point scale at the Masters level.

Methods of Application:

Same as in the Masters Programme. The Ph.D Candidate must in admission submit a proposed plan of research along with his/her application.

Five (5) Core Courses of 3 Credit Units each:

Course Code	Course Title
SOC 901.1	Applied Sociological Theories (Seminar)
SOC 902.2	Applied Sociological Research Methods(Seminar)
SOC 905.1	Statistical Methods in Sociology
SGS 903.1	ICT & Research methods
SGS 904.2	Mgt. &Entrepreneurship

Ph.D candidates who do not possess the Masters' Degree in Sociology but have its equivalent in Management, Development Studies, Personnel Management or Criminology shall if offered admission audit the following courses.

- Advanced Sociological Theories
- Advanced Sociological Research Methods and
- Statistical Methods in Sociology

A. INDUSTRIAL RELATIONS & HUMAN RESOURCES MANAGEMENT (IRHRM)

First Semester:

Course Code	Course Title	Credit Unit
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SOC 901.1	Applied Sociological Theories (Seminar)	3
SOC 905.1	Applied Statistical Methods in Sociology	3
SOC 910.1	Sociology of Work & Industry	3
SOC 937.1	Third World in World Economy	3
	Total Credit Unit	12

Second Semester:

Course Code	Course Title	Credit Unit
SOC 902.2	Applied Research Methods in Sociology (Seminar)	3
SOC 913.2	Society and State in Industrial System	3
SOC 916.2	Seminar in Industrial Relations & human Res. Mgt.	3
SOC 924.2	Sociology of Deviance	3
	Total Credit Unit	12

GRAND TOTAL CREDIT UNIT = 24

B. CRIMINOLOGY & POLICE SCIENCE:

First Semester:

Course Code	Course Title	Credit Unit
SOC 901.1	Applied Sociological Theories (Seminar)	3
SOC 905.1	Applied Statistical Methods in Sociology	3
SOC 926.1	Theories of Deviant Behavior	3
SOC 937.1	Third World in World Economy	3
SOC 910.1	Sociology of Work & Industry	3
	Total Credit Unit	15

Second Semester:

Course Code	Course Title	Credit Unit
SOC 902.2	Applied Research Methods in Sociology (Seminar)	3
SOC 925.2	Seminar in Criminology & Police Science	3
SOC 927.2	Urbanization, Social Change & Criminality	3
	Total Credit Unit	9

GRAND TOTAL CREDIT UNIT = 24

C. SOCIOLOGY OF DEVELOPMENT:

First Semester:

Course Code	Course Title	Credit Unit
SOC 901.1	Applied Sociological Theories (Seminar)	3
SOC 905.1	Applied Statistical Methods in Sociology	3
SOC 937.1	Third World in World Economy	3
SOC 910.1	Sociology of Work & Industry	3
	Total Credit Unit	12

Second Semester:

Course Code	Course Title	Credit Unit
SOC 902.2	Applied Research Methods in Sociology (Seminar)	3
SOC 932.2	World Population & Change	3
SOC 934.2	Seminar in Sociology of Development	3
SOC 924.2	Sociology of Deviance	3
	Total Credit Unit	12

GRAND TOTAL CREDIT UNIT = 24

RESEARCH PROJECT:

The PhD Thesis carries 6 credit Units. Candidates must write a Thesis in their area of Specialization.

The Ph.D:

To qualify for the award of the PhD Degree, a candidate must;

Take and pass:

- a) Five prescribed compulsory courses and two other courses in his/her major field (one of which must be a doctoral seminar).
- b) Take and pass elective courses to remedy any deficiencies in courses as may be determined by his/her supervisor.
- c) Take and pass the Comprehensive Examination in a most two sittings.
- d) Successfully complete and defend a Thesis on topic approved by the Graduate Studies Committee.
- e) Satisfy financial obligations to the University as well as other requirements relating to residence and character as may be prescribed, by Senate on the Recommendation of the School of Postgraduate Studies. At present, the residence requirement is six (6) semesters (3) academic sessions) for full-time students and ten (10) (5 academic sessions) semesters for part-time students.

No candidate will be registered for the PhD Degree for more than five years if he or she is a full-time student or for more than seven years if a part-time student.

Thesis:

Thesis shall be original work presented in accordance with the regulations approved by Senate on the recommendations of the School of Postgraduate Studies. The Ph.D Thesis will be accepted only if it is deemed to make contribution to knowledge and shows evidence of originality.

Theses shall be graded by at least two examiners, which must include the thesis supervisor and one external examiner. A minimum grade of C for the thesis and for its defense is required for a pass.

COURSE ASSESSMENT:

Each course will be assessed on the basis of 40% continuous assessment and 60% end of semester written examination. All candidates are required to obtain a grade of C or better in each course and in the Thesis in order to be awarded the Ph.D Degree.

COURSE DESCRIPTION:

SOC 801.1 - Advanced Sociological Theories:

This course offers a critical review of major themes and theories of classical sociology and an examination of selected contemporary Schools of Thought.

SOC 802.2 - Advanced Sociological Research Methods:

Logical Foundations of the social science; Problems in scientific methodology: Qualitative and quantitative methods. Research processes, survey design, sampling and data analysis.

SOC 805.1 - Statistical Methods in Sociology:

Statistical methods and reasoning in advanced statistical application of statistical methods. Prior knowledge of statistics is required.

SOC 816.1 - Foundation of Industrial Relations:

This course handles theories and practice of industrial relations in the developed and under-developed nations. It examines the relevant institutions of job regulation including labour union management and the state in the processes of job regulation. Cognizance is given to the dynamics of the relative strength of labour and management from the point of view of the factors influencing the national industrial relations systems, such as the economy, the political environment and character of the state.

SOC 818.1 - Human Resources Management (HRM):

Study of the basic principles, methods and practice in Human Resources Management. Management techniques, human resources development and management. The dynamics of interpersonal relationships including such factors as perception, motivation, belief systems and attitudes. Training

and executive development: decision-making policies and management of conflict.

SOC 819.2 - Theories of Industrial Management:

Emphasis is on theories and practice of industrial management. Industrial Resources Management Relationship between labour and management in historical and contemporary contexts, including the principles used in industrial management are discussed.

SOC 817.2 - Seminar in Industrial Relations & Human Resources Management:

Contemporary issues and problems in Industrial Relations & Human Resources will be discussed and debated upon. The instructor will lead the discussions and encourage students to participate.

SOC 822.1 - Advanced Criminology:

Consideration of major theories: Classical and contemporary theories of crime, delinquency, law and punishment. Evaluation and analysis of current issues and problems in crime causation and treatment. Emphasis will be placed on the explanation of contemporary problems associated with the control, detention and prevention of crime and delinquency in modern Nigeria.

SOC 822.2 - Social Work II: Juvenile Justice & the Administration of Criminal Justice Systems:

The study focuses on the juvenile and criminal court process of adjudication and the impact these processes have on both the juvenile and the adult offender, especially when they are remanded in juvenile institutions and prisons or correctional facilities.

Emphasis will be placed on youth crime and delinquency and the various techniques for the treatment and rehabilitation of offenders including the problems encountered in their application with special attention given to problems of resistance to treatment, issues of confidentiality and relationships with agency administration.

Milieu therapy, individual and group therapy, behavior therapy, therapeutic communities and the utilization of special rehabilitation agencies are studied.

SOC 823.1 - Victimology & the Criminal Justice System:

A critical evaluation of the current knowledge of the science of victimology with emphasis on the victims' characteristics, problems encountered by victims, including community attitude towards the victim, the interaction of the victim with the criminal justice system and programmes for rehabilitation of the victim. In addition, the course comprehends of

criminals, various techniques used at styles of policing and providing police services will be studied. The Legal Power of the police and problems associated with law enforcement are surveyed. Throughout the course; attention will be paid to law and politics applied in policing the city and whether not professionalism is maintained.

SOC 823.2 - Prisons & Juvenile Institutions (Treatment of Offenders):

The nature of prisons and juvenile institutions in Nigeria. The various techniques for the treatment and rehabilitation of offended problems encountered in their application with special attention given to problems of resistance to treatment issues of confidential and relationships with agency administration. Pragmatic justification and determination of the effectiveness of alternative penalties.

SOC 824.1 - Police & Policing the Society:

The course covers various aspects of policing a large urban area such as a metropolitan city. Emphasis is on the roles and function of the police in maintaining law and order, control, prevention and detection of crime, including the search and apprehension of criminals. Various techniques used and styles of policing and providing police services will be studied.

The legal Powers of the police and problems associated with law enforcement are surveyed. Throughout the course, attention will be paid too law and politics applied in policing the city and whether or not professionalism is maintained.

SOC 824.2/SOC924.2 - Sociology of Deviance:

The emphasis of this course is to examine the forms of deviance:

Juvenile delinquency and adult crime. The discussions will reveal the Sociological approaches to deviance: functionalism, conflict theories, interactionist approach, feminist approach and post-modern approach.

SOC 825.1 - Legalistic Criminology:

The application of criminomics in the analysis of criminal law and the determination of the cost implication of crimes. Emphasis is placed on the criminomics of crimes against the person and property, and on public order crimes (e.g. transnational crime) and white-collar crimes. Additionally, there will be a discussion on the criminomics of criminal justice system.

SOC 833.1 - Sociology of Development & Social Change:

Sociological theories of development and under-development with emphasis on contemporary schools of thought. Included will be the neo-Marxist analysis of imperialism liberal-capitalist

models, world system and dependency theories and relevant recent details. The study will also discuss social change and development of various social change theories, globalization, agrarian reforms, community development and urbanization.

SOC 834.1 - Capitalism & Development in the Third World:

An analysis of capitalist development and the incorporation of third world under-developing countries of Africa, Asia and Latin America.

SOC 835.2 - African Agrarian System & Sustainable Rural Development:

Issues: The structure of pre-industrial African societies; changes in the social structure of rural societies due to incorporation into the world capitalist system; the nature of the new social formations in the area of capitalist penetration. The issues of development; theories and methods of rural development; critical study of rural development in Nigeria and other African countries will be addressed.

SOC 835.1 - Demographic Resource Management & Development:

Emphasis is on the relationship between population, resource management and economic development, population change and effects on national resources development are examined. The relationship between population issues (fertility, mortality, migration, density and structure and development are studied). Policies on resource management based on population change will be discussed.

SOC 839.2 - Seminar in Sociology of development & Social Change:

A review and consideration of the major issues and problems in sociology for development and Social Change. It involves debates, discussions and an intensive analysis of selected topics by instructor(s).

SOC 910.1 - Sociology of Work & Industry:

The nature of work and industry. Working conditions and their relationship to productivity behavior and control on workers. Individual, group and industrial conflict. Arbitrations and other means of dispute settlements.

SOC 913.2 - Society and State in Industrial Systems:

Analysis of class and power in industrial societies. The ruling class, the proletariat, pressure groups and class struggle in Western Europe and North America. Socialist systems and their contradictions.

SOC 916.2 - Seminar in Industrial Relations & Human Resource Management:

A review of contemporary issues and problems in Human Resources Management. Discussions and debates will be organized in the form of colloquium.

SOC 926.1 - Theories of Deviant Behavior:

The review of theories of deviant behavior (e.g. Functionalism, Social disorganization and culture, Anomie, Differential association, Reference Groups, Neutralization and Drift). Also, the study will focus on the politics of deviance and the impact of class on deviance.

SOC 927.1 - Urbanization, Social Change & Criminality:

The Study of the fundamental feature and relationship between the phenomena of urbanization, social change criminality. Theories, themes and processes of urbanization and social change and how these affect/influence criminal behaviors will be discussed. It will involve an institutional analysis of the problems arising from these phenomena.

SOC 925.2 - Seminar in Criminology & Police Science:

Review of issues and problems in Criminology and Sociology of Deviance. Discussion and debates will be organized in the form of a colloquium.

SOC 932.2 - World Population & Change:

The emphasis of this course is on world population, urbanization of the environment. Theories of population growth globally and checking world population growth and the concept of New urbanites. Modernization and the global theories of social.

SOC 934.2 - Seminar in Sociology of Development & Social Change:

A review of issues and problems in Sociology of Development and Population Studies. Discussion and debates will be organized in the form of a colloquium.

Post Graduate Programme in Community Development

Community development is essentially a professional discipline within the Social Sciences, and is defined by the International Association for Community Development as “a practice-based profession and an academics discipline that promotes participative democracy, sustainable development, rights, economic opportunity, equality and social justice, through the organisation, education and empowerment of people within their communities, whether these be of locality, identity or interest, in urban and rural settings”.

Community development is rooted in the belief that all-inclusive development is possible, and

communities should be able to access the resources and opportunities imbued in their environment for sustainable growth. As an academic endeavour in Sociology, community development seeks to empower individuals and groups with the requisite skills and theoretical perspectives needed to effect change within communities.

Graduates of the programme will enjoy opportunities as community development practitioners, consultants in government and nongovernmental developmental programmes, researchers, local government administrators, development managers, and educators.

The target audience for this programme include:
Individuals wishing to develop skills in community development
Development practitioners and Community members
Educators, researchers and consultants in development studies
Community leaders
Social workers, public health practitioners and operators of NGOs
Governmental officials supporting community development projects

Aim and Objectives

The overall aim of the programme is to enhance the capacity and skills of individuals and development practitioners to engage communities as well as monitor and evaluate community development policies and programmes in Nigeria and any other clime.

Specifically, the programme is designed to:

- i. Introduce individuals to community development as a concept as well as basic skills in mobilising communities for development and influencing social change
- ii. Cater for students who are interested in doing graduate studies in Community Development.
- iii. Train individuals and groups that will become community developers.

POST GRADUATE DIPLOMA (PGD)

Entry Requirement

Candidates applying for this PGD programme in Community Development must possess a Bachelor’s Degree (B.Sc.) in Sociology or any other related field in the Social Sciences, Humanities, Management, and Education in any recognized and accredited University within and outside the country.

All PGD applicants deemed qualified may be required to undergo an interview in the department

to ascertain their capacity for rigorous work at the post-graduate level.

Programme Duration

PGD programmes in the Department of Sociology is designed to run for a minimum of 12 calendar months and a maximum of 24 calendar months (for full time) while Part Time programmes are designed to run for 24 calendar months (minimum) and 48 calendar months (maximum).

Graduation Requirements

All students are expected to obtain a minimum of a “C” grade in any exam undertaken at any level of post-graduate studies at the University of Port Harcourt. For a Post-Graduate degree in Community Development, satisfactory performance in all coursework examinations, as well as a completion of a dissertation or thesis is mandatory for graduation. The programme does require dissertation preparation and as such, the overall assessment of the student is placed on course work and results from the dissertation. Students with unsatisfactory scores less than “C” grades in four (4) courses and a cumulative grade point average of 3.00 shall not graduate and would be asked to withdraw from the programme.

Award of Degree

Students who must have completed and passed all prescribed courses at the end of the programme shall be awarded a Post Graduate Diploma (PGD) in Community Development (Sociology) from the University of Port Harcourt

Courses and Units

The total credit load per student required for graduation at this level is a minimum of 30 units. These are 9 units of major courses, 18 units of cognate courses, and 3 units of dissertation.

Code	Title	Type	Units
First Semester			
SOC 701.1	Fundamentals of Sociology	Major	3
SOC 703.1	Research Methodology	Major	3
CDS 700.1	Introduction to Community Development	Cognate	3
CDS 701.1	Social Policy and Community Development Planning	Cognate	3
CDS 702.1	Theories and Perspectives in Community Development	Cognate	3

Total **15**

Second Semester

SOC 701.2	Sociology of Major Development		3
CDS 700.2	Rural Environment & Sustainable Community Development	Cognate	3
CDS 701.2	Gender and Community Development	Cognate	3
CDS 702.2	Methods and Techniques of Community Development	Cognate	3
Project for PGD programme		Compulsory	3
Total			15
		Total	30

COURSE DESCRIPTIONS

SOC 701.1- Fundamentals of Sociology

The study of the Social System and its relationship to other systems, particularly the political and economic systems. Attempt to understand how social systems evolve, differentiate, cohere or disintegrate. Introduction to basic concepts or Sociological analysis, such as roles, social structure, function, conflict, class consensus, power, value, authority and culture.

SOC 703.1-Research Methods in Sociology

Research is an integral part of Social Sciences. This course reviews the theoretical and methodological foundations of Social Science research. Issues treated include the nature of science; problems of scientific explanations; methodological problems of social science; concept formation theories and paradigms; the existential determination of knowledge and social science research techniques and procedures.

CDS 700.1-Introduction to Community Development

This course provides the foundation for understanding Community Development as a field of study. In this course, the various definitions, perspectives, and themes in Community Development; the features of Community Development, the components of Community Development, and the processes of Community Development, will be examined. Also, students will be exposed to how to identify issues to be actioned within the community.

CDS 701.1-Social Policy and Community Development Planning

This course examines how social, economic, political and governance factors affect and impact community development. It also interrogates the use of policies to drive community planning and strategies for achieving social, economic and environmental sustainability within a community.

CDS 702.1-Theories and Perspectives in Community Development

Theories are ideas used in explaining reality. In the Social Sciences, there is a variety of theories that are used to explain the structure of the society and the various events that impact social development. In this course, the classical and contemporary theories in Community Development will be examined.

SOC 701.2-Sociology of Development

This course introduces students to the key sociological concerns in development of societies and the factors that affect sustainable development. Major theoretical perspectives in development study and their relevance to understanding the development crisis of third world countries will also be interrogated.

CDS 700.2-Rural Environment and Sustainable Community Development

This course teaches how rural communities can achieve a quality of life for all their residents while maintaining nature's ability to function over time by minimizing waste, preventing pollution, promoting efficiency and developing local resources to revitalize the local economy.

CDS 701.2-Gender and Community Development

In this course, students will be exposed to the crucial interconnections between gender parity, gender empowerment and community development. Also, the course examines how gender issues in the community stimulate or impede sustainable development.

CDS 702.2- Methods and Techniques of Community Development

Highlights the different approaches and techniques employed in community development. Explores the import of community research, community education, community organizing, community mobilization and advocacy, and planning in community development studies.

Project for PGD programme –

Projects in Community Development will explore community revitalizing practices and policies and their effect on sustainable community development.

Master of Science (M.Sc.) In Community Development

Entry Requirement

Candidates applying for this M.Sc. programme must possess a Bachelor's Degree (B.Sc.) in Sociology or any related field in the Social Sciences, Humanities, Management, and Education in any recognized and accredited University within and outside the country with a second class honours lower division, or a Credit pass in Post Graduate Diploma (PGD) programme in Sociology.

Programme Duration

M.Sc. programmes in the Department of Sociology is designed to run for a minimum of 12 calendar months and a maximum of 24 calendar months (for full time) while Part Time programmes are designed to run for 24 calendar months (minimum) and 48 calendar months (maximum).

Graduation Requirements

All students are expected to obtain a minimum of a "C" grade in any exam undertaken at any level of post-graduate studies at the University of Port Harcourt. For a Post-Graduate degree in Community Development, satisfactory performance in all coursework examinations, as well as a completion of a dissertation or thesis is mandatory for graduation. The programme does require dissertation preparation and as such, the overall assessment of the student is placed on course work and results from the dissertation. Students with unsatisfactory scores less than "C" grades in four (4) courses and a cumulative grade point average of 3.00 shall not graduate and would be asked to withdraw from the programme.

Award of Degree

Students who must have completed and passed all prescribed courses at the end of the programme shall be awarded a Master's of Sciences Degree (M.Sc.) in Community Development (Sociology) from the University of Port Harcourt.

Courses and Units

The total credit load per student required for graduation is a minimum of 36 units for graduation, these are 15 units of major courses, 9 units of cognate courses, 6 units of optional courses and 6 units of dissertation.

Code	Title	Type	Units
First Semester			
SOC 801.1	Advanced Sociological Theories	Major	3
SOC 805.1	Statistical Methods in Sociology	Major	3
SGS 801.1	ICT & Research Methods	Major	3

CDS 801.1	Governance and Rural Community Development	Cognate	3
CDS 802.1	Vulnerability, Poverty and Community Development	Optional	3
CDS 803.1	Or Crime Prevention and Community Safety	Optional	3
Total			15
Second Semester			
SOC 802.2	Advanced Sociological Research methods	Major	3
SGS 801.2	Entrepreneurship and Management	Major	3
CDS 801.2	Community Development Advocacy	Cognate	3
CDS 802.2	Community health and Community Development	Cognate	3
CDS 803.2	Growth, Housing and Community Development	Optional	3
CDS 804.2	Or Cooperatives, Corporations & Community Development	Optional	3
Dissertation		Compulsory	6
Total			21
TOTAL UNITS			36

COURSE DESCRIPTIONS

SOC 801.1- Advanced Sociological Theories

Theories are keys in social analysis, and they provide the framework for research and analysis in the social sciences. This course offers a critical review of major themes and theories of classical sociology, coupled with an examination of selected contemporary schools of thought. The course will also emphasize on the use of theories in understanding community development concerns and trajectories.

SOC 805.1 - Statistical Methods in Sociology

Without computation some sociological analysis may seem like impressionistic guesswork. As such, statistical tools are constantly applied in all social science endeavours. This course will introduce students to statistical methods, number reasoning, data analytics and analysis, as well as the application of statistical methods and statistical packages in social research and community development. In this

course, prior knowledge of statistics is required to help students understand the basic tools in statistical analysis.

SGS 801.1 - ICT and Research Methods

This course introduces students to the use of applications of ICT in Social research. In this course, students will be made to understand the various ICT tools and facilities that can be used for data gathering, data storing, data processing, and data analysis in social research.

CDS 801.1 - Governance and Rural Community Development

The course covers the critical assessment of competing theories of the role of the state and non-state actors in rural community development; the role of NGOs and public organisations; and the crucial link between governance and Sustainable community development.

CDS 802.1 - Vulnerability, Poverty and Community Development

Vulnerability and poverty are key community development concerns. This course discusses how poverty, vulnerability and social inequalities impact community development. It also interrogates questions such as what causes poverty and vulnerabilities, and what social protection policies apply to impacted countries.

CDS 803.1- Crime prevention and Community Safety

This course will examine how crime impacts on community development and how communities tackle crime, criminal damage and anti-social behaviour. It also examines the sources and implications of crime for community development, and identifies effective strategies for improving crime prevention and enhancing community safety.

SOC 802.2 - Advanced Sociological Research Methods

In this course, the logical foundations of the social science, the problems in scientific methodology: such as Qualitative and quantitative methods, will be examined. Also, research processes, research design, sampling processes and data analysis techniques will also be taught.

SGS 801.2 - Entrepreneurship and Management

This course teaches the fundamentals of entrepreneurship and how to leverage the power of entrepreneurship to address community economic, environmental, and social development challenges. Efforts will also be made to examine the nexus between entrepreneurship and community development.

CDS 801.2 - Community Development Advocacy

This course interrogates the processes and techniques employed in community development advocacy. Discusses the structure and functions of community development corporations, and community development non-state organisations.

CDS 802.2 - Community health and Community development

This course focuses on the vulnerabilities of communities to health challenges, and how community structures engender such vulnerabilities. Examines concepts such as community health, community health education and environmental health.

CDS 803.2 - Growth, Housing and Community Development

In this course, students will be helped to interrogate population dynamics in communities and the

DOCTOR OF PHILOSOPHY (PH.D.) IN COMMUNITY DEVELOPMENT

Entry Requirement

Candidates applying for this PhD programme must have completed a Bachelor’s Degree (B.Sc.) and a Master’s Degree (M.Sc.) programme in Sociology in any recognized and accredited University within and outside the country and should have a CGPA of at least 3.50 over 5.00

All PhD applicants deemed qualified may be required to undergo an interview in the department to ascertain their capacity for rigorous work at the post-graduate level.

Programme Duration

The programme will follow the University’s prescribed duration for post-graduate programmes. For PhD programmes in the department, the recommendation of the School of Postgraduate Studies is six (6) semesters (3 academic sessions) for Full-Time students and ten (10) semesters (5 academic sessions) for Part-Time students. It is important to note that No candidate will be registered for the PhD Degree for more than five years if he or she is a Full-Time student or for more than seven years if a Part-Time student.

Graduation Requirements

All students are expected to obtain a minimum of a “C” grade in any exam undertaken at any level of post-graduate studies at the University of Port Harcourt. For a Post-Graduate degree in Community Development, satisfactory performance in all coursework examinations, as well as a completion of a dissertation or thesis is mandatory for graduation. The programme does require dissertation preparation and as such, the overall assessment of the student is placed on course work and results from the dissertation. Students with unsatisfactory scores

implications of growth for community development. The course will also examine how housing challenges, housing policies and programmes, and urbanization are relevant for community development.

CDS 804.2 - Cooperatives, Corporations and Community Development

This course highlights the role of corporations and cooperatives in community development. It also interrogates the challenges and impediments to corporate social responsibilities, self-responsibility, and solidarity.

Dissertation - Dissertation research interests are expected to be drawn from key areas in Community Development practice.

less than “C” grades in four (4) courses and a cumulative grade point average of 3.00 shall not graduate and would be asked to withdraw from the programme.

Award of Degree

Students who must have completed and passed all prescribed courses at the end of the programme shall be awarded a Doctor of Philosophy Degree (PhD) in Community Development (Sociology) from the University of Port Harcourt.

Courses and Units

The total credit load per student required for graduation at this level is a minimum of 36 units for graduation, these are 9 units of major courses, 12 units of cognate courses, 3 units of an optional course, and 12 units of thesis.

Code	Course description	Type	Units
First Semester			
SOC 901.1	Applied Sociological Theories	Major	3
SOC 905.1	Statistical Methods in Sociology	Major	3
CDS 901.1	Models of Rural Development and Community Planning	Cognate	3
CDS 902.1	Migration, Population and Community Development	Cognate	3
CDS 903.1	Social risks management and Social Protection	Cognate	3
Total			15

Second Semester

SOC 902.2	Applied Sociological Research Methods	Major	3
CDS 901.2	Planning and Administration of Community Development	Cognate	3
CDS 902.2	Fundamentals of Development Communication Or	Optional	3
CDS 903.2	Conflict Management and Dispute resolution Or	Optional	3
CDS 904.2	Gender issues in Community Development	Optional	3
Thesis		Compulsory	12
Total			21
TOTAL UNITS			36

COURSE DESCRIPTIONS

SOC 901.1- -Applied Sociological Theories

This course offers a critical review of major themes and theories of classical sociology, coupled with an examination of selected contemporary schools of thought. At the PhD level emphasis will be laid on the application of classical and contemporary theories in understanding community development concerns and trajectories.

SOC 905.1 - Statistical Methods in Sociology

Without computation some sociological analysis may seem like impressionistic guesswork. As such, statistical tools are constantly applied in all social science endeavours. This course will introduce students to statistical methods, number reasoning, data analytics and analysis, as well as the application of statistical methods and statistical packages in social research and community development. In this course, prior knowledge of statistics is required to help students understand the basic tools in statistical analysis.

CDS 901.1 - Models of Rural Development and Community Planning

This study exposes students to the key issues in rural development and how the different models of rural development are significant in engineering community development. Theoretical and practical issues in community planning will also be interrogated

CDS 902.1 - Migration, Population and Community Development

Migration as a demographic factor will be examined to show its implications for population growth and

community development. Students will also learn the dynamics of migration from a historical perspective paying particular attention to geo-political and economic concerns.

CDS 903.1 - Social risks Management and Social Protection

In this course, students will be exposed to the fundamentals of social risks management and social protection, and how to help at-risk communities build resilience, and anticipate and insure against risks.

SOC 902.2 - Applied Sociological Research Methods

This course exposes students to advanced research methods in the Social Sciences, contemporary research processes, research designs and types, and data mining and analysis processes.

CDS 901.2 - Planning and Administration of Community Development

This course focuses on the organisation and administration of community development. The various instruments that are used to implement comprehensive development plans will be examined, while the prerequisites of community development planning (such as leadership, community decision-making, budgeting, etc) will be interrogated.

CDS 902.2 - Fundamentals of Development Communication

The course will highlight the underlying principles of development communication, especially how development experts can engage stakeholders and policymakers, and establish conducive environments for community development.

CDS 903.2 - Conflict Management and Dispute resolution

This course interrogates the sources, dimensions and drivers of disputes and conflicts in developing communities. Students will also be exposed to theories of conflict management and dispute resolution, while interrogating the different measures, approaches and models for conflict management.

CDS 904.2 - Gender issues in Community Development

Gender issues have been noted to be cogent in all development concerns. Part of the challenges sustainable development plans hope to resolve include the issues surrounding gender parity, gender relations, and gender roles that contribute to the exploitation and marginalisation of men and women in the society. This course will offer students the opportunity to critically interrogate some of these gender concerns in community development, as well

as the key role gender equality plays in community development.

Thesis

PhD thesis will focus on a capstone project that directly applies the theories and models learned in the classroom to development projects, policies and practices within identified communities.

ACADEMIC STAFF

S/N	NAME	QUALIFICATION	AREA OF SPECIALIZATION	DESIGNATION
1.	Ifeanacho Martin I.	B.A., M.A, Ph.D.	Industrial Relations & Human Resource Mgt.	Professor
2.	Okodudu Stephen A.	B.Sc, M.Sc, Ph.D	Development Studies	Professor
3.	Anele Kinikanwo A.	B.Sc, M.Sc, Ph.D, LLB, BL.	Social Dynamics/Crime	Professor
4.	Ekpenyong, Otu A.	B.Sc, M.Sc, Ph.D.	Rural Sociology/Development	Professor
5.	Okemini Emmanuel B.	B.Sc, M.Sc, Ph.D.	Industrial Sociology and Human Resource Management	Professor
6.	Onyige Chioma Daisy	B.A, M.Sc, Ph.D.	Criminology	Professor
7.	Sofiri Joab-Peterside	B.Sc, M.Sc, Ph.D	Development Studies	Professor
8.	Nsirim-Worlu Heoma G.	B.A, M.Sc, Ph.D.	Development Studies	Professor
9.	Wordu, Steve Afoma	B.A, M.Sc, Ph.D.	Environmental Sociology	Professor
10.	Abu O. Prayer	B.Sc, M.Sc, Ph.D.	Medical Sociology & Gerontology.	Senior Lecturer
11.	Badey Dinebari K.	B.Sc, M.Sc, Ph.D.	Developmental Studies	Senior Lecturer
12.	Erondu Chinyere I.	B.Sc, M.Sc, Ph.D.	Development Studies	Senior Lecturer
13.	Oriji, Christian	B.ED, M.Sc, Ph.D	Medical Sociology	Senior Lecturer
14.	Ublejit-Nte Adaku A.	B.Sc, M.Sc, Ph.D.	Urban Sociology	Senior Lecturer
15.	Gbenemene Kpea	B.Sc, M.Sc, Ph.D.	Criminology	Senior Lecturer
16.	Durueke Onyinyechi	B.Sc, M.Sc, Ph.D.	Peace and Conflict studies	Senior Lecturer
17.	Kinikanwo Samuel Paul	B.Sc, M.Sc, Ph.D.	Industrial Relations & HRM	Senior Lecturer
18.	Agwanwo E. Destiny	B.Sc, M.Sc, Ph.D.	Criminology	Lecturer I
19.	Larry-Love Nduonofit	B.Sc, M.Sc, Ph.D.	Development Studies	Lecturer II
20.	Nwakanma Emmanuel	B.Sc, M.Sc.	Development Studies	Lecturer I

DEPARTMENT OF SOCIAL WORK

1.0 Introduction

The department of social work is one of the integral components of faculty of social sciences. The Post Graduate programmes in social work will provide opportunities for advanced knowledge and skill acquisition for a career in the private and public sectors of the national and global economies. Students should be able to articulate, develop and implement research using social work concepts and methodologies.

2.0 Philosophy

The philosophy underlying the Post Graduate programmes in social work is to produce a crop of academics and practitioners equipped with appropriate professional knowledge, attitude, skills and competencies in the resolution and/or management of social problems and make their contributions to the development of Nigeria, Africa and the global community.

3.0 Vision

To ensure that Nigeria has the manpower to train people to acquire professional knowledge, skills, and competencies to handle clients' emotional, physical and social problems as community developers.

4.0 Mission

To meet various challenges and difficulties in the different spheres of community life and to effect change in the society and human abnormality through the application of social praxis.

5.0 Rational

To address and fill in the acute shortage of social work professionals in academic in private at public sector in social work industries.

6.0 Aims

The Post Graduate programmes in Social Work are designed to:

- To strengthen the capacity in problem solving and analysis.
- Enhance the knowledge based and training skills of social work practitioners for effective performance in public and private economy sectors of the national and global economics.

7.0 Objectives

- To produce social work academics and professionals who intend to teach, research and practise social work in various relevant agencies and institutions in Nigeria and globally
- Inculcate into graduates theoretical, practical and research traditions relevant to problem identification, social policy formulation,

implementation, monitoring and evaluation of programmes.

- To produce highly skilled manpower in the areas of Social Work Education, practice and administration such that will fit into the public and private sectors.

POST GRADUATE DIPLOMA IN SOCIAL WORK

8.0 Admission Requirements

- Candidates must satisfy the matriculation requirements of the University including English Language and Mathematics at ordinary level.
- Candidates with Bachelor's Degree in Social Work with lower than Second Class division from an approved and accredited University degree in Social Work or related discipline awarded by an approved and accredited University.
- HND and / or professional qualifications cognate to Social Work from a recognized institution with not less than Upper Credit.

9.0 Programme Duration

- A full time Post Graduate Diploma in social work shall run for a minimum duration of 12 calendar months.
- Part-time Post Graduate Diploma shall run for a minimum of 24 months and a maximum of 48 months.

10.0 Graduation Requirements

To qualify for the award of the Post Graduate Diploma (PGD) the candidates must have fulfilled the minimum of 28 credit units made up of the following, She/He must pass a minimum of 28 credit units

- Core Courses 12 and Field Work Practicum of four (4) credit units.
- Elective courses of eight (8) credit units.
- A student shall carry out research in any area of specialization in his / her discipline and submit an acceptable dissertation of four (4) credit units.

FIRST SEMESTER

CORE COURSES

COURSE CODE	COURSE TITLE	CREDIT UNITS
SWK 701.1	Field Practicum 1 C	2
SWK 711.1	Social Work Theories C	2

SWK 712.1	Research Method for Social Work C	2
SWK 713.1	History of Social Work C	2
SWK 714.1	Computer Application in Social Work C	2
ELECTIVE		
SWK 715.1	Theories of Deviance and Criminal Justice System E	2
SWK 717.1	Family, Child, Youth Development E	2
	Total	14

SECOND SEMESTER

CORE COURSES

COURSE CODE	COURSE TITLE	CREDIT UNITS
SWK 702.2	Field Practicum 11 C	2
SWK 720.2	Research Project C	4
SWK 700.2	Issues in Entrepreneurship/ Management C	2
SWK 722.2	Techniques, Principles, Values in Social Work Practices C	2
ELECTIVES		
SWK 723.2	Rehabilitation in Social Work E	2
SWK 722.2	Introduction to Community Service Practice E	2
	Sub-Total	14

Minimum Graduation requirements: Core courses 16, Elective 4, Project 4, Field Practicum 4, **Total 28**

C = Depicts Core Course

E = Represent Elective

COURSE DESCRIPTION

(a) PGD

SWK720.1 Research Project 4 Units

This is an original long essay on social service/ social problem/ social work practice selected by the student in consultation with a departmental supervisor. The research project will be based on library research and content analysis.

SWK 701. 1 & 702.1 Field Practicum I&II 4 Units

At beginning of each semester students are required to go on field work placement every Wednesday throughout the first and second semesters spread over family casework, medical social work, community development and school/ youth development. The course offers students an educational experience in social service agency under the supervision of a qualified professional. The purpose of the course is to integrate material

gained in academic course with practice in the field. At the end of the placement, the student will be expected to submit field practicum report using Department format.

SWK 711.1 Social Work Theories 2 Units

The course will focus on the early work as well as modern psychological theories as they are relevant to social work theory and practice. It will also consider early and modern sociological theory and their contributions to the understanding of social work theory and practices. Finally models of social work practice such as problem solving, psychosocial, the functional, behaviour therapy, crisis intervention, the four systems model, and task centred model etc.

SWK 712. 1 Research Methods for Social Work 2 Units

The course will emphasize the application of research methods for evaluation of practice effectiveness and/ or program outcomes in society. Students will deepen their understanding on the essential components of social work research. The students will be exposed to quantitative and qualitative research strategies necessary for evidenced-base practice. The roles of concept and theory, hypothesis formation, operationalization, research design, data collection, data processing, statistical analysis, computer skills and research report writing will be presented and discussed.

SWK 713.1 History of Social Work in Nigeria 2 Units

The course will trace the historical developments of social work practice in Nigeria from its British American origins. It will expose the student to the state of social work discipline/ profession and social welfare services (government and non-governmental/voluntary) provided in contemporary Nigerian society.

SWK 714.1 Computer Application in Social Work Research and Practice 2 Units

The course will introduce the use of computers in the practice of social work. The use of security code and adaptability to the principles of confidentiality in social work practice will be considered. The practical applications of computers in data analysis will be presented with software in hypothesis testing using NOVA, correlation, regression analyses, chi-square, and other inferential statistical tools will be presented and discussed.

SWK 715.1 Theories of Deviance and Criminal Justice System 2 Units

The goal of the course is to provide an appraisal of the foundations for understanding criminal behaviour. Students will be exposed to major current and classic theories about criminal behaviours,

delinquency and white collar crime. The course is designed to expose students with the latest theoretical, programmatic, policy issues in criminal justice system.

SWK 716.1 Social Policy, Planning and Administration 2 Units

This course will discuss the competing philosophic and ideological models of the roles of the state in the provision of and planning for social welfare services to individual, family and community. Historical and comparative approaches to the problems of social policy and planning will be discussed.

SWK 717.1 Family, Child And Youth Development 2 Units

The course will be divided into three parts; (i) family counselling (ii) child protection and (iii) youth development. The first part will examine the functions of the family and the various social problems, affecting the family. Issues such as marital dispute, separation, divorce, child custody, alibi/maintenance allowances, and kindred casework will also be presented and discussed. The second part begins with the conception of life, growth and birth. The course further discussed the physical, cognitive and social development of the child. The impact of various parenting styles on the child is also discussed.

SWK 718.1 Inter Group Relations and Conflict Management 2 Units

The course begins with the basic concepts of inter group relations. The nature and dynamics of inter group transactions, an examination of relations between peoples of different cultures. Ethnicities, ideologies, religions with special reference to plural Nigeria will be examined. Theories of group formation and inter group relations, social movements, inter group, social movements, inter group conflicts and conflict resolution will also be analysed. Definition of conflict, types of conflicts, causes of conflicts, factors for escalation and de-escalation of conflict, types of reactions to conflict, various stages of conflict resolution, types of mediation, principles of mediation, and personal qualities of mediator will all be presented and discussed.

SWK 722.2 Techniques, Principles, Ethics and Values in Social Work Practice 2 Units

The course is an examination of principles (i.e the principles of confidentiality, non-judgemental attitude, client self-determination among others) and techniques of social casework/counselling, interviewing processes, intervention models, communication and recording including the personal qualities of counsellor.

SWK 723.2 Rehabilitation Social Work 2 Units

The course introduces various forms of disabilities and their physical, emotional, social and economic impact on persons. The various forms rehabilitation (physical, emotional, educational, social and economic) service available in Nigeria are also discussed. The organization of rehabilitation services and modern trends in rehabilitation projects such as community based vocational rehabilitation (CBVR) will be examined.

SWK 724.2 Medical and Psychiatric Social Work 2 Units

The course provides the definition of medical social work as a specialty of social work which is known as hospital social work. The biological and social causes of illness are explained. The course also describes the role of the medical social worker in a hospital, outpatient clinic, community health care agency, skilled medical facility, long term care facility or hospice and other settings that have medical facets. The descriptions of the role of a medical social worker emphasises the use of social work principles, techniques and methods to strengthen the individuals personal, family and social life in order to improve his or her health status and ability to cope with, and adapt to life tasks or challenges.

SWK 725.2 Industrial Social Work 2 Units

The course will introduce student to the roles of the 20th century industrial revolution in Europe and the advances in social sciences in promoting the understanding of workers as a psycho-social entity in the industry and the work setting. It focus on the structure, nature, purpose, and development of significant trend and events within the organizations, as well as how they respond to workers and organizational needs, employer-employee, and harmonious relationship within the system. Labour laws and workmen's and employees compensation act (2010) will be presented and discussed. Emphasis will be placed on organizational theories and social workers roles in industrial context.

SWK 726.2 School Social Work 2 Units

This course will focus on the child as the object and subject of the interplay between the school, the home and the community. The knowledge, skills and abilities needed by social workers to effectively intervene in the school setting for effective teaching and learning by the child such as counselling, consulting, collaborating and cooperating key role players (parents, teachers, peers and the child) in the resolution of social problems of the school environment will be discussed.

SWK 727.2 Introduction to Community Service Practice 2 Units

This course will examine theory and skills necessary to support change through the practices of community organizing. It will also discuss strategies that social workers use in communities to effect change. Community organizing frameworks will be explored in the class. They include social action, locality development, and social planning.

SWK 728.2 Social Work Assessments and Intervention 2 Units

This course will focus on biological, neurological, psychological, social, spiritual and environmental aspects of late life as a foundation for the delivery of assessments and interventions to older adults. This course will present information on demographics projections, population's trends and theoretical perspectives that inform Gerontological social work practice.

12.0 Physical Facilities

The following facilities are available for the Programme:

Description	Number
PG Lecture Room	2
PG Common Room	1
Library facilities	1
Audio-visual Laboratory with Modern audio-visual facilities	1
Social Work Laboratory/Practicum Room	1

MASTER OF SCIENCE DEGREE PROGRAMME IN SOCIAL WORK

Admission Requirements

- Candidates must satisfy the matriculation requirements of the University including English Language and Mathematics at ordinary level.
- Candidates with Bachelor's Degree in Social Work with not lower than Second Class Lower division from an approved and accredited University degree in Social Work or related discipline such as (community and social welfare), awarded by an approved and accredited University.
- Candidates with a PGD in Social Work at credit level pass on weighted percentage average or CGPA of not lower than 3.0 on 5 point scale from an accredited university.

9.0 Programme Duration

- A full time Master's Degree programme in social work shall run for a minimum duration of 12 calendar months.
- Part- time Master's programme shall run for a minimum of 24 months and a maximum of 48 months.

10.0 Graduation Requirements

To qualify for the award of the Master's degree (MSc) the candidates must have fulfilled the minimum of 34 credit units made up of the following, She / He must pass a minimum of 34 credit units

- Core Courses 16 and Field Work Practicum of five (5) credit units.
- Elective courses of four (4) credit units.
- Seminar (3) credit units. A student shall present at least one seminar, submit and defend a dissertation.
- A student shall carry out research in any area of specialization in his / her discipline and submit an acceptable dissertation of six (6) credit units.

FIRST SEMESTER

CORE COURSES

COURSE CODE	COURSE TITLE	CREDIT UNITS
SWK 801.1	Field Work Practicum C	3
SWK 811.1	Advanced Social Work Theories C	
SWK 812.1	Advance Research Method for Social Work C	2
SWK 813.2	Computer application in Social Work research and practice C	2
SGS 801. 1	ICT and Research Methodology C	2

ELECTIVE

SWK 831.1	Advanced Community Development / Environmental Sustainability E	2
SWK 833.1	Issues in Adolescence and Youth Development E	2
Total		15

SECOND SEMESTER

CORE COURSES

COURSE CODE	COURSE TITLE	CREDIT UNITS
SWK 820.2	Research Project C	6
SWK 829.2	Seminar in research project C	3
SWK 822.2	Advanced Techniques, principles values in social work practices C	2
SGS 801.2	Management and	2
SWK 802.2	Entrepreneurship C	2
SWK821.2	Field Work Practical 11	
	Advanced statistical research methods in social work C	

ELECTIVES

SWK 857.2	Peace and Conflict Management / Rehabilitation E	2
SWK 847.2	Family, child protection and correction services	2
	Sub-Total	19

Minimum Graduation requirements: Core courses 16, Elective 4, Project 6, Seminar 3
Field Practicum 5 **Total 34**

C = Core Courses

E = Elective

SWK 801.1 Field work Practicum I (2 units)

At the end of the first session (that is beginning of second semester), students are required to proceed to field work placement for a period of 18 weeks. 16 weeks would be spent in the students area of specialization while one week each will be spent in two other areas of specialization. The course offers the student an educational experience in a social service agency under the supervision of a qualified professional. The purpose of the course is to integrate materials gained in academic course with practice in the field. At the end of the placement students will be expected to submit to field work practicum report to the department using the departmental format.

SGS 801.1 ICT and Research Methodology (2 units)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing, Organization of Research and Report Writing.

SWK 811.1 Advanced Social Work Theories (2 units)

The course will be divided into two parts: (i) Foundational theories, and (ii) Social Work theories. The foundational theories will emphasize the importance of psychological and social work theories in the understanding of human behaviour and the treatments of social problems. Series such as psycho analysis, behaviourism, Gestalt psychology, motivation and personality, biopsychology and the cultural School of thought will be examined as they relate to social work practice. Models of social work practice such as problem solving, psychosocial, the functional behavioural therapy, crisis intervention, the first systems model, the four systems, task centred model, critical theory, game theory, health belief model, rational choice, strength perspective among others perform the basis of discussion.

SWK 812.1 Advanced Research Methods for Social Work (2 units)

The course will introduce the students to the application of social work research methods for evaluation of practice effectiveness. The quantitative and qualitative research procedures, research design, social service, sampling, interviews, questionnaires, focus group discussion and other qualitative instruments, case studies, and descriptive analysis will be presented and discussed. Students will be exposed to Advanced knowledge and process of developing research hypothesis testing and knowledge on models of inferential statistics.

SWK 813.1 Computer Applications in Social Work Research and Practice (2 units)

The course will introduce the use of computers in the practice of Social Work. The use of security code and adaptability to the principles of confidentiality in social work practice will be considered. The practical applications of computers in data analysis will be presented with software in hypothesis testing using NOVA, correlation, regression analyses, chi-square, and other inferential statistical tools will be presented and discussed.

SWK 831.1 Advanced Community Developments (2 units)

The course is designed to help student develop advance skills for assessing community needs and resources necessary for human survival, Growth, development and fulfilment. The students will be required to identify those social needs that are not being met and essential resources that are absent. The course will discuss the philosophy and approaches of community development and the methods of organizing communities to improve community life through collaborative problem solving. It will also examine the current debates on community empowerment and social action. Advocacy roles and dilemmas facing the community organiser will be discussed.

SWK 833.1 Issues in Adolescence and Youth Development (2 units)

The course will examine theories, principles and practise of social group work, the integrationist, preventive and rehabilitative approaches to understanding adolescence and youth behavioural patterns. Furthermore, students will be exposed to the various empowerment programmes and skill acquisition, National Youth Policy and Youth Development Programmes in general and in particular in Nigeria National Youth Award scheme. Leadership and citizenship training programmes and other leadership development programmes and the national will be discussed. The students will also be exposed to the consequences of social vices(such as cultism, robbery, gangsterism.

SWK 802.2 Field Work Practicum II (2 units)

The students will undergo the second field work placement at the following social work Institutions; Family Welfare Centre, Children Homes, Women Affair Ministry, Psychiatric Centres and Rehabilitation Centres, Industrial Centres etc. This course will integrate materials gained in academic course with practice in the field. At the end of the placement, the student will be expected to submit field practicum report using Departmental format.

SWK 820.2 Dissertation (6 units)

In the third semester the student is expected to carry out an original research project on the social service / social problems / social work practice and write a report under the direct supervision of a departmental staff. The research project maybe based on library and/or field work research. The research project report is to be submitted at the end of the third semester.

SWK 821.2 Advanced Statistical Research Methods in Social Work (2 units)

The course is designed to provide students with a firm grounding in the logics of hypothesis testing and knowledge on models of inferential statistics. It will provide students with a conceptual understanding of some basic Univariate and Bivariate statistical models, frequently used and encountered in social work research, as well as provide the necessary operational skills needed in using basic quantitative methodologies to answer a variety research questions. It will also provide for the students appreciation for the strengths as well as limitations of quantitative analysis.

SWK 829.2 Seminar in Research Project (2 units)

The seminar is set up to guide students in the writing of their thesis based upon the individual research they have conducted and discuss the written work of the students and their progress. The seminar is based on presentations by students, for instance, on their problem formulation and research design issues, the connection between theory and empirical research, and the level of abstraction of the various parts of thesis.

SWK 822.2 Advanced Techniques, Principles, Ethics and Values of Social Work Practices (2 units)

The course is an examination of the principles (ie the principles of confidentiality, non judgemental attitude, and client self-determination among others) and techniques of social casework/counselling, interviewing processes, intervention models, communication and recording including the personal qualities of counsellor. Topics to be covered in this course will also include strategy and methods of counselling. Ethical issues in relation to the rights of the client including the protection of the

rights of marginalized persons will be examined. The secular and scared perspectives in counselling.

SGS 801.2 Management and Entrepreneurship (2 units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

SWK 857.2 Peace and Conflict Management /Rehabilitation (2 units)

The course will explore the theoretical and practical functions of various approaches to achieving social justice, equity and reconciliation. It will also examine peace keeping and humanitarian services as foundation for peace building. A range of conflict resolution methods and practices such as facilitation, negotiation, mediation, arbitration, adjudication and approaches to healing, restoration, reparation, forgiveness and reconciliation will be discussed. The course will present and discuss modern trends in rehabilitation projects and the organization of rehabilitation services such as community based rehabilitation (CBR) and home services. Types and methods of social services rendered will also be presented and discussed. Major challenges affecting rehabilitation will be identified and discussed.

SWK 847.2 Child Protection System and Correction Services

This course will explore the policies, functions, dynamic, ethics and values associated with case management of private and public child welfare services and examine the provisions of services for children aged below 18 years. It will focus on the knowledge, skills and competencies necessary to successfully work in organization and manage programmes providing such services. The course will present and discuss family high court, magisterial family course, institutional services, adoption services, family based foster care services are protective services provided under the child's right act 2003. Furthermore, child correctional services such as reformatories, correctional homes and borstal institutions shall be presented and discussed. Emphasis will be on the survival, development and protection of the child and his / her participation in family activities in line with best practices. The activities of other agencies and nongovernmental organisations involved in child protection and correctional services will be discussed.

12.0 Physical Facilities

The following facilities are available for the Programme:

Description	Number	Areas of Specialization for Masters (M.Sc) in
PG Lecture Room	2	Social Work
PG Common Room	1	i. Community Development/ Community Organization/ Cooperatives
Library facilities	1	ii. Family, Child, Youth Social Work
Audio-visual Laboratory with		iii. Peace and Conflict Management/ Rehabilitation
Modern audio-visual facilities	1	iv. Environmental Sustainability and Climate Change
Social Work Laboratory/Practicum Room	1	

ACADEMIC STAFF LIST

S/N	Name of staff	Qualifications	Designation	Areas of specialization
1	Prof. Paul, Eke	B.Sc, M.Sc, PhD.	Professor (HOD)	Conflict Management/ Resolution (Sociology)
2	Prof. A. Kinikanwo	LLB, BL, B.Sc, M.Sc, PhD	Professor	Social Problems/Change (Sociology)
3	Prof. O.M. Adesope	B.Sc, M.Sc, PhD	Professor	Rural Development; ICT, Research Methods and Statistics
4	Prof Zabbey, N.	B.Sc, M.Sc, PhD	Professor	Environmental Sustainability and Climate Change
5	Prof. Otu, Ekpenyong	BA, M.Sc, PhD	Professor	Sociology/Rural/Community Development
6	Dr. G. Adekola	B.Sc, M.Sc, PhD	Associate Professor	Community Development (Adult/Community Development) (Education)
7	Dr. John, Emaimo (Adjunct)	B.Sc, M.Sc, PhD	Associate Professor	Communication in Social Work/Rehabilitation (Social Work)
8	Dr. Okemini, E.	BA, M.Sc, PhD	Senior Lecturer	Sociology of Family/ Personnel Management
10	Dr. D.T. Uranta	B.Ed, PGD, M.Sc, PhD, (DSW)	Senior Lecturer	Ethics/Values, Family, Rural/Community Development (Social Work)
11	Dr. Oriji, C.	B.Sc, M.Sc, PhD	Senior Lecturer	Medical Sociology
12	Dr. Mina, Ogbanga	B.Sc, PGD, M.Sc, PhD	Lecturer 1	Social Work (Community Development/ Advocacy)
13	Dr. Destiny, A.	B.Sc, M.Sc, PhD	Lecturer 1	Criminology (Sociology)
14	Dr. P. Emejuru	(BA)Ed, MBA, PhD	Lecturer 1	Administration (Sociology)

DEPARTMENT OF GEOGRAPHY & ENVIRONMENTAL MANAGEMENT

POSTGRADUATE DIPLOMA IN GEOGRAPHY & ENVIRONMENTAL MANAGEMENT (PDGEM)

1.0 Introduction

Geographical studies have remained quite dynamic and the Department of Geography & Environmental Management in the University of Port Harcourt has not been insulated from the positive effects of the associated growth and intellectual development. In response to the contemporary challenges in its operational environment, where up-to-date geographical information and effective environmental management practices are in dire need, the review and expansion of courses and programmes offered in the department has become imminent.

The Postgraduate Diploma in Geography and Environmental Management (PDGEM) is therefore designed to bridge the gap between the B.Sc and M.Sc degrees for those whose B.Sc graduation grades may not qualify for a direct admission into the M.Sc programme. It also provides the opportunity to welcome non-geographers, environmental managers, planners, scientists and other allied professionals who may not have a background in geography, but are stakeholders in environmental issues.

2.0 Aim and Objectives of the Programme

In addition to providing a firm and sound foundation for Geographers at the graduate level, the Postgraduate Diploma in Geography and Environmental Management (PDGEM) is specifically designed to:

- (a) Advance the knowledge and training skill of geography and environmental management practitioners in important academic specialization and manpower needs for public and private sectors.
- (b) Enhance the admission potentials into the Department's M.Sc and PhD programmes by providing geography and environmental management foundations for non-geography graduates.
- (c) Provide modern training in geo-informatics aimed at improving the process and delivery of spatial data collection and handling for which the old manual and conventional techniques have become inadequate.

3.0 Admission Requirements

Admission is open to graduates of this university and other approved universities recognized by senate with a minimum of a bachelor's degree in sciences, Social Sciences, Medicine, Agriculture and Forestry, Environmental Science, Engineering, Urban and Regional planning, Surveying, and Architecture etc. Candidates who possess a lower class degree but have relevant working experience in the specialized areas of the discipline may also be considered. Candidates must have at least five o level credit passes including English and Mathematics.

4.0 Duration of the Programme

The PDGEM Programme is designed to last for one academic session of two (2) semesters commencing from the normal University of Port Harcourt calendar year and ending at the end of the normal session.

5.0 Mode of Application

Request for application forms should be made to the Graduate School and such requests must be accompanied by bank draft made payable to the University of Port Harcourt with the candidate's name, address and course applied for, written at the reverse side. Other details are as advertised by the Graduate School.

6.0 Programme Requirements

- (a) *Registration of Courses and Credit Load:*
 - (i) Candidates must register for six compulsory courses in the first semester and four in the second semester in addition to research project.
 - (ii) The total credit load required for graduation is 30 credit units.
- (b) *To qualify for the award of the PDGEM, a candidate in must:*
 - (i) Register and pass all the prescribed courses for their programme option with a grade of at least C;
 - (ii) Undertake a field work and present a project in area of specialization arising from it. Candidate must also participate in seminar discussions, obtaining a grade not less than C;

- (iii) Submit four properly bound copies of a research project in an area of specialization. The project should not be more than 60 pages of A-paper, or 20,000 words;
- (iv) Pass an oral examination in defense of the project before a panel of examiners set up in accordance with university regulations.

- (b) 60% end of semester written examination. Candidates are expected to obtain a minimum grade of 'C' (50%) in each course in order to be awarded the Postgraduate Diploma in Geography and Environmental Management (PDGEM). Grading system is as follows:
 A = 70-100%
 B = 60-69%
 C = 50-59%
 F = 0-49%

7.0 Course Description

7.1 Postgraduate Diploma in Geography & Environmental Management (PDGEM)

First Semester

Course Code	Course Title	Credit Units
PDGEM 701.1	Introduction to Geo Environmental Thought and Theory	2
PDGEM 702.1	Quantitative Techniques	2
PDGEM 703.1	Geographic Information Systems	2
PDGEM 704.1	Fundamentals of Physical Geography	2
PDGEM 705.1	Introduction to Environmental Monitoring & Assessment	2
PDGEM 706.1	Fundamentals of Human Geography	2
PDGEM 707.1	Ecology of Natural Resources (E)	1
Total		13

Second Semester

Course Code	Course Title	Credit Units
PDGEM 708.2	Spatial Aspects of Development Planning	2
PDGEM 709.2	Global Environmental Change	2
PDGEM 710.2	Environmental Resource Management	2
PDGEM 711.2	Transport Geography	2
PDGEM 712.2	Tourism and Recreational Planning (E)	2
PDGEM 713.2	Issues in Entrepreneurship	2
PDGEM 714.2	Project	5
Total		17
Grand Total		30

8.0 Course Assessment

Each course will be assessed on the basis of

- (a) 40% continuous assessment

9.0 Diploma Classification

The PGD in Geography and Environmental Management will be awarded with Distinction, Upper and Lower Credit, and a Merit. The cumulative grade point for classification shall be:

Distinction	4.50 -5.00
Upper Credit	4.00-4.49
Lower Credit	3.50-3.99
Merit	3.00- 3.49
Fail	0.00-2.99

10. COURSE DESCRIPTIONS FIRST SEMESTER

PDGEM 701.1: Geo-Environmental Thought and Theory

Introduction to basic concepts of Geo-environmental thought in relation to the history of science. Man - Environment Relations - Determinism, Possibilism, Probabilism and Human Ecology - sustainable and unsustainable human-ecosystem interaction. The role of theory in Science, Geography and Environmental management methods in the natural and social sciences.

PDGEM 702.1: Quantitative Techniques

Characteristics of Data. Measurement and instrumentation; Probability and non-probability sampling technique, Physical, human and socioeconomic data collection. Probability and non- probability sampling technique, multivariate classification, grouping and regionalization. Spatial analysis techniques, Questionnaire design and survey. Univariate, bivariate and multivariate techniques; Data processing and the use of the computer. Parametric and non-parametric tests. Regression, correlation and time - series analysis. Hypothesis Testing.

PDGEM 703.1: Geographic Information Systems

Introduction to Geo-informatics concepts, technology and functional components. Basic principles of Geo-environmental data acquisition/storing, data presentation, and data analysis. The use of relevant types of computer hardware and software e.g. scanning of maps into digital format. Digital Image processing, methods and tools necessary for converting scanned images into vector format. The application of GIS to Geo and environmental investigations, analysis and visual presentations. Selected application case studies e.g. land use planning, transportation planning, resource planning, conservation, spatial policy decision making etc.

PDGEM 704.1: Fundamentals of Physical Geography.

Composition and structure of the earth, crustal/lithospheric processes including continental drift, plate tectonics and their relationship to major topographic and marine features on the earth. The earth's radiation, atmospheric and oceanic circulation systems, recycling of matter and energy in the ecosystem, Factors and processes of soil formation. Soil and Vegetation distribution. Natural processes, environmental disequilibrium, current environmental problems such as air pollution, earthquakes, global warming, floods, desertification, erosion, drought, hurricane and other tropical storms will be examined.

PDGEM 705.1 Introduction to Environmental Monitoring and Assessment

Current status of major environmental resources, water, soils, minerals, wildlife, air, energy, ocean and - biological resources. Assessment and management of biological resources, wetlands and energy resources. Principles and procedures of ecological risk assessment and environmental modeling. Socio-economic assessment process; participatory rural appraisals, etc.

PDGEM 706.1: Fundamentals of Human Geography

The course offers insight into the interrelationships between the earth and man with emphasis on basic concepts of population, settlement, human activities, resources, spatial movement and land use. It covers theoretical bases of these concepts and their applications to human affairs in the area of production, distribution and consumption of goods and services; political organization; development process and planning process.

PDGEM 707.1: Ecology of Natural Resources.

Factors affecting flora and fauna distribution at various scales. The concept of ecosystem, natural

resources, ecological economics. The structure and functioning of terrestrial and aquatic eco-systems. Vegetation dynamics, adaptation, succession and climax. Farming systems, rural resources conservation / management. Techniques in natural resources conservation; sustainable resource systems and sustainable resource use. Eco-service of natural resources. Resources and the perception of limits; global common challenges and, environmental regulations etc.

SECOND SEMESTER

PDGEM 708.2: Spatial Aspects of Development Planning

This course encapsulates basic concepts of spatial organization principles of classification of Geo environmental phenomena; philosophical and theoretical aspects of planning; planning principles, research procedures and techniques; planning processes, theories, policies and practices in Nigeria. Elements of rural, urban, regional, and environmental planning will also be examined.

PDGEM 709.2 Global Environmental Change

This highlights the concept of global environmental change-physical, chemical, biological and ecological perspectives. Understanding the earth system and processes. Causes and consequences of global environmental change-population, Global emissions and warming, droughts and desertification, industrialization, deforestation, agriculture, tourism waters, natural causes. Responding to global environmental change. Globalization, International environmental laws and policies environmental politics and conflicts.

PDGEM 710.2 Environmental Resource Management

This course provides both the theoretical and conceptual foundation and practices of applied physical geography. Systems of land classification and evaluation with special reference to integrated surveys. Compilation of land and water resource maps. Utilization of strategic minerals for national development. It focuses on Environmental resource degradation, balance and Human livelihood techniques for sustainable development, and Bio-development.

PDGEM 711.2 Transport Geography

This course will introduce students to the subject of transportation in four main areas; these are the general principles and modes of transport, transport systems on regional basic. It will also review the nature of tourism, leisure and recreation. The concepts of Ecotourism and tourism definitions and

relationships. Globalization and Ecotourism. Development. Ecotourism programme planning and development, Ethics, feminism and Tourism. Attempt will be made to treat the problems and prospects of transported development in the developing countries.

PDGEM 712.2 Tourism and Recreational Planning

Course content include: The tourist industry, parks planning, camp grounds and recreation: urban recreation, wildlife parks and natural reserves, tourist and recreational services, transport, recreational resource management.

PDGEM 713.2 Issues in Entrepreneurship

The objective of this course is to make the student acquire skills for self-employment should the need arise. Areas of interest include: Field research; Geographic Information System (GIS); Digital Cartography; Surveying; Remote Sensing; Laboratory Techniques of Soil analysis.

PDGEM 714.2 Project

This shall be the original work of the student presented in accordance with regulations approved by the Departmental Graduate Committee.

MASTER OF SCIENCE DEGREE IN GEOGRAPHY & ENVIRONMENTAL MANAGEMENT

1.0 General Information

The department offers the Master of Science (M.Sc) degree programme in Geography and Environmental Management, with emphasis on the following areas of specialization:

- (a) Rural Land use and Rural Development
- (b) Urban Geography
- (c) Transport Geography
- (d) Regional Development Planning
- (e) Biogeography
- (f) Climatology
- (g) Geomorphology
- (h) Environmental Management
- (i) Geographic Information Systems
- (j) Hydrology and water resource management
- (k) Disaster Risk Management (Offered in Centre for Disaster Risk Management & Development Studies)

2.0 M.Sc. Admission Requirements

- Candidates must have at least five '0' level credit passes including English and Mathematics. Candidates with Bachelors Degree in Geography from an approved

university with its geography programme fully accredited.

- Candidates with a minimum of second class honours lower degree
- Candidates with a Post Graduate Diploma degree in Geography or from a cognate discipline awarded by a recognized institution with not less than a lower credit.

3.0 Duration of Programme

- (a) A full-Time Master's Programme shall run for a minimum of 12 Calendar months and a maximum of 36 months.
- (b) Part-time master's programme shall run for a minimum of 24 calendar months and a maximum of 48 calendar months.

4.0 Requirement for Graduation

To be awarded a Master of Science Degree in Geography and Environmental Management, a candidate must pass a minimum of 30 credits units made up as follows:

a) Compulsory courses

- Geographical Thought & Theory - 2 Units
- Methods and Techniques of Geographical Investigation - 3 Units
- ICT and Research Method - 2 Units
- Environmental Method Management Processes in Nigeria - 2 Units
- Environmental Perception in Management - 2 Units
- Fundamentals of GIS - 2 Units
- Issues in Entrepreneurship Management & Entrepreneurship - 2 Units

5.0 Award of M.Sc Degree

To qualify for the award of the M.Sc degree, a candidate must:

- (a) Complete 33 semester hours consisting of 24 semester hours of taught courses and a seminar of 3 semester hours. Candidates must score not less than the grade 'C' in any of the courses;
- b) Satisfactorily defend a six credit load dissertation written in his/her area of specialization.
- (c) Meet all financial obligations to the university as well as other requirements relating to residence and character as may be prescribed by Senate on the recommendation of the Graduate School. At present the residency requirement is 12 months, i.e. 2 semesters, plus the long vacation for full- time students, and 24 calendar months for part- time students;

- (d) No candidate may be registered for the M.Sc degree for more than three - calendar years if a full-time student or for more than five years if a part-time student. In exceptional circumstances Senate on the recommendation of the Graduate Studies Committee and approval by the Graduate School, may waive this rule;
- (e) No courses taken more than four years prior to the effective date of admission of a candidate to a higher degree will be credited towards the fulfilment of the requirements of that degree.

6.0 Additional Course Requirement

In addition to the compulsory courses in the department and major field of specialization, a candidate must take a course in any cognate minor area of specialization.

7.0 Part-Time candidates

Part-time candidates must provide evidence that they are:

- i) engaged in approved employment;
- ii) Can devote a good proportion of their normal working year to their studies;
- iii) Will be available for attendance at courses, seminars and for regular consultation with their Supervisors.

8.0 Dissertation:

Dissertation shall be the original work, presented in accordance with regulations approved by Senate on the recommendation of the examiners which must include the dissertation supervisor and one external examiner. A minimum grade of 'C' for the dissertation and for its defense is required for a pass.

9.1 COURSES DESCRIPTION

9.1.1 GENERAL COMPULSORY COURSES

GEM 800.1: Geographical Thought & Theory

The scientific methodology and geography. Hypotheses, models, theories and laws in geography. Normative, positive and systems theories in geography. Space-time concepts. Positivist, Structural, reflective and committed explanation in geography (compulsory for all Students)

GEM 801.1: Methods and Techniques of Geographical Investigation

Physical, human and socio-economic data collection; Measurements in Environmental Studies; data handling in social, economic and environmental research, Instrumentation -

sampling; questionnaires and interview designs; formulation and testing of hypotheses; multi-variate analytic techniques; Data programming and the use of computers — (compulsory for all Students)

GEM 802.1: Geo-information and Remote Sensing

The course focuses on the nature, sourcing and mapping of spatial data; geo-referencing of spatial data; spatial editing, input and management; raster and vector data analyses; GIS models and modeling; and environmental applications. Also covers principles of Remote Sensing, types and application to environmental issues. (Compulsory for all Students)

GEM 803.1 Entrepreneurship in Geography & Environmental Management.

The concept of entrepreneurship; Small - scale enterprise; Project identification selection, Formation and appraisal; Project financing, Ownership structural; Management and Franchising. Selected area of entrepreneurship - surveying, Cartography, GIS, Environmental Consultancy, Air Quality Assessment, etc. (Compulsory for all Students)

GEM. 804.2 M. Sc Dissertation

The Dissertation shall be original work on an approved topic in the candidate area of specialization, and in accordance with the regulations of graduate school as approved by senate. The dissertation is expected to contribute to knowledge in a chosen empirical and contemporary area of geography and environmental management.

9.1.2 AREAS OF SPECIALIZATION

(A) M.Sc IN RURAL LAND-USE AND RURAL DEVELOPMENT

GEM 805.1: Rural Resource Management

This involves study of rural areas: concepts, theories, land use systems issues and principles of resource identification, conservation and management. Examinations of selected rural problems and issues with an emphasis on strategies of rural transformation, resource conservation and management, and urban-rural integration. Policies and methods for prevention of rural environmental degradation. GEM 806.1: Rural Population and Settlement

Focuses on the spatial structure of rural population and settlements, problems of rural habitant, functions of rural settlements. Other themes are

rural-urban contrasts and interactions, location and functions of rural markets as well as analytical techniques and conceptual models for national development of rural environment.

GEM 807.1 Agricultural Land use

This covers various aspects of agricultural land use including physical environmental base, spatial patterns of rural economics, and systems of agricultural land use. Others are agricultural locations theories and optimization models, land tenure issues, and land use survey classification and planning. The course also examines population land use relationships, processes of agricultural change and diffusion models.

GEM 808.2: Tropical Agriculture

This gives insight into the import of agriculture in the tropics, problems of development and productivity etc. others themes include agriculture potential in the tropics, agricultural policies, and industrial-agricultural integration problems It examines geographical, social, economic and political problems confronting agricultural transformation in the tropics. Comparison of tropical agriculture and agriculture in advanced economics is an essential theme.

GEM 809.2: Seminar on Rural Development Planning

This emphasizes strategies and methods of rural development rather than policies and practice. It examines strategies and methods of rural development planning in historical perspective, the causes of failure of the adopted strategies, and why rural underdevelopment in Africa lingers till 21st century. New reformulated strategies that are ecological, tradition-based and relevant methods are advanced.

(B) M.Sc IN URBAN GEOGRAPHY

GEM 810.1: Urbanization in History

This will evaluate the hypotheses of urban origins, the urbanization in the developed and developing countries, and the pre-industrial city. It also considers the nature of cities for specific historical period's e.g Greek and Roman towns, early medieval towns and development of African urban system.

GEM 811.1: Urban Economics and Land use Analysis

This course examines the general models of urban spatial structure followed by a detailed study of urban modeling. Others include analysis of urban

land use such as residential, industrial, commercial, slums, transport, recreational etc. It also gives broad review general principles underlying ultra - urban business activity location decisions, urban rent and land values. Themes to be considered include basic and non - basic concepts, form & and informal economic activities, input - output, analysis, and agglomeration and de agglomeration analysis.

GEM 812.1: City Systems in the Third World Countries.

Basic problems and basic concepts in the Third World Cities. Past growth, present processes of change and city - system growth and development. The quality of life service availability. It also examines rank - size rule, urban primacy, urban hierarchy. urban sphere of influence, growth pole and center - periphery model, and regional economic impact.

GEM 813.2: Urban Environmental Management

This course examines in details urban management dimension contemporary urbanization problems: housing, transport, unemployment, and social facilities and services provision urban garbage. It also deals with management techniques, policy approach Environmental planning challenges.

GEM 814.2. Seminar on Urban Policies and Policy Making

Analysis of local, state and federal decision making processes as they affect pub policies in urban areas, impact of the forces of urban growth and changes on the urban political system, centralization and decentralization in the metropolis and inter-governmental relations.

(C) TRANSPORT GEOGRAPHY

GEM: 815:1 Transportation Modes and Technology

History of transport development; management of technology in transport behavior, characteristics; comparative advantages and disadvantages, infrastructure/network; etc, Environmental factors in transport, technical aspects of transport and world standards. Vehicle control and operation. Energy and Transport. Modal system land environmental pollution.

GEM 816:1 Theories and Models in Transport

Transport Theories, concepts and models: The Gravity Model, the spatial interaction Model etc. Models of network evolution and development;

theories of mode choice; theories of competition in transport; transport and development, etc.

GEM 817:2 Transport planning and Management

Land use/transportation planning; trip generation; trip distribution traffic assignment traffic forecasting; urban transport and public transport in Nigeria. Transport flows and modal split, transport competition. Transport data: origin- destination matrix. Public transport and mass transit; public and private involvement in public transportation. Organization control of transport; laws, and regulation to improve traffic now. Traffic signal and control; pedestrianization; builder and user cost; operation and administration of public transport, public transport in Nigeria-the different programme of local government, state and the Federal Government.

GEM 818:2 Seminar in Transport Policies and Safety

Transport and Development; transport policies and implementation. Evaluation of different transport policies in the different transport sub-sectors. Government and transport licensing. Traffic principles and culture; the Highway Code, and other regulations; pedestrian education; defensive driving law- enforcement agency - the police, the Federal Road Safety, SAR unit of NAMA and NEMA. Institutional frameworks for transport safety. The role of nongovernmental organizations, educational institutions, parents, passengers etc. traffic accidents and traffic statistics.

(D) M.SC IN REGIONAL DEVELOPMENT PLANNING

GEM 819:1 Regional Development Theory

This course involves a discussion of the concept of development, regions, structural and dependency theories, and national development process. It will be followed by a review of the state of the art of regional development theorizing which will involve an in-depth review of economic oriented theories of regional development and regional domination.

GEM 820:1 Techniques of Regional Analysis

This entails advanced appraisal of the various techniques of regional analysis including regionalization, regional economic analysis, etc. other planning statistics include descriptive data analysis, inferential statistics multivariate technique of spatial analysis of resource (population, settlements, minerals, ecological etc) as they affect location behaviour.

GEM 821:2 Regional planning In Developing Countries

Origin of regional development planning, basic concepts of regions and development. Typologies of region. Urbanization and development process; environmental degradation; slums and squatter settlements. Development of special regions e.g. Niger Delta Region. Government Policies on the development of problem regions. Regional Environmental Planning Policies.

GEM 822:2 Environmental Planning

Fundamental Principles, key issues and environmental planning process: legal, ethical, economic and ecological foundations of environmental planning: Aspects of environmental planning such as planning for sustainable water and, air quality, solid waste, toxic waste and natural hazards; planning for natural areas such as landscape, wetlands, coastal zones, etc. Case studies

GEM 823: 2 Seminar on Regional Planning Policies and Strategies

This reviews issues in regional policy evolution development plans. It looks into other areas such as philosophy of regional planning, evolution of regional development planning etc. Grass root approach to regional development contemporary strategies regional development. It will also discuss public policy and regional and regional developed and developing world, as well as planning strategies for rural urban region

(E) M.SC. IN BIOGEOGRAPHY

GEM 824.1: Biogeographical Analysis

Ideas and concepts of man and his environments; the environment as man's life support system; fundamental processes determining the nature of and spatial patterns in the biosphere; human impact of major world ecosystems. Research Frontiers; Biogeography; experimental design and techniques of biogeographical investigation.

GEM 825.1 Advanced Vegetation Studies

The course will investigate the distribution of natural vegetation and the relationships to soils and climate; vegetation structure, architecture diversity and production; vegetation succession, classification and mapping; structures and functions of Nigeria vegetation types: mangrove, freshwater, tropical rainforest and savanna, other aspect include vegetation resource inventory

methods; vegetation management and conservation.

GEM 826.1: Advanced Soil Studies

The course will focus on the principles and concepts relating to soil use and management, in the tropical region, tropics include soil classification and mapping; soil properties and characteristics of main soil types; the collection and testing of soil sample parameters; the concept of pedon as it relates to the tropical region; soil degradation and soil conservation practices.

GEM 827.2: Seminar on Biodiversity Conservation and Human Ecology

The values of biodiversity, sustainability and sustainable conservation, biomes and ecosystems under pressure, agriculture and biodiversity management of forests, wetlands, rangeland and wildlife, convention on biological diversity and implementation process. Human Ecology.

GEM 828.2 Land Resource Analysis

Economic analysis of existing natural resources complexes indifferent regions; the classification of land types and assessment of their development potentials; river basin planning; water resource development; perception of the natural environment

(F) M.Sc IN CLIMATOLOGY

GEM 829.1 Microclimatology

The physical bases of boundary layer climates, Climate of vegetated and non-vegetated surfaces and of nonuniform terrain, man modified atmospheric environments. Urban climatology, air pollution climatology, air quality assessment, construction and operational air quality impacts and mitigation especially a gas area, Air monitoring basics. Material and methods for air quality study, air toxic and air modeling. The air quality Act, the measurement and instrumentation for determining boundary layer climates.

GEM 830.1 Techniques in Climatology

The basic techniques in weather observation; analysis of data, various atmospheric motions and weather forecasting, satellite climatology. Applications of the basic techniques in radiation climatology, and geographical climatology. It involves climatological models of phenomena of weather and climate, cloud formation, airflow over barriers: Elements' of atmospheric circulation and

processes. Models of temperature and precipitation distribution on hemispheric or regional circulation of the atmosphere.

GEM 831.2 Agroclimatology

Climate-crop relation, agroclimatological zonations weather hazards in agriculture. Weather aspects of crop pests and diseases. Climate and animal husbandry, animal bioclimatology, crop-weather models, principles and practice for irrigation. Forestry and water management, weather hazards to forestry. Climate and agricultural planning and development.

GEM 832.2 Climate Change

Concepts and definitions of paleoclimatology and climate change, causes of climate change, current evidences of past climate of arid, Humid, Cold and warm climates. Theories of climate change, humanity, the climate system and climate. Physical and ecological impacts of climate change on agriculture, water resources and water resources management; impact on socio-economic and socio-cultural sectors health, nutrition and human development issues on response measures to global warming and climate change. The role of IPCC, the world climate programmes. El Nino southern oscillation events and their implications for weather and climate. International climate negotiations. Climate impact studies.

GEM 833.2 Regional Climatology

This course exposes students to various principles and factors underlying climatic variations and fluctuations at the regional level. Topics to be covered include: Atmospheric circulation, air masses and weather pattern; climatic classification; world climatic regions - tropical climates, temperate climates, high latitude and highland climates.

GEM 834.2 Seminar in Climate Resource Management

The concept of climate as a resource, the concept of weather modification and seedling, allocating weather and climate management efforts, cost-benefit analysis of climate parameters. Economic and decision-making analyses on management efforts, natural resource view of climate. Climate in economic analyses to climate variability. Determining the sustainability and potential for the implementation of climate policy.

(G) M.Sc IN GEOMORPHOLOGY

GEM 835.1 Research Techniques in Geomorphology

Geomorphological theories; Methods of geomorphological investigation- Induction, Deduction, Systems approach. Geomorphological techniques - Study of form: Morphometric Analysis; Geomorphological Mapping Techniques - Single purpose, multi-purpose, morphological & geomorphological maps, Land system maps. Digital Elevation Models (DEM). Weathering processes - methods of determining rates. Removal processes - Slope and channel processes and their measurement. Study of earth materials - description and strength of materials. Models in Geomorphology.

GEM 836.1 River Basin Studies

Principles of open channel flow. Flood routing techniques. Simulation methods. Pervious, impervious and semi-pervious rocks and their influence on porosity. The formation of aquifers and methods of ground water prospecting; instrumentation of well logging. The drainage basin as a physical unit, the parameters and their study. Development problems and practices including design and operation of comprehensive river basin development programmes. Water resource and flood control system.

GEM 837.2 Slope processes & Watershed Management

This course examines the various concepts, theories and processes of slope development, especially in the Tropics. The problem of sediment yield and runoff from slopes are examined. Integration of human socioeconomic activity within the constraints imposed by the physical environment. This is in order to minimize negative geomorphic responses. These are examined within an appropriate watershed management framework. Economic analysis of existing natural resources complexes in different regions; the classification or land types and assessment or their development potentials; river basin planning; water resource development; perception of the natural environment.

GEM 838.2 Geomorphology in Environmental Management

This course examines the interactions between cultural activity and geomorphic systems. It identifies some of the geomorphic and environmental impacts of resource recovery and use by man. Topics taught include: Geomorphological controls, processes and materials; Geomorphological resources, hazards

and risks; Normal versus human cycle of erosion and deposition; anthropogenic land forming processes and their impact on the environment; measurement and management of sheet and gully erosion; landslides and their management measures; geomorphic constraints of human use and modification of rivers; flood management; impact of reservoir and groundwater use; land systems, geomorphological mapping and digital elevation modelling; environmental and geomorphic impact assessment.

GEM 839.2 Advanced Fluvial Geomorphology

This is an advanced course that attempts an understanding of the dynamic principles, theories and processes guiding the activity of rivers and their resulting landforms. The course also reviews the available literature in fluvial geomorphology in order to expose the main research themes in the area. The role of tropical rivers in landscape development will be examined.

GEM 840.2 Seminar on Tropical Geomorphology

Seminar topic shall be selected from contemporary issues in Tropical geomorphology.

(H) M.Sc ENVIRONMENTAL MANAGEMENT

GEM 841.1 Environmental Perception in Management (R)

This course examines the philosophy, theory and practice of environmental perception research and its role in managing environmental issues and challenges. Topics taught include: theory of geographic space preference; environmental cognition and cognitive mapping; environmental hazard theory and assessment; environmental quality assessment and planning; environmental values, meanings and symbols.

GEM 842.1 Environmental Assessments and Modelling (C)

Current status of major environmental resources, water, soils, minerals, wildlife, air, energy, ocean and - biological resources. Assessment and management of biological resources, wetlands and energy resources. Principles and procedures of ecological risk assessment and environmental modeling. Socio-economic assessment process; participatory rural appraisals, etc. Air Quality Assessments and Management: atmospheric deposition, transportation; dispersion, types, sources and their effects; air quality assessment, measurement and monitoring; the measurement of

climatic and meteorological parameters. Others include air quality management system and air quality legislations.

GEM 843.1: Environmental Management Processes in Nigeria (R)

This course examines the Nigerian Environment and the approach to the management of environmental resources. It defines the scope and nature of the Nigerian Environment, the issues and challenges across various socio-ecological zones by thematic and geographical regions. Topics taught include: environmental regions of Nigeria; critical regions; the case of the Niger Delta and the peculiar management issues — wastes, pollution and gas flaring; environmental management institutions, organs and structure, national environmental goals, policies and legislation; environmental impact assessment processes in management.

GEM 844.2: Environmental Health and Safety (EHS) Management (C)

The course provides an overview of Environmental issues such as the fundamentals of developing EHS vision and policies; EHS Management Systems, Strategies and Components; EHS Legal and Regulatory Framework and EHS Internal Auditing System. It also covers the management of fire protection, occupation health and safety, air emission, industrial wastewater, solid and hazard wastes.

GEM 845.2 Environmental Laws and Policies (C)

The basis of national and international environmental laws; environmental issues and policy formulation; the national and international framework of environmental issues analysis; milestones in national and international policy formulation on environmental issues; policy circle; international treaties and conventions; Kyoto protocol, Rio declaration (IJCED Agreements) on environmental and development, law of the sea; Environmental and human right; National laws- FEPA Decree 1988; harmful waste Decree 1988; etc.

GEM 846.2 Corporate Environmental Management (E)

The course covers all aspect of environmental economics, auditing, valuation and accounting. Other aspect includes business environmental orientation and challenges; environmental regulations and standards; strategic environmental management; tools of the corporate environmental management; environmental management plans

and risk management strategies of corporate organizations.

GEM 847.2 Pollution, Toxicology & Waste Management (C)

Covers principles and procedures of pollution studies, monitoring and assessment. Also embraces the principles of toxicology, effects, control and acceptable risk. Environmental technology in pollution and waste management and basic principles of water, air, noise, remediation and risk assessment.

GEM 848.2 Management of Global Environmental Problems (E)

The course focuses on the nature of local and global environmental problems. It addresses the pattern of global environmental concerns, international approaches to defining and managing global problems through conventions and treaties, the politics of international environmental problems, international institutions and management agencies etc.

GEM 849.2 Landscape Assessment and Planning (E)

In this course, methods of landscape evaluation will be treated together with the philosophies underlying them. The object would be to acquaint students with several range of objective and subjective tools employed to analyze and assess landscapes, enabling them to evaluate landscape conditions for both academic and professional planning needs. Topics taught include: landscape perception theories, landscape assessment/perception, interpretation and evaluation paradigms, the role of surrogate stimuli in landscape research; landscape development and planning; recreation parks and gardens planning. Nigerian landscapes and the challenge of conservation.

GEM 850.2 Seminar in topical areas of environmental management. (R)

(I) Msc. HYDROLOGY & WATER RESOURCES MANAGEMENT

GEM 851.1 Advanced Hydrology

This is an advanced course in hydrology. The course attempts a detailed treatment of basic hydrological principles and reviews the available literature in hydrology to expose the main research themes in the field. The application of hydrological

principles in solving the water resource problems in Nigeria.

GEM 852.2 River Basin Studies

This course focuses on river basin development and watershed management. This will cover topics like: the drainage basin as a physical unit; water resource and flood control system; developmental problems and practices; developmental trend of river basin systems (Tropics and Temperate) and techniques of river basin studies.

GEM 853.2 Water Resources Management in Nigeria

This course presents integrated water resource geography of Nigeria. An attempt is made to bring together recent research in a number of fields in water resources, in order to relate the physical occurrence and natural variability of water to the social environment and the increasing demands being made on the available water in the country. Topics include: the identification of water resources in the country; methods for measuring the resources, systematic analysis of factors influencing water availability — including floods and droughts; the origins and growth of the current water situation in the country; the misdistribution of water and the significance of water quality in relation to urbanization and regional water problems and possible solutions in the country.

GEM 854:2 Surface and Groundwater Hydrology

Principles of open channel flow. Flood routing techniques. Simulation methods. Pervious, impervious and semi-pervious rocks and their influence on porosity. The formation of aquifers and methods of ground water prospecting; instrumentation of well logging.

GEM 855.2 Ecology of Coastal Wetlands

The coastal zone has potential for industrial, commercial, residential, and recreational uses which often result in conflicts for which the marine ecosystem suffers. Integrated coastal zone management is canvassed for resolving these challenges using the ecosystem approach. Topics taught include; Estuarine ecosystems and their components — Estuaries, Salt Marshes, Mangroves and sea grass systems; Rocky Shore and Beaches, Sandy Beaches; Shelf Ecosystems; The whole ecosystem approach to managing coastal waters; Challenges and prospects for the future.

GEM 856.2 Seminar in hydrology and water resources management.

(J) MSc GEOGRAPHIC INFORMATION SYSTEMS

GEM 857.1 GIS Fundamentals

Students would be introduced to the basic concepts in GIS, this would include components, data types and structure, projections as well as sources and methods of handling and processing spatial data. The course would also focus on the use of free and commercially available GIS software in for handling spatial Data. Practical and tutorial classes would cover the use of GPS and the tools and capabilities ArcGIS and QGIS in handling spatial and attribute data.

GEM 858.1 GIS and Natural Resources Management

The course would cover the use of geospatial data across different source in the analysis and monitoring of surface and sub-surface hydrology; watershed and catchments; forestry, wildlife and park. Extensive case studies would be examined especially in areas of environmental monitoring, climate change studies, resource management, agriculture, forestry, surveying and landscape management.

SGS 801.1 ICT and Research Method

This course is designed to give graduate students an appreciation of the significance of research and provide students with research skills, knowledge and understandings that will enable them to conduct their own research in a rigorous manner. The course shall include the design of data collection tools and an introduction to quantitative and qualitative data collection and analysis techniques through ICT. Students will gain an understanding of the c-library services and other relevant educational website directories.

SGS 801.2 Management and Entrepreneurship

This course strives to raise the level of academic work in the field of entrepreneurship, in methodological rigour, conceptual depth, and managerial applicability. It will also improve the odds of entrepreneurial success for the students. The course entails making use of the methods, theories and models taught in the classroom in the real world. The practice includes environmental impact assessment of a project, real time monitoring of natural resources and environmental hazards, and detailed and acceptable report writing.

GEM 859.2 Advanced Spatial Statistics and Modelling

The course would cover elementary two dimensional statistics, advanced statistics, non-stationarity, nonlinearity of spatial data, issues of spatial auto- correlation. In addition, it provide students with an introduction to modelling and analysis: the nature of modelling, crisp v. fuzzy, algorithms v. heuristics; Point data sets: representation, characterisation, clustering, spatial autocorrelation; Line data sets: representation, characterisation, generalisation; Polygon data sets: representation (fuzzy boundaries), characteristics (patch statistics and contiguity); Continuous data sets: representation, map algebra, filtering operations, cellular automata, cost surface analysis; Interpolation: sampling strategies, algorithms, evaluation techniques; Surface modelling: derivatives, hydrological and watershed analyses; Network analysis: representation of a network, concepts, techniques; Multi-criteria evaluation: concepts and techniques (linear weighting, ordered weighted averaging, multi-objective decision making), incorporating data error and decision rule uncertainty.

GEM 860.2 Seminar: Application Issues in GIS and Applied GIS

Students would make are make a seminar presentation on the application of GIS in a selected area on interest and showcase opportunities as well as challenges of such application with clear linkage to decision making.

GEM 861.2 GIS and Management Planning

This course would provide students with understanding of the process in the design and implementation of workflow for decision making in social, economic, demographic, health, transportation, urban and regional planning decision. The emphasis would be on showcasing and capturing the essentials of the application of GIS across these sectors and others.

GEM 862.2 Web-Based GIS (E)

This course introduces students to the growing field of distributed geographic information. The would cover the use of ArcGIS online platform for deploying web application as well as mobile application using spatial and attribute data. From these the learners would engage with technologies which will allow them to learn to create dynamic web and mobile application using spatial data and user submitted data. This course prepares students for the use and customization of web and mobile GIS applications.

GEM 863.2 Computer Programming In GIS (E)

Students will be introduced to programming concepts, structured design and the visual programming environment; Modular programming using Python: dialog boxes, input and output, database functions; Processing algorithms using Python: loops and decision- making, simple routines for analysing numerical data; write source codes for GIS basic functions, customize GIS Programs.

10. DOCTOR OF PHILOSOPHY IN GEOGRAPHY & ENVIRONMENTAL MANAGEMENT

1.0 General Information

The department offers Doctor of Philosophy (Ph.D) degree programme in Geography and Environmental Management, with emphasis on the following areas of specialization:

- a) Rural Land use and Rural Development
- b) Urban Geography
- c) Transport Geography
- d) Regional Development Planning
- e) Biogeography
- f) Climatology
- g) Disaster Risk Management
- h) Geomorphology
- l) Environmental Management

10.1 Admission Requirements

- i) All candidates must have the university minimum requirement for a B.Sc degree in Geography.
- ii) Candidates with Bachelor's degree from an approved university must obtain a minimum of a second class lower degree in the relevant discipline.
- iii) Candidates with a master degree with a CGPA of atleast 3.50 on a 5.0 point scale.
- iv) A brief statement of intended area of research.

10.2 Duration of Programme

The duration of the PhD programme is:

Full-Time: A minimum of six semesters and a maximum of ten semesters

Part-Time: A minimum of eight semesters and a maximum of twelve semesters.

10.3 Requirements for Graduation

Doctorate (PhD) programmes is primarily by research. However, the Departmental Postgraduate Committee prescribes courses, a total of 12 credit Units to be taken by doctoral students. Furthermore, a Doctoral (Ph.D) Thesis of 12 credit units must be defended before a panel of examiners.

10.4 Domain of Programme

All Ph.D. programmes shall be domiciled in the Department of Geography and Environmental Management in the Faculty of Social Sciences.

10.5 Student Enrolment

This shall be subject to the carrying capacity of the department.

10.6 Ph.D - Compulsory Courses

GEM 900.1 Seminar in the Philosophy of Geography, Environmental & Disaster Management (3 Credit Units)

This course consists of seminar presentations and discussion of students assignments on the various themes and philosophical streams in the discipline: schools of geographical thought; critical evaluation of the paradigms of determinism, possibilism, probabilism and human ecology in examining sustainable and unsustainable human-ecosystem interaction; theories, laws and models in Geography and environmental management; system analysis and its application in Geography; radical geography; humanistic Geography.

GEM 901.1 Seminar in Research Methods & Quantitative Techniques (3 Credit Units)

This is a directed reading course covering available literature in research methods and quantitative techniques in Geo-environmental studies. The application of each method in solving basic geography and environmental research problems will be emphasized. The advantages and limitations of each technique will be explored.

10.8 Area of Specialization

GEM 902.1 Seminar in Urban Geography & Regional Development (3 Credit Units)

This is a course of directed reading and assignments. The object is to familiarize students with literature on urban geography and regional development. The assignments that would be given would be directed towards the application of models and theories to developing countries in general and Nigeria in particular. Deviations from conceptual expectations must be explained in terms of peculiar economic, political and cultural characteristics.

GEM 903.1 Seminar in Rural Resource Management (3 Credit Units)

This seminar provides a forum for those interested in rural, agricultural and related branches of

geography. Central themes include the nature of rural resources supply and demand, the role of institutions in the rural resource management, planning for rural environmental resources and land use assessment, policy and planning. Research methodologies for resource management will be examined.

GEM 904.2 Seminar in Transport Geography (3 Credit Units)

This is an exploratory course for doctoral students. Seminar topics in all the branches of transportation geography will be given to students as assignment to students for discussion. Emphasis will be placed on originality and the ability of students to identify research problems and solution to such problems.

GEM 905.2 Seminar in Geomorphology (3 Credit Units)

Seminar will cover geomorphic thought, tropical geomorphology, process geomorphology, process-form studies, fluvial geomorphology, coastal geomorphology, slope studies, geomorphic impact assessment and geomorphic research techniques.

GEM 906.2 Seminar in Hydrology & Water Resource Management (3 Credit Units)

Seminar explores pattern of thought in hydrology. It focuses particular attention on models and trends in the fields. A review of the field as a whole will be followed by case studies and in-depth illustrations of water resources management and challenges.

GEM 907.2 Seminar in Climatology (3 Credit Units)

The seminar explores patterns of thought in modern climatological studies. The seminar will focus particular attention on the following areas: climate and agriculture, urban climatology, econoclimatology, bioclimatology, climate change, synoptic and dynamic climatology and regional climate.

GEM 908.2 Seminar in Environmental Management (3 Credit Units)

The seminar programme will focus on philosophical and methodological issues in environmental management. It will address cognitive approaches, environmental assessment, the management of local and global environmental problems

GEM 909.2 Seminar in Geographic information System (3 Credit Units)

Each Ph.D candidate is required to attend course seminars and write term papers on themes assigned

by the course lecturer. Students are also expected to present seminar papers to the Department reflecting the area of concentration of the student.

GEM 910.2 Seminar in Biogeography (3 Credit Units)

The seminar will explore various aspects of soil and vegetation studies including ecological resources, soil- vegetation mapping, soil degradation, soil resources and management.

GEM 910.2 Seminar in Disaster Risk Management (3 Credit Units)

This is a course of directed reading and assignments. The course will explore all aspects of Disaster Risk Management and applications including disaster risk management cycle, post

disaster need assessment, business continuity management, vulnerability and capacity assessment, integrated disaster risk management, risk and cost-benefit analysis, crisis communication, supply chain and critical infrastructure management, and analysis and simulation of extreme events.

GEM 913. Ph.D Thesis (12 Credit Units)

The thesis shall be based on an approved topic by the Post Graduate Committee of the Department in accordance with the regulation of the School of Graduate Studies. Viva voice examinations shall be arranged after submission of draft copy of thesis by the student.

ACADEMIC STAFF LIST

S/N	Name of staff	Rank/ Designation	Qualification	Area of specialisation
1.	O.S. Akpoghomeh	Professor	Ph.D, M.Sc., B.Sc (Ibadan), CMILT	Transport Geography, Tourism Development, Env. Mgt. & EIA
2.	S.B. Arokoyu	Professor	Ph.D, M.Sc., B.Sc. (UPH), REM (USA)	Regional/Rural Development, Disaster & Environmental Management
3.	J.E. Umeuduji	Professor	Ph.D, M.Sc (Nigeria), B.Sc (Calabar)	Geomorphology, Land Resource Evaluation, Hydrology
4.	C.F. Igwe	Professor	Ph.D (UPH), M.Sc. (UI), M.Sc (GIS), B.Sc (UPH), PD Surveying (Uyo), FNIS, REM (USA)	Land surveying/GIS, Regional Development Planning, Env. Mgt. Techniques/Application
5.	P.C. Mmom	Professor	Ph.D (Calabar), M.Sc. (UPH), B.Sc. (Ibadan), REM (USA)	Urban Planning/Resource Management, EIA
6.	A.A. Obafemi	Professor	Ph.D, M.Sc. (UPH), M.Sc. (Lagos), B.Sc. (Ilorin), REM (USA)	Cartography, Env. Mgt., Urban Geography, Techniques/Application
7.	G.C. Emenike	Professor	Ph.D (UPH), M.Sc. (Benin), B.Sc. (Jos)	Transport Geography and Geography of Nigeria
8.	V.E. Weli	Professor	Ph.D (Ibadan), M.Sc., B.Sc. (UPH)	Climatology
9.	C.H. Wizer	Professor	Ph.D (UPH), M.Sc., B.Sc. (UPH)	Urban Geography
10.	E. Elenwo	Professor	Ph.D (RUST), M.Sc. Phil, B.Tech	Environmental Management
11.	Dr. O.M. Nwagbara	Senior Lecturer (Adjunct)	Ph.D (ABSU), M.Sc. (UPH), B.Sc. (Nigeria)	Climatology
12.	Dr. C.I. Ezekwe	Senior Lecturer	Ph.D (ABSU), M.Sc. (NAU), B.Sc. (UPH)	Hydrology and Water Resource Mgt.
13.	Dr. L. Lawal	Reader	Ph.D, PGC, (East London), M.Sc (Hohenheim), B.Sc (UI)	Geo-Informatics System (GIS)
14.	Dr. O.S. Eludoyin	Senior Lecturer	Ph.D, M.Sc. (UI), B.Sc. (ED) (Ife)	GIS/Biogeography, Techniques/ Application
15.	Dr. T.N. Deekor	Lecturer I	M.Sc. (UPH), B.Sc. (Calabar) Ph.D. UI	Biogeography
16.	Dr. M.D. Mbee	Lecturer I	M.Sc. (UPH), M.Sc. (UI), B.Sc (Uyo) Ph.D. UPH,	Geo-Informatics System (GIS)
17.	Dr. V.O. Wekpe	Lecturer I	Ph.D.(UPH)M.Sc. (Manchester), M.Sc. B.Sc. (UPH)	Geo-Informatics System (GIS)
18.	Dr. G.O. Chukwu-Okeah	Senior Lecturer	Ph.D M.Sc., B.Sc. (UPH)	Geomorphology
19.	Dr. V. A. Olerum	Lecturer	PhD, MSc.(UPH), BSc. (UNN)	Environmental Management
21.	Dr. F.U. Ochege	Lecturer 1	Ph.D (China UCAS) MSc.(UNN), MSc.(Edinburg), BSc.(UNN)	Remote Sensing and GIS
22.	Dr. D.S. Iwuoha	Lecturer 11	Ph.D., M.Sc B.Sc. (UPH)	Regional Development Planning

FACULTY OF EDUCATION

DEPARTMENT OF EDUCATIONAL MANAGEMENT

The Department offers professional and research programmes leading to the award of M.Ed and Ph.D. Degrees in Educational Management in the following areas of specialization:

- a) Educational Administration
- b) Educational Planning
- c) Administration of Higher Education
- d) Economics of Education

1. COURSE REQUIREMENTS

a) M.Ed. Programme

Students are required to take a minimum of 31 Credit hours that is, taught courses and a research seminar. This is made up of eight (8) core courses in the first semester and one core course (research seminar) in the second semester. In addition to the research seminar, students shall take two courses from their areas of specialization, one of which is a compulsory elective. The rest of the period shall be spent on the M.Ed. Dissertation.

b) Ph.D. Programme

- i) Ph.D. students are required to take a minimum of 15 credit hours. This is made up of 3 taught courses plus a seminar in the area of specialization. Of the three courses in the first semester, two shall be in the candidate's area of specialization, while the other shall be a course in Advanced Statistical and Research Methods in Educational Management. The rest of the period shall be spent on research and writing of the Ph.D. Dissertation.
- ii) Candidates deficient in related M.Ed. courses shall be required to remedy them as may be determined by the Departmental Graduate committee.

2. COURSE ASSESSMENT:

a) M.Ed. Programme:

i) Course Work

1. Each course/Seminar shall be assessed on the basis of a written examination or research paper(s) or both.
2. A candidate for the M.Ed programme shall obtain a minimum of C in each of the prescribed courses/seminar to be allowed to write the MEd dissertation.

ii) Dissertation

1. For the examination of the M.Ed. dissertation, the Graduate School Board, on the recommendation of the Faculty Graduate Committee, shall appoint a board of examiners comprising the Head of Department, the chairman Department graduate board, the Supervisor(s), the External Examiner and the Dean who shall be the Chairman and any other as shall be appointed by the Board of the School of Graduate Studies.
2. The examiners shall thereafter submit a joint report duly signed by all members to the Dean, School of Graduate Studies.
3. Oral examination of the M.Ed. dissertation shall be as prescribed by the University.
4. In case of difference of opinion, the examiners shall submit separate reports to the Faculty Graduate Committee, which shall make an appropriate recommendation to the Board, School of Graduate Studies.

a) Ph.D. Programme

i) Course Work

1. Each course/seminar shall be assessed on the basis of written examination or research paper(s) or both.
2. A candidate for the Ph. D programme shall obtain a minimum average grade of C in all the prescribed courses/seminars.

iii) Ph.D. Thesis:

1. **Submission of Title:** In consultation with his/her supervisors, the candidate, shall within the second semester of the first year, notify the Dean of the School of Graduate Studies in writing of the full title of his/her dissertation.
2. **Ph.D. Thesis Examination:** For the final defense of the Ph.D thesis, the Board of the School of Graduate Studies Committee shall appoint at least four examiners, comprising the Head of Department, the Supervisor, the External Examiners and a Chairman, etc.
3. The examination shall be oral and shall include the subject of the thesis in the related area of study.

4. The examiners shall submit a joint report on the candidate to the Dean of the Graduate School. The report shall contain:
- A clear and detailed evaluation of the research as contained in the thesis, including an assessment of its originality and its contribution to the advancement of knowledge;
 - A clear assessment of the candidate's knowledge and understanding of his/her subjects as shown in the thesis and oral examination;
 - An unequivocal declaration as to the acceptability, or otherwise of the thesis in fulfilment on the requirements of the degree;
 - In case of difference of opinion, the examiners shall submit separate reports to the Faculty Graduate Studies Committee, which shall make an appropriate recommendation to the Board of the School of Graduate Studies.

5. COURSE SCHEDULE:

a) M.Ed Programme

i) Core Courses:

S/N	Course Code	Course Title
1	EDM 801.1	Theory of Educational Administration
2	EDM 802.1	Educational Planning
3	EDM 803.2	Research Seminar
4	EDM 804.1	Statistical and Research Methods in Educational Management
5	EDM 805.1	Management of Change and Innovations in Education
6	EDM 823.2	Dissertation
7	SGS 801.1	ICT & Research Method
8	SGS 801.2	Management and Entrepreneurship

ii. Core Courses

Educational Administration

S/N	Course Code	Course Title
1	EDM 806.2	Supervision and Inspection
2	EDM 823.2	Dissertation
3		Anyone (1) of the following:

Elective Courses

a.	EDM 807.2	Education Law and the Administration of Nigerian Schools
b.	EDM 808.2	Theory of Administration and Organization in Higher Education
c.	EDM 810.2	Politics of Education

EDUCATIONAL PLANNING

S/N	Course Code	Course Title
1	EDM 811.2	School Plant Planning
2	EDM 823.2	Dissertation
3		Anyone (1) of the courses not in your area of specialization:
a.	EDM 812.2	Case Studies in Educational Planning
b.	EDM 813.2	Educational Policy Analysis
c.	EDM 814.2	Theory of Educational Finance
	EDM 815.2	Economics of Education
	EDM 810.2	Politics of Education

Administration of Higher Education:

S/N	Course Code	Course Title
1	EDM 816.2	Resource Allocation and Utilization in Higher Education
2	EDM 823.2	Dissertation
3		Anyone (1) of the courses not in your area of specialization:
a.	EDM 817.2	The Development of Higher Education in Nigeria
b.	EDM 818.2	The Politics of Higher Education
c.	EDM 808.2	Theory of Administration and Organization in Higher Education

Economics of Education

S/N	Course Code	Course Title
1	EDM 815.	Economics of Education
2	EDM 823.2	Thesis
3		Anyone (1) of the courses not in your area of specialization:
a.	EDM 819.2	Labour Relations in Education
b.	EDM 820.2	Fiscal Accountability and Management in Education
c.	EDM 821.2	Task Analysis and Productivity in Education
d.	EDM 809.2	Social context in education
e.	EDM 810.2	Politics of Education
f.	EDM 811.2	School Plant Planning

h) Ph.D Programme:

i) Core Courses

1. EDM 900.1 Advanced Statistical and Research Methods in Educational Management

i. Electives Educational Administration;

S/N	Course Code	Course Title
1		Any two (2) of the following
a.	EDM 901.1	Human Resources Management
b.	EDM 902.1	Leadership Theories in Educational Organizations

- c. EDM 903.1 Administration of Nigerian Secondary Schools
- d. EDM 904.2 Business management of educational System

2. EDM 905.2 Seminar in Educational Administration

- 1. Anyone (1) elective from Educational Planning, Administration of Higher Education or Economics of Education.

Educational Planning

1. Any two (2) of the following:

S/N	Course Code	Course Title
a.	EDM 906.1	Social context of Educational Planning
b.	EDM 907.1	Planning and Policy in Nigeria higher Education
c.	EDM 908.1	Planning of Non-Formal and Vocational Education
d.	EDM 909.2	Educational Planning in International Perspective

2. EDM 910.2 Seminar in Educational Planning

- 3. Anyone (I) elective from any areas of Educational Administration, Administration of Higher Education or Economics of Education

Administration of Higher Education

1. Any two (2) of the following:

S/N	Course Code	Course Title
a.	EDM 911.1	Administration of Educational Research and Development
b.	EDM 912.1	College and University Administration
c.	EDM 913.1	Case Studies in Administration of Higher Education
d.	EDM 914.2	Social Context of Higher Education

2. EDM 915.2 Seminar in Administration of Higher Education

- 3. Anyone (1) elective from. Administration, Educational Administration, Educational Planning or Economics of Education:

1. Any two (2) of the following:

S/N	Course Code	Course Title
a.	EDM 916.1	The Political Economy of Education
b.	EDM 917.1	Education and Economic Development
c.	EDM 918.1	Educational Finance in Nigeria
d.	EDM 919.2	Resource Management in Education

2. EDM 920.2 Seminar in Economics of Education

- 3. Anyone (1) elective from- Educational Administrative, Educational Planning or Administration of Higher Education

a) M.Ed. Courses:

EDM 801.1 Theory of Educational Administration

Review of historical and contemporary developments in administration and organizational theories and researches. A thorough multi-disciplinary exploration of literature on leadership, organizational behavior and effectiveness. Students are encouraged to broaden their repertoire of administrative behaviours as well as refine perceptions of instructional interaction.

EDM 802.1 Educational Planning

This course embraces a careful examination of the basic theories of educational planning with emphasis on approaches to educational planning, the political economy of education, school plant planning, planning techniques in education and selected appraisal strategies. Specifically, attention is focused on techniques such as MBO, PPBS, work study, PERT and budgetary approaches in education.

EDM 803.2 Research Seminar

This course is designed to test students' research skill in educational management in general and in their area of specialization in particular. Students are required to present seminar papers. Such seminar exercises must therefore explore students' ability in applying statistical and researches, presenting research reports or evaluating existing research reports.

EDM 804.1 Statistical and Research Methods in Educational: Management

Principles of research in educational administration and planning statistical methods and empirical studies design and implementation; proposal design and definition of problems in educational management; theory of sampling; design of research instrument; validation and application of relevant statistics to data from the field; approaches to write-up; presentation and defence; of thesis.

EDM 805.1 Management of Change and Innovation in Education

Analysis of the change process in education. The need for innovation and the climate of innovation. Factors favourable to change and innovation in the school system to be carefully examined, including the problems of assimilation, adaptation, change and renewal. Major obstacles and problems.

EDM 806.1 Supervision and Inspection

The course is intended for prospective and in-service supervisors of primary, secondary and tertiary institutions. The purposes, principles and techniques of supervision will be appraised, analytically. Critical examination of prominent supervisory strategies in the major divisions of secondary and higher education will be emphasized.

EDM 807.2 Education Law and the Administration of Nigerian Schools

Study of laws affecting education in Nigeria. Study of students' institutional relationship, instructional, judicial systems, students' rights, records and campus processes and issues. Attempt will also be made to review legal cases, which have implications for education. Internal administrative structures of secondary schools in Nigeria in the context of the law, government control and supervision.

EDM 808.2 Theory of Administration and Organization in Higher Education

The course focuses on assisting higher education administrators in acquiring knowledge and skills involved in the governance of tertiary institutions. This is achieved through consideration of the structure and modes of organization of higher education. Theory of administration in the context of higher education will also be given considerable coverage.

EDM 809.2 Social Context of Educational Administration

Examination of the relationship between school and society, positive influences of the community and associations on school activities will be treated in the context of society's goals for education. Further emphasis will be laid on interpersonal relationships among staff and between staff and students. Attention will also be focused on a comprehensive evaluation of the school climate, and the school as a vital part of the community.

EDM 810.2 Politics of Education

Attempts will be made in this course to define the politics of Nigerian education, examine the political forces in policy formulation in education and the role of pressure groups in the overall framework. Specifically, case examination will be centered on such issues as democracy in education, the question of geopolitical balancing, and quota system in Nigerian education, the concept of positive discrimination and equal opportunity in educational development. Case analyses will emphasize locational patterns of Nigeria's educational facilities in addition to the distribution of resources among different parts of the country.

EDM 811.2 School Planting

The design of the school plant in terms of education requirements in addition to principles and regulation of plant layout, operation maintenance and insurance. The considerations of educational expenditures and the issue of accountability. This also revolves around financial auditing in education and the need for efficiency and effectiveness in the utilization of fiscal allocations.

EDM 821.2 Task Analysis and Productivity in Education

The course centers on task and responsibility analysis, simulation of output determination, productivity and evaluation of instructional programmes for effectiveness. Considerable attention will also be on productivity measurement in education, factors related to task achievement and productivity in educational establishments, the role of incentives, delegation of power and authority among employed staff.

EUM 823.2 Thesis

Students are required to carry out a research work and submit a thesis report under the guidance of a supervisor. The thesis must be in the student's area of specialization and must be presented in conformity with the Departmental format and graduate school requirements.

b) Ph.D COURSES

EDM 900.1 Advanced Statistical and research Methods in Educational Management

The course is designed to develop students' skills in advance statistical and research techniques in educational management. It will, therefore, focus on research design, problem articulation, development of proposals, carrying out research and research report writing. More importantly, a functional knowledge of statistical data processing techniques and computer application in analysis of research data will be given emphasis.

EDM 901.1 Human Resources Management

Areas of concentration are the principles of personnel management, major personnel processes and techniques involved in human resources administration in educational organizations. In addition, the course deals with recruitment, staff development, selection and the training of educational personnel. Assessment of school personnel functions will include job analysis, job evaluation, job enrichment and differentiated staffing including the place of motivation and satisfaction in relation to personnel functions.

EDM 902.1 Leadership Theory in Educational Organizations

The course focuses on the study of the theories of contemporary organizations and the school as an organization. The relationship between structural concepts such as authority, hierarchy, centralization and human behavior, will be emphasized. In addition, the concept of leadership theory and the role of the leader in organizations staffed with professionals will also be examined.

EDM 903.1 Administration of Nigerian Secondary Schools

Influences, controls and tasks, which condition the organization and operation of Nigerian Secondary schools, will be considered. Apart from external organs of control, thorough examination of the principalship- purposes of this office-are paramount. In dealing with the evolution of the school principalship, development of competencies deemed desirable in a secondary school principal will be given prominence.

EDM 904.2 Business Management of Educational System

Major efforts here will be directed at the organization of the business management function in educational organizations - computer systems and business management, salary schedules, indebtedness, audit, operation of internal structure, office management, purchasing, control of food services, legal relationships. Insurance and safety. Also of central concern is the management of school business enterprises.

EDM 905.2 Seminar in Educational Administration

Students are required to present a well-articulated theoretical or research paper addressing a well-identified problem in any area of educational administration. Such papers must make significant contributions to knowledge in the field by way of either challenging existing theories, providing new ideas or evolving new approaches on the application of techniques to solve the identified educational administrative problems.

EDM 906.1 Social Context of Educational Planning

Contemporary issues and trends in educational planning, are here, considered from the historical and sociological perspectives-changes in schools in relation to changes in the society. Community or society determinants of structures and programmes in educational planning. Demand for education will be considered in the context of the realization of societal requirements.

EDM 907.1 Planning and Policy in Nigerian Higher Education

Issues and problems involved in designing and implementing higher education as a social policy will be examined in the context of the Nigerian situation. Also crucial is the problem of policy continuity, renewal or recycle in higher education-the change process in the development of educational policy.

EDM 908.1 Planning of Non-Formal and Vocational Education

The course covers research theory and principles of planning the development of non-formal and vocational education for the needs of society. Emphasis will be on creating in educational planners the competencies required in meeting the increasing demands of our workforce for continuing education and at the same time making these people employable. Examination of research experiences appropriate for planners of vocational and technical education will also be covered.

EDM 909.2 Educational Planning in International Perspective

Analysis of international influences on the planning of education will be examined. The role of international or multinational organizations such as UNESCO, REPP, ILO, UNO in the development of appropriate educational plans for different countries, to be considered. In this context, issues and problems of foreign aid in educational development are also important and will be examined.

EDM 910.2 Seminar in Educational Planning

Students are required to present a well-articulated theoretical or research paper addressing a well-identified problem or issues in any area of educational planning. Such papers must make significant contributions to knowledge in the field by way of either challenging existing theories, providing new ideas or evolving new approaches on the application of techniques to solve the identified educational planning programmes.

EDM 971.1 Administration of Educational Research and Development

The major areas of emphasis for this course are the role of research in educational development, the planning and administration of research institutions, objectives of research organization and the development of programmes. Organization of research for the attainment of objectives of educational research will also be examined. Normative and exploratory forecasting and the investigation of alternative educational futures especially in the realm of higher education, will be explored.

EDM 912.1 College and University Administration

The focus here is on the modalities and systems of organization of colleges and Universities and the

roles of the administrator and the professionals in the achievement of college on the part of students, staff, the clientele and the government is to be examined within the framework of institutional objectives and programmes.

EDM 913.1 Case Studies in Administration of Higher Education

Analysis and examination of types of higher educational institutions will be brought into focus. Models, types and structures of organization and administration, from different parts of the world, will be carried out to find out relevant implications for the Nigerian system.

EDM 914.2 Social Context of Higher Education

In this course, the sociological parameters that shape the organization and operation of higher education institutions will be given prominence. In addition, the role of education lobbies, interest and associations, will be considered. An examination of sociological theories with implications for the effectiveness of higher education will also be undertaken.

EDM 915.2 Seminar in Administration of Higher Education

Students are required to present a well-articulated theoretical or research paper addressing a well-identified problem or issues in any area of Administration of Higher Education. Such papers must make significant contributions to knowledge in the field by way of either challenging existing theories, providing new ideas or evolving new approaches for the application of techniques to solve the identified problems in the area.

EDM 916.1 The Political Economy of Nigerian Education

Issues in this course will center on the welfare cost of education, the consumption criteria in education and the benefits of educational development from both the individual and societal perspectives. Influences of normative, welfare and allocation

economics on the scope and provision of educational facilities in Nigeria will also be examined.

EDM 917.1 Education and Economic Development

A conscious overview of the overall relationship between education, social and economic development with reference to Nigeria will be assessed. Specifically, the connection between education and political awareness, education and political awareness, education and literacy, education and unemployment, education and technological development, education and population growth and educational change and innovation will be examined.

EDM 919.3 Resources Management in Education

This course examines the relevance and application of the theory and principles of resource management in educational organization with special emphasis on the Nigerian system. Focus will also center on management strategies and techniques for the operation of both human and physical resources in time of economic recession.

EDM 920.2 Seminar in Economics of Education

Students are required to present a well-articulated theoretical or research paper addressing a well-identified problem or issues in any area of economics of education. Such papers must make significant contributions to knowledge in the field by way of either challenging existing theories, providing new ideas or evolving new approaches on the application of techniques to solve identified problems in this area of specialization.

EDM 921.2 Thesis

Students are required to carry out research work and submit a dissertation under the guidance of a supervisor. The dissertation must be in the student's area of specialization and must be presented in conformity with the Departmental format and Graduate School requirements.

ACADEMIC STAFF LIST

S/N	NAMES	QUALIFICATIONS	RANK	AREA OF SPECIALIZATION
1.	Prof. Victoria C. Onyeike	Ph.D (UPH), M.Ed, UPH, B.Ed (Ib), NCE (ABU) UPH	Professor	Educational Administration
2.	Prof. Samuel O. Nwafor	Ph.D., M.Ed., B.BA (Texas)	Professor	Higher Educational Administration
3.	Prof. Samuel O. Oluwuo	Ph.D, M.Ed, B.A. Ed (UNN)	Professor	Educational Administration
4.	Prof. Nathaniel M. Abraham	Ph.D, M.Ed (UPH), B.Ed (UI)	Professor	Educational Administration
5.	Prof. Chineze M. Uche	Ph.D (UPH), M.Ed, B.Ed, MIS (UI), B.Ed (UI)	Professor	Administration of Higher Education
6.	Prof. Gospel G. Kpee	Ph.D (UPH), M.Ed, NCE, B.Sc (Ed)	Professor	Educational Administration
7.	Prof. Jonah U. Nwogu	Ph.D (UPH), M.Ed, B.Ed, (UPH), NCE (Jos)	Professor	Educational Administration
8.	Prof. Chinyere Amini-Philips	Ph.D, M.Ed, B.Ed (UPH), NCE (UI)	Professor	Administration of Higher Edu.
9.	Prof. Joseph N.D. Meenyinikor	Ph.D (RSUST), M.Ed., HND, ICMA, Part 3, PGDE	Professor	Higher Educational Mgt.
10.	Dr. Sunday T. Afangideh	Ph.D, M.Ed, NCE (Uyo)	Reader	Educational Administration
11.	Dr. Kenneth K. Obasi	Ph.D, M.Ed (UPH), MBA (UPH), B.Phil (Rome), PGDE (IMSU)	Reader	Educational Planning
12.	Dr. Patricia C. Ukaigwe	Ph.D, M.Ed (UPH), B.Ed (AUS)	Reader	Educational Administration
13.	Dr. Adanna Ngozi Ohia	Ph.D, M.Ed, B.Ed (UPH), NCE (Jos)	Reader	Educational Planning
14.	Dr. Elizabeth L.S. Kaegon	Ph.D, M.Ed (UPH), B.Ed, NCE	Reader	Educational Administration
15.	Dr. Joy C. Nzokurum	Ph.D (UPH), M.Ed & B.Ed (UNN), NCE (UNICAL)	Reader	Educational Administration
	Dr. Dinah Sunday Osaat	Ph.D, M.Ed (UPH), B.Ed (UI), NCE (OAU)	Reader	Educational Administration
16.	Dr. Ogar G. Agabi	Ph.D, M.Ed, B.Ed (UI)	Senior Lecturer	Educational Planning
17.	Dr. Ihechi F. Jack	Ph.D, M.Ed., B.Ed, (UPH)	Senior Lecturer	Administration of Higher Edu.
18.	Dr. Lawrence Ojule	Ph.D (Unical), M.Ed (UI), B.Sc. (Ed) (UPH)	Senior Lecturer	Administration of Higher Edu.
19.	Dr. Calistus Mba	Ph.D, M.Ed, (UPH), M.Ed (UI)	Senior Lecturer	Educational Planning
20.	Dr. Samuel E. Ebete	Ph.D, M.Ed, BA.Ed (UPH), NCE (UI)	Senior Lecturer	Educational Planning
21.	Dr. IfeanyiChukwu E. Nwabueze	Ph.D, M.Ed (UPH), B.Ed (UI)	Senior Lecturer	Administration/Bus. Edu.
22.	Dr. Friday S.N. Ledogo	Ph.D, M.Ed, B.Ed (UPH)	Lecturer II	Educational Management
23.	Dr. C.D. Wagbara	B.A. (UPH), PGDE, M.Ed (IMSU), Ph.D (UPH)	Lecturer II	Educational Management
24.	Gr. Gertrude Oliobi	NCE, B.Ed, M.Ed, Ph.D (Nigeria)	Lecturer II	Educational Administration

25.	Dr. Agbo, E.N.	NCE, B.Ed (Economics Maths) (IAUE), M.Ed (RSU), Ph.D (EBSU)	Lecturer II	Educational Management/ Statistics
26.	Dr. F.O. Asagba	B.Sc., PGDE, M.Ed, Ph.D (UPH)	Lecturer II	Admin/Economics of Edu.
27.	Dr. Mfon Ezekiel Usip	B.Ed., M.Ed., Ph.D (UNIUYO)	Lecturer II	Business Education
28.	Mr. Goodluck A. Wordu	B.Ed, M.Ed. (UPH), Ph.D (RSU)	Asst. Lecturer	Economics of Education
29.	Mr. Sambo U. Adiola	NCE	Asst. Lecturer	Administration/Bus. Edu.
30.	Mrs. Patricia E. Oshebor	B.Sc, PGDM, M.Ed	Asst. Lecturer	Educational Planning
31.	Dr. Justice-Amadi Sandra	B.Sc (Ed) (RSUST), MSc (IAUOE), Ph.D (UPH)	Asst. Lecturer	Business Edu. & Mgt.

DEPARTMENT OF EDUCATIONAL FOUNDATIONS

M.Ed COURSES

First Semester

Course Code	Course Title	Status	Units
SGS 801.1	ICT and Research Methodology	C	2
EDF 803.1	History of Educational Ideas	C	2
EDF 804.1	Philosophical Conceptions of Teaching & Learning	C	2
EDF 805.1	Contemporary Philosophies of Education	C	2
EDU 807.1	Advanced Research Methods in Education 1	C	2
EDF 810.1	Foundations of Nigerian Education	C	2
EDF 820.1	Sociology of Education	C	2
EDF 800.1	Philosophy of Education	C	2
TOTAL			16

Second Semester

Course Code	Course Title	Status	Units
SGS 801.2	Management & Entrepreneurship	C	2
EDF 806.2	Ethics and Education	C	2
EDU 808.2	Statistical Methods in Educational Research 1	C	2
EDF 809.2	Educational Measurement & Test Construction	C	2
EDF 811.2	Epistemology and Education	C	2
EDF 812.2	Education and Development of Mind	C	2
EDF 818.2	Graduate Seminar in Educational Foundations	C	2
EDF 850.2	Research project! Dissertation	C	2
TOTAL			16
GRAND TOTAL			34

SGS 801.1: ICT and Research Methodology (2 Credit Units)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of hypothesis, formulation and Testing, Organization of Research and Report Writing.

EDF 803.1 History of Educational Ideas (2 Credit Units)

The course will examine the contributions of the great educators to the development of educational theory. Key figures from ancient, medieval and modern times will be chosen for detailed study and discussion.

EDF 820.1 Sociology of Education (2 Credit Units)

Meaning, nature and scope of sociology of education; Interrelationship between sociology and education, conceptualizing education: Culture, socialization and education; Education as a social institution; its historical evolution and contemporary forms; social structure and education; education and social stratification; culture identity and inequality in educational opportunity and social change.

EDF 800.1: Philosophy of Education (2 Credit Units)

The meaning of philosophy, different conceptions of philosophy of education, analysis of key educational concepts such as teaching, training, instruction, indoctrination, learning, etc. The aim of education, epistemology and education, ethics and education, different conceptions of life and society, and philosophical foundations of the curriculum shall be critically discussed.

EDF 804.1 Philosophical Concepts of Teaching & Learning (2 Credit Units)

This will examine critically the concepts of teaching and learning. The course will also examine other methods/means of transmission of knowledge such as training, indoctrination, conditioning, drill/drilling, instruction, etc. The concepts/methods related to effective teaching and learning such as democracy, democratic classroom, dialectic method, demonstration as a method, inquiry, discovery, teacher, learner, etc. will be explored. Questions such as can teaching and learning be effective will be discussed.

EDF 805.1 Contemporary Philosophies and Education (2 Credit Units)

A critical examination of the philosophical orientations underlying the educational aims and values sought by some schools of educational philosophy such as idealism, pragmatism, existentialism, etc. should be done

EDF 810.1 Foundations of Nigerian Education (2 Credit Units)

A survey of the traditional, historical, political and social foundations of Nigerian Education will be undertaken. A critical assessment of the contributions of various educational traditions and agencies to educational development in colonial and post independent Nigeria will be made.

SGS 801.2: Management and Entrepreneurship (2 Credit Units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

EDF 806.2: Ethics and Education (2 Credit Units)

The purpose of this course is to examine the moral assumption of the system(s) of the education in Nigeria and to ascertain to what extent our schools are responsive to basic moral issues. A special study will be made of the value of the Nigerian society and their impact on socioeconomic development.

EDF 808.2: Statistical Methods in Educational Research (2 Credit Units)

This course will examine basic concepts and terms in Descriptive and inferential statistics. Testing of Hypothesis includes t-test, z-test, analysis of variance (ANOVA) and analysis of covariance (ANCOVA). Correlational statistics including Pearson product moment, spearman rho, point-B serial, Phi-coefficient, etc., test of significance for different correlational statistics should be taught. Non parametric statistics including Chi-square runs test, Mann-Whitney, etc. and application of various statistical concepts in Education.

EDF 809.2: Educational Measurement and Test Construc-Tion (2 Credit Units)

Measurement scale and scaling models, theory of measurement error, test construction procedures; item writing analysis and assembly in achievement, aptitude and non-cognitive tests; reliability and validity of tests; practical work in test construction.

EDF 811.2 Epistemology and Education (2 Credit Units)

The course should provide a critical examination of the logical and psychological aspects of learning and theories of knowledge and the implications of such theories for education in general. The epistemological foundations of the curriculum will be highlighted.

EDF 812.2: Education and Development Of Mind (2 Credit Units)

The course will examine the concepts of rational mind, Reason and feeling. The concept of development, Moral and aesthetic development of societies, past and present will be examined. And examination of various conceptions of human nature, System of thoughts and system of education will be undertaken.

EDF 818.2: Graduate Seminar in Education (2 Credit Units)

Each seminar will provide an opportunity for the in-depth study of substantive issue in educational theory and research. In addition, each student will be expected to lead a discussion on a selected research topic, preferably based on the topic of his/her dissertation/thesis or research paper.

EDF 850.2 Research Project/Dissertation (6 Credit Units)

Students should be expected to produce a comprehensive research work in their field of specialization.

Ph.D COURSES PHILOSOPHY OF EDUCATION

Year One

First Semester

Course Code	Course Title	Units
EDF 900.1	Social Philosophy and Education	3
EDF 901.1	Advanced Research Methods in Education I	3
EEF 902.1	Education Systems and Policies in Africa	3

Second Semester

Course Code	Course Title	Units
EDF 902.2	Advanced Educational Statistics II	3
EDF 906.2	Education Classics	3
EDF 907.2	Philosophical Perspectives of Early Childhood and Primary Education	3

Year Two

First Semester

Course Code	Course Title	Units
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EDF 908.1	Advanced Seminar in Philosophy of Education	3
EDF 909.1	Logic and Teaching	3
EDF 910.1	Political Education	3
EDF 911.1	Feminism and Education	3

Second Semester

Course Code	Course Title	Units
EDF 999.2	PhD Thesis	12

Ph.D COURSE DESCRIPTIONS:

EDF 900.1 Social Philosophy and Education (3 Credit Units)

The inter-relationships between socio-political concepts as power, authority, coercion, discipline, the state, power relations, social justice, economic justice, human right, freedom, distributive justice and their practical workings for educational theory and institutional practices are studied. The concepts of equality, elitism, educational opportunity, and educational policy issues between the federal government, the state government and local school boards will be examined. The rights and responsibilities of students and access to public education are fully examined

EDF 901.1: Advanced Research Methods in Education II (3 Credit Units)

The concept and nature of research; scientific processes in research; problem definition, variable identification; sources of research topics; theory construction and hypotheses formulation; techniques for literature review; principles of design, instrumentation, data collection, techniques for data analysis and presentation of result. Candidates are guided to prepare tentative research proposal they must present and defend individually in class; techniques of research reporting, and research proposal writing.

EDF 925.1: Education Systems and Policies in Africa (3 Credit Units)

This course describes education in third world countries and will identify the reasons behind the problems in the educational system and how they could be tackled to bring development and transformation

EDF 904.1: Philosophical Analysis and Education (3 Credit Units)

This is the deliberate induction of the student into the methodology of philosophical study. The analytical movement in education is thoroughly examined. Philosophical analysis and philosophy of education are studied. Analytical philosophy is also critiqued and its worth for educational practice and theory is examined. Ultimately analysis is exposed as the "most modern" approach to the study of

educational philosophy as its contributions to the philosophy and theory of education are laid bare.

EDF 902.2: Advanced Educational Statistics II (3 Credit Units)

Concepts of educational statistics; the role of statistics in education; descriptive statistics and the various areas of application in education; classroom data, school records, school demography, social relation in school; school administration and finances; inferential statistics; population and sampling theory; non-parametric statistics in education, hypotheses, assumptions, types, applications and limitation. The nature of parametric statistics in education, statistical model in education, application and limitations (correlation, univariate and multi-variate analysis of educational data), the nature of significant tests, problems of inferences. Candidates must be taught to utilize computer in various phases of this courses and to be familiar with various analytical software. Emphasis must be placed on educational and practical application of basic statistical concept in various educational disciplines.

EDF 905.2: Education Classics

The course involves a (survey) study of the writings of educational legends such as Socrates, Plato, Aristotle, St Augustine, John Locke, .1.3 Rousseau, William James, John Dewey, Paulo Freire, Nel Noddings, Jane Roland Martins, R.S. Peters and Otonti Nduka. Also Marxists writers such as T.O. Oizennan and Karl Marx's 'The Poverty of Philosophy are discussed. Sample classic texts are:

1. Plato, *The Republic*
2. Aristotle, *The Nichomaclean Ethics*
3. Augustine, *Concerning the Teacher*
4. Locke, *Some thoughts concerning education*
5. Rousseau, *Emile*
6. William James, *Pragmatism*
7. John Dewey, *Experience and education*
8. Friere, *Pedagogy of the Oppressed*
9. Nduka, *Western Education and the Nigerian Cultural Background*. Excerpts and extracts will be studied where full texts are unavailable.

EDF 906.2 Moral Concepts in Education (3 Credit Units)

The place of morality in all educational endeavours is discussed in this course. Ethical theories and the psychology of moral judgment, Greek ethics, medieval ethics and modern ethics and their interrelationships are examined. The nature of moral judgment, standards of morality, rights and duties, virtue, justice, justice as fairness and the theories of Robert Nozick, John Rawls, R.S. Peters, Otonti Nduka, J.D. Okoh and the pedagogic models of moral education developed by Aminigo are

examined for their worth as practical sessions of moral ideas in the educational settings.

EDF 907.2 Philosophical Perspectives of Early Childhood and Primary Education

Historical perspective of Early Childhood and Primary Education, Philosophical perspective of primary education, Contribution of some philosophers to the development of Early childhood and primary education, Need for proper curriculum of childhood education in Nigeria- A new approach; the child and the curriculum: the role of learning activities; the child and curriculum: teaching Methods; Some philosophical issues of Early childhood and primary education. To discuss what philosophy is for children or childhood. Philosophical approach and play as methods. The role of philosophy in school curriculum design will be examined.

EDF 908.1 Advanced Seminar in Philosophy of Education (3 Credit Units)

In this course students are made to examine all philosophical topics in education and relate them to practice, theory or policy making in Nigerian education. By so doing they would be studying the philosophical treatment or analysis of specific issues in education by which they would develop and internalize a philosophical perspective which in turn becomes part of their mode of professional behavior and outlook on life.

EDF 909.1 Logic and Teaching

The course will examine the structure of arguments and student will learn how to analyze and evaluate them. This will be done in the context of educational problems and in the process, consideration will be given to how students can be taught to reason more clearly. Clear or critically thinking will be considered. Simple logical statements and set theories could be used in illustrations for effective teaching and learning.

EDF 910.1 Political Education (3 Credit Units)

The course explores the nexus between politics and education by studying the ways in which governance institutions, political ideologies and practices and competing interests within and outside the educational institutions influence the content, form and functioning of schooling. The course will explain political reality and equip citizens with competences to enable them understand the political sphere. Topics such as history, political institutions, social structures, social justice, democracy as a system of government, marriage as an institution, radical movements, racism and ethnicity, unemployment or social exclusion will be explored. The students will be taught human and social rights and how to take responsibility for their communities. They should learn how to influence decision making

processes for the common good. Analytical articles and didactic materials would be examined during the courses.

EDF 911.1 Feminism and Education (3 Credit Units)

The philosophy of feminism which locates ideas in the realm of equalitarianism between the genders in all sectors of life is transposed to educational theory and practice. The ideas of feminist consciousness as espoused by Nell Noddings, Kieran Egan, Jane Roland Martin, Mary Field Bellamy etc are all examined for their liberatory theories in favour of the female gender in all sectors of social life. Issues such as female stereotyping, job discrimination, sexism, sexual harassment, stereotyping, job discrimination, sexism, sexual harassment, women's right, gender neutrality, and equal pay for women, reproductive right, work place right and all forms of discrimination against women are discussed. All forms of social, cultural and political inequalities against women are discussed. The role of education in bringing about this utopia is the centerpiece of this course.

M.ED SOCIOLOGY OF EDUCATION

First Semester

Course Code	Course Title	Status	Units
EDF 800.1	Philosophy of education	C	2
EDF 801.1	ICT in Research Methods in Education	C	2
EDF 807.1	Advance Research Methods in Education	C	2
EDF 810.1	Foundations of Nigerian Education	C	2
EDF 820.1	Sociology of Education	C	2
EDF 822.1	Education & Social Development	C	2
EDF 823.1	Educational Opportunity & Social Stratification	C	2

Second Semester

Course Code	Course Title	Status	Units
SGS 801.2	Management & Entrepreneurship	C	2

EDU 808.2	Advanced Statistical Methods in Educational Research	C	2
EDU 809.2	Educational Measurement & Test Construction	C	2
EDF 818.2	Graduate Seminar in Education Foundations	C	2
EDF 824.2	Current Social Problem	C	2
EDF 832.2	Or School and society	C	2
EDF 821.2	Educational system and social change	C	2
EDF 850.2	Research project dissertation		

Keys: C = Compulsory O = Optional

EDF 800.1 Philosophy of Education (2 credit)

The meaning of philosophy, different conceptions of philosophy of Education; analysis of key educational concepts such as teaching, training, instruction, indoctrination, learning etc. the aims of education Epistemology and Education; ethics and education, different conceptions of life and society and philosophical foundations of the curriculum shall be critically discussed.

EDF 801.1 ICT in Research Methods in Education (2 credit units)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concept of hypothesis, formulation and Testing, Organization of Research and Report Writing.

EDF 807.1 Research Method in Education (2 Credit Units)

Types of research, methods and data, types of instruments, types of procedures for data collection, methods of data analysis; application of computer in data analysis, presentation of result and conclusion.

EDF 810.1 Foundations of Nigerian Education (2 Credit units)

A survey of the traditional, historical, political and social foundations of Nigerian education will be undertaken. A critical assessment of the contributions of various educational traditions and agencies to educational development in colonial and post independent Nigeria will be made.

EDF 820.1 Sociology of Education (2 Credit Units)

Meaning, nature and scope of sociology of education; Interrelationship between sociology and education, conceptualizing education: Culture, socialization and education; Education as a social institution; its historical evolution and contemporary forums; social structure and education; education and social stratification; culture identity and inequality in educational opportunity and social change.

EDF 822.1 Education and Social Development (2 Credit Units)

An examination of theoretical approaches to social development and education as a social institution; Critical analysis of the role of education in social development; relationship between education and other social institutions

EDF 823.1 Educational Opportunity & Social Stratification (2 Credit Units)

Related concepts such as educational and social stratification, with regard to age of school entry, Joice/access, continuity and the likes will be variously examined. Inequality of educational opportunity is equally critically discussed in relation to status, power, mobility and social differentiation, student's educational and occupational aspirations; influence of social stratification and behaviour. The consequences and challenges of the outcome of the foregoing as well as the way forward towards achieving equal educational opportunity will be equally discussed. In all, the focus will be on Nigeria for local examples

SGS 892.2: Management and Entrepreneurship (2 Credit Units)

The course will cover business environment, general management financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

EDF 808.2: Advanced Statistical Methods in Educational Research (2 Credit Units)

Review of basic statistics concepts; descriptive, parametric, inferential and non-parametric statistics; tstatistics, ANOVA, ANCOVA, Regression Analysis, Chi-Square and Statistical techniques for post-hoc analysis; application of computer in statistical analysis; meaning and results in statistical analysis.

EDF 809.2: Educational Measurement and Test Construction (2 Credit Units)

Measurement, scale and scaling models, theory of measurement error test construction procedures; item writing analysis and assembly in achievement, aptitude and non-cognitive tests; reliability and validity of tests; practical work in test construction.

EDF 818.2 Graduate Seminar in Educational Foundations (2 Credit Units)

Each seminar will provide an opportunity for the in-depth study of a substantive issue in educational theory and research, in addition, each student will be expected to lead a discussion on a selected research topic preferably based on the topic of his/her dissertation/ thesis or research paper.

EDE 824.2 Current Social Problems (2 Credit Units)

Application of sociology of education perspectives in the study of social problems e.g Indiscipline and deviance in the school system and control, challenges to control of social problems in contemporary period and the way forward.

EDF 832.2 School and Society (2 Credit Units)

Concepts of school and society; relationship between the school and society; the social functions of education; role of education in nation building; school as a social and bureaucratic organization; the school environment and classroom interactions; planned and unplanned curriculum; critical analysis of educational life chance of males and females in society.

EDF 821.2 Educational System and Social Change (2 Credit Units)

The focus is on the following: concept and theories of social change; relationship between societal ideology and educational systems; role of the school as a social institutions for cultural transmission and change; relationship between education and other social attitude to education in Nigeria; educational implications of contemporary social problems.

EDF 850.2 Research Project/Dissertation (6 Credit Units)

Students are expected to transfer/ apply the knowledge, skills and competencies learnt in the research methods to write on topical issues in education. This serves as a field of experience as they review the existing literature, collect and analyse data and write research reports.

PHD COURSES IN SOCIOLOGY OF EDUCATION

Year One First Semester

Course Code	Course Title	Units
EDF 901.1	Advanced Research Method in Education I	3
EDF 913.1	Sociological Perspectives of Education	3
EDF 914.1	Sociology of Development	3

Year One Second Semester

Course Code	Course Title	Units
EDF 902.2	Advanced Educational Statistical II	3
EF 916.2	Ideology, National Policies and Educational Development	3
EDF 917.2	Education and Social Movements in Nigeria: Power, Resistance and Identity	3
EDF 919.2	Gender and Education	3
EDF 920.2	Political Education	3

Year Two First Semester

Course Code	Course Title	Units
EDF 915.1	Education, Class Structure, Social Stratification	3
EDF 921.1	Development of Sociology of Education in Nigeria	3
EDF 918.2	Sociology of Adult Education	3

Year Two Second Semester

Course Code	Course Title	Units
EDF 999.2	Ph.D Thesis	12

EDF 901.1: Advanced Research Method in Education 1 (3 Credit Units)

The concept and nature of research, scientific processes in research problem definition, variable identification source of research topic; theory construction and hypotheses formulation; techniques for literature review; principle of design, instrumentation, data collection, technique for data analysis and presentation of results. Candidates must be introduced to computers and data analytical software and techniques in education. The orientation must be practical throughout as candidates are guided to prepare tentative research proposals they must present and defend individually in class; technique of research reporting and research proposal writing.

EDF 902.1: Advanced Educational Statistics II (3credit Units)

Concept of educational statistics; the role of statistics in education; descriptive statistics and the various areas of application in education; classroom data, school records, school demography, social theory; non-parametric statistic in education; hypothesis assumption, types, application in education; statistical models in education, application and limitations (correlation, univariate and multivariate analysis of education data), the nature of significant tests, problem of inferences. Candidate must be taught to utilize computer in various analytical software. Emphasis must be

placed on education and practical application of basic statistic concept in various educational disciplines.

EDF 999.2: Ph.D Thesis (10 Credit Units)

Candidate is required to demonstrate research competence by selecting a thesis topic in their relevant areas of specialization. The research is carried out by the individual student under the guidance of a competent supervisor according to graduate school requirements. The candidate is expected to make some significant contributions to knowledge. The thesis is defended before an external examiner.

EDF 913: Sociological Perspectives of Education (3 Credit Units)

The course focuses on the foundations and outcome of education from the sociological point of view, bearing in mind all the stake-holder in education: teachers, parents, pupils/students, administrators and other educational establishment/organizations. Major sociological (such as stratification, discrimination ethnicity, social mobility, equal opportunity, school violence, bureaucracy and feminism) will be examined in relation to educational practices and outcomes. The relationships between the school and societal institution will equally be examined. Specific example will be drawn from different educational establishments as the class progresses students will be made to gather information and provide report on case studies on specific educational practices and their consequences.

EDF 914.1: Sociology of Development (3 Credit Units)

Concept and theories of development and underdevelopment poverty/inequality in social economic and political spheres from historical point of view in developed and developing countries; problems, causes and consequences of poverty, violence war etc. Case study of Nigeria; the way forward

EDF 915.1: Education, Class Structure Social Stratification (3 Credit Units)

Overview of the concept of stratification, structural and power conflict; role of education; study of educational inequality within and between different social classes; study of poverty, educational opportunity and the family/societal culture.

EDF 916.2: Ideology, National Policies and Educational Development (3 Credit Units)

Concept and nature of ideology and educational policies, implications of societal ideology to educational ideology and educational policies/activities in selected African countries including Nigeria.

EDF 921.1 Development of Sociology of Education in Nigeria (3 Credit Units)

Origin, growth and pattern of sociology of education in Nigeria and factors responsible for the development, challenges and the way forward. In all, consult relevant educational institutions for reliable information and proper documentation.

EDF 917.2 Education and Social Movement in Nigeria: Power, Resistance and Identity (3 Credit Units)

Concepts of power, resistance and identity and historical analysis of the role of education in different social movements in both pre- and post independent Nigeria, emerging patterns and consequences; educational implications

EDF 918.2: Sociology of Adult Education (3 Credit Units)

Concept of adult education, need theories, social factors including age, gender occupation, social environment are examined in relation to relevant adult education programme for community development, types and importance of adult education evaluated programmes.

EDF 919.2 Gender and Education (3 Credit Units)

This course is designed to provide a general overview of gender issues in education from early childhood through secondary and tertiary education. Feminism theories and perspectives (sociological psychological and philosophical) of gender inequality and the debate on sexual inequality are applied to examine both historical and contemporary issues of gender and socialization. This is discussed in relationship with gender as regard societal concerns including social justice. Such areas like social class structure, race and their related social orientations in the family, school, media and political and social institutions are considered hence such information on sexuality and changing understanding of the male and female gender are critically examined.

EDF 920.2: Political Education (3 Credit Units)

Concept of and the need for political education; political issues in education in relation to power relations in school establishment, admission, curriculum and the rule of law; socio-economic environment and the role of pressure groups in educational activities.

M.ED HISTORY AND POLICY OF EDUCATION

First Semester

Course Code	Course Title	Status	Units
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EDF 800.1	Philosophy of Education	C	2
EDF 801.1	ICT in Research Methods in Education	C	2
EDF 807.1	Advanced Research Methods in Education	C	2
EDF 810.1	Foundation of Nigerian Education	C	2
EDF 820.1	Sociology of Education	C	2
EDF 817.1	History of Western Education up to 1800	C	2
EDF 819.1	Systems and Policies of Education in Nigeria	C	2
EDF 821.1	Education and Development in Modern Times	C	2
EDF 822.1 (H)	Contemporary Educational Development	C	2
EDF 826.1	Evolution of Educational Development and Policy in Colonial & Ex-Colonial Territories	C	2

Second Semester

Course Code	Course Title	Status	Units
SGS 801.2	Management & Entrepreneurship	C	2
EDU 808.2	Advanced Statistical Methods in Educational Research	C	2
EDU 809.2	Educational Measurement & Test Construction	C	2
EDF 818.2	Graduate Seminar in Educational Foundation	C	2
EDF 827.2	Contemporary System of Education in Europe, N/S America, Asia & the Caribbean	C	2

EDF 828.2	Education in Developing Countries	C	2
EDF 829.2	History of Higher Education in Africa	C	2
EDF 850.2	Research Project/Dissertation	C	6

Keys: C = Compulsory O = Optional

EDF 800.1: Philosophy of Education (2 Credit Units)

The meaning of philosophy. Different conceptions of philosophy of education; analysis of key educational concepts such as teaching, training, instruction, indoctrination, learning etc, the aims of education, epistemology and education; ethics and education. Different conceptions of life and society and philosophical foundations of the curriculum.

EDF 801.1 ICT in Research Methods in Education (2 Credit Units)

This course should cover essentials of spreadsheets Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concept of hypothesis, formulation and Testing, Organization of Research and Report Writing.

EDF 807.1 Research Methods in Education (3 Credit Units)

Types of research methods and data, types of instruments, types of procedures for data collection, methods of data analysis, application of computer in data analysis, presentation of result and conclusion.

EDF 810.1: Foundations of Nigerian Education (3 Credit Units)

A survey of the traditional, historical, political and social foundations of Nigerian education will be undertaken. A critical assessment of the contributions of various educational traditions and agencies to educational development in colonial and post independent Nigeria will be made.

EDF 820.1 Sociology of Education (2 Credit Units)

Meaning, nature and scope of sociology of education; Interrelationship between sociology and education, conceptualizing education: Culture, socialization and education; Education as a social institution; its historical evolution and contemporary forms; social structure and education; education and social stratification; culture identity and inequality in educational opportunity and social change.

EDF 819.1 Systems and Policies of Education in Nigeria (2 Credit Units)

The course provides an in-depth analysis of the various system and policies of education in Nigeria and theft contributions to educational development. Special emphasis will be given up to colonial and post- independence educational policies and implementation up to date. Problems and prospects will be examined while an intensive study of a special period providing opportunity for training in the use of contemporary documents for the study of education systems will be undertaken by the students.

EDF 817.1 History of Western Education Upto 1800 (2 Credit Units)

A study of the development of the western system of education from the earliest time to the 18th century with emphasis on its spread to other parts of the world will be the focus of this course.

EDF 821.1 Educationand Development in Modern Times (2 Credit Units)

This cause is designed to capture the impact of education on development, particularly in temporary times. The course will include the economics of education for moderm time. The course will provide analyses to understanding the connection or nexus between education and issues of development. It is meant to establish that education is imperative to moderm development.

EDF 822.1 (H) Contemporary Educational Development & Policies Africa (2 Credit Units)

This course has to do with analysis of colonial education policies in Africa & identification of problems of public education in Africa inherited at the time of independence. It alao looks at the contemporary attempts made by the independent African governments as a group and various African governments to adapt education to theft particular environments. An in-dept study of the orientation, relevance and authentic African approach to education and educational policies will be explored. Countries with varied colonial experiences British, French & Portuguese and their attempts to Af-icanize their education systems to suit their developmental needs will be highlighted. The impact of organization and planning of education for the future should be highlighted.

EDF 826.1: Evolution of Educational Development and Policy in Colonial & Ex-Colonial Territories (2 Credit Units)

This course will focus on a comparative historical study of the educational policies of the various imperial powers with particular reference to Africa, and post- colonial development.

SGS 802.2: Management and Entrepreneurship (2 Credit Units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

EDF 808.2: Statistical Methods in Educationalresearch

Basic concepts and terms in inferential statistics, hypotheses formulation, testing and inference, application of various statistical concepts in education, ANOVA, ANCOVA, regression analysis, Chi-square will be focused on.

EDF 809.2 Educational Measurement and Test Construction (3 Credit Units)

Concepts, definitions and nature of tests, measurement, evaluations assessment, etc. psychometric properties of tests validity, reliability, usability, etc. types of tests, guidelines for construction of tests of different types; standardized tests; teacher made tests, non- cognitive tests, etc. differences between different types of test; test administration, scoring, grading and interpretation of grades, statistics in education e.g. concepts, descriptive and differential statistics; examination bodies in Nigeria and their roles.

EDF 818.2: Graduate Seminars in Educational Foundations (2 Credit Units)

Individual research projects on approved topics to be undertaken by students with the cooperation of their supervisor.

EDF 827.2 Contemporary Systems of Education in Europe, North and South America, Asia and the Caribbean (2 Credit Units)

A comparative analysis of twentieth century educational spreads in Western Europe, North and South America, Asia and the Caribbean with case studies of some specific countries will be carried out. The fall of comission and its in-pact on educational development of Eastern Europe will be highlighted.

EDF 850.2 Research Project/Dissertation (6 Credit Units)

Students are expected to transfer/apply the knowledge, skills and competencies learnt in the research methods to write on topical issues in education. This serves as a field of experience as they review the existing literature, collects and analyze data and write research reports.

Ph.D IN HISTORY AND POLICY OF EDUCATION

Year One First Semester

Course Code	Course Title	Units
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EDF 901.1	Advanced Research Method II	3
EDF 925.1	Education Systems and Policies in Africa	3
EDF 916.1	History of Education in Africa	3
EDF 917.1	History of Education as a Field of Study: Its Emergence and Development	3

implications of relevant contemporary theories for studies.

EDF 925.1: Education Systems and Policies in Africa (3 Credit Units)

The course will discuss the introduction of Western education into Africa; and the circumstances surrounding such introduction in different sub-regions of Africa. It will go further to examine the colonial policies of respective colonizing European countries and their impact on educational development in their respective areas of influence. Pan-continental and individual country's approach at redressing the real and perceived problems of colonial education at independence will also be treated. Finally, students will be expected to present seminar papers on individual national education systems representing the major colonizers (French British and Portuguese) areas of influence.

Year One Second Semester

Course Code	Course Title	Units
EDF 902.2	Advanced Educational Statistic II	3
EDF 918.2	History of Modern Education 1800-present	3
EDF 919.2	Issues in Comparative Education	3

EDF 919.2 Advanced Studies in Comparative Education II (3 Credit Units)

The course will build on the knowledge of introduction to Comparative Education, specifically examining the indepth knowledge of Comparative Education; starting with the critical assessment of its origin to the current status as an academic discipline. Attention shall also be directed at discussions on the emerging issues and how they affect education systems Discussion shall equally be centred on the various determinants/influencing factors of the education character of identified countries. Also, an exposition on the various methods for studying and researching Comparative Education shall be made.

Year Two First Semester

Course Code	Course Title	Units
EDF 921.1	Seminars in History of Education	3
EDF 922.2	Contemporary System of Education in Europe, North and South America, Asia and the Caribbean	3

EDF 9223 Contemporary System of Education in Europe, South and North America, Asia and the Caribbean (3 Credit Units)

A comparative analysis of twentieth century educational system in Western Europe, North and South America, Asia and the Caribbean with case studies of fall of communism and its impact on educational development in Eastern Europe will be highlighted.

Year Two Second Semester

Course Code	Course Title	Units
EDF 999.2	Ph.D Thesis	12

EDF 999.2 Ph.D Thesis (12 Credit Units)

Candidates are required to demonstrate research competencies by selecting a thesis topic in their relevant areas of specialization. The research is carried out by the individual student under the guidance of a competent supervisor according to Graduate School requirements. The candidate is expected to make some contributions to knowledge. The thesis is defended before an appropriately constituted examining committee chaired by the Head of the Department. The External Examiner's verdict shall override all other decisions.

EDF 916.1 History of Education in Africa (3 Credit Units)

This course focuses on a detailed analysis of the literature of the history of education in African primary, secondary and tertiary institutions.

EDF 917.1 History of Education as a Field of Study; Its Emergence & Development (3 Credit Units)

The course x-rays the emergence and development of history education as a field of study. Attention will focus on the study and writing of history of education in relation to development of general history and theories of history.

EDF 901.1 Advanced Research Methods II (3 Credit Units)

An in-depth study of basic research method appropriate for teachers and other students of education and general consideration will be given to technical problems with emphasis on the underlying research process and its practical implications for schools. There will also be a review of the

M.ED COMPARATIVE EDUCATION

First Semester

Course Code	Course Title	Status	Units
EDF 800.1	Philosophy Of Education	C	2
SGS 801.1	ICT In Research in Education	C	2
EDF 807.1	Advanced Research Methods in Education	C	2
EDF 810.1	Foundations of Nigeñan education	C	2
EDF 820.1	Sociology Of Education	C	2
EDF 832.1	Advanced Studies in Comparative Education	C	2
EDF 833.1	Issues In Comparative Education	C	2
EDF 834.1	Cross Cultural View of the three levels of Education	C	2
EDF 835.1	Comparative Studies of Higher Education in Africa	C	2

concepts such as teaching, training, instruction, indoctrination, learning etc. the aims of education, epistemology and education, ethics and education. Different conceptions of life and society and philosophical foundations of the curriculum shall be critically focused on.

EDF 801.1 ICT in Research Methods in Education (2 credit units)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concept of hypothesis, formulation and Testing, Organization of Research and Report Writing.

EDF 807.1 Research Methods in Education (2 Credit Units)

Types of research, methods and data, types of instruments, types of procedures for data collection, methods of data analysis, application of computer in data analysis, presentation of result and conclusion.

EDF 810.1: Foundations of Nigerian Education (2 Credit Units)

A survey of the traditional, historical political and social foundations of Nigerian education; a critical assessment of the contributions of the various educational traditions and agencies to educational development in colonial and independent, Nigeria

Second Semester

Course Code	Course Title	Status	Units
SGS 801.2	Management and Entrepreneurship	C	2
EDU 808.2	Advanced Statistical Methods in Educational Research	C	2
EDU 809.2	Educational Measurement & Test Construction	C	2
EDF 818.2	Graduate Seminar in Educational Foundations	C	2
EDF 827.2	Contemporary system of education in Europe, N/S America. Asia and the Carribbean	C	2
EDF 828.2 (c)	Development Trends (Globalization/ Internationalization) in Modem Education	C	2
EDF 850.2	Research Project/Dissertation	C	2

EDE 820.1 Sociology of Education (2 Credit Units)

Meaning, nature and scope of sociology of education; Interrelationship between sociology and education, conceptualizing education: Culture, socialization and education; Education as a social institution; its historical evolution and contemporary forms; social structure and education; education and social stratification; culture, identity and inequality in educational opportunity and social change.

EDF 832.1 Advanced Studies in Comparative Education (2credit Units)

The course will examine in-depth knowledge of comparative education dealing with various methods and countries.

EDF 833.1 Issues in Comparative Education (2 Credit Units)

This course will initially examine and elucidate the major concept and theories in comparative education. The methods and alternative approach to comparative education will also be identified and discussed. Special attention will be given to the issue of globalization and education in comparative times.

Keys: C = Compulsory O = Optional

EDF 800.1: Philosophy of Education (2 Credit Units)

The meaning of philosophy, different conceptions of philosophy of education, analysis of key educational

EDF 834.1 Cross Cultural View of the Three Levels of Education (2 credit units)

This course will focus on the Cross-Cultural view of various levels of education, the pre-primary, primary, secondary and the higher education.

EDU 835.1 Education in Developing Countries (2 Credit Units)

This course will initially examine and elucidate the major concept and theories in comparative education. The methods and alternative approaches to comparative education will be identified and discussed. Special attention will be given to the issues of globalization and education in comparative times.

EDF 836.1 Comparative Studies of Higher Education in Africa (2 Credit Units)

The course will look at the growth and development of higher education in various African countries from colonial period to past colonial era. It will emphasize the impact of higher education on development in selected African countries.

SGS 801.2: Management and Entrepreneurship (2 Credit Units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

EDU 808.2: Statistical Methods in Educational Research (3 credit units)

This course will examine basic concept and terms in Descriptive and inferential statistics. Testing of Hypothesis and drawing of inference. Parametric statistics includes t- test, z-test, analysis of variance (ANOVA) and analysis of covariance (ANCOVA). Correlational statistics including Pearson product moment, spearman rho, point-Biserial, Phi-coefficient, etc. test of significance for different correlational, statistics should be taught. Non parametric statistics including chi-square runs test, Mann- Whitney, etc. and application of various statistical concepts in education.

EDF 809.2 Educational Measurement and Test Construction (3 credit units)

Measurement scale and scaling models, theory of measurement error, test construction procedures, items writing, analysis and assembly in achievement, aptitude, and non-cognitive tests, reliability and validity of tests and practical work in test construction.

EDF 818.2 Graduate Seminar in Education (2 Credit Units)

Each seminar will provide an opportunity for the in-depth study of a substantive issue in educational theory and research. In addition, each student will be expected to lead a discussion on a selected research

topic, preferably based on the topic of his/her dissertation/thesis or research paper.

EDF 827.2 Contemporary Systems of Education in Europe, South and North America, Asia and the Caribbean (2 Credit Units)

A comparative analysis of twentieth century educational systems in Western Europe, North and South America, Asia and the Caribbean with case studies of fall of communism and its impact on educational development in Eastern Europe will be highlighted.

EDF 828.2 Development Trends (Globalization, Internationalization) In Modern Education (2 Credit Units)

This course will look at issues, impact and challenges of globalization on African Education system and the place of African nations in the global picture and it will highlight the need for education practitioners not only to think globally but demonstrate global trends in a developing country such as Nigeria.

EDF 850.2 Research Project/Dissertation (6 Credit Units)

Students are expected to transfer/apply the knowledge, skills and competencies learnt in the research methods to write on topical issues in education. This serves as a field of experiences as they review the existing literature, collect and analyze data and write research reports.

Ph.D IN COMPARATIVE EDUCATION

Year One First Semester

Course Code	Course Title	Units
EDF 901.1	Advanced Research Method II	3
EDF 925.1	Education Systems and Policies in Africa	3
EDF 919.1	Advanced Studies in Comparative Education II	3
EDF 922.1	National Systems of Education (Candidates to choose 2 out of 3) <i>Education Systems in Europe</i> <i>Education Systems in Canada and USA</i> <i>Education Systems in Asia</i>	3

Year One Second Semester

Course Code	Course Title	Units
EDF 902.2	Advanced Educational statistic II	3
EDF 919.2	Gender, Education and Globalisation	3

EDF 923.2	International Approaches to Higher Education	3
EDF 920.2	Politics and Education from an International Perspective	3

Year Two First Semester

Course Code	Course Title	Units
EDF 913.1	Sociological Perspectives of Education	3
EDF 924.1	Seminar in Comparative Education	3

Year Two Second Semester

Course Code	Course Title	Units
EDF 999.2	Ph.D Thesis	12

EDE 901.1 Advanced Research Methods II (3 Credit Units)

An in-depth study of basic research method appropriate for teachers and other students of education and general consideration will be given to technical problems with emphasis on the underlying research process and its practical implications for schools. There will also be a review of the implications of relevant contemporary theories for studies.

EDU 925.1 Education Systems and Policies in Africa (3 Credit Units)

The course will discuss the introduction of Western education into Africa; and the circumstances surrounding such introduction in different sub-regions of Africa. It will go further to examine the colonial policies of respective colonizing European countries and their impact on educational development in their respective areas of influence. Pan-continental and individual country's approach at redressing the real and perceived problems of colonial education at independence will also be treated. Finally, students will be expected to present seminar papers on individual national education systems representing the major colonisers (French, British and Portuguese) areas of influence.

EDF 919.1 Advanced Studies in Comparative Education II (3 Credit Units)

The course will build on the knowledge of introduction to Comparative Education, specifically examining the indepth knowledge of Comparative Education; starting with the critical assessment of its origin to the current status as an academic discipline. Attention shall also be directed at discussions on the emerging issues and how they affect education systems. Discussion shall equally be centred on the various determinants/influencing factors of the education character of identified countries. Also, an

exposition on the various methods for studying and researching Comparative Education shall be made.

EDF 922.1 National Systems of Education (Candidates to choose 2 out of 3) (3 Credit Units)

a. Education Systems in Europe

This course will do a comparative study of twentieth and twenty-first century's education systems in some selected national education systems in Europe. Emphasis will be placed on case studies of some specific countries in Europe such as United Kingdom, France, Germany, Italy, Portugal, Belgium, Finland and Spain.

b. Education Systems in Canada and USA

The course will focus on the analysis of education in the two North American countries, examining their peculiar educational characteristics in policy formulation, implementation and effectiveness for their growth and development, while presenting lessons for other countries, particularly the third world countries, to learn and apply for their prosperity.

c. Education Systems in Asia

This course will look at the educational systems of some selected Asian countries with special reference to key issues, challenges and opportunities in relation to the educational innovations of 21st century that have brought the continent to limelight.

EDF 919.2 Gender, Education and Globalisation (3 Credit Units)

The course introduces gender issues in education and development, particularly with reference to developing areas where poverty, high illiteracy rate, unemployment, underdevelopment and related issues are quite common, yet the effort is to achieve partnership in development among and between nations. Specifically, this is expected to provide comparative insights from different socio-cultural backgrounds and help in resolving gender related issues in education.

EDF 923.2 International Approaches to Higher Education (3 Credit Units)

The course will dwell on the impact of globalisation, issues in internationalisation, cross border in Higher Education, Distance Learning, Virtual Learning with reference to importance of student mobility, approaches to research, quality assurance and innovative pedagogical approaches for higher education.

EDF 920.2 Politics and Education from an International Perspective (3 credit units)

This course will examine the interplay and inter relationships between politics and education across the globe. Consideration will centre on how political

forces that help to contribute to or undermine the efficiency and effectiveness of education from global concerns. Emphasis will be placed on how international politics affect decision-making in education at various areas which include early childhood, primary, secondary and higher education, financial agencies, partnerships, administration, quality assurance and policy formulation and implementation.

EDF 913.1 Sociological Perspectives of Education (3 Credit Units)

The course focuses on the foundations and outcomes of education from the sociological point of view, bearing in mind all the stakeholders in education — teachers, parents, pupils/students, administrators and other educational establishments/organisations. Major sociological theories as well as related sociological concepts (such as stratification, discrimination, ethnicity, social mobility, equal opportunity, school violence, bureaucracy and feminism) will be examined in relation to educational practices and outcomes. The relationship between the school and societal institutions will equally be examined. Specific examples will be drawn from different educational establishments as the class progresses. Students will

be made to gather information and provide report on case studies on specific educational practices and their consequences.

EDF 924.1 Seminar in Comparative Education (3 Credit Units)

This requires the candidate to attempt an in-depth study on substantive comparative educational issue. The candidate shall lead a discussion on the selected research topic for presentation. The topic may be the one chosen for the thesis.

EDF 999.2 Thesis (12 Credit Units)

Candidates are required to show evidence and manifest the skills of research competencies through a carefully selected and researchable topic in the area of Comparative Education, for their theses. This shall be an individual research under the guidance of qualified and specialist supervisor(s) in the field. The research work is expected to meet the standard and contribute to existing body of knowledge. The thesis is to be defended before a constituted examining committee, to be chaired by the Head of Department or Chairman of the Departmental Post Graduate Board. In all cases, External Examiner's verdicts shall override all other decisions.

ACADEMIC STAFF

S/N	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	DESIGNATION
1.	Yusuf M. Abdulrahman	Dip. (Ed), (U.I); B.Sc. (Ed), (Unilorin); M.Ed (U.I.), Ph.D (UPH)	i. History and Policy of Education, ii. International & Comparative Education	Professor & HOD
2.	Ibitamuno M. Aminigo	B.A. (Ed), M.Ed., PhD (UPH)	Language Literary Studies and Philosophy of Education	Professor
3.	Victory U. Dienye	B.A. Ed, M. Ed., Ph.D (UPH)	Sociology of Education	Professor
4.	Sunday D. Osaat	B.Sc. (Ed). M.Ed. Ph.D (UPH)	Philosophy of Education	Professor
5.	Veronica O. Odigie	Dip. M.Ed. (Uni of Sofia), Ph.D (UPH)	Childhood Pedagogy & Philosophy of Education	Professor
6.	Douglas O. Nwaokugha	B.Ed., M.Ed., PhD	Philosophy of Education	Professor
7.	Josephine A. Onyido,	B.Ed, M.Ed., Ph.D (UPH)	Sociology of Education	Professor
8.	Bright Okanezi,	B.Ed, M.Ed., Ph.D (UPH)	Sociology of Education	Reader
9.	Celestina I. Harry	B.Ed, M.Ed., Ph.D (UPH)	History and Policy of Education, Comparative Education	Reader
10.	Lucky Nziadam	B.Ed, M.Ed., Ph.D (UPH)	Philosophy of Education	Reader
11.	Benjamin N. Nyewusira	B.Ed., M.Ed. Ph.D (UPH)	History and Policy of Education, Comparative Education	Reader
12.	Ngozi E. Kalu	B.Ed, M. Ed, Ph.D (UPH)	Sociology of Education	Senior Lecturer
13.	Obitor W. M. Ogeh,	B.Ed, M. Ed. (UPH), Ph.D (Unical)	History and Policy of Education, Comparative Education	Senior Lecturer
14.	Onyinyechi O. Ochuba	B.Ed, M. Ed, Ph.D (UPH)	Language Education	Senior Lecturer
15.	Osakume D. Alfred	B.Ed, M. Ed. (UI), Ph.D (UPH)	Language Education	Senior Lecturer

DEPARTMENT OF ADULT AND NON-FORMAL EDUCATION POST GRADUATE DEGREE PROGRAMMES

A. The Master of Education (M.Ed) Programme

Departmental Philosophy for the M.ED Programme

Post-graduate programmes for the award of M.ED in the Department of Adult and Non-formal Education are designed to provide highly skilled manpower to plan, administer and conduct research in the areas of literacy, distance education, community development and environmental adult education in the Private and Public Sectors of our socio-economic system.

Aim and Objectives

I. Aim: The Department of Adult and Non-formal Education offers Postgraduate Programmes leading to the award of Master of Education (M.ED) Degree in Adult Education in the following areas of specialization:

- i) Literacy Education
- ii) Distance Education
- iii) Community Development
- iv) Environmental Adult Education.

II. Objectives: The M.ED programme in Adult and Non-formal Education is designed to:

- a. Provide training for top-level manpower required for teaching and research in Adult and Non-formal Education at the University level and at any other level where Adult Education features.
- b. Develop intellectual and professional competencies required to serve in leadership positions in adult literacy, distance education, community development and environmental education.
- c. Provide useful research skills and methods of application of these skills to achieve meaningful solutions to related problems.
- d. Inculcate in students the love for originality and critical thinking through writing and defence of the M.ED Thesis.

B. Admission Requirements

The following categories of candidates may be admitted on application into the M.ED Programme.

- a. Graduates of the University of Port Harcourt or any other approved Universities who have

obtained an approved degree of Bachelor's degree with at least second class honours lower division in Adult Education.

- b. Candidates with at least second class honours degree in professional field of education.
- c. Graduates in related fields with 2nd class honours degree or above and with at least a merit level pass in the postgraduate diploma in Education. Such candidates and those in (i) above may be required, where necessary, to do some remedial courses as provided below.

C. Duration of the M.ED Programme

The minimum and maximum durations for the M.ED programme shall be as follows:

- i. Full-Time: The programme will last for a minimum of 12 calendar months and a maximum of 36 months.
- ii. Part-Time: The programme will last a minimum of 18 calendar months and a maximum of 48 months.

Mode of Study for M.ED Programme

The Master of Education (M.ED) programme shall be pursued as follows:

- i. Candidates shall be required to take course /work to be examined in written papers together with research work which has to be presented and defended as a thesis.
- ii. The total course work shall be 24 credit hours made up of 12 units/credit hours of core/compulsory courses and 12 credits from the candidate's area of specialization. A maximum of 30 units/credit hours of course/work shall be allowed by selecting other Departmental course based on the advice of students' supervisor.
- iii. Candidates who fail to successfully complete the required number of units may be allowed to repeat the course(s) and/or examinations at the next available opportunity.

E. Fields of Specialization:

The areas of specialization in the M.ED programme are:

- i) Literacy Education
- ii) Distance Education
- iii) Community Development
- iv) Environmental Adult Education.

Remedial Courses

M.ED candidates who have deficiencies in their areas of specialization may be required to take all or some of the following remedial courses selected from the first degree programmes.

Course Code	Course Title
DAE 100.1	Introduction to Adult and Non-formal Education
DAE 101.1	Introduction to Literacy Education
DAE 202.1	Fundamentals of Distance Education
DAE 300.1	Adult Education and Community Development
DAE 303.1	Introduction to Environmental Adults Education
DAE 403.2	Adult Education and Socio-Economic Development in Nigeria

Core/Compulsory Courses for all M.ED Students:

All the under listed` core courses and project must be taken by all students.

First Semester

Course Code	Course Title	Units
ADE 801.1	Theoretical Perspectives in Adult Education	3
ADE 839.1	Research in Adult Education	3

Second Semester

Course Code	Course Title	Units
ADE 802.2	Advanced Seminar 1	3
ADE 803.2	Statistical Methods & Research Techniques in Adult Education	3
ADE 890.2	Project Report/Thesis	6

Masters Courses in Areas of Specialization

A. Adult Literacy Education

First Semester

Course Code	Course Title	Units
ADE 811.1	Principles and Practices of Literacy Education	3
ADE 812.1	Administrative and Policy of Literacy Education	2
ADE 813.1	Curriculum/Programme Planning in Literacy Education	2

Second Semester

Course Code	Course Title	Units
ADE 814.2	Instructional Material in Literacy Education	3
ADE 815.2	Comparative Studies in Literacy Education	2

B. Distance Education Programme

First Semester

Course Code	Course Title	Units
ADE 821.1	Current Issues in Distance Education	3
ADE 822.1	Planning and Administration of Distance Education	3
ADE 823.2	Theory and Practices of Distance Education	2

Second Semester

Course Code	Course Title	Units
ADE 824.2	Mass Media in Distance Education	3
ADE 825.2	Comparative Studies in Distance Education	2

C. Community Development Programme

First Semester

Course Code	Course Title	Units
ADE 831.1	Organization and Management of Community Development	3
ADE 832.1	Sociology of Adult Education and Community Dev.	2
ADE 833.1	Comparative Community Development	2

Second Semester

Course Code	Course Title	Units
ADE 835.2	Mobilization and Human Resources Development in Community Development	3
ADE 834.2	Community Development Programmes in Africa	2

D. Environmental Adult Education

First Semester

Course Code	Course Title	Units
ADE 836.1	Principles and Practices of Environmental Adult Education	3
ADE 837.1	Programme Planning and Implementation of Environmental Adult Education	2
ADE 838.1	Approaches to Environmental Adult Education	2

Second Semester

Course Code	Course Title	Units
ADE 840.2	Methods and Materials for Environmental Adult Education	3
ADE 841.2	Networking in Environmental Adult Education	2

COURSE DESCRIPTION

Core/Compulsory Courses for all M.Ed Students

ADE 801: Theoretical Perspective in Adult Education

The course exposes students to the Philosophical, Psychological and Sociological trends and orientation in Adult Education. Modern trends and approaches in these areas are emphasized as they affect adults in the society. The implications of life-long education in the field of adult education shall be treated. (3units).

ADE 802: Advanced Seminar I

Students will be required to make presentation(s) from selected topics in their fields of specialization in Adult Education. (3units).

ADE 803: Statistical Methods and Research Techniques in Adult Education

The scope of this course covers the use of descriptive and inferential statistics in the analysis of data and in testing research hypotheses. (3units).

ADE 839: Research in Adult Education

Students in this course shall be properly grounded in the methods and techniques in various aspects of research in Adult Education. Emphases shall be placed in students' areas of specialization. (3units).

ADE 890: Research Thesis Writing

A candidate is expected, under a Departmental supervisor, to undertake an in-depth study of research problem(s), in his field of specialization in adult education that is of interest to him. (6units).

II. Courses in Areas of Specialization

A. Literacy Education

ADE 811: Principles and Practices of Literacy Education

The course examines the origin, growth and development of Adult Literacy in developed and developing countries. A study of various literacy education methods and techniques and the role of governmental and Non-governmental Organizations/agencies in Literacy will also be examined. (3units).

ADE 812: Administration and Policy on Literacy Education

This course focuses on the policy and administration of literacy activities at the state and Federal levels as well as the provision of human and material resources for literacy education (2 units).

ADE 813: Curriculum/Programme Planning in Literacy Education

This emphasizes the basic curriculum/programme planning and design in adult literacy education. Curriculum design models by Houle, Maslow, Knowles, etc for programming in Adult Education will be stressed (2 units).

ADE 814: Instructional Materials in Literacy Education

In this course emphasis is laid on the need, production and use of basic literacy and post-literacy instructional materials including practical project work in primer writing by students (3 units).

ADE 815: Comparative Studies in Literacy Education

The emphasis in this course is on comparative studies in literacy education programmes in developed and developing countries. Emphasis shall be placed on literacy policy, content, funding, man-power and the delivery system (2 units).

B. Distance Education

ADE 821: Current Issues in Distance Education

This course focuses on the analysis and review of specific case studies and major issues in distance education. Computer education course designs and packaging, teaching and learning strategies and other current issues in distance education, etc will be

emphasized. Contemporary trends in programming, funding, evaluation and problem-solving techniques will also be discussed (3 units).

ADE 822: Administration and Planning of Distance Education

The principles of management and planning of distance education will be the main focus on this course. The dynamics in planning, coordinating, monitoring, directing and evaluating distance education will also be emphasized.

ADE 823: Theory and Practice of Distance Education

This is an advanced course designed to expose students to the general theory and practices of distance education. It will examine the principles, practice and problems underlying distance education (2 units).

ADE 824: Mass Media in Distance Education

This course emphasizes the importance of the mass media in distance education. It exposes students to the innovative ideas in communication technologies such as the radio, TV, computer, Internet, etc which have turned the world into a global village.

ADE 825: Comparative Studies in Distance Education

This course examines the different forms of distance education in developed and developing countries with a view to improving our own. It will also examine the cross-cultural settings of distance education with particular reference to developing countries.

C. Community Development

ADE 831: Management and Organization of Community Development

This course emphasizes the study of the classical and current theories in the management and organization of Community Development. In all, the principles and practice of Management of Community Development Programme in advance and developing countries will be highlighted (3 units).

ADE 832: The Social-Psychology of Community Development

This course will highlight the advanced theories of Developmental Psychology as they relate to community development. Cultural antecedents creating problems in Community Development, especially in Nigeria, shall be discussed. Candidates will require doing some fieldwork to relate theory to practice (2 units).

ADE 833: Comparative Community Development

This involves a study of various forms of planned change programmes and how they are associated with human groups in some selected countries. The philosophy, ideology and objectives associated with the planned change programmes and problems encountered will be highlighted to facilitate the evolution of alternative approaches (2 units).

ADE 834: Community Development Programmes in West Africa

This course emphasizes the current strategies in community development programmes in selected West African countries. The participation of governmental, non-governmental and inter-governmental organizations both locally and externally (e.g. NNCAE, UNDP, UNICEF, etc) in the structuring of community development programmes shall be brought into focus (2 units).

ADE 835: Mobilization and Human Resources Development in Adult Education and Community Development

Innovative techniques and strategies in mobilization and human resource development in adult education and community development shall be the main focus of this course. Emphasis will be laid however on the complementarity of adult education and community development in the promotion and sustenance of human welfare (3 units).

D. Environmental Adult Education

ADE 836: Principles and Practice of Environmental Adult Education

This is an advanced general course designed to expose students to the global objectives of Environmental Education. Emphasis is placed on the socio-cultural context of environmental education. Again, the provisions of agenda of the Rio 92 conference and International Treaty on Environmental Education for sustainable societies and global responsibilities will constitute the pivot of the discussion (3 units).

ADE 837: Programme Planning and Implementation In Environmental Adult Education

In this course the importance of Needs assessment and Awareness Programme is brought into focus for effective planning and implementation of situation-specific environmental adult education programmes. Factors that may impede the development of this necessary agenda will be discussed with a view to providing appropriate solutions that will lead to

selection of priorities and creation of the necessary learning environment (2 units).

ADE 838: Approaches to Environmental Adult Education

Various approaches to environmental Adult Education are discussed here with a view to exposing the student not only to existing theories but also to the need for relevance in adopting planning and implementation strategies for environmental adult education. Personnel recruitment and training for Adult Education and Community Development shall be exposed to students (3 units).

ADE 840: Methods and Materials for Environmental Adult Education

The methodologies for effecting environmental adult education will be discussed in this course. In all, the importance of group problem-solving methods which highlight the issue-oriented and problematic nature of the content of environmental adult education will be stressed. The course will also consider identification of resource materials needed for environmental adult education (3 units).

ADE 841: Networking in Environmental Adult Education

The importance of exchange of Experience between environmental specialists in Adult Education and their counterparts in this field will be highlighted. The course also will examine the necessity for cooperation between adult education and environmental organizations both in the public and private sectors with a view to developing joint initiatives with external agencies and multinationals (2 units).

DOCTORAL (Ph.D) DEGREE PROGRAMME

Departmental Philosophy for the Ph.D Programme

Postgraduate programmes for the award of Ph.D. in the Department of Adult and Non-formal Education are designed to provide highly skilled manpower to plan, administer and conduct advance research into Nigerian mass literacy efforts, distance education, community development and private and public sectors in our advancing society.

Aim and Objectives

A. AIM: The Department of Adult and Non-formal Education offers Postgraduate Programmes leading to the award of Doctor of Philosophy in Education (Ph.D.) Degree in

Adult Education in the following areas of specialization:

- i. Literacy Education
- ii. Distance Education
- iii. Community Development
- iv. Environmental Adult Education.

B. Objectives: The Ph.D. programme in Adult and Non-formal Education is designed to :

- i. Provide training for top-level manpower required for teaching and research in Adult and Non-formal Education at the University level and at any other level where Adult Education features.
- ii. Develop intellectual and professional competencies required to serve in leadership positions in adult literacy, distance education, community development and environment education.
- iii. Provide useful research skills and methods of application of these skills to achieve meaningful solutions to related problems.
- iv. Inculcate in students the love for originality and critical thinking through writing and defence of the Ph.D. Thesis.

Admission Requirements for the Degree of Doctor of Philosophy (Ph.D.)

The following categories of candidates may be admitted on application:

- i) Graduates of the University of Port Harcourt or those from other approved Universities who have obtained an approved degree of Master of Education appropriate for their proposed areas/fields of specialization with a minimum of 3.50 CGPA, on a five point scale. In addition, a candidate must have gone through satisfactory research work which must have formed part of his/her Masters Degree programme.
- ii) Candidates who hold qualifications other than the above but which may be considered acceptable by the Graduate Studies Board of the Faculty of Education on recommendation of the Department of Adult and Non-formal Education.

A. Duration of the Ph.D. Programme

- i) **Full-time:** A Full-Time student would be required to spend a minimum of 24 months and a maximum of 60 months

ii) **Part-Time/Sandwich:** A part-time Sandwich student would be required to spend a minimum of 60 months and a maximum of 84 months.

B. Mode of Study: Award of a Ph.D. Degree in Adult and Non-formal Education shall be partly based on the presentation and defence of a comprehensive research work embodied in a Dissertation. Candidates will also be required to offer a minimum of 15 units of course work (9 units in their areas of specialization and 6 units of core/compulsory courses). However, candidates may register up to a maximum of 21 credit hour course work by selecting other Departmental courses on the advice of their supervisors. Part-time/Sandwich students would be required to register in one year not more than 60% of the minimum course work required for the award of the degree.

Fields of Specialization

The areas of specialization in the Ph.D. programme are:

- A. Literacy Education
- B. Distance Education
- C. Community Development
- D. Environmental Adult Education.

C. Core/Compulsory Courses for all Ph.D. Students:

Course Code	Course Title	Units
ADE 901	Advanced Seminar II	3
ADE 902	Advanced Statistical Methods & Research Techniques in Adult Education	3
ADE 990	Dissertation Writing	6

D. Ph.D. Courses in Fields of Specialization:

The following Ph.D. level courses shall be offered in the Department of Adult and Non-formal Education:

A. Ph.D. in Literacy Education

Course Code	Course Title	Units
ADE 911	Advanced Course in Administration of Adult Literacy Education	3
ADE 912	Literacy Education & Socio-Political Development	3
ADE 913	Advanced Literacy Education Programming	3

B. Ph.D. in Distance Education

C. First Semester

Course Code	Course Title	Units
ADE 921	Advanced Extension Education	3
ADE 922	Emerging Trends in Distance Education	3
ADE 923	Advanced Comparative Studies in Distance Education	3

D. Ph.D. in Community Development

Course Code	Course Title	Units
ADE 931	Community Development Process	3
ADE 932	Integrated Community Development	3
ADE 933	Community Development, Social Change and Adult Education	3

E. Ph.D. in Environmental Adult Education

Course Code	Course Title	Units
ADE 934	Community-Based Environmental Education	3
ADE 935	Monitoring and Evaluation of Environmental Adult Education Programme	3
ADE 936	Environmental Adult Education and Socio-Economic Development in Africa	3

Course Description

Core/Compulsory Courses for all Ph.D. Students:

ADE 901: Advanced Seminar II:

Students will be exposed to current issues in adult education administration, especially in their areas of specialization. Special attention will be paid to the implications of life long learning for socio-economic changes. The course is also intended to broaden the students' knowledge base about component disciplines within adult education through provision of opportunity for the students to present and discuss issues and problems that emerge from their chosen areas of specialization. Students shall be expected to present a seminar paper each in their fields of study (3 units).

ADE 902: Advanced Statistical Methods and Research Techniques in Adult Education

Students shall be oriented to advanced scientific research techniques, concepts and approaches, including advanced correlation-statistics; interrelationships, predicting and estimating in regression analysis; and inferential statistics for testing hypotheses (3 units).

ADE 990: Dissertation

Students should be expected to produce a comprehensive research work in their fields of specialization (6 units).

A. Ph.D. in Literacy Education

ADE 911: Advanced Course in Administration of Adult Literacy Education

The principles and practices of administration of adult literacy education will form the main focus of this course. Effectiveness in the use of non-traditional means in planning, designing, programming, communicating and other aspects of management functions will be highlighted (3 units).

ADE 912: Literacy Education and Socio-Political Development

Students shall be exposed to adult education and social theories of development including sociological analysis of the relationship between adult education and socio-political and economic institutions of literacy education in the light of Nigerian development. Adult literacy education as a factor of socio-political change and vice versa shall be treated (3 units).

ADE 913: Advanced Literacy Education Programming

Various perspectives of adult literacy programming with special reference to the role of international organizations will be examined. The policy, contemporary issues and problems of development shall also be highlighted with reference to history of education (3 units).

B. Ph.D. in Distance Education

ADE 921: Advanced Extension Education

Training of professionals as extension personnel and as change agents of group and organizational behaviour shall be stressed. Application of diffusion theory and other innovative theories as a practical project model shall be treated using participatory research approach (3 units).

ADE 922: Emerging Trends in Distance Education

Identification of new directions and emerging trends in Distance Education, computer-programming, communication skills and techniques would be the main focus (3 units).

ADE 923: Advanced Comparative Studies in Distance Education

The purpose, significance, process and evaluation of distance education programmes in selected developed and developing countries will be highlighted and compared with the situation in Nigeria. The essence will be to adopt the most salient approaches to improve Distance Education in the country (3 units).

C. Ph.D. in Community Development

ADE 931: Community Development Process

Community development will be examined as an educational process and as an instrument of social policy. The importance of good leadership in community development shall also be stressed (3 units).

ADE 932: Integrated Community Development

Students shall be exposed to the meaning and purpose of the integrated approach to community development. The disadvantages of compartmentalization will also be highlighted (3 units).

ADE 933: Community Development, Social Change and Adult Education

Analysis of methods and approaches in community learning; adult education as a community development process, the dynamics of community changes, the dynamics and the elements of development as well as the difference between change, progress and development shall be the major components of this course (3 units).

D. Ph.D. in Environmental Adult Education

ADE 934: Community-Based Environmental Adult Education

The principles of CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) will be x-rayed in this course. Experience of some countries, particularly in Africa, will serve as case studies, (especially in the areas of women education, mass literacy and health programmes) (3 units).

ADE 935: Monitoring and Evaluation of Environmental Adult Education Programme

The importance of monitoring and evaluation of environmental adult education programmes will be explained. The students should be exposed to the techniques for monitoring and methods of evaluation of environmental adult education programmes (3 units).

ADE 936: Environmental Adult Education and Socio-Economic Development in Africa

This course examines in great details the link between environmental adult education and sustainable socio-economic development in Africa. Here special attention will be drawn to current energy crisis experienced virtually in all continents, but particularly in drought-stricken Africa. The course will highlight the need for adults in the fast changing African communities to manage their own educational, cultural, scientific and technological resources and to direct them towards a form of development of which they will decide the content and priorities in accordance with their experience and particular ways of life (3 units).

Notice for all Post Graduating Students

Before any presentation of completed work is done by post graduating students either at the Faculty or Post Graduate School, the Departmental Graduate Board must have met and looked at what is to be presented by the students a week before presentation. The students who are to present must bring the copies of their work to be presented to the Graduate Board precisely the Thursday preceding the one scheduled for presentation at the Faculty or Post Graduate School. The decision was arrived at for quality control and therefore must be complied with. The Graduate Board also agreed that whenever we have proposed defence, all academic staff and Post Graduate students of the Department should be invited to be present.

That once students are admitted for Masters Degree, those to offer remedial courses must take and pass the courses first before registering for their Master Programme.

S/N	Name	Rank/Designation	Qualification / Area of Specialization and Research Interest
1.	Onyenemezu, E.C.	Reader (Head of Department)	B.ED, M.ED, Ph.D (UPH) Adult Education & Community Development.
2.	Oyebamiji, M. A.	Professor	B.Ed., M.Ed. Adult Education, Ph.D. Adult Education.
3.	Adekola, G.	Professor	B.ED, M.ED & Ph.D (Ibadan)
4.	Aruma, E.O.	Professor	B.ED, M.ED & Ph.D (UNN)
5.	Hanachor, M.E.	Professor	Diploma, B.ED, M.ED, Ph.D (UPH)
6.	Ezimah, M.O.A.	Professor	B.ED (Calabar) M.ED, Ph.D (UPH)
7.	Ugwu, A.N. (Mrs.)	Professor	B.ED, M.ED (UNN), PhD (UPH)
8.	Ijah, C.N.	Reader	B.Ed (Hons), (Ibadan) M.Ed, Ph.D (UPH)
9.	Patrick, J.M.	Reader	B.Ed (Hons)(Ibadan), MPA (UNICAL), M.Ed, Ph.D (UPH)
10.	Eheazu, C.L. (Mrs.)	Reader	B.Ed, M.ED, PhD (UPH)
11.	Uzoagu, I. F.	Senior Lecturer	B.Ed (UNIBEN), M.Ed (UPH), Ph.D (UNN)
12.	Okorie, C.U.	Senior Lecturer	B.Ed, M.Ed, Ph.D (UPH)

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY, GUIDANCE AND COUNSELLING

1. Programmes Available

The Department of Educational Psychology, Guidance and Counselling offers professional programmes leading to the award of M.Ed degree in Educational Psychology, Guidance and Counselling with specialization in the following areas:

- i. Educational Psychology
- ii. Guidance and Counselling
- iii. Educational Measurement and Evaluation

2. Objectives

The graduate programmes of the Department are designed:

- a. To develop in students the sense of originality as well as analytical and critical thinking
- b. To produce high caliber specialists in the specified areas of specialization.

3. Admission Requirements

Admission to the programme shall be in accordance with the general regulations of the School of Graduate studies.

4. Duration of programmes

Full-time and Part-time programmes as provided in the general regulations.

5. Course Requirements

Course requirements are as provided in the general regulations.

6. Course Assessment

As in the general regulation

7. M.Ed Thesis

As in the general regulation

8. General University Regulations

All the foregoing regulations are subject to the general University regulations governing higher degree programmes.

Courses for the M.Ed,

(i) Core Courses

All M.Ed candidates must take all the following seven Core Courses

Course Code	Course Title	Credit Unit
EDP 801.1	Human Learning	3
EDP 804.1	Research Methods	3
EDP 809.1	Theories of Counselling and Psychotherapy	3
EDP 815.1	Intelligence, Aptitude and Personality Testing	3

SGS 801.1	ICT and Research Method	2
SGS 801.2	Management and Entrepreneurship	2
EDP 820.3	Dissertation	6

(ii) Courses in Areas of Specialization

All M.Ed candidates are to do the four courses and one seminar from any of the following areas of specialization.

(a) Educational Psychology

Course Code	Course Title	Credit Unit
EDP 802.2	Human Growth and Development	3
EDF 803.2	Psychology and Teaching	3
EDP 805.2	Problems of Adolescent Development	3
EDP 806.2	Seminar	3
EDP 807.2	Principles and Techniques of Behaviour Modification	3

(b) Guidance and Counselling

Course Code	Course Title	Credit Unit
EDP 807.2	Principles and Techniques of Behaviour Modification	3
EDP 808.2	Principles and Techniques of Guidance and Counselling	3
EDP 810.2	Career Development and Occupational Information	3
EDP 811.2	Seminar	3
EDP 819.2	Advance Practicum in Guidance and Counselling	3

(c) Educational Measurement and Evaluation

Course Code	Course Title	Credit Unit
EDP 812.2	Advance Educational Statistics	3
EDP 813.2	Educational Evaluation	3
EDP 814.2	Advanced Educational Measurement and Evaluation	3
EDP 816.2	Seminar	3
EDP 817.2	Data Processing with Computer	3

(iii) Seminars

Compulsory for all students, but candidates should take seminar topics from their respective areas of specialization.

COURSE DESCRIPTIONS

EDP 801.1 Human Learning

Ways of studying learning process. Determining and building readiness. Individual differences motivation basic elements in human arousal and direction of energies; applying principles of motivation in teaching. Teaching of permanent and meaningful learning- providing meaningfulness; reducing interference for better retention; conceptual learning; problem-solving; creative thinking. Transfer of learning-teaching for transfer.

EDP 802.2: Human Growth and Development

The biological and social bases of behaviour, physical, mental, emotional, social and moral development from birth to maturity. Selected personality theories with reference to personality development. Current controversial issues in child development, intensive study of the African child.

EDP 803.2: Psychology and Teaching

Educational Psychology and decision making, educational psychology and the aims of the school. Educational casualties and the need for talent. Victims of inadequate learning situations. Attitudinal failures, making educational psychology functional.

EDP 804.1: Research Methods

The course is designed to acquaint students with the methodology of conducting educational research. Topics to be discussed will include the formulation of research problems, literature review, hypothesis testing, sampling methods, techniques of gathering data, analysis and interpretation.

EDP 805.2: Problems of Adolescent Development

Adolescence as both biological and social in nature. Adolescence as transition period. Developmental tasks of adolescents. Physical and personality needs of adolescents. Intellectual, social and heterosexual development, current problems of adolescents; delinquency, alcohol and drugs, teenage pregnancy, school dropout.

EDP 806.2: Seminar

Focuses on individual studies, presentation of papers on projects, research plan or research results in selected aspects of:

- a) Human learning
- b) Human growth and development

EDP 807.2: Principles and Techniques of Behaviour Modification

Principles and techniques for behaviour modification, including systematic application of the techniques to specific common behaviour problems in the Nigerian society.

EDP 808.2: Principles and Practice of Guidance and Counselling (including practicum)

Principles, techniques, procedures and appraisal in educational vocational and personal counselling various forms of assessment tools, including achievement tests, aptitude tests, inventories, observation, will be discussed. The course will also review typical illustrative cases from research. The practicum is designed to give students practice in guidance and counselling skills in diagnosis, assessment and identification of needs. Counselling interviews recorded on audio-tapes will be analysed in terms of counselor behaviour and responses to the client.

EDP 809.1: Theories of Counselling and Psychotherapy

An overview of the various approaches to counselling and psychotherapy. An examination of selected theories from these approaches, e.g. Ellis, Bollard and Miller, Alexander, Roders. Their implications for counseling in Nigerian society.

EDP 810.2: Career Development and Occupational Information

An overview of the basic objective of vocational education. The role of theory in vocational guidance. A critical look at selected theories of vocational development, relationship between vocational education and manpower needs in Nigeria. An examination of decision making process, occupational information preparation for jobs and the need for vocational counseling.

EDP 811.2: Seminar

Individual research projects on approved topics to be undertaken by students with the cooperation of their supervisors.

EDP 819.2: Advance Practicum in Guidance and Counselling

Advanced practicum in guidance and counseling students are exposed to advanced skills in conducting practicum. Students are expected to go on field work for practicum or organize working groups for practicum purposes. In each case, the students are thoroughly supervised by their lecturers based on the extent of delivering of skills.

EDP 812.2: Advance Educational Statistics

Basic concepts and terms in inferential statistics. Hypotheses formulation. Testing and inference. Testing difference between means and proportions/ percentages. Parametric statistics including t-test, z-test, analysis of variance (ANOVA), analysis of covariance (ANCOVA), simple linear, multiple

linear, and curvilinear regression analyses, factor analysis, path analysis. Discriminant analysis, time series, etc. correlational statistics including Pearson, Spearman rho, point biserial, Phi-coefficient, Kendal's coefficient of concordance, partial correlation, multiple' correlation, biserial correlation, etc. Tests of significance for difference correlational statistics. Non-parametric statistics including chi-square, Kolmogorov/Siminov test, z-test of proportion, Vileoxon test, sign test, runs test, median test, Mann Whitney test, Kruskal-Wallis test, Friedman test, etc. The power of a test, post hoc tests. Application of various statistical concepts in education.

EDP 813.2: Educational Evaluation

Strategies of evaluation of educational programmes. Procedures for assessment of needs. Development of behavioural objectives, process monitoring, and interpretation of outcomes. Experimental designs and statistical procedures particularly applicable to evaluation.

EDP 814.2: Advanced Educational Measurement and Evaluation

Meaning of measurement and evaluation. Tests and their types/classification, importance and criticisms of tests, social and ethical implications of testing. Test bias, item bias, qualities of measurement and evaluation instruments. Development and validation of the norm-referenced tests. Development and validation of criterion-referenced tests. Administration of tests, test score profiles and profile analysis. Analysis and interpretation of test scores using basic descriptive statistics and standard scores. Continuous assessment. Scaling techniques, construction and standardization of affective and psychomotor measure/instruments. Contemporary issues in the assessment of affective and psychomotor behaviours, accountability and evaluation, test theories.

EDP 815.1: Intelligence, Aptitude and Personality Testing

Theories of intelligence and aptitude testing, group and two-factor theory of intelligence. Construction and validation of intelligence and aptitude tests, factors related o measurement of these tests. Theories of personality testing, personality interest inventories; construction and validation of personality tests; attitude-scaling; etc problems involved in personality testing.

EDP 816.2: Seminar

Topics to be selected from the area of specialization.

EDP817.2: Data Processing with Computer

This course deals with the use of computers in test development and data analyses. Areas to be covered

include introduction to computers and operating systems; computing with the aid of statistical package for the social sciences (SPSS) and other soft wares; and data processing considering various statistical analysis. Emphasis should be placed on data collection from the field, programming and interpretation. Use of computers in test development, item analysis and scoring should be treated.

EDP 820.2: Dissertation

Candidates are required to carry out a research in their various areas of specialization which will be supervised as required by the school of graduate studies. Thereafter the students will defend the finished dissertation at different stages vis-a-vis Departmental Board and External Oral Examination, which will take place before an appropriately constituted Board of Examiners Chaired by the Dean of graduate studies.

Higher Degree Programmes

1. Programmes Available

The department of Educational psychology, guidance and counseling offers professional programmes leading to the award of the Ph.D degree in the following areas of specialization:

- i) Educational psychology
- ii) Guidance and counselling
- iii) Educational measurement and evaluation

2. Objectives

The graduate programmes of the department are designed:

- a) To produce higher-caliber specialists in the areas of specialization, for higher educational institutions, commissions, boards, ministries and other appropriate bodies;
- b) To develop in students the sense of originality as well as analytical and critical thinking through the writing of a doctoral dissertation.

3. Admission Requirements

- i) Admission into the Ph.D programme is open to graduates with M.Ed the appropriate areas of specialization from the University of Port Harcourt or any other recognized universalities, and who must have an average of 60% or its equivalent grade in the University of Port Harcourt.

ii) Each applicant must:

- (a) Complete the prescribed application form which is obtainable from the school of graduate studies.
- (b) Provide two letters of recommendation, one of which must be from his/her employer (if employed), and the other from the university where his/her bachelor's degree was awarded;
- (c) Submit a two-page-A-4 typed (double-spaced) essay on his/her objectives and goals in seeking

- admission to the higher degree; and
 (d) Be found suitable for admission after an interview by the higher degrees committee of the Faculty of Education.

4. Duration of Programmes

(a) Full-Time

The Ph.D programme will extend over a minimum of 2 years (4 semesters), but will normally not exceed 3 years (6 semesters), except by special permission of the Faculty Graduate Studies Committee.

(b) Part-Time

The duration of the part-time programme will normally be twice the length of the relevant full-time programme.

5. Course Requirements

Candidates will be required to complete a minimum of 12 credit hours. This will be made up of 3 taught courses in the first semester, and 1 seminar in the second semester. The rest of the period will be spent on research and the writing of the Ph.D Thesis.

6. Courses Assessment

- (a) Each course will be assessed on the basis of written examinations, and continuous assessment.
 (b) Candidates will be required to obtain a minimum pass grade of C in each prescribed course and a pass grade in the dissertation.

7. Ph.D Examination

- a) During the first semester of the second year, the candidate, in consultation with the supervisor, will choose a thesis topic to be approved by the Faculty Graduate Studies Committee and registered with the school of graduate studies board.
 b) The thesis shall be defended orally before aboard of School of Graduate Studies examiners in accordance with the regulations.

8. General University Regulations

All the foregoing regulations are subject to the general university regulations governing Ph.D degree programmes.

9. Course for the Ph.D Degree

A. Educational Psychology

i. Any two of the following:

Course Code	Course Title	Credit Unit
EDP 901.1	Theories of personality	3
EDP 902.1	Learning theories and their educational implications	3
EDP 903.1	Abnormal psychology	3

EDP 904.1	Psychology of exception children	3
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ii. Compulsory courses

Course Code	Course Title	Credit Unit
EDP 905.1	Advanced Research Methods in Education	3
EDP 906.2	Seminars in Educational Psychology	3
EDP 920.2	Thesis	12

B. Guidance and Counselling

i. Any two of the following:

Course Code	Course Title	Credit Unit
EDP 907.1	Appraisal techniques in guidance and counseling	3
EDP 908.1	Organization and admin, of Guidance services in schools	3
EDP 910.1	Vocational development and career information	3

ii. Compulsory Courses

Course Code	Course Title	Credit Unit
EDP 905.1	Advanced Research in Education	3
EDP 909.1	Advanced supervised practicum in guidance and counseling (Audited)	3
EDP 911.2	Seminar in Guidance and counseling	3

C. Educational Measurement and Evaluation

i. Any two of the following:

Course Code	Course Title	Credit Unit
EDP 912.1	Test design construction, administration processing	3
EDP 913.1	Measurement theory	3
EDP 914.1	Microcomputers in test development and analysis	3
EDP 915.1	Application of tests to education	3

ii. Compulsory Course

Course Code	Course Title	Credit Unit
EDP 905.1	Advanced Research methods in Education	3

EDP 916.2	Seminar in Educational Measurement and Evaluation	3
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10. Descriptions

EDP 901.1 Theories of Personality

This course delves into the major theories of personality. The course is arranged in four parts, based on historical traditions in the field of personality. These are

1. The psychoanalytic school as represented by Sigmund Freud;
2. The humanistic school as represented by Abraham Maslow;
3. The behaviouristic school as represented by B.F. Skinner;
4. The cognitive school as represented by B.J. Piaget. Each approach will be examined in relation to its educational implications.

EDP 902.1 Learning Theories and their Educational Implications

This course will critically examine the various theories of learning:

- a) Behavioural learning theories
- b) Humanistic learning theories
- c) Social learning theories
- d) Cognitive learning theories, etc.

Each theory will be looked at with its educational implications or its practical applicability.

EDP 903.1 Abnormal Psychology

Students will be made to analyse the various categories of abnormal behaviour, the concept of, and approaches to: the study of abnormal behaviour; the clinical picture of each of type of psychopathology mentioned, its etiological factors and treatment procedures. Emphasis will be placed on developmental, neurotic or anxiety, psychotic, psycho-sexual, delinquent, personality, organic and mental disorders and so on.

EDP 904.1 Psychology of Exception Children

This course will critically look into the issues involved in the psychology of exceptional children. The course will cover concepts as they relate to exceptional children in education; the gifted, the handicapped, and the disabled. An overview of the various exceptionalities; giftedness, mental retardation, learning disabilities, behaviour disorders, visual and auditory impairments, speech disorders will be treated. The characteristics of each exceptionality, problems associated with exceptional conditions, problems of labeling, and psychosocial implications of the various forms of educational placement will be examined.

EDP 905.1 Advanced Research Methods in Education

This course deals with advanced methods used in Educational research. Topics that will be covered include: types of research designs with emphasis on statistical analysis and knowledge of the use of microcomputers, educational data analysis. A critical look at the issue of validity in experimental research will also be treated.

EDP 906.2 Seminar in Educational Psychology

Each student would be required to select a topic from educational psychology (subject to the approval of the student's supervisor) for presentation and discussion at the departmental level.

EDP 907.1 Appraisal Techniques in Guidance and Counseling

This course will cover principles of test development and construction, planning, conduct, and use of the group and individual test in counseling and guidance. Selection, administration, scoring, interpretation, reporting, and preparation of intellectual, vocational, and personality tests. Non-test appraisal techniques will also be covered.

EDP 908.1 Organization and admin, of Guidance Services in Schools

This course will critically analyses the rationale for guidance services in educational and non-educational settings in Nigerian society. It will focus on the general components of administration and on the components of a guidance programme. The course will also examine the types and qualifications of personnel in the programme administration. It will discuss the relevant organizational and administrative models and strategies. Problems of organization and administration of guidance programmes and services in Nigeria will also be examined.

EDP 909.1 Advanced Supervised Practicum in Guidance and Counseling

This is a course designed to enable students to match theory with practice. Students will practice at the various levels of our educational system and in other relevant social settings. Practice in case studies and reporting will be part of the course.

EDP 910.1 Vocational Development and Career Information

A study of theories of vocational development, occupational choice, vocational behaviour and adjustment, emphasizing the place of career information and awareness. Integration of the various vocational theories, bringing into focus the multidimensional nature of vocational choice will be examined.

EDP 911.2 Seminar in Guidance and Counseling

Each student would be required to select a topic from educational guidance and counselling (subject to the approval of the student's supervisor) for presentation and discussion at the departmental level.

EDP 912.1 Test Design Construction, Administration Processing

This course deals with the critical steps involved in test construction. The course covers defining and assessing educational objectives; planning the objective test; writing the test items; gathering analyzing and using data on test items; of producing the test and test administration. Using computers in that scoring reporting and analysis will also be treated.

EDP 913.1 Measurement Theory

This course covers the theoretical details of educational measurement of traits. The course will encompass the nature of measurement in education, the concepts of reliability, including methods of estimating reliability, the concepts of validity and types of validity (content, construct and predictive validity), using validity information and factors affecting reliability and validity. Item response theory, including Research measurement models and scaling methods (Likert and Thurnstone scales) will also be treated.

EDP 914.1 Microcomputers in Test Development and Analysis

This course deals with the use of microcomputers in test development and analysis. Areas to be covered include: Introduction to microcomputers, operating systems (MS DOS and Windows) environment, and

computer statistical applications including SPSS & SAS. The use of computers in test development, item analysis, scoring etc. will be treated. Using microcomputer for data analysis, computing and monitoring of test results will also form part of the course.

EDP 915.1 Application of Tests to Education

This course will critically look at the applications tests to education. Topics to be covered include: Use of tests instruction; Use of measurement in selection and placement, and evaluation of educational outcomes.

EDP 916.2 Seminar in Educational Measurement and Evaluation

Each student will be required to select a topic from educational measurement and evaluation (subject to the approval of the student's supervisor) for presentation and discussion at the departmental level.

EDP 920.2 Thesis

Candidates are required to carry out a research in their various areas of specialization which will be supervised by two lecturers as required by the school of graduate studies. Thereafter the students will defend the finished thesis at different stages vis-a-vis Departmental Board, Faculty Board, Graduate School and External Oral examination, before an appropriately constituted Board of Examiners chaired by the Dean of Graduate Studies.

ACADEMIC STAFF

S/N	NAME	QUALIFICATIONS	FIELD OF SPECIALIZATION	DESIGNATION
1	KE.MJIKA, Obi G.	B.Sc (Ed). M.Ed. &Ph.D(Lagos)	Counselling Psychology	Professor
2	MVANKWO, O.C	B.Ed (Sc) (Jos). M.Ed. Ph.D. (UNN)	Counselling Psychology	Professor
3	JAMABO. T. A.	B.Sc. (Ed), M.Ed. Ph.D(Ibadan)	Counselling Psychology	Professor
4	KPOLOVIE, P.J.	B.Ed, M.Ed, Ph.D (UPH)	Measurement and Evaluation	Professor
5	EKEH. P.U.	B.Ed. (UNN) M.Ed. Ph.D (UPH)	Educational Psychology	Professor
6	IRULOH, B.N.	B.Sc. (la verne California) PGDE M.Ed. Ph.D. (UPH)	Counselling Psychology	Professor
7	AWUJO,C.G.	B.Ed. M.Ed. Ph.D. (UPH)	Counselling Psychology	Professor
8	ORLUWENE, G.W.	B.Ed. (Tbadan) M.Ed. Ph.D. (UPH)	Measurement and Evaluation	Professor
9	UGWU.C.J.	NCE, B.Ed. (Ibadan) M.Ed. Ph.D. (UPH)	Counselling Psychology	Professor
10	AMADI, G.N.	B.Ed(Ibadan) M.Ed. Ph.D.(UPH)	Educational Psychology	Professor
11	ONYEKURU, B.D	B.Phil (Rome). M.A. (Family Therapy). M.Ed. (Spain) Ph.D. (Unizik)	Guidance & Counselling	Professor
12	ODIASE,J.E.	NCE, (Agbor). B.Ed.(UPH)PGD (Benin City)MBA(California) M.Ed. Ph.D. (Carolina)	Educational Psychology	Professor
13	AGBAKWURU, C.	B.Ed. (Calabar) M.Ed.(UNN) Ph.D. (Calabar)	Counselling Psychology	Professor
14	NJOKUJ.U.	NCE (A.I.C.E). B.Ed. M.Ed. Ph.D. (UPH)	Educational Psychology	Professor
15 ¹	ONUJWUFOR. J.N	B.Sc.(Ed) M.Ed. Ph.D. (UPH)	Educational Psychology	Reader
16	EKECHUKWU, R. O.	NCE, B.EdM.Ed, (UNIJOS) Ph.D (UPH)	Counselling Psychology	Reader
17	ERNEST-EHIBUDU, I. R.	B.Sc, PGDE, M.Ed, Ph.D (UPH)	Counselling Psychology	Reader
18	IZUCHI, M.N.	B.Ed. (UNN). M.Ed. Ph.D. (NAU. Awka)	Counselling Psychology	Reader
19	OPARA, I.M	NCE,(Nsugbe). B.Ed. (UNN) M.Ed. Ph.D. (UPH)	Measurement and Evaluation	Reader
20	IWEKA, F.O.E	NCE,(A.1.C.E., OWERRI) B.Ed. M. Ed, Ph.D. (UPH)	Measurement and Evaluation	Reader
21	AMADIOH, A.	B.Ed., M.Ed, (UPH Ph.D. (UNICAL.)	Measurement and Evaluation	Senior Lecturer
22	CHUJOR, C.J.	B.Ed, M.Ed. Ph.D (UPH)	Counselling Psychology	Senior Lecturer

23	MANUEL, A.M.	M.EdUniport B.Ed. (COE/UI) RNE (Dip. Nursing Edu.) UI/UCH Ibadan) Registered Midwife R?S Registered Nurse R/S Ph.D (UPH)	Educational Psychology	Senior Lecturer
24	ECHEBE, P.I.	NCE (COE) PH. B.Ed. M.Ed. Ph.D. (UPH)	Counselling Psychology	Senior Lecturer

DEPARTMENT OF HEALTH PROMOTION, ENVIRONMENTAL AND SAFETY EDUCATION

MASTERS DEGREE PROGRAMMES IN HEALTH EDUCATION

The Department offers professional programmes leading to the award of M.Sc. (Ed) Degree in Health Education and Promotion

Areas of Specialization:

- 1) Community Health Education
- 2) Occupational Health and Safety Education
- 3) Environmental Health and Safety Education
- 4) School Health Education

Objectives

The objectives of the Masters Degree Programme in Health Education and Promotion include:

1. To offer students an in-depth academic foundation and professional skills for the understanding and practice of Health Education and Promotion;
2. To develop competence and expertise in the teaching of Health Education in Secondary Schools, and Schools of Health Technology, University and Research related institutes;
3. To be better equipped to identify, analyse and initiate appropriate actions to improve public / community health in developing countries;
4. To provide managerial and administrative leadership in Health Education and Promotion as components of Primary Health Care, health agencies (National and International), industrial/occupational health and Environmental Health and Safety;
5. To serve as professional health educators in public and private co-operations such as WHO, UNICEF and other related local and global organizations.

1) Admission Requirements

For the degree of M.Sc. (Ed) in Health Education and Promotion, the following categories of candidates may be admitted:

- a) Second Class Honours Degree, lower division from a recognized University in Health Education or Health and Human Kinetics (Integrated major).
- b) A degree in Medicine or appropriate medical sciences; Nursing or Advanced Graduate Diploma in Health Education (AGDHE).
- c) Candidates with Second class Honours Degree in Biological Sciences, or Science Education, Pharmacy, Sociology or related disciplines after having obtained the Nigerian Certificate in Education (NCE) in Health Education or Human Kinetics and Health Education (Integrated major)-such candidates may be required to take additional courses in Health

Education as may be prescribed by the Department.

2) Duration of Programme

i) Full-time

The M.Sc. (Ed). Programme in Health Education and Promotion shall extend for a minimum of 12 calendar months and a maximum period of 18 calendar months.

ii) Part-Time (Sandwich)

The duration of the part-time M.Sc. (Ed) programme shall normally be twice the length of the relevant full-time study.

3) Programme Requirement

The programme requirements shall be as prescribed by the University, which also includes the following:

- i) The M.Sc. (Ed) programme shall comprise
 - a) Basic core courses
 - b) Areas of Specialization Core Courses
 - c) Elective Courses
- ii) The programme, requires a minimum of 30 Credit units comprising course in the Core and Specialization areas and shall be for a Research Seminar, 6 units, (The Thesis, and 3 units for practicum/Field experience where applicable).
- iii) The students shall also select a minimum of two graduate level courses in related programme course from other Faculties or Departments. The grades from these courses will not be used in computing the students' Cumulative Grade Point Average (CGPA). However, students are required to pass the courses with at least a grade of C.

Grading Scale: The grading for M.Sc. (Ed) and Ph.D. programmes shall be as follows:

70 and above	–	A – 5.00 points
60 – 69	–	B – 4.00 points
50 – 59	–	C – 3.00 points
0 – 49	–	F – 0 points

Course Assessment

- i) Each course/seminar shall be assessed on the basis of written examination or research (Papers) or both,
- ii) To qualify to write the Thesis, a minimum of 3.0 (C) Grade Point Average is required for graduation,
- iii) A final oral examination shall be taken by a candidate over the thesis on completion of the course work. The senate on the recommendation of the Faculty Graduate Committee shall appoint four (4) examiners, who shall be the Head of the Department, the

- Candidates the External Examiner and a chairman who shall be appointed by the Board of College of Graduate Studies. There shall also be a CGS Representative in attendance in every oral defence examination.
- iv) The examiners shall thereafter submit to the Dean, School of Graduate Students, joint report duly signed by all members.
 - v) In case of difference of opinion, the examiners shall submit separate reports to the Faculty Graduate Committee which shall make an appropriate recommendation to the Board, College of Graduate Studies.
 - vi) A minimum of C (50%) in the thesis defence is required to be successful in the programme.

B: M.SC (ED) HEALTH EDUCATION AND PROMOTION PROGRAMMES

Core courses for all Students

SGS 801.1	ICT and Research Methods	2
HEP 801.1	Statistical Method	3
HEP 802.1	Advanced Research Methods	3
HEP 803.2	Graduate Seminar	3
SGS 801.2	Management and Entrepreneurship	2
HEP 855.2	Dissertation	6

OPTION A: COMMUNITY HEALTH EDUCATION

Course Code	Core Courses	Credits
HEP 811.1	Fundamentals of Health Education and Promotion	2
HEP 812.1	Control of Communicable & Degenerative Diseases	2
HEP 817.2	Applied Epidemiology	2
HEP 819.2	Programme Development & Evaluation in Health Education & Promotion	2

Elective Courses (Choose any one from each Semester)

HEP 813.1	Organization & Administration of Health Service	2
HEP 814.1	Trends in Consumer Health Informatics	2
HEP 816.2	Global Environmental Health	2
HEP 818.2	Human Sexuality and Reproductive Health	2

OPTION B: OCCUPATIONAL HEALTH AND SAFETY EDUCATION

Course Code	Core Courses	Credits
HEP 822.1	Principles & Practice of Occupational Health and Safety	2
HEP 823.1	Workplace Health Promotion	2
HEP 844.2	Industrial Health and Safety Education	2
HEP 816.2	Design and Evaluation of Workplace Health Programmes	2

Elective Courses (Choose any one from each Semester)

HEP 812.1	Prevention and Control of Communicable and Degenerative Disease	2
HEP 832.1	Mental Health and Drug Education	2
HEP 826.2	Issues in Health Education and Promotion	2
HEP 827.2	Health Psychology and Counselling	2

OPTION C: SCHOOL HEALTH EDUCATION

Course Code	Core Courses	Credits
HEP 811.1	Fundamentals of Health Education and Promotion	2
HEP 812.1	Prevention and Control of Communicable and Degenerative Disease	2
HEP 815.2	Human Growth and Nutrition	2
HEP 828.2	Curriculum Planning and Evaluation of School Health Education	2

Elective Courses (Choose any one from each Semester)

HEP 811.1	Principles & Practice of Health Education	2
HEP 832.1	Mental Health and Drug Education	2
HEP 827.2	Health Psychology and Counselling	2
HEP 816.2	Global Environmental Health Issues	2

OPTION D: ENVIRONMENTAL HEALTH AND SAFETY EDUCATION

Course Code	Core Courses	Credit units
HEP 838.1	Fundamentals of Environmental Health and Safety Education	2
HEP 839.1	Management of Wastes and Environmental Disasters	2
HEP 844.2	Principles and Practice of Safety Education, Accident Prevention and First Aid	2
HEP 845.2	Planning, Administration and Evaluation of Environmental Health and Safety Programmes	2

Elective Courses (Choose any one from each Semester)

HEP 841.1	Epidemiology of Environment Related Diseases	2
HEP 842.1	Environmental Health Impact Assessment	2
HEP 846.2	Environmental Health Hazards and Sanitation	2
HEP 848.2	Urban Aesthetic Planning, Beautification And Basic principles of housing for safe health	2

COURSES DESCRIPTION

CORE COURSES

HEP 801.1: Statistical Methods (3 Units)

Application of statistics to research in Health Education and Health Promotion. Basic concepts of statistical techniques. Relationships among variables. Differences among groups. Understanding Multivariate techniques and non-parametric techniques. Measurements-validity and reliability. Measurements movement using Computer in Measuring Movement. Measurement of behaviour. Questionnaire.

HEP 802.1 Advanced: Research Methods (3 Units)

This covers basic principles of evidence-based research in health education and promotion; it elaborates on planning and execution of various research designs, tools in research (library utilization, internet data search, and gathering of empirical data / measurements); data analysis and presentation with special focus on conducting systematic reviews/meta-analysis in health education and promotion research.

SGS 801.1B ICT Research Method See College of Graduate school brochure.

HEP 803.2 Graduate Seminar (3 Units)

Students shall select topics approved by the course lecturer(s) from their area of specialization. They are expected to demonstrate ability to prepare logical and in-depth papers on the approved topics and make formal presentation of the papers to their peers.

HEP 855.2 Master’s Dissertation (6 Units)

The thesis is a written report of original research completed, under the supervision of the thesis supervisor.

SGS 801.2 Management & Entrepreneurship (2 Units)

See College of Graduate School Brochure.

COMMUNITY HEALTH EDUCATION COURSE DESCRIPTION

HEP 811.1 Principles and Practice of Health Education (2 Units)

An overview of the legal, scientific, educational psycho-behavioural and anthropological foundations of health education. Examination of conceptual framework. Dimensions of health education. Innovation, Approaches and models in the dissemination of health education. Consideration of programming and evaluation in health education.

HEP 812.1 Control of Communicable and Degenerative Disease (2 Units)

Principles of communicable disease transmission, causes of transmission, and epidemiology of communicable disease in developing countries. Methods of detecting and reporting of observed disease to the appropriate authorities. Host parasite relationships, the body’s immune defense, types of immunity and methods of immunization. Poverty and disease, prevention and, control of common infectious disease. Nature of non-communicable diseases. Risk factors for non-communicable diseases. Role of lifestyle in the prevention and control of major degenerative diseases.

HEP 817.2 Fundamentals of Health Education and Promotion (2 Units)

The course guides the students to understand the concept of health promotion, the emergence and development of health promotion internationally and locally; the key principles, action areas and strategies in health promotion; health promotion core competencies and a review of the National Health Promotion Policy contents and implementation.

HEP 819.2 Programme Development and Evaluation in Health Education & Promotion (3 Units)

Covers the various aspects of programme development and evaluation in community health education. Students are exposed to various health programme planning models, and behaviour change theories applied in health education in promotion. The components of comprehensive health education programmes. Curriculum design and implementation in health education at various settings (school, community and Health – Care Delivery centres). Evaluation mechanics – process and summation.

ELECTIVE COURSES (CHOOSE ANY ONE FROM EACH SEMESTER)

HEP 813.1 Organization and Administration of Health Services Education (3 Units)

Organizational and administrative concepts and theories applied to health programmes (primary, secondary and tertiary), Leadership roles, Sources of finance, budgeting and human relationships as they affect administration and supervision of health programmes.

HEP 814.1 Consumer Health Education (3 Units)

Overview of consumer concepts, consumer statutory rights, privileges and protection. A study of roles of quacks and quackery, various fraudulent practices-medical, food fads and fallacies including beauty misconceptions etc. products, Health Information and education of consumers, Functions of consumer protection organizations in Nigeria.

HEP 818.2 Maternal and Child Health Education (3 Units)

A review of health: socio-pathological health problems of mothers, child rearing practices in cross-cultural context and associated health problems. Childhood ailments, prevention and control. Women and disease, contraception and family planning. Working class mothers and maternity welfare. Single parenthood- socio-psychological health problems. Role of mothers in family budgeting and implementation.

HEP 816.2 Environmental Health Education (3 Units)

The definition and scope of environmental health, sources and effects of environmental pollution. A study of the biological, social and cultural relationship to our environmental health problems, sources effects and control on air, water, land. Housing and health wastes, and noise pollution management, water provision and treatment. A review of Public health bye- laws in Nigeria.

M.Sc. (Ed.) OCCUPATIONAL HEALTH AND SAFETY EDUCATION

HEP 811.1 Principles and Practice of Occupational Health Education (2 Units)

The meaning, objectives and scope of occupational health. An overview of the various health problems associated with various occupation-manufacturing, processing and packaging. Identification and classifications of occupational hazards. Diseases peculiar to various occupations, their prevention and control.

HEP 822.1 Industrial Health and Safety Education (2 Units)

The course is designed to acquaint students with a broad understanding of the history, objective and development of industrial health and safety education. Components of work environments, principles of hazard control and disease prevention. Examination of existing labour codes and industrial legislations organized visits to selected industries culminating in group reports will be encouraged.

HEP 823.1: Corporate Health Promotion (2 units)

The course exposes the students to the historical perspective of health promotion in the workplace; discusses the components of corporate health promotion including stress management, smoking cessation, exercise and fitness, weight management, diet and nutrition, alcohol and drug education, travel health etc.; provides knowledge on how to design, implement and evaluate corporate health promotion programmes.

HEP 823.2 Mental Health Education (2 Units)

The definition of mental health and mental illness, Types of mental illness and mental retardation. A study of the relationships among physical, emotional, social and mental health problems. Psycho-somatic concepts of ill-health. Theories of mental illness causation, theories of behaviour/personality development, prevention of mental illness. Students will be provided with a diversity of theoretical views from which they can advance their own understanding and appreciation of the intricacies of mental health. A study of personality development and individual psychological disposition.

ELECTIVE COURSES (CHOOSE ONE FROM EACH SEMESTER)

HEP 812.1 Control of Communicable and Degenerative Disease (2 Units)

(Description as in Community Health Education above)

HEP 832.1 Drugs and substance Abuse Education (2 Units)

Desired to facilitate students' understanding of drugs and facts of abuse and misuse, dependence, processes-physical, cultural and socio-psychological. Classification of psychotropic substances, ergogenic substances alcohol and narcotics. Health education programmes for drugs and substance abuse. Review of existing laws for control of drugs, Group visit to the Nigerian Drugs Law Enforcement Agency (NDLEA) to be carried out under the guidance of course lecturer.

HEP 826.2 Issues in Health Education (2 Units)

The course deals with the scientific socio-cultural and attitudinal spectra of public health. Discussion of selected current public community health problems, analysis and evaluation of health information-roles of the mass media. Role of National and International Health Agencies. Disaster and refugees problems as they affect health. Current health issues

HEP 827.2 Health Psychology (2 Units)

The course examines the behavioural and sociological aspects of health and the relationships between certain practices and health status. Health roles and health related behaviours, predisposing, enabling and reinforcing factors as well as social norms and -sanctions that influence health behaviour will be covered. Learning theories and application of behavioural model including. Health belief and precise models communication strategies and resources for effective health behaviour change.

M.Sc. (Ed.) SCHOOL HEALTH EDUCATION

HEP 831.1 School Health Promotion (2 Units)

The course starts with an understanding of the concept of health promotion, key principles, action areas and strategies. Explains the objectives of the school health programme, its components including healthful school environment, skill-based health education, school health services, school feeding services and school home and community relationship; and how best it can be promoted to improve health of students and staff for optimum academic achievement. The roles of different stakeholders and mechanisms for sustainable school health programme.

HEP 815.1 Food And Nutritional Diseases Education (2 Units)

This course is aimed at providing knowledge and understanding of the basic principles of human nutrition and the applications in life. Improvement of nutritional and health status of individuals and community. It covers the relationship between food and health; terminologies in food and nutrition, sources and importance of nutrients, metabolism and energy balance, food groups and dietary guidelines,

malnutrition and deficiency diseases and therapeutic nutrition.

ELECTIVE COURSES (CHOOSE ONE FROM EACH SEMESTER)

HEP 811.1: Principles and Practice of Health Education (2 Units)

(Description as already done above)

HEP 832.1: Drug and Substance Abuse Education (2 Units)

(Description as already done above)

HEP 827.2: Health Psychology (2 Units)

(Description as already done above)

HEP 816.2: Environmental Health Education (2 Units)

(Description as already done above)

M.Sc. (Ed.) ENVIRONMENTAL HEALTH AND SAFETY EDUCATION

COURSE DESCRIPTION

HEP 838.1: Fundamental Issues in Environment Health and Safety Education (2 Units)

The course centres on detailed exploration and exploitation of the current issues in the environment and safe interaction with it, critical insight and evaluation of the issues. Practical approach measures and recommendations are vital.

HEP 839.1: Wastes Generation and Safe Management in a Contemporary Society (2 Units)

The course provides general overview of the concept of wastes, types, how wastes are originated safe handling and maintenance of wastes (both orthodox and modern approaches), stakeholders and their roles. Global references should be made; however more emphasis should be placed on local occurrences –national, states, local and at community levels. All aspects discussed, should be accompanied with explanation of the health risks and necessary safety precautions. Wastes management parastatals should be encouraged to be visited for field experience such as FEPA and state ministries.

HEP 840.1. Organization and Administration of Environmental Health and Safety Services (2 Units)

Give a detailed conceptual framework of the theories and guiding principles of Organization and Administration of Environmental Health and Safety. Make a general illustration of an organogram in an existing organization including assigned roles, funding, financial management capabilities and

accountability, supplies of facilities, materials and equipment (their relevance, adequacy and current standards) including the effective utilization. Indicate public awareness, technical problems and evaluation. Make practicable suggestions and recommendations based on empirical research findings. Interact with relevant administrators.

HEP 841.1 Food, Water Supplies and Related Diseases (2 Units)

Make a professional evaluation and critical overview of water, identification of sources of water, technical explanation of water treatment and the utilization based on scientific analysis. Uses of water and classification based on pathogenic pathways water related diseases and roles of stakeholders. Describe food and nutritional diseases, analysis of food ingredients, requirements, food fads and fallacies, the role of proficient agencies –both local and international. Recommend field trips to relevant organizations.

HEP 814.1 Consumer Health Education (2 Units)

Concepts of Consumer Health, Health Education and consumerism, quacks, quackery and nostrums classification of consumer health products, utilities and services and environmental impacts. Provide awareness on the right choice to make and the right product to consume in the environment; consumer markets, products and service delivery system, rights and responsibilities of consumers. Explain the significance of consumer health education and the roles of stakeholders at sanitizing the environment. Also treat consumer health agencies – local, national and global. Visit relevant agencies.

HEP 842.1 Environmental Health Impact Assessment (2 Units)

Explain the concept of impact assessment; the importance, how conducive is the environment for location of industries, schools, companies, water, housing markets. Analyse the advantage and risks, state experts' roles (qualities control) community participation etc. disaster prevention control and management. Expose learners to previous and present occurrences. Visit site such as oil spillage and affected environments.

HEP 843.1 Environmental Disaster and Safe Management: Pollution, Flood Control and Eruptions (2 Units)

Provide analytical concept of the environment, disasters (natural or artificial) and eruptions, comprehensive classifications of environmental induced disasters. Classify pollution – origin/source, documented disaster records on health, social and physical activities and modern approach control. Treat other factors such as earthquake, volcano, land tremors, flood, whirl wind architectural defects and mishaps. Provide the background, causes,

prevalence, case fatality, mortality and morbidity health consequences. Propose control and preventions based on scientific and social findings. Clarify the role of Health Education and awareness Strategies. visit sit of certain disasters.

HEP 844.2 Principle and Practice of Safety Education, Accident Prevention and First Aid (2 Units)

Make a sound explanation of the concept of Safety. State the types, relate Safety with occupations where safety is necessary. Classify occupational sectors into such areas as civil, industrial, commercial, transport and social into their components. Identify the various risks or hazards peculiar to each occupation including the appropriate and systematic safety precautions such as the use of guards (e.g personal protective gadgets in industries and construction companies). Expose learners to practical observations and experience in industries, constructions sites, and health sector including First Aid skills relevant to each potential hazards. Empirical reports to be made, assess and evaluated. Project Health Education and awareness as tools for better safety precautions. Expose learners to practical demonstration in First Aid skill, fire safety, water disaster etc.

HEP 845.2 Programme Planning and Evaluation in Environmental Health and Safety 2 Units

Advance the concepts of curriculum, planning and evaluation. Analyse the curriculum segments and targets at various stages and cadres, such as institutions, workplaces or the community. Explain the systemic documentation of the implementation of the various aspects of planning, development and evaluation of environmental health and safety. Advance community awareness, appreciation, involvement and participation. Link the role of Health Education and awareness.

HEP 846.2 Gas Flaring, Oil Spillage and Environmental Health (2 Units)

The justification is based on its uniqueness and peculiarity especially in the Niger Delta region of Nigeria. State the genesis of gas flaring, oil exploration and exploitation, the concepts, categories, health, social, and political implications, role of stakeholders vis-à-vis, search for wealth and economic gains, environmental impacts, relationship between oil and gas prospecting companies, government and host communities. Conflicts, crises and resolutions-the practicable way out through Health Education and Promotion. Assign learners to visit companies sites, point of occurrences and report personal observations and recommendations in line with global standards.

HEP 847.2 Sanitation: Personal, Domestic and Public Hygiene (2 Units)

This should be treated holistically and comprehensively with special reference to the individual, domestic (at home) and public within their remote and immediate environments directed towards health promotion. Indicate the health implications and control measures at all levels. What is the role of Health Education. Field experience to relevant organizations and agencies such as FEPA.

HEP 848.2 Urban Aesthetic Planning, Beautification and Basic Principles of Housing (2 Units)

Explain the concepts, implications of poor housing, consideration for good shelter, land, potable water, space, beautification and planning. Compare the types of existing houses, available locally vis-à-vis the developed world. State the roles of stakeholders especially government at various level. Collaborate with relevant departments and disciplines for enrichment of knowledge and skill in this area.

Ph.D. DEGREE PROGRAMMES

Objectives

The Ph.D. degree programme in Health Education and Promotion provides specialized academic knowledge and practical training opportunities for doctoral degree candidates which will result in providing Nigeria with essential and needed manpower related to Health Education and Promotion.

Regulations

1) The programme for the degree of Doctor of Philosophy (Ph.D.) shall consist of an approved course of study and research.

2) Admission Requirements

Candidates for admission into the programme shall normally be:

- (i) Candidates who have obtained M.Sc. (Ed) degree in Health Education of the University of Port Harcourt or other relevant discipline from any other approved University and must have an average of not less than a CGPA of 3.50 on a 5 point scale or 2.8 on a 4 point scale.
- (ii) Each applicant must submit a proposal on area of research interest and pass an interview by the Departmental Graduate Studies Committee.

3) Requirements for course and examination

- (i) The Ph.D. degree programme of the Department follows the normal general regulations of the Graduate School, University of Port Harcourt.
- (ii) The programme consists of course work and a thesis.

(iii) Courses shall be evaluated in terms of course units, with a minimum of 3 and maximum of 6 credit units.

(iv) All candidates shall be required to register for not less than 15 credit units per semester of approved taught courses per semester.

4) Areas of Specialization

Each doctoral student is expected to specialize in one of the following fields:

- (i) Community Health Education
- (ii) Occupational Health and Safety Education
- (iii) Environmental Health and Safety Education

5) Compulsory Courses

All doctoral students are expected to take and pass the following courses:

HED: 901.1, HED:902.1, HED:903.2, HED:950.2.

6) Courses in Individual Area of Specialization

Students are expected to take a minimum of three courses (9 units) from courses listed in their area of specialization.

7) Course Requirements

- i) Ph.D. students are required to take a minimum of 15 credit units per semester, comprising 8 taught courses and a seminar in a session. Student shall take Advanced Research Methods, Advanced Statistics and 3 courses from their respective areas of specialization in the first semester; 3 courses from area of specialization and a seminar in the second semester. The rest of the period shall be spent on research writing and Ph.D. thesis.

8) Duration of Programme

a) Full-Time

The Ph.D. programme candidates will be required to spend a minimum of 24 calendar months (2 Years) and a maximum of 60 calendar months (5 years).

b) Part-Time/Sandwich

Candidates will be required spend a minimum of 36 calendar months (3 years) and maximum of 84 calendar months (7 years).

9) Course Assessment

- a) Each course will be assessed on the basis of written examinations and continues assessment.
- b) Candidates will be required to obtain a minimum pass grade of C in each prescribed course and a pass in the thesis.

10) Ph.D. Examination

- a) There will be examinations at the end of each semester of the first year of the programme.

- b) The examinations must be passed with a minimum of C grade.
- c) The candidate, in consultation with the supervisor, will choose a thesis topic to be approved by the Departmental Graduate Studies Committee.
- d) There will be three seminar presentations, one in the Department and another in the Faculty. The final seminar should be presented before the Board of School of Graduate studies examiners in accordance with the regulations.

11) Thesis

Candidates shall be required to carry out their research under Supervisor(s) appointed by the Department of Health Education and Promotion.

Examination of Thesis

- a) For the examination of the candidate's thesis, the Board of the School of Graduate Studies on the recommendation of the appropriate Committee shall comprise of five examiners who shall consists of Dean of Faculty as Chairman of Panel, an External Examiners, Representative of Dean, School of Graduate Studies, the Supervisor(s), Head of Department and Chairman, Department Graduate Studies Committee. The examination shall be oral with questions asked on the candidate's research work within the context of the candidate's field of specialization. The examiners shall submit joint reports on the candidates.

Additional Regulations Governing Presentation of Theses

i) Signatories of Theses

All members of the Board of Examiners shall be signatories to each thesis, e.g

- a) Supervisor(s)
 - b) Head of Department
 - c) Chairman of Examination Board (Dean of Faculty)
 - d) External Examiner
- ii) All the foregoing regulations are subject to the general University regulations governing higher degree programmes.

GENERAL CORE COURSES

Course Descriptions

HEP 901.1	Advanced Research Methods	- 3 units
HEP 902.1	Advanced Statistics	- 3 units
HEP 903.2	Doctoral Seminar	- 3 units
HEP 950.2	Doctoral Thesis	- 6 units

SECTION B: Ph.D. HEALTH EDUCATION & PROMOTION PROGRAMMES

Core courses

1	HEP 901.1	Advanced Research Methods	3
2	HEP 902.1	Advanced Statistics	3
3	HEP 903.2	Doctoral Seminar	6
4	HEP 950.2	Doctoral Thesis	12

OPTION A: COMMUNITY HEALTH EDUCATION

Course Code	Core Courses	Credits
HEP 932.1	Partnership, Advocacy and Community Mobilization in Health Education	2
HEP 934.1	Communication Skills in Health Education & Public Health	2
HEP 937.2	Current Issues in Health Promotion and Public Health	2
HEP 938.2	Field Experience in Community Health	2

Elective Courses (Choose any one from each Semester)

HEP 951.1	Emergencies and Disaster Management	2
HEP 951.1	Safety Education and Accident Prevention.	2
HEP 936.2	Human Sexuality and Reproductive Health	2
HEP 952.2	Grant Writing in Health Education and Promotion	2

OPTION B: OCCUPATIONAL HEALTH & SAFETY EDUCATION

Course Code	Core Courses	Credit Units
HEP 951.1	Industrial Safety and Accident Prevention	2
HEP 941.1	Industrial Hygiene and Hazard Control	2
HEP 931.2	Current Issues in Health Promotion and Public Health	2
HEP 942.2	Field Experience in Occupational and Industrial Health	2

Elective Courses (Choose any one from each semester)

HEP 951.1	Emergencies and Disaster Management	2
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HEP 948.1	Environmental Health Impact Assessment	2
HEP 955.2	Stress Management and Relaxation Techniques	2
HEP 932.2	Epidemiology of Occupational and Work-related Diseases	2

descriptive and inferential statistical tools - compulsory.

HEP 903.2 Doctoral Seminar (6 Units)

Deals with vital issues in Health Education. Critical analysis of recent research studies related to these issues. Problems involved in conducting and publishing research are discussed, Preparation of thesis proposals under the guidance of major supervisor and presentation at Departmental seminar-compulsory.

HEP 950.2 Doctoral Thesis (12 Units)

The doctoral thesis is to present results of an original research topic. Credit is given for originality, the contribution of work to knowledge, presentation and use of previous literature in the area of student's specialization.

OPTION C: ENVIRONMENTAL HEALTH AND SAFETY EDUCATION

Course Code	Core Courses	Credit Units
HEP 948.1	Environmental Health Impact Assessment	2
HEP 951.1	Emergencies and Disaster Management	2
HEP 952.2	Field Experience in Environmental Health Education and Safety Services	2
HEP 954.2	Sanitation – food, water supplies and related Diseases	2

Ph.D. COMMUNITY HEALTH EDUCATION

HEP 933.1 Principles and Practice of Community Health (2 Units)

The course covers the concept and meaning of community health and factors that affect the health of a community and health status indicators. It also focuses on the history of community and public health in earliest civilizations and modern time, describes the role of governmental agencies and nongovernmental organizations in health promotion, community organizing and needs assessment. Examines the health of specific populations viz: maternal and child health, adolescent and adult health, community mental health, environmental health, management of school health programme, structure and functions of Health Care Delivery System.

Elective Courses (Choose any one from each semester)

HEP 949.1	Wastes Generation and Safe Management	2
HEP 951.1	Safety Education and Accident Prevention	2
HEP 931.2	Current Issues in Health Promotion and Public Health	2
HEP 932.2	Epidemiology of Occupational and Work-related Diseases	2

HEPP 932.1 Partnership, Advocacy and Community Mobilization in Health Education (2 Units)

The course covers: The concept, scope, principles of partnership, advocacy and community mobilization for health promotion in community settings; how to conduct stakeholder analysis, engage stakeholders in deliberations and actions on health issues and potential solutions; develop and maintain sustainable community and professional partnerships; collaborate with partners and other health programmes; advocate for public health policies and services that promote the health and wellbeing of individuals and communities; key steps in community mobilisation, community mobilization techniques/strategies and ways of facilitating community participation in health programmes.

Ph.D. COURSE DESCRIPTION

GENERAL CORE COURSES

HEP 901.1 Advanced Research Methods (3 Units)

This course reviews the various methods used in research in Health Education and Health Promotion. There shall be coverage of observation techniques in field and laboratory settings, sampling methods etc. Emphasis is placed on historical, Survey, experimental, epidemiological, Philosophical research, systematic review/meta analysis and other basic and applied research methods - compulsory.

HEP 902.1 Advanced Statistics (3 Units)

The course covers characteristics of the basic research and analysis of factorial research designs including factorial analysis of variance and co-variance General regressions, path analysis, canonical analysis of variance and discriminate analysis etc. Compressive analysis of both

HEP 934.1 Communication Skills in Health Education and Public Health (2 Units)

Examines basic principles of communication and health education, communication models, health education theories and behaviour change models, barriers to communication, and communication skills, benefits of health communication, factors in message design, roles of mass media and information technology, methods and resources in health education and public health, consumer health, advertising and social marketing

HEP 938.2 Field Experience in Community Health (2 Units)

Students are expected to acquire practical experience in the organization and administration of community health programmes by monitoring the design or development and implementation of health promotion and disease prevention programmes of selected health related agencies. A comprehensive report on the programmes of the related agencies should be submitted at the completion of the project

ELECTIVE COURSES (CHOOSE ANY ONE FROM EACH SEMESTER)

HEP 951.1 Safety Education and Accident Prevention (2 Units)

The course examines the principles of safety education, epidemiology of accident causation, injury prevention and control measures, first aid and management of emergency at home, work and school, road and industrial safety. Safety in relation to environment health factors and disease causation.

HEP 952.1: Introduction to Grant Writing (2 Units)

The grant seeking enterprise is studied and applied to community and public health organizations, in areas of perceived community need. Content includes locating and communicating with funding agencies, writing and reviewing grant proposals, analyzing requests for proposals, using technology in grant seeking, and implementing and evaluating grant funded projects.

HEP 936.2 Human Sexuality and Reproductive Health (2 Units)

Covers the goals and objectives of sex education and human sexuality education, sex roles, human reproductive organs and functions, biology of sex and adolescent sexuality, conception and reproduction, sexual problems of men and women, sexually transmissible infections/reproductive tract infections, family planning and infertility, maternal and child health and other gender-related issues.

HEP 937.2 Current issues in Health Promotion and Public Health (2 Units)

The course discusses the current issues, problems and trends in health promotion and public health in both developed and developing countries, the course

shall include critical analysis of professional literature in various areas of community health Environmental Health and Safety Education as well as Occupational health and safety education. Students are expected to develop publishable research papers in his/her area of interest at the end of the course.

Ph.D. OCCUPATIONAL HEALTH AND SAFETY EDUCATION

HEP 939.1: Safety Education and Accident Prevention in Industry (2 units)

Examines the principles of safety education, types and causes of industrial accidents, Host-Agent Environment Interaction. Industrial accidents, prevention and control measures; role of safety manager, safety committee and labour union in industrial legislation, first aid and management of emergency as well as transportation accidents.

HEP 948.1: Environmental Health Impact Assessment (2 units)

A comprehensive discussion of environmental health impact assessment of health provisions. Provide the justification for assessment in various environments such as institutions, industries, workplaces, markets, urban and rural housing developments. Identify the risks and benefits, including positive suggestions. Make a practical report on a named establishment based on the course of study under the approval of the course lecturer.

HEP 941.2: Industrial Hygiene and Hazard Control (2 units)

The course consists of various occupational and environmental hazards, detection and control measures, chemical hazards and industrial poisoning, disposal of industrial waste, job hazard analysis, risk assessment and management.

HEP 942.2: Field Experience in Occupational and Industrial Health (2 units)

The course involves individual and group visit to factories, industries and corporate organizations for the purpose of observing, participating in and evaluating occupational health services of the organizations visited. A comprehensive report is written by students and submitted to the department at the end of the exercise.

ELECTIVE COURSES (CHOOSE ONE FROM EACH SEMESTER)

HEP 932.1: Health Programme Development Implementation and Evaluation (3 Units)

Covers the various aspects of programme development and evaluation in community health education. Students are exposed to various health programme planning models, and behaviour change theories applied in health education in promotion.

The components of comprehensive health education programmes. Curriculum design and implementation in health education at various settings (school, community and Health – Care Delivery centres). Evaluation mechanics – process and summation.

HEP 952.1: Introduction to Grant Writing (2 Units)

(Description as in Community Health Education above)

HEP 955.2: Stress Management and Relaxation Techniques (2)

The course focuses on the detrimental effects of stress on an individual and the corresponding benefits of regular relaxation and other stress coping strategies. This course will emphasize the basic skills of relaxation and will provide an experience that focuses on the practical application of these skills in one's life.

HEP 937.2 Current issues in Health Promotion and Public Health (2 Units)

(Description as in Community Health Education above)

ENVIRONMENTAL HEALTH AND SAFETY EDUCATION

HEP 948.1: Environmental Health Impact Assessment (2 units)

A comprehensive discussion of environmental health impact assessment of health provisions. Provide the justification for assessment in various environments such as institutions, industries, workplaces, markets, urban and rural housing developments. Identify the risks and benefits, including positive suggestions. Make a practical report on a named establishment based on the course of study under the approval of the course lecturer.

HEP 949.1: Waste Generation and Management (2 units)

Make an in-dept overview of the concept of wastes classification, generation, management and other related adjuncts. Provide a practical approach to better management devoid of greater health risks. Conduct a case study among common places with waste generation and report adequately.

HEP 950.1: Curriculum Planning and Evaluation in Environmental Health and Safety Education (2 units)

A study of advanced principles guiding the planning, execution and evaluation of basic curriculum in Environment, Health and Safety and their applications in education. Identify specific and general segments applicable to various stages and cadres among children, youths, adults and elders at

homes, institutions, workplace and the larger society. Advance workable approaches, progress assessment, evaluation and review. Indicate all stakeholders and their roles for full appreciation. Make a practical presentation for a named health education programme.

HEP 951.1: Safety Education, Accident Prevention and First Aid (2 units)

The course involves advances approach to the concepts and general principles of safety. Provide justification for safety education in all human activities. Categorize safety along the line of existing occupations and their peculiar risks and hazards including the precautions. Categorize prevention techniques according to occurrence at various environments. Provide forum for practical experience in industries, work sites and institutions and make empirical report. Explain first aid as a necessity. Organize practical experiences.

HEP 952.1: Field Experience in Environmental Health Education and Safety (2 units)

The course centres more on practical approach experiences, whereby reserachers have direct experience with on the spot occurrence or interaction with direct/actural victims and the causative agents or mechanisms for such accident. Such field experience should cover fire, chemical, auto crashes, plane crashes, ship wrecks, companies/industrial and civil job oriented hazards. Compare the control and preventive measures in existing establishments locally and among advances nations. Make conduct empirical researches and report appropriately on at least two highly hazard prone professions.

HEP 953.1: Environmental Disasters and Safe Management (2 units)

Advance both theoretical and empirical analysis of environmental disasters in line with their nature. Provide opportunity to visit (and document) sites of pollution, flood and some natural eruptions such as earthquake, volcano, land tremor and other disasters induced by man's inadequate activities. Make practical and empirical research findings and report appropriately.

HEP 952.2: Sanitation: Food, Water Supplies, Shelter and Related Diseases (2 units)

Provide general overview of all the variables for the total hygiene especially food, water shelter and drugs. There is the need for visitation to food processors and markets, water production plants and nature of sanitation in private and public buildings, institutions and the like. There is the need for meticulous exposure of related diseases and the risks constituted to people. Provide a practical experience and report adequately.

HEP 941.1: Industrial Hygiene and Hazard Control (2 units)

See course description under Occupational Health and Safety Education.

LIST OF ACADEMIC STAFF

S/n	Surname	Other names	Rank	Area of specialization
1.	Ekenedo	Golda O.	Professor and Head of Department	Health Education & Promotion
2.	Achalu	Ernest I.	Professor	Health and Safety Education
3.	Okpako	Johnson Egodotaire F.	Professor	Health Education (Environmental Health and Safety Education)
4.	Asogwa	Emmanuel Ugwu	Reader	Community Health Education
5.	Onyeaso	Adedamola Oluwatoyin	Reader	Community Health Education
6.	Obiechina	Georgy O.	Reader	Community Health Education
7.	Onyezere	John O.	Senior Lecturer	Health Education

DEPARTMENT OF SPORT AND EXERCISE SCIENCE

MASTERS DEGREE PROGRAMME

The Department offers professional programme leading to the award of M.Sc (Ed) Degree in Sport and Exercise Science

Area Specialization:

- ii) Sport Management and Marketing
- iii) Exercise Physiology
- iv) Sport psychology
- v) Sport Sociology
- vi) Rehabilitation Therapy

Objectives

The objectives of the Masters Degree Programme in Sport and Exercise Science include:

1. To develop the broad foundational specialization of Sport and Exercise Science towards careers in research, University teaching, recreation, sports and fitness industry.
2. To produce better teachers of Sport and Exercise Science in Secondary Schools, Colleges of Education, Sports Institutes and Universities.
3. To produce better managers of Sport and Exercise Science Programmes in higher educational institutions and sport organizations in the wider society.

1) Admission Requirements

For the degree of M.Sc (Ed) in Sport and Exercise Science, the following categories of candidates may be admitted:

- a) Candidates with Bachelor's degree in Sport and Exercise Science or Human Kinetics and Health Education (Integrated major) preferably, holders of Second Class Honours Degrees, lower division from a recognized University.
- b) Candidates with Bachelors Degree in Science or Science Education after having obtained the Nigerian Certificate in Education (NCE) in Sport and Exercise Science or Human Kinetics and Health Education (this category of candidates may be required to take some additional courses in Sport and Exercise Science or related courses as prescribed by the Department).
- c) A Pass at Credit level in Post Graduate Diploma in Education (PGDE).

2) Duration of Programme

iii) Full-time

The M.Sc (Ed). Programme in Sport and Exercise Science is for a minimum of 12 calendar months and a maximum period of 24 calendar months.

iv) Part-Time

The Part-time M.Sc (Ed). Programme in Sport and Exercise Science is for a minimum of 24 calendar months and a maximum period of 36 calendar months.

v) Sandwich

The duration of the Sandwich M.Sc (Ed) programme in Sport and Exercise Science shall be a minimum of three long vacations and maximum of five long vacations.

3) Programme Requirements

The programme requirements shall be as prescribed by the University, which also includes the following:

- iv) The M.Sc (Ed) programme shall comprise
 - d) Basic core courses
 - e) Areas of Specialization Courses
 - f) Elective Courses
- v) The programme, requires a minimum of 30 Credit units comprising course in the Core and Specialization areas and shall be for a Research Seminar, 6 units, (The Thesis, and 3 units for practicum/Field experience where applicable).

Grading Scale: The grading for M.Sc (Ed) and Ph.D programmes shall be as follows:

70 and above	–	A – 5.00 points
60 – 69	–	B – 4.00 points
50 – 59	–	C – 3.00 points
0 – 49	–	F – 0 points

Course Assessment

- i. Each course/seminar shall be assessed on the basis of written examination or research (Papers) or both,
- ii. To qualify to write the Thesis, a minimum of 3.0 (C) Grade Point Average is required for graduation,
- iii. A final oral examination shall be taken by a candidate over the thesis on completion of the course work. The senate on the recommendation of the Faculty Graduate Committee shall appoint four (4) examiners, who shall be the Head of the Department, the Candidates' supervisors, the External Examiner and a chairman who shall be appointed by the Board of School of Graduate Studies. There shall also be a SGS Representative in attendance in every oral defence examination.
- iv. The examiners shall thereafter submit to the Dean, School of Graduate Studies, joint report duly signed by all members.
- v. In case of difference of opinion, the examiners shall submit separate reports to the Faculty Graduate Committee which shall

- make an appropriate recommendation to the Board, School of Graduate Studies.
- vi. A minimum of C (50%) in the thesis defence is required to be successful in the programme.

B: Sport and Exercise Science M.SC (ED)

SPORT MANAGEMENT AND MARKETING

FIRST SEMESTER

Course Code	Core Courses	Credits
SES 801.1	Statistical Methods	3
SES 802.1	Research Methods	3
SGS 801.1	ICT and Research Methods	2
SES 809.1	Principles and Practice of Sport Management	2
SES 810.1	Administration of Sports and Human Kinetics Programme	2

Elective Courses (Choose any One)

SES 813.1	Sport Facility Management	3
SES 814.1	Financing, Budgeting and Purchasing in Sports and Athletics	3

SECOND SEMESTER

SES 803.2	Graduate Seminar	3
SES 855.2	Dissertation	3
SGS 801.2	Management and Entrepreneurship	2
SES 811.2	Sport Marketing Principles and Practice	3
SES 812.2	Practicum in Supervision of Human Kinetics and Sports Programme.	2

Elective Courses (Choose any One)

SES 814.2	Administrative Problems in School, Colleges Universities and Clubs	3
SES 813.2	Sports Consumer Behaviour and Satisfaction Management	3

OPTION B: EXERCISE PHYSIOLOGY

FIRST SEMESTER

Course Code	Core Courses	Credits
SES 801.1	Statistical Method	3
SES 802.1	Research Methods	3
SGS 801.1	ICT and Research Methods	2
SES 804.1	Advanced Exercise Physiology	3
SES 805.1	Cardiovascular Physiology and Exercise	2
SES 806.1	Human Anatomy	2

Elective Courses (Choose any One)

SES 831.1	Sport Medicine	2
SES 833.1	Exercise Stress testing and exercise prescription	2

SECOND SEMESTER

SES 803.2	Graduate Seminar	3
SES 855.2	Dissertation	6
SGS 801.2	Management and Entrepreneurship	2
SES 808.2	Laboratory Technique and Fitness Appraisal	2

Elective courses (Choose any one)

SES 807.2	Advanced sport nutrition	2
SES 832.2	Exercise in Disease Prevention and Rehabilitation	2

OPTION C: SPORT PSYCHOLOGY

FIRST SEMESTER

Course Code	Core Courses	Credits
SES 801.1	Statistical Method	3
SES 802.1	Research Methods	3
SGS 801.1	ICT and Research Methods	2
SES 816.1	Psychological Bases of Sport and Physical Activity.	2
SES 817.1	Applied Psycho-Physiological Dimension of Sports Behaviour	2

Elective courses (Choose any one)

SES 821.1	Applied Research in Sport Psychology	3
SES 822.1	Socio-Psychological Aspects of Sport Psychology	3

SECOND SEMESTER

SES 803.2	Graduate Seminar	3
SES 855.2	Dissertation	6
SGS 801.2	Management and Entrepreneurship	2
SES 818.2	Motivational Variables in Human Motor Performance	2
SES 819.2	Practicum/Field Experience in Sport Psychology	3
SES 820.2	Stress Management in Sports Performance	3

Elective courses (Choose any one)

SES 823.2	Behavioural Disorders in Sports	3
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SES 824.2 Personality and Sports Performance 3

OPTION D: SPORT SOCIOLOGY

Course Code	Core Courses	Credits
SES 801.1	Statistical Method	3
SES 802.1	Research Methods	3
SGS 801.1	ICT and Research Methods	2
SES 823.1	Sociological Foundations of Sports	2
SES 824.1	Social Dimensions of Sport and Consumers	3

Elective courses (Choose any one)

SES 827.1	Sport in Society	3
SES 830.1	Sociology of Sports, leisure Culture and Subcultures	3

SECOND SEMESTER

SES 803.2	Graduate Seminar	3
SES 855.2	Dissertation	6
SGS 801.2	Entrepreneurship and Management	2
SES 825.2	Socio-Psychological Issues in Sports.	2
SES 826.2	Applied Social theories of Sports	2

Elective courses (Choose any one)

SES 828.2	Sports, Politics and social institutions	3
SES 829.2	Social Problems in Sports	3

OPTION E: REHABILITATION THERAPY FIRST SEMESTER

Course Code	Core Courses	Credits
SES 801.1	Statistical Method	3
SES 802.1	Research Methods	3
SGS 801.1	ICT and Research Methods	2
SES 801.1	Applied Anatomy and Rehabilitation Therapy	2
SES 802.1	Movement System Examination and Evaluation	2
SES 803.1	Applied Exercise Physiology	2
SES 804.1	Applied Psychology of Illness and Disability	2

SECOND SEMESTER

SES 803.2	Graduate Seminar	3
SES 855.2	Dissertation	6
SGS 801.2	Management and Entrepreneurship	2

SES 805.2 Biomechanics and Fundamental Skills Intervention 2

SEs 806.2 Cardiopulmonary Rehabilitation therapy 2

SES 807.2 Rehabilitation therapy Internship 6

CORE COURSES FOR ALL MASTERS STUDENTS (SPORT AND EXERCISE SCIENCE)

COURSE DESCRIPTION

SES 801.1 Statistical Methods (3 Units)

Application of statistics to research in Sport and Exercise Science, Recreation and Sports. Basic concepts of statistical techniques. Relationships among variables. Differences among groups. Understanding Multivariate techniques and non-parametric techniques. Measurements-validity and reliability. Measurements movement using Computer in Measuring Movement. Measurement of behaviour. Questionnaire.

SES 802.1 Research Methods (3 Units)

This is an introductory course, it covers such areas as planning and designing of research, tools in research (library utilization, statistics, presentation, measurements, computers, etc types of research/historical)

SGS 801.1B ICT Research Method. See College of Graduate school brochure.

SES 803.2 Graduate Seminar (3 Units)

Students shall select topics approved by the course lecturer(s) from their area of specialization. They are expected to demonstrate ability to prepare logical and in-depth papers on the approved topics and make formal presentation of the papers to their peers.

SES 855.2 Master's Dissertation (6 Units)

The thesis is a written report of original research completed, under the supervision of the dissertation supervisor. (See relevant Department Brochure)

SGS 802.2 Entrepreneurship Management (2 Units)

See College of Graduate School Brochure.

SPORT MANAGEMENT AND MARKETING

SES 809.1 Principles and Practice of Sport Management (2 Units)

Basic principles of management applied to Sport: An overview of the philosophical, psychological and sociological foundations of Sport Management. The integration of the theoretical principles of sports and Management Theory.

SES 810.1 Administration of Sports and Human Kinetics Programme (2 Units)

Administrative Theories applied to Sports, Human Kinetics, and Recreation programmes. Study of organizational structures for sports, physical and recreational programmes, administration programmes, administration programmes development in sport.

SES 811.2 Sports Marketing Principles and Practice (3 Units)

General principles of marketing. Application of marketing principles to sport management. Marketing techniques in amateur and professional sports. Sporting good the consumer and the producer. Marketing information and sport sociology.

SES 812.2 Practicum in Supervision of Human Kinetics and Sports Programmes (2 Units)

Practicum work on supervision of sport and human kinetics programmes. Principles of supervision and inspection techniques and analytical appraisal. Marketing information in sports and human kinetics programmes.

ELECTIVE COURSES (CHOOSE ONE FROM EACH SEMESTER)

SES 813.1 Sports Facility Management and Planning (3 Units).

General consideration for planning recreation faculties. Review of the nature of modern recreation and sport facilities. Management of recreation and sports faculties. Innovations in the planning and management of recreation and sports facilities.

SES 814.2 Administrative Problems in School, Colleges, Universities Sport and Sports Clubs (3 Units)

Issues to be studied here will mostly, be by study techniques based on administrative theories, legal liabilities. Management, finance, facilities, public relations, technical problems and evaluation.

SES 814.1 Financing, Budgeting and Purchasing in Sports and Athletics (3 units)

The course will expose the students to different source of fund for sports as well as budget and budgeting processes. The course will cover the principles guiding purchasing of sports equipment and supplies.

SES 813.2 Sports Consumer Behaviour and Satisfaction Management (3Units)

This course emphasizes categories of sports consumers and on each of the sports consumer with their different characteristic behaviours and personalities within and outside sports setting. The expectations and satisfaction of sports consumers should be addressed. The negative behaviours of sports consumers should be discouraged. Application of different management strategies to sports consumers behaviours and satisfaction should be emphasized.

EXERCISE PHYSIOLOGY

SES 804.1 Advanced Exercise Physiology (3 Units)

The course consists of such, topics as; the Limits of Human Performance: Energy Production of Movement and Exercise; Ventilation as a Limiting Factor in Performance, and Environmental factors affecting performance.

SES 805.1 Cardiovascular Physiology and Exercise (3 Units)

Physiology of the heart and the Cardio-vascular system. The major Determinants of Cardiac performance during Exercise, with training and Homodynamic Measurement.

SES 806.1 Human Anatomy (3 Units)

The course deals with the Study of the structures and functions of the various systems of the body i.e Musculoskeletal, cardio respiratory and central nervous system. Terminologies and concepts such as cells and tissues and application of Anatomy and Physiology to all games and sports would also be taught.

SES 808.2 Laboratory Techniques and Fitness Appraisal (2 Units)

Development of skills in the use of exercise machines and measuring equipment treadmill, bicycle ergometer, multigym,-dynamometers, sphygmomanometer, gas analyse, spirometer, ECG, EM Monitor etc, simple test of enzymes in the human body at rest and during exercise. Evaluation of physical fitness of athletes and individual research work in the laboratory.

ELECTIVE COURSES (CHOOSE ONE IN EACH SEMESTER)

SES 807.1: Advanced Sports Nutrition (2 Units)

Study of nutrients and caloric needs of the athlete, includes pre game meals, fluid replacement during long duration events, foods after performance, nutritional engogenic aids like carbohydrate loading for specific events.

SES 833.1: Exercise stress testing and exercise prescription (2Units)

Development of concepts and competencies required for work in Adult and Industrial fitness cardio respiratory and rehabilitation programmes, competencies include exercise stress testing and exercise prescription rest and stress ECG, counselling in nutrition, stress and exercise compliances.

SES 832.2: Exercise in disease prevention and rehabilitation (2Units)

Role of exercise in the development of physiological fitness through the life cycle. Deviations from the norm. Application of appropriate exercise programmes for individuals with specific rehabilitation needs. Coverage includes testing and evaluation indications and contraindications to exercise and wheelchair management, use of adaptive equipment.

SES 831.2 Sports Medicine (3 Units)

A study of development and maintenance of fitness for sports, prevention and management of sports injuries as well as rehabilitation.

SPORT PSYCHOLOGY

SES 816.1 Psychological Bases of Sports and Physical Activity (2 Units)

A study of development and maintenance of fitness for sports; prevention and management of sports injuries as well as rehabilitation of the injured athlete.

SES 817.1 Applied Psycho-Physiological Dimensions of Sports Behaviour (2 Units)

A critical study of the psycho-physiological model of sports behaviour-a combination of physiological data with psychological data (e.g personality in the explanation of behavioural variance in sport).

SES 818.2 Motivational Variables in Human Motor Performance (2 Units)

Presentation of current thinking on motivational determinants of sport behaviour. Research foundation. Characteristics and limitation of attributes in sport. Role of perceived ability (a new theory of Motivation sport). Group motivation in team sport.

SES 819.2 Practicum/Field Experience in Sport Psychology (3 Units)

Practice of behaviour therapy in sport situation, under the direction of course lecturer.

SES 820.2 Stress Management in Sport Performance (3 Units)

Nature and Sources of competitive stress. Stress Management technique (Biofeedback, ISMA,

Hypnotism), principles of coping strategies, Mental preparation strategies (psyching-up strategies).

ELECTIVE COURSES (CHOOSE ANY ONE FROM THE FOLLOWING IN EACH SEMESTER)

SES 821.1 Applied Research in Sport Psychology (3 Units)

Examination of innovative research on exercise and psychological well being. Topics include motivation and exercise adherence. Exercise as a therapeutic adjunct. Qualities of peak experience in sport etc.

SES 822.1 Socio-Psychological Aspects of Sport psychology (3 Units)

A critical study of socio-psychological aspects of sport, such issues as aggression, group dynamic, leadership and the socialization process in competition.

SES 823.2 Behavioural Disorders in Sports (3Units)

The course should emphasize different disorders associated with human behaviours. The impact of those disorders to sports participants and also to sports performance should be emphasized.

SES 824.2 Personality and Sports Performance (3Units)

The course addresses different personality traits of individuals and athletes. Notable classification of personality traits such as the Big five personality traits should be emphasized. It should examine the relationship between the personality traits and sports performance.

SPORT SOCIOLOGY

SES 823.1 Sociological Foundations of Sport (2 Units)

Analysis of the cultural phenomenon of sport, applying the basic concepts of sociology. The concepts include: nature and types of systems. Interaction of the institution of sport with type of social system processes. The course should provide an overview of sport sociology.

SES 824.1 Social Dimension of Sports and Sports Consumers (3 Units)

A general overview of the sociological aspects of sport, social institutions, game occurrence, and culture. Socialization process, interpersonal competences, aggression and group dynamics.

SES 825.2 Socio- Psychological Issues in Sport (2 Units)

Introduction to the application of the concepts and methodologies of sociology to the professional concerns of human kinetics, and sports, and

recreation, sociology to the professional concerns of human kinetics. Sport and recreation; sport management, sport marketing and drug counselling etc.

SES 826.2 Applied Social Theories of Sports (2 UNITS)

The course will expose students to social and management theories and how they can be applied to understand and address sports issues.

ELECTIVE COURSES (CHOOSE ANY ONE FROM EACH SEMESTER)

SES 826.1 Sports in Society (3 Units)

A critical study of the social significance of sport. The institution of sport and relationship with other social institutions. Study of sport as a cultural phenomenon.

SES 827.2 Sports, Politics and Social Institutions (3 Units)

An examination of sport as an instrument of national and international politics. Emphasis will be centered on such issues as function and non-function of sport in diplomacy. Sports and discrimination (racial, ethnic and gender). Case analysis will emphasize politics in Nigeria sports.

SES 828.2 Social Problems in Sports (3 Units)

The central concern in this course is the critical examination of the social problems associated with sports. These include drug in sports, deviant behaviour in sports (Violence, cheating Hustling), discrimination in sport (Racial, Ethnic Gender and Age). Extensive literature search will be the method of approach.

SES 829.1 Sociology of Sports, Leisure Culture and Subcultures (3Units)

The course should examine the interrelatedness of sports as an institution with other social institutions such as politics, media, education, economy, among other. The cultures and subculture of these institutions should be examined alongside with that of sports and leisure.

REHABILITATION THERAPY

SES 801.1 Applied Anatomy and Rehabilitation Therapy (2 units)

An introduction to physical therapy and its relationship to the health care system. Topics include introduction to PT literature, medical terminologies, medical records, communication, ethics and professional issues in physical therapy and anatomy of the neuro musculoskeletal system and body cavities in relation to movement and function.

SES 802.1 Movement system examination and evaluation (2 units) Procedures for musculoskeletal examinations and evaluation including tissue injury, strength and joint play assessment. Procedures for musculoskeletal examination and evaluation using human performance equipment (dynamometers, goniometers, anthropometers etc), postural assessment, application of analytical, biomechanical skills and principles of human movement.

SES 803.1 Applied Exercise Physiology (2 units)

Application of exercise physiology principles and methods to rehabilitation therapy (training considerations, assessment of adaptation to training and detraining, nutrition and weight control etc). The course will also consider rehabilitation exercises for special populations e.g. artistic patients, diabetics, hypertensive's etc

SES 804.1 Applied Psychology of Illness and Disability (2 units)

Psychological response to illness and disability to include patient motivation, patient/professional interaction ethics, psychology of adherence to treatment regime.

SES 805.2 Biomechanics and Fundamental Skills Intervention (2 units)

Biomechanical principles of movement and their application to rehabilitation therapy and basic skills of transfers, bed mobility, use of gait assistive and soft tissue mobilization devices and application of physical agents .

SES 806.2 Cardiopulmonary Rehabilitation Therapy (2 units)

Assessment of cardiopulmonary fitness using laboratory and field methods. Restoration of functions, using appropriate exercise modalities.

SES 807.2: Rehabilitation Therapy Internship (6 units)

Seven weeks of full-time hands on-experience with emphasis on patients handling ethics, treatment skills with various therapeutic exercises and modalities and management of rehabilitation environment.

Ph.D DEGREE PROGRAMME

Objectives

The Ph.D degree programme in Sport and Exercise Science provides specialized academic knowledge and practical training opportunities for doctoral degree candidates who will result in providing Nigeria with essential and needed manpower related to Sport and Exercise Science.

Regulations

1. The programme for the degree of Doctor of Philosophy (Ph.D.) shall consist of an approved course of study and research.

2. Admission Requirements

Candidates for admission to the programme shall normally be:

- i) Candidates who have obtained M.Sc. (Ed) degree in Sport and Exercise Science of the University of Port Harcourt or other relevant discipline from any other approved University and must have an average of not less than a CGPA of 3.50 on a 5-point scale or 2.8 on a 4-point scale.
- ii) Each applicant must pass an interview by the Departmental Graduate Studies Committee.

3. Requirements governing course and examination

- i) The Ph.D. degree programme of the Department follows the normal general regulations of the School of Graduate Studies, University of Port Harcourt.
- ii) The programme consists of course work and a dissertation.
- iii) Courses shall be evaluated in terms of course units, with a minimum of 3 and maximum of 6 credit units.
- iv) All candidates shall be required to register for not less than 15 credit units per semester of approved taught courses per semester.

4. Areas of Specialization

Each doctoral student is expected to specialize in one of the following fields:

- i) Sport Management
- ii) Sport Psychology
- iii) Sport Sociology
- iv) Sport Marketing
- v) Exercise Physiology

5. Compulsory Courses

All doctoral students are expected to take and pass the following courses:

SES 901, SES902, SES 903, SES 950.

6. Courses in Individual Area of Specialization

Students are expected to take a minimum of three courses (9 units) from courses listed in their area of specialization.

7. Courses Requirements

- i) Ph.D students are required to take a minimum of 15 credit units per semester, comprising 8 taught courses and a seminar in a session Student shall take Advanced Research Methods, Advanced Statistics and 3 courses from their respective areas of specialization in the first semester; 3 courses from

area of specialization and a seminar in the second semester. The rest of the period shall be spent on research writing and Ph.D thesis.

8. Duration of Programme

a) Full-Time

The Ph.D programme candidates will be required to spend a minimum of 24 calendar months (2 Years) and a maximum of 60 calendar months (5 years).

b) Part-Time

Candidates will be required to spend a minimum of 36 calendar months (3 years) and maximum of 84 calendar months (7 years).

c) Sandwich

The duration of the Sandwich PhD programme in Sport and Exercise Science shall be a minimum of five long vacations and maximum of seven long vacations.

9. Course Assessment

- i) Each course will be assessed on the basis of written examinations and continuous assessment.
- ii) Candidates will be required to obtain a minimum pass grade of C in each prescribed course and a pass in the thesis.

10. Ph.D Examination

- a) There will be examinations at the end of each semester of the first year of the programme.
- b) The examinations must be passed with minimum grade of C.
- c) The candidate, in consultation with the supervisor, will choose a thesis topic to be approved by the Departmental Graduate Studies Committee.
- d) There will be three seminar presentations, one in the Department and another in the Faculty. The final seminar should be presented before the Board of School of Graduate Studies examiners in accordance with the regulations.

11. Thesis

Candidates shall be required to carry out their research under Supervisor(s) appointed by the Department of Sport and Exercise Science.

Examination of Thesis

- (a) For the examination of the candidate's thesis, the Board of the School of Graduate Studies on the recommendation of the appropriate Committee shall comprise of five examiners who shall consists of Dean of Faculty as Chairman of Panel, an External Examiners, Representative of Dean, School of Graduate Studies, the Supervisor(s), Head of

Department and Chairman, Department Graduate Studies Committee. The examination shall be oral with questions asked on the candidate's research work within the context of the candidate's field of specialization. The examiners shall submit joint reports on the candidates.

Additional Regulations Governing Presentation of Thesis

(i) Signatories of Thesis

All members of the Board of Examiners shall be signatories to each thesis, e.g

- e) Supervisor(s)
- f) Head of Department
- g) Chairman of Examination Board (Dean of Faculty)
- h) External Examiner

(ii) All the foregoing regulations are subject to the general University regulations governing higher degree programmes.

GENERAL CORE COURSES

Course Descriptions

SES 901.1	Advanced Research Methods	-3 units
SES 902.1	Advanced Statistics	-3 units
SES 903.2	Doctoral Seminar	-3 units
SES 950.2	Doctoral Dissertation	-6 units

SPORT AND EXERCISE SCIENCE Ph.D PROGRAMMES

OPTION A: SPORT MANAGEMENT FIRST SEMESTER

Course Code	Course Title	Credits Units
SES 901.1	Advanced Research Methods	3
SES 902.1	Advanced Statistics	3
SES 905.1	Legal Liability and insurance Management in Sports	2
SES 906.1	Issues and Current Administrative Trends in Sport and Exercise Science	2
SES 907.1	Independent Study in Sports Management	2
(Choose any one)		
SES 912.1	Principles of Sports Management	2
SES 913.1	Independent Study in Sports Admin.	2

SECOND SEMESTER

SES 903.2	Doctoral Seminar	6
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SES 950.2	Doctoral Thesis	12
SES 908.2	Administration and Supervision in Sports Management	2
SES 909.2	Sports Insurance Policy and legal Liability for sports	2

Elective Courses (Choose any one)

SES 910.2	Financing Budgeting and Purchasing in Human Kinetics and Athletics	2
SES 911.2	Sports in Cultural Perspective	2

OPTION B: SPORT PSYCHOLOGY FIRST SEMESTER

Course Code	Course Title	Credits Units
SES901.1	Advanced Research Methods	3
SES 901.1	Advanced Statistics	3
SES 912.1	Psychological Skills before, during, and after performance	2
SES 913.1	Motivation and goal setting as a strategy	2
SES 914.1	Applied psychological analysis of problems in competitive sports	2
(Choose any one)		
SES 919.1	Coping with changing athlete status	2
SES 920.1	Psychology of Sports consumers	2

SECOND SEMESTER

SES 903.2	Doctoral Seminar	6
SES 950.2	Doctoral Thesis	12
SES 915.2	Socio-psychological aspect of sports psychology	2
SES 916.2	Applied psycho-physiological problems in Competitive Sports	2
Elective Courses (Choose any one)		
SES 917.2	Practicum/Field experience in sports psychology (internship)	2
SES 918.2	Independent study in sports psychology	2

OPTION C: SPORT SOCIOLOGY

Course Code	Course Title	Credits Units
SES 901.1	Advanced Research Methods	3
SES 902.1	Advanced Statistics	3
SES 903.2	Doctoral Seminar	6

SES 950.2	Doctoral Thesis	12
SES 921.1	Social Stratification and Sports	2
SES 922.1	Group Dynamics in Game Situation	2
SES 923.1	Deviant behaviour Control and Sports	2
SES 924.2	Race, Sex and Sports	2
SES 925.2	Socialization into Sports Participation	2

Elective Courses (Choose any one from each Semester)

SES 926.2	Independent Study in Sociology of Sport	2
SES 927.2	Contemporary Issues and Problems in Sports	2
SES 928.1	Sociology of Adapted Sports	2
SES 929.1	Comparative Study of Sports across Societies	2

OPTION D: SPORT MARKETING

Course Code	Course Title	Credits Units
SES 901.1	Advanced Research Methods	3
SES 902.1	Advanced Statistics	3
SES 930.1	Marketing Management in Sports and Exercise Science	2
SES 931.1	The Special Nature of Sports, Marketing	2
SES 932.1	Marketing Segmentation and the Sport Product	2
(Choose any one)		
SES 937.1	Financial Planning and Marketing Control in sports industry	2
SES 938.1	Theory of Sports Finance	2

SECOND SEMESTER

SES 903.2	Doctoral Seminar	6
SES 950.2	Doctoral Thesis	12
SES 933.2	Co-ordinating and Controlling the Market Product	2
SES 934.2	The perspective in Sports Consumer behaviour	2

Elective Courses (Choose any one)

SES 935.2	The Role of public Relations in Sports Marketing	2
SES 936.2	Research in Sports Marketing	2

EXERCISE PHYSIOLOGY

Course Code	Course Title	Credits Units
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SES 901.1	Advanced Research Method	3
SES 902.1	Advanced Statistics	3
SES 943.1	Nutrition, obesity and body weight regulation	2
SES 940.1	Advanced systemic exercise physiology	2
SES 941.1	Advanced concepts in Exercise stress Testing and training	2

Elective Courses (Choose any one)

SES 946.1	Biochemistry of Exercise	2
SES 948.1	Environmental Physiology and Exercise	2

SECOND SEMESTER

SES 903.2	Doctoral Seminar	3
SES 950.2	Doctoral Thesis	12
SES 942.2	Prevention and treatment of chronic diseases	2
SES 944.2	Development and laboratory management of physical fitness centres	2
SES 945.2	Physical activity programming for health and fitness for various groups	2

Elective Courses (Choose any one)

SES 947.2	Advance Biochemistry of Exercise 2	2
SES 949.2	Independent Study in Exercise Physiology	2

**Ph.D COURSE DESCRIPTION
GENERAL CORE COURSES**

SES 901.1 Advanced Research Methods (3 Units)

This course reviews the various methods used in research in Sport and Exercise Science. There shall be coverage of observation techniques in field and laboratory settings, sampling methods etc. Emphasis is placed on historical, Survey, experimental, epidemiological, Philosophical research and other basic and applied research methods - compulsory.

SES 902.1 Advanced Statistics (3 Units)

The course covers characteristics of the basic research and analysis of factorial research designs including factorial analysis of variance and co-variance General regressions, path analysis, canonical analysis of variance and discriminate analysis etc. Compressive analysis of both descriptive and inferential statistical tools - compulsory.

SES 903.2 Doctoral Seminar (6 Units)

Deals with both, vital issues of Sport and Exercise Science. Critical analysis of recent research studies related to these issues. Problems involved in conducting and publishing research are discussed, Preparation of thesis proposals under the guidance of major supervisor and presentation at Departmental seminar-compulsory.

SES 950.2 Doctoral Thesis (12 Units)

The doctoral thesis is to present results of an original research topic. Credit is given for originality, the contribution of work to knowledge, presentation and use of previous literature in the area of student's specialization.

SPORT MANAGEMENT COURSE DESCRIPTION

SES 905.1 Legal Liability and Insurance Management in Sports (2 Units)

An analysis and study of legal basis for physical education, sport participation and allied areas. The implication of various sports courses on the discipline, and relevant legal liability as negligence, tort, nuisance, malfeasance etc. A study of liability of the school teachers, sports master and other agencies.

SES 906.1 Issues and Current Administrative Trends in Sport and Exercise Science (2 Units)

Identification, discussion and analysis of current trends and issues which confront the human kinetics administrators at various levels. The present day issues which confront sport administrators in various areas of discharge of their duties.

SES 907.1 Independent Study in Sports Managements (2 Units)

Students are to embark on the study of selected professional problems in sports administration, with approval of their supervisors

SES 908.2 Administration and Supervision in Sports Management (2 Units)

Prepares students into principles affecting process of recruitment, selection and orientation studies, and basic principles guiding effective supervisory process.

SES 909.2 Sports Insurance Policy and Legal Liability in Sports (2 Units)

An analysis and study of legal basis for sports participation and allied areas, and the importance and process of taking insurance against sport injuries. The administrative responsibility towards legal actions in sport, buildings, grounds, facilities and equipment.

ELECTIVE COURSES (CHOOSE ANY ONE)

SES 910.2 Financing, Budgeting and Purchasing in Human Kinetics and Athletics (2 Units)

The course is designed to explore budgeting and financing in sports: methods and procedures in the administration of human kinetics and athletic development. Emphasis shall be placed on the planning, programming budgeting system and other cost accounting processes, purchasing and maintaining equipment.

SES 911.2 Sports in Cultural Perspective (2 Units)

A critical study of sports in context of culture with references to social systems, educational, political, mass media and process changes

SPORT PSYCHOLOGY

SES 912.1 Psychological Skills before, during and after Performance (2 units)

Evaluating the relative importance of interdependent psychological skills of anxiety management, mental practice, concentration, motivation and self confidence.

SES 913.1 Motivation and Goal Setting as a Strategy (1 units)

The relationship between extrinsic and intrinsic motivation in sports. Goals setting as a motivational techniques for peak performance in sports. Common problems in setting goals and guidelines for goal setting. Individuals and group motivation in team sport

SES 914.1 Applied psychological Analysis of problems in Competitive Sports (2 Units)

A critical study of applied psychological problems in competitive sports (personality dynamics in sport, drugs, etc)

SES 915.2 Socio-Psychological Aspect of Sports psychology (2 units)

A critical review of socio-psychological aspect of sports such as race, sex, social system and an in-depth analysis of available studies in the field.

SES 916.2 Applied psycho-physiological Problems in Competitive Sports (2 Units)

A critical review of psycho-physiological problems of sports behaviour in competitive situations and prevalent management techniques

ELECTIVE COURSES (CHOOSE ANY ONE)

SES 917.2 Practicum/Field Experience in Sports Psychology (2 Units)

A field practice of behaviour therapeutic situation, under direction of the course lecturer.

SES 918.2 Independent Study in Sports Psychology (2 Units)

A critical focus on curiosity arousing issues and problems in sports psychology. These issues are discussed in terms of recent research and theory in sports psychology.

SES 919.1 – Coping with changing athlete status

The various status of an athlete should be emphasized. The psychological effects of an athlete changing his or her status will be emphasized. The course must expose students on how an athlete copes with a change in status.

SES 920.1 – Psychology of Sports Consumers

The course exposes students to the dynamics of sports consumers. It exposes the various behavioural tendencies of sports consumers before, during and after sports competition. It focuses on how to understand and manages the reactions of sports consumers to winning and losing situations in sports competition.

SPORT SOCIOLOGY

SES 921.1 Social Stratification and sports (2 Units)

An analysis of social strata and their implications on Sports participation. Race and gender discrimination in sports and physical activity mobility through participation Rags to riches.

SES 922.1 Group Dynamics in Games Situation: (2 Units)

Structural analysis of sport group, its dynamics, relationship, leadership, cohesion, group motives and group stress in sports

SES 923.1 Deviant Behaviour Control and Sports (2 Units)

Analysis of theories of deviant behaviour to understand its social causes and implications, sports as a correctional tool and its use in reforming delinquents.

SES 924.2 Race, Sex and Sports (2 Units)

Racial discrimination in sports, Socio-political action against discrimination, male domination in sports women entry in sports and women's emancipation through sport participation.

SES 925.2 Socialization into Sports Participation (2 Units)

Critical review of different theories of socialization, social system approach to socialization, and an in-depth analysis of available studies in the field.

ELECTIVE COURSES (CHOOSE ANY ONE)

SES 926.2 Independent Study in Sports Psychology (2 Units)

An Independent investigation of selected professional problems in sports sociology with the permission of the course lecturer.

OR

SES 927.2 – Sociology of Adapted Sports (2 Units)

The course exposes the students to the special need persons and their world of sports as well as special competitions for them. The course emphasizes the social problems of special need persons in sports and how to manage them. Mainstreaming should be emphasized and encouraged. The social roles of special needs persons in sports competitions should be highlighted.

SES 928.1 Contemporary Issues and Problems in Sports (2 Units)

A critical focus on curiosity arousing issues and problems in sports sociology. These issues are discussed in terms of recent research and theory in sports psychology.

OR

SES 929.1 Comparative Study of Sports across Societies

The course exposes students to how sports is played and performed in diverse sports with emphasis on the sporting culture and subcultures in those societies with a target of drawing the strengths and weaknesses in those societies. It encourages cross-cultural examination of sports.

SPORT MARKETING

SES 930.1 Marketing Management in Human Kinetics and Sports (2 Units)

The course aims mainly at providing guidance to postgraduate students, to recognize the interacting components of the marketing management process, to appreciate the core elements of market analysis, product concept and product position. The course assume a good knowledge of the understanding of the distinction between the 5 “Ps” (product, price, place, promotion, and public relation) of sports marketing

SES 931.1: The Special Nature of Sports Marketing (2 Units)

This is an advanced course focusing on the major movement in contemporary market forces causing the need for enlightened marketing strategies in the sports industry. The students are exposed to the obstacles to clear marketing strategy in sports, recognize the components of the sports product and sports industry, and also factors that make sport marketing a unique enterprise.

SES 932.1 Marketing segmentation and the Sports Product (2 Units)

The course examines the central role of segmentation in the marketing process. It also recognizes the four bases of market segmentation in sports. It aims to differentiate sport products from market place product in terms of its uniqueness and limitations in the world of mainstream marketing and the understanding of the elements of the sport product. The course also seeks to establish and explore the relationship between the product positioning and product image, their interaction, and their ultimate effect on the marketing process, and to learn the steps involved in product development and the product life cycle.

SES 933.2: Co-ordinating and Controlling the Market Mix (2 Units)

The aim of this course is to consolidate the graduate student's knowledge to compare and contrast the interaction and impact of the 5 Ps upon each other. And how organizational structure and job descriptions impact organizational control of the marketing function. It also educates the students on the need for control in achieving marketing effectiveness and to become aware of the philosophical elements that may be related to the marketing function, but which may not be consistent with organizational structure.

SES 934.2: The Perspectives in Sports Consumer behaviour (2 Units)

This course is meant to acquaint the students with significant differences between socialization involvement, and commitment for sport consumers. Attempts will be made to show and discuss various individuals and environmental factors that shape consumer involvement and commitment in sport. And the decision process for sport consumers.

ELECTIVE COURSES (CHOOSE ANY ONE)

SES 935.2: The Role of Public Relations in Sports Marketing (2 Units)

The purpose of this course is to train graduate students to master Public Relations and its role in positioning and in the formulation of the marketing mix. The major role and functions of public relations professionals to sports events should be emphasized. To recognize the importance of effective community relations and employee relations programming in product positioning and effective marketing effect. Attention is also paid to specialized issues such as; the role and scope of the media and the subsequent impact the media has on the public relations function to sport marketing.

OR

SES 936.2: Research in Sports Marketing (Current issues in Sport Marketing) (2 Units)

The course will deal with the efficient handling of internal data sources available to any sport organization. Various research methods available

for gathering external information on sports marketing. Apart from being given practical assignments to trace information in the libraries and in the field, the student will be taught how to organize data and present them in a scholarly form and also to appreciate the components and the importance of a marketing information system.

SES 937.1 - Financial Planning and Marketing Control in Sports Industry (2 Units)

The course is expected to expose students to the principles of financial planning and expenditure as well as market control mechanisms. The students are expected to understand the marketing forces in sports setting and industry.

SES 938.1 - Theory of Sports Finance

The various sources of sports finance should be discussed. The course should hinge on maximizing the sports and non-sports products and services to generate adequate finance for managing sports in a contemporary society.

EXERCISE PHYSIOLOGY

SES 940.1: Advanced systemic exercise physiology.

An in-depth study of the physiological effects of acute and chronic training on homeostatic function, musculoskeletal system, energy system, cardiovascular and pulmonary systems (2units).

SES 941.1: Advanced concepts in Exercise stress testing and trainings:

The focus is on cardiovascular health, review of physical fitness testing and training, monitoring exercise, graded exercise tests protocols and skill in interpreting test results (2units).

SES 941.2: Prevention and treatment of chronic diseases (2units)

Identification of some cardiovascular diseases (coronary artery disease, Hypertension, stroke. Congestive heart failure), prevention and treatment, also disorders of skeletal and muscular systems, causes and therapeutic steps to remedy joint and muscular injury and or diseases.

SES 943.1: Nutrition, obesity and body weight regulation

The course covers all aspects of weight regulation including diet and nutrition, pathophysiology of obesity. Body weight regulation involves many organic systems. The course therefore also covers systemic physiology, cellular and molecular biology.

SES 944.2: Development and laboratory management of physical fitness centers

This course is designed to equip candidates with technical and management of laboratory expertise required to set up and run an efficient and effective physical fitness centre. This will include space, equipment for various tests and training, organisational skills and maintenance of resources (2 units).

SES 945.2: Physical activity programming for health and fitness for various groups (2Units)

The course focuses on the role of exercise in the development and maintenance of physiological fitness throughout the life cycle. Application of concepts to schools, hospitals and adult fitness programmes and special populations (the obese, diabetics, coronary heart diseases and stroke patients) (2units).

SES 946.1: Biochemistry of Exercise 1 (2Units)

The course emphasizes basic elements of carbohydrate, fat and protein metabolism and brief molecular biology concept of transcription regulation.

SES 947.2: Advance Biochemistry of Exercise II (2Units)

The course focused on the biochemistry of human in relation to physical activity and nutrition, exercise and sport with emphasis on Biochemical energetic, glycolysis, oxidative phosphorylation, gluconeogenesis and glycogen metabolism.

SES 948.1 Environmental Physiology and exercise (2Units)

Fundamental concept of environmental physiology and its application to exercise physiology, effect of cold, heat, humidity, altitude and atmospheric pressure on various physiological parameters during exercise and sports.

SES 949.2 Independent Study in Exercise Physiology

Students do an independent study which may serve as a pilot study in a given topic (usually in their area of interest).

LIST OF LECTURERS FOR POSTGRADUATE PROGRAMME

S/N	NAME OF ACADEMIC STAFF	AREA OF SPECIALIZATION	DISCIPLINE	QUALIFICATION	RANK
1	Prof. P. C. E. Iro	Exercise Physiology	Sport and Exercise Science	BSc, MEd., Ph.D	Professor
2	Prof. T. T. Orunaboka	Sport Administration and Marketing	Sport and Exercise Science	BSc, MEd., Ph.D	Professor
3	Prof. A. N. Amasiatu	Sport Psychology	Sport and Exercise Science	BSc, MEd., Ph.D	Professor
4	Prof. I. C. Elendu	Sport Management and Sociology	Sport and Exercise Science	Diploma, BSc, MEd., Ph.D, Ph.D	Professor
5	Dr. G. A. Deemua	Sport Management	Sport and Exercise Science	BSc, MEd., Ph.D	Reader
6	Dr. G. O. Nwankwo	Sport Management	Sport and Exercise Science	BSc, MEd., Ph.D	Reader
7	Dr. A. V. Ogunleye	Exercise Physiology	Sport and Exercise Science	BSc, MEd., Ph.D	Reader
8	Dr. F. C. Akalazu	Sport Management	Sport and Exercise Science	BSc, MEd., Ph.D	Senior Lecturer

DEPARTMENT OF CURRICULUM STUDIES AND EDUCATIONAL TECHNOLOGY

POST GRADUATE PROGRAMMES

BRIEF HISTORY OF POST GRADUATE PROGRAMME

Postgraduate studies started in the Department in 1987/88 session in six areas of specialization namely:

- i) Language Education
- ii) Social Studies Education
- iii) Educational Technology
- iv) Mathematics Education
- v) Science Education
- vi) Curriculum and Instruction

THE AIMS OF THE PROGRAMME ARE TO PRODUCE:

- (a) Curriculum Development and teaching specialists who will provide leadership for both primary and post primary schools, tertiary institutions and the Ministries of Education in the areas of Language Education, Social Studies Education, Mathematics Education and Science Education.
- (b) Educational media specialists, designers of training programmes, evaluators of educational programmes/products in the schools, higher education, Ministry of Education, business, industries, health services and government agencies. With the present benchmark forwarded by National University Commission (NUC) of Nigeria, the programme is undergoing modification to meet the changing needs of education.

1. Programmes Available

The programmes in the Department are still as they were at inception. However, the Department is reviewing the curriculum of each unit in view of the recent National University Commission (NUC) Benchmark Minimum Academic Standards for Postgraduate.

2. Objectives

The graduate programmes in the Department of Curriculum Studies and Educational Technology are designed to produce:

- (a) Curriculum Development and teaching specialists who will provide leadership for both primary and post primary schools,

tertiary institutions and the Ministries of Education in the areas of Language Education, Social Studies Education, Mathematics Education and Science Education.

- (b) Educational media specialists, designers of training programmes and evaluators of educational programmes/products in the schools, higher education, Ministries of Education, business, industries, health services and government agencies.

1. Duration of Programme

- (a) Masters of Education (M.Ed)

(i) Full Time

- (a) M.Ed Degree programme shall extend over 12 calendar months.
- (b) **Doctor of Philosophy (Ph.D):** The Ph.D degree programme shall extend over 2 years (4 semesters), but normally not to exceed 3 years (Six semesters) except by special permission of the Higher Degree Committee.

(ii) Part—Time

The duration of the part-time Ph.D programme shall normally be twice the length of the relevant Full-Time programme. However, part-time students for the Ph.D programme may be allowed a longer period of 8 semesters but not more than 10 semesters.

2. M.Ed Degree Requirements

M.Ed students shall be required to take a minimum of 30 credit units, of which 6 credit units must be for thesis.

- (i) The remaining will be distributed from among core courses and elective courses of the student's choice among the prescribed courses under the area of specialization.
- (ii) The students shall also audit at least two (2) graduate level courses in other faculties or departments related to their field or area of specialization. The grades from these courses will not be used in computing the students CCIPA. However, the students are required to pass them (i.e. at least a grade of C).

(iii) Course Assessment:

1. Each course/seminar shall be assessed on the basis of a written examination or research paper(s) or both.
2. M.Ed Candidates must maintain an overall C grade point average. However a student must not have more than two Ds in all the courses taken.

(iv) M.Ed Thesis

1. The Senate on the recommendation of the Faculty Board shall appoint three examiners, one of whom shall be an external examiner, and one of the remaining two shall be candidates supervisor, while the last one shall be graduate schools representative for the examination of the M.Ed thesis.
2. The examiners shall individually award a grade.
3. The candidate will be required to present himself for an oral examination.
4. All final (oral) Masters defence will be held in the department. The Dean of Graduate School of Arts, Education & Social Science shall serve as chairman.

**CORE COURSES FOR ALL STUDENTS IN DIFFERENT AREAS OF SPECIALIZATION
M.ED PROGRAMME**

17.0: LANGUAGE EDUCATION:

General Core Courses for All Students

Course Code	Course Title	Credit Unit
EDU 801.1	Research Methods in Education	2
EDU 802.2	Statistical Methods in Education	2
EDU 803.1	Information and Communication Technology (ICT)	3
EDU 899.2	Research Project	6
EDU 804.1	Principles of Learning and Instruction	2
EDU 805.2	Graduate Seminar	2
EDU 806.2	Open and Distance Learning (ODL)	2
EDU 807.1	Media Production I	2
SGS 801.1	ICT and Research Methods	2
Total		24

Core Courses for Area of Specialization

Course Code	Course Title	Credit Unit
EDC 808.1	Bi-lingual and Bi-cultural Education	2
EDC 809.2	Language and Literature Methods	2
EDC 810.2	Trends in Language and Literature	2
EDC 811.1	Curriculum Development in Language Arts Education	2
EDC 812.1	Integrating ICT into Language Education	2
SGS 802.2	Entrepreneurship & Management	2
Total		24

Two Elective for Area of Specialization

Course Code	Course Title	Credit Unit
EDC 813.2	Language Testing and Assessment in ELT	2
EDC 814.1	Reading & Literacy	2
EDC 815.1	Language Arts in Elementary/Secondary Schools	2
Total		4

Any two graduate level courses from Faculty of Humanities in any of the options (English Studies; Nigeria Languages; and French Language) to be audited and must be passed.

Session Total: 24+12+4 = 30

SOCIAL STUDIES EDUCATION

General Core Courses for All Students

Course Code	Course Title	Credit Unit
EDU 801.1	Research Methods in Education	2
EDU 802.2	Statistical Methods in Education	2
EDU 803.1	Information and Communication Technology (ICT)	3
EDU 899.2	Research Project	6
EDU 804.1	Principles of Learning and Instruction	2
EDU 805.2	Graduate Seminar	2
EDU 806.2	Open and Distance Learning (ODL)	2
EDU 807.1	Media Production	2

SGS 801.1	ICT and Research Methods	2
Total		24

SGS 801.1	ICT and Research Methods	2
Total		24

Core Courses in Area of Specialization

Course Code	Course Title	Credit Unit
EDC 816.2	Curriculum and Instruction in Social Studies Education	2
EDC 817.2	Contemporary Issues in the Society	2
EDC 818.2	Foundations of Social Studies	2
EDC 819.1	Sociology of Education	2
SGS 802.2	Entrepreneurship & Management	2
Total		10

Core Courses in Area of Specialization

Course Code	Course Title	Credit Unit
EDC 823.2	Media Production II	3
EDC 824.1	Educational Technology: Field and Profession	2
EDC 825.1	Instructional System Design (ISD)	2
EDC 826.2	Evaluation of Educational Products/Processes	2
SGS 802.2	Entrepreneurship & Management	2
Total		10

Two Elective for Area of Specialization

Course Code	Course Title	Credit Unit
EDC 820.1	Trends and Issues in Social Studies Education	2
EDC 821.2	Social Studies and Socialization	2
EDC 822.1	Social Studies in Elementary and Junior Secondary Schools	2
Total		10

Electives:

EUC 830.2: Practicum in Educational Technology (This is an audited course) and must be passed at credit level.

Two Elective for Area of Specialization

Course Code	Course Title	Credit Unit
EDC 827.2	Developing and Managing Learning Resource Centre	2
EDC 828.1	Educational Radio and Television	2
EDC 829.2	Human Resource Development (HRD) in Business and Industry	2
EDC 830.2	Innovation and Change Models in Education	2
EDC 831.1	Futuristic in Learning Environment (Proacting instead of Reacting)	2
Total		4

Any two graduate level comses in Faculty of Social Sciences to be audited and must be passed at credit level.

Session Total: 22+8+4 = 38

EDUCATIONAL TECHNOLOGY

General Core Courses for All Students

Course Code	Course Title	Credit Unit
EDU 801.1	Research Methods in Education	2
EDU 802.2	Statistical Methods in Education	2
EDU 803.1	Information and Communication Technology (ICT)	3
EDU 899.2	Research Project	6
EDU 804.1	Principles of Learning and Instruction	2
EDU 805.2	Graduate Seminar	2
EDU 806.2	Open and Distance Learning (ODL)	2
EDU 807.1	Media Production I	2

Session Total: 24+11+4 = 39

MATHEMATICS EDUCATION

General Core Courses for All Students

Course Code	Course Title	Credit Unit
EDU 801.1	Research Methods in Education	2
EDU 802.2	Statistical Methods in Education	2
EDU 803.1	Information and Communication Technology (ICT)	3
EDU 399.2	Research Project	6

EDU 804.1	Principles of Learning and Instruction	2	Course Code	Course Title	Credit Unit
EDU 805.2	Graduate Seminar	2	EDC 836.1	Curriculum Development In Science Education	3
EDU 806.2	Open and Distance Learning (ODL)	2	EDC 837.2	Foundation of Science Education	2
EDU 807.1	Media Production	3	EDC 838.1	Special Topics in Science Education/Integrated Science	2
SGS 801.1	ICT and Research Methods	2	EDC 839.2	Science in Elementary/Secondary Schools	2
Total		24	SGS 801.2	Entrepreneurship & Management	2

Core Course in Area of Specialization

Course Code	Course Title	Credit Unit
EDC 832.1	Curriculum & Instruction in School Mathematics	3
EDC 833.1	Diagnosis and Remedial Teaching of Mathematics	2
EDC 834.2	Elementary and Secondary Mathematics Instruction	2
EDC 835.2	Materials and Resources for Teaching School Mathematics	2
SGS 801.2	Entrepreneurship & Management	2
Total		10

Course Code	Course Title	Credit Unit
EDC 836.1	Curriculum Development In Science Education	3
EDC 837.2	Foundation of Science Education	2
EDC 838.1	Special Topics in Science Education/Integrated Science	2
EDC 839.2	Science in Elementary/Secondary Schools	2
SGS 801.2	Entrepreneurship & Management	2
Total		10

Two Electives for Area of Specialization

Course Code	Course Title	Credit Unit
EDC 840.2	Advance Science Laboratory Development	2
EDC 841.1	Science, Technology and Society	2
EDC 842.2	Materials and Resources for Science Teaching	2
Total		10

Electives:

Any two graduate level courses from (Faculty of Science) Department of Mathematics to be audited and must be passed at credit level.

Session Total: 24+10 = 34

Two graduate level courses from Faculty of Science in any of the options (Computer Science, Physics, Chemistry and Biology) to be audited and must be passed at credit level.

N.B. The two courses must come from the same department.

Session Total: 22+10+4 = 36

SCIENCE EDUCATION

General Core Courses for All Students

Course Code	Course Title	Credit Unit
EDU 801.1	Research Methods in Education	2
EDU 802.2	Statistical Methods in Education	2
EDU 803.1	Information and Communication Technology (ICT)	3
EDU 899.2	Research Project	6
EDU 804.1	Principles of Learning and Instruction	2
EDU 805.2	Graduate Seminar	2
EDU 806.2	Open and Distance Learning (CDL)	2
EDU 807.1	Media Production	3
Total		22

Core Courses in Area of Specialization

CURRICULUM DEVELOPMENT

General Core Courses for All Students

Course Code	Course Title	Credit Unit
EDU 801.1	Research Methods in Education	2
EDU 802.2	Statistical Methods in Education	2
EDU 803.1	Information and Communication Technology (ICT)	3
EDU 899.2	Research Project	6
EDU 804.1	Principles of Learning and Instruction	2
EDU 805.2	Graduate Seminar	2
EDU 806.2	Open and Distance Learning (CDL)	2
EDU 807.1	Media Production	3

Course Code	Course Title	Credit Unit	Course Code	Course Title	Credit Unit
SGS 801.1	ICT and Research Methods	2	EDC 904.1	Special Topics in Language and Literature Education	3
Total		24	EDC 925.3	Seminar in Language and Literature Education	3
Core Courses in Area of Specialization			EDC 9292	Contemporary Issues in Language Education	3
EDC 843.1	Curriculum and National Development	2	EDC 920.1	Contemporary Issues in Literature	3
EDC 844.1	Principles of Curriculum Development	2	EDC 926.2	Theory and Research in Teaching	3
EDC 845.2	Curriculum Innovation and Change	2	EDC 922.1	Studies in Sociolinguistics and Psycholinguistics	3
EDC 846.1	Psychological Theories in Curriculum Development	2	EDC 905.3	Advanced Syntax and Semantics in Language Teaching and Learning	3
EDC 847.2	Evolution Trend in Curriculum	2	Total		21
SGS 801.2	Entrepreneurship & Management	2			
Total		12			

Course Code	Course Title	Credit Unit
EDC 848.1	Foundation of Nigeria Education	2
EDC 849.1	Contemporary Issues in Curriculum Design and Development	2
EDC 850.2	Supervision and Instruction	2
Total		10

Any two graduate level courses from the Department to be audited and must be passed at credit level.

Session Total: 24+12+4 = 40

19.0 Ph.D PROGRAMME

LANGUAGE EDUCATION

Course Code	Course Title	Credit Unit
EDU 901.1	Advanced Research Methods II	3
EDU 902.2	Advanced Educational Statistics II	3
EDU 903.1	Information and Communication Technology II	3
EDU 999.3	Ph.D Thesis	12
Total		21
Core Course for Area of Specialization		

Two Elective from Area of Specialization
Any two graduate level course from Area specialization from Faculty of Humanities in any the options (English Studies; Nigeria Languages; and French Language) to be audited and must
Session Total: 21+21 = 42

SOCIAL STUDIES EDUCATION

Course Code	Course Title	Credit Unit
EDU 901.1	Advanced Research Methods I	3
EDU 902.2	Advanced Educational Statistics IT	3
EDU 903.1	Information and Communication Technology II	3
EDU 999.3	Ph.D Thesis	12
Total		21

Course Code	Course Title	Credit Unit
EDC 914.1	Contemporary Issues in Social Studies	3
EDC 930.2	Theory and Research in Teaching Social Studies Education	3
EDC 928.1	Special Topics in Social Studies	3
EDC 931.3	Seminar in Social Studies	3

EDC 932.2	Teaching Social Studies at the Basic & Secondary School	3
EDC 937.1	Peace and Conflict Issues In Social Studies Education	3
EDC 938.3	Social Studies Education for Youth and National Development	3
Total		21

Two Elective from Area of Specialization
Any two graduate level course from Area of specialization from Faculty of Social Sciences to be audited and must be passed.

Session Total: 21+21 = 42

EDUCATIONAL TECHNOLOGY

General Core Courses for AU Students

Course Code	Course Title	Credit Unit
EDU 901.1	Advanced Research Methods II	3
EDU 902.2	Advanced Educational Statistics II	3
EDU 903.1	Information and Communication Technology II	3
EDU 999.3	Ph.D Thesis	12
Total		21

Core Course for Area of Specialization

Course Code	Course Title	Credit Unit
EDC 933.1	Ergonomics in the Design of Educational System	3
EDC 924.1	Advanced Instructional Design (ISD)	3
EDC 923.2	Trends and Issues in Educational Technology	3
EDC 934.3	Seminar in Educational Technology	3
EDC 939.1	Historical Evokition of Educational Technology	3
EDC 940.2	Psychology and Media	3
EDC 941.3	Script Writing for Textbooks and Media Materials	3
Total		21

Two Elective from Area of Specialization
Any two graduate level courses from the masters programme in the Department to be audited and must be passed.

Session Total: 21+21 = 42

MATHEMATICS EDUCATION

General Core Courses for All Students

Course Code	Course Title	Credit Unit
EDU 901.1	Advanced Research Methods II	3
EDU 902.2	Advanced Educational Statistics II	3
EDU 903.1	Information and Communication Technology II	3
EDU 999.3	Ph.D Thesis	12
Total		21

Core Course for Area of Specialization

Course Code	Course Title	Credit Unit
EDC 907.1	Mathematics Teaching and Learning	3
EDC 908.2	Special Topics in Mathematics	3
EDC 909.1	History of Mathematics	3
EDC 910.3	Seminar in the Teaching of Mathematics	3
EDC 942.1	Nature, Philosophy & Structure of Mathematics	3
EDC 943.3	Problem Solving in Mathematics	3
EDC 944.1	Curriculum Mathematics Educationl Critical Curriculum Issues in Mathematics Education	3
Total		21

Two Elective from Area of Specialization
Any two graduate level course from the Department of Mathematics to be audited and must be passed.

Session Total: 21+21 =42

SCIENCE EDUCATION

General Core Courses for All Students

Course Code	Course Title	Credit Unit
EDU 901.1	Advanced Research Methods II	3
EDU 902.2	Advanced Educational Statistics II	3
EDU 903.1	Information and Communication Technology II	3

EDU 999.3	Ph.D Thesis	12
Total		21
Core Course for Area of Specialization		
Course Code	Course Title	Credit Unit
EDC 916.1	Issues in Science Education	3
EDC 917.2	Theory and Research in Science Education	3
EDC 918.1	Advanced Process Skills in Science Education	3
EDC 919.1	Science Teaching in Higher Institution	3
EDC 935.3	Workshop and Laboratory Practices in Science Education	3
EDC 921.3	Seminar in Science Education	3
EDC 945.2	Contemporary Policy and Reform In Science Education	3
Total		21

Two Elective from Area of Specialization
Any two graduate level course from Area of specialization from Faculty of Sciences in any of the options (Physics, Chemistry, Biology and Computer Science) to be audited and must be passed.
Session Total: 21+21 = 42

CURRICULUM AND INSTRUCTION

General Core Courses for All Students		
Course Code	Course Title	Credit Unit
EDU 901.1	Advanced Research Methods II	3
EDU 902.2	Advanced Educational Statistics II	3
EDU 903.1	Information and Communication Technology II	3
EDU 999.3	Ph.D Thesis	12
Total		21

Core Course for Area of Specialization		
Course Code	Course Title	Credit Unit
EDC 911.1	Contemporary Issues in Curriculum Development	3
EDC 912.1	Theory and Research in Teaching	3
EDC 915.3	Seminar in Curriculum & Instruction	3

EDC 913.2	Designing Curriculum and Instruction	3
EDC 946.1	Curriculum and Instruction in Higher Education	3
EDC 927.2	Formative and Summative Evaluation of Curriculum	3
EDC 936.3	Observational Techniques and Curriculum and Instruction	3
Total		21

Two Elective from Area of Specialization
Any two graduate level courses from other units in the Department to be audited and must be passed.
Session Total: 21+21 = 42

18.0: COURSE DESCRIPTIONS

EDU 801.1: Research Methods in Education (2 units)

This is an introductory course in research methods. It covers such areas as planning and design of research: tools of research (library, statistics, measurements, computers, etc), different types of research (historical, descriptive, experimental, ex-post facto); proposal writing, writing a research report, types of instrument, types of procedure for data collection and methods of data analysis

EDU 802.2: Statistical Methods in Education (2 units)

Review of basic statistical concepts; descriptive, parametric, inferential and non-parametric statistics, tstatistics, ANOVA, ANCOVA, Regression Analysis, Chi-Square and statistical techniques for Post-hoc analysis, application of computer in statistical analysis, meaning and result of statistical analysis.

EDU 803.1: Information and Communication Technology (ICT) Integration in Education (2 units)

This course will critically look into the issues involved in the use of Information and Communication technology (ICT) in Social Studies instructional delivery. The course will cover topics like, computer Assisted Instruction(CAI) in Social Studies, levels of CAI, objectives of computer in Social Studies class, pitfalls of CAI in Social Studies, challenges of CAI in Nigeria, computer Assisted Testing (CAI) Computer Managed Instruction (CMI), use of power point in Social Studies seminar

presentations, Research in Social Studies Education and electronic education.

EDU 899.2: Master's Thesis (Research Project)

The thesis shall be based on research into a significant problem in science education related to the candidates' area of specialization.

EDU 804.1: Principles of Learning and Instruction (2 units)

This course will critically examine the various theories of learning: Behavioural Learning Theories, Humanistic Learning Theories Social Learning Theories, Cognitive Learning theories, Constructivism; It will also discuss modern approaches to teaching/learning: Problem Based learning; situated learning; cognitive apprenticeship, Blended learning, etc. Each theory will be looked at with its educational implications or principles derived from each and its practical applicability.

EDU 805.2: Graduate Seminar (2 units)

The course is designed to give students the opportunity to engage in an in-depth analysis of the following topics: Inter-language, Inter and Intra-lingual errors in English as a second language, Constructivism in the teaching and learning of English, current status and prospects of communicative language teaching, English for specific purposes problems of language decay in Nigeria, National curriculum changes and the effects on English in Nigeria, extensive reading and the analysis of genres in Literature.

EDU 806.2: Open and Distance Learning (ODL) (2 units)

Introduction to general proactiveness of open and distance learning investigation of current practices and techniques in educational planning and management of open and distance learning in Nigeria. Specific designs include basic network analysis (PERT CRM) in the preparation of open and distance learning materials; evaluation technique for open and distance learning.

EDU 807.1: Media Production (2 units)

Survey of old and modern educational media with the focus on educational video production, photography in education, interactive radio instruction and producing radio drama. In addition, it will introduce students to management principles and personnel theory. Techniques of administering media centres, language laboratories, libraries, support services in media production, budget, purchasing facilities. Cataloguing print and non-

print materials, basic electronic and equipment storage and maintenance. This course will also focus on web-based media design, PowerPoint, Computer graphics and animation. Producing interactive Television.

EDC 808.1: Bilingual and Bicultural Education (2 units)

The course examines patterns of bilingual and bicultural behaviour among individuals and groups. It presents a range of definitions and distinctions for the purpose of grinding students to have a deeper understanding of the concepts and constructs related to bilingual people and situation. Examples are: minimal and maximal bilingualism, additive and subtractive bilingualism, balanced bilingualism, and semi-lingualism, Topic examined in the course includes language planning, language shift, language vitality, language maintenance, language decay, language extinction, and language revival and language reversal. The course presents an analysis of cognitive theories of bilingualism, biculturalism, cultural competence and multiculturalism. Implications for classroom practices are examined.

EDC 809.2: Language and Literature Methods (2 units)

The course examines major trends in language and literature teaching. It describes a large number of language methods (the Grammar Translation method, the direct method, the Audio-lingual method, etc.) which teachers can apply for different purpose. A description of new methods (The Total Physical Response, Cooperative Language Learning, Content-Based Instruction, Task-Based Language Teaching, etc). Alongside older ones will help students to apply the methods in more flexible manners. Similarly, with respect to Literature methods, well- devised learner-centred literatures activities will be analyzed to help students develop emotional response to fiction, drama and poetry.

EDC 810.2: Trends in Languages and Literature (2 units)

The course is an examination of theory and research in English language and Literature teaching. It highlights areas of consensus and controversy in language and literature education, enabling students to acquire profound understanding of the issues involved. Some of the topics in Language include the principles of teaching English as a second language, new directions in the conceptualization and teaching of

granular, defective use of Reading, Writing and Academic Language, and Language.

Across the Curriculum, the Literature component of the course involves such goals as developing Independent Readers, Promoting Discourse knowledge, gaining syntactic knowledge, Developing vocabulary knowledge and Children's Literature.

EDC 811.1: Curriculum Development in Language Arts Education (2 units)

The course is intended to examine the Trends in Linguistic Theory, Social linguistic, Psycholinguistics, Semantics, Language Teaching methods and Literature. It seeks to identify the areas of difficulties for students in language and literature education and attempts will be made to find solutions to such problems encountered by students in pronunciation, grammar and reading through effective teaching and monitoring.

EDC 812.1: Integrating ICT into Language Education (2 units)

This course will look at the Knowledge-Based Economy and its features; the major factor that shapes this economy to produce rapid change in society. It will examine the leadership role of teacher education in transforming education through the use of ICTs for teaching/learning. It will also focus on modern devices for teaching/learning in ICT and reviewing best practices.

EDC 813.2: Language Testing and Assessment in ELT (2 units)

The course examines test instruments for language achievement purposes. It discusses the paradigm shift from test to achievement involving a wider set of parameters than the term "testing". The central element will be communication standards in all the language skills. Emphasis will be placed on various forms of integrated classroom assessment involving teachers in all stages of the assessment cycle; planning the assessment programme, identifying and developing appropriate assessment tasks, and making the final judgment.

EDC 814.1: Reading and Literacy (2 units)

The first part of this course presents an analysis of theories of reading involving, among others, the traditional view (the bottom-up model) and the metacognitive views. There will be a discussion on the teaching of different types of reading: skimming, scanning, preview, receptive reading and responsive reading. The second part of the

course discusses the question of raising linguistic attainment for all children particularly underachievers. It analyzes the complex ways in which families, communities, schools and the larger society interact to make the curriculum accessible to all pupils and to combat exclusion.

EDC 815.1: Language Arts in Elementary/Secondary Schools (2 units)

The course presents critical examination of the techniques and methods employed in teaching at the primary and post primary levels. It lays emphasis on areas of difficulty for students whose mother tongues are not English Language. Emphases will be placed on the four language skills of listening, speaking, reading and writing, together with their inter-relationship with the aim of achieving national goals in second Language Learning.

EUC 816.1: Curriculum and Instruction in Social Studies (2 units)

This course is designed to acquaint students with Social Studies curriculum and instruction. Topics to be discussed include: Sources of Social Studies curriculum, Social Studies curriculum planning, Social Studies curriculum development, Social Studies curriculum implementation, Social Studies curriculum evaluation, Social Studies instructional evaluation, Social Studies curriculum revision, and an overview of the problems of teaching Social Studies in Nigeria.

EDC 817.2: Contemporary Issues in the Society (2 units)

The principal concern of this course is to make a capsule presentation of the content of each of the selected contemporary issues so that they can serve or be viewed, as guide to meaningful curriculum design. Topics to be covered include; environmental abuse education, child abuse and neglect education, aesthetic education, human relations education, retirement education, death education, girl-child education, civic education, social security education etc. Others include religious crises, political violence, sectionalism, poverty, kidnapping/bombing, H.I.V/Aids.

EDC 818.2: Foundation of Social Studies (2 units)

Social studies curriculum in historical and pedagogical content, Education and changes in Social Studies, Examination of the difference between Social Studies and the disciplines in the social sciences curriculum; integration, interdisciplinary inquiry, problems of transfer at

the senior secondary school level shall be the focus of this course.

EDU 819.1: Sociology of Education (2 units)

The aim of this course is to expose the graduate students to more advanced studies of the relationship between school and society. Areas to be covered will include an analysis of the social, political, and economic determinants of educational achievement and the form and content of educational systems. Emerging concepts and new perspectives in the sociology of education will also be reviewed.

EDC 820.1: Trends and Issues in Social Studies Education (2 units)

This course will focus on the Nature and scope of Social Studies, the origin and history of Social Studies, trends in Social Studies curriculum, elements of Social Studies, social issues and problems, issues of population and environmental education in Social Studies, issues of social change, issues of citizenship education and issues of National development.

EDC 821.2: Social Studies and Socialization (2 units)

Man's actual humanization and capacity to effectively function within a given social context is dependent on one's socialization orientation perpetrated through school and non-school agents, all within a society. Topics to be covered include: The concepts, school, society and socialization, functions/theories of socialization, socialization in society and school, community life and socialization.

EDC 822.1: Social Studies in Elementary and Junior Secondary Schools (2 units)

This course will focus on the methods of teaching Social Studies at the elementary and junior secondary school levels. Topics to be covered include: Factors determining the selection of teaching methods, various methods of teaching Social Studies, instructional materials and resources, importance of community resources in Social Studies teaching and learning, principles, guidelines, criteria for selecting instructional materials and resources for Social Studies classrooms, sources of social studies instructional materials and factors inhibiting the utilization of instructional materials and resources in Social Studies teaching-learning process.

EDC 823.2: Media Production II (2 units)

The course will involve web-design, use of multimedia, incorporating animation, graphics, video, etc in course design. Storyboard development (students plan a project from start to finish). They will be taught various film techniques including transition and sequencing in video and multimedia production.

EDC 824.1: Educational Technology: Field and Profession (2 units)

The course will expose students to the true meaning of Educational Technology its definition with emphasis on tasks of facilitating learning and improving performance. It will also address evolutionary trends and associative hallmarks of each trend, covering reputable associations and job prospects that the field parades. The course will also cover motivation in the teaching-learning process, and related motivational theories. Finally, the course will cover cognitive multimedia and associated principles.

EDC 825.1: Instructional System Design (ISD) (2 units)

The course will examine the principles of instructional design, front-end analysis, needs analysis, audience analysis instructional task analysis, specification of objectives and instructional strategies, content structuring technique, sequencing, criterion testing and evaluation. Students develop and field test prototypes instructional product.

EDC 826.2: Evaluation of Educational Products/Processes (2 units)

Introduction to the techniques and criteria for educational product development through study of hardware components, evaluation criteria and production requirements are the focus of the course. These include evaluation of commercial products, large-scale curriculum evaluation needs analysis, formative and summative evaluation of instructional design.

EDC 827.2: Developing and Managing Learning Resource Centers (LRC) (2 units)

This is concerned with the examination of supportive elements of LRC. Definition and goals of learning resource centers programme, with implementation and evaluation plan to achieve the goals. Center activities and plan on how to amalgamate them with school educational programmes. Self-learning and group-learning auditorium; Organization and personnel management as they apply to LRC; identification

of primary functions performed by LRC personnel are all considered.

EDC 828.1: Educational Radio and Television (2 units)

The course will cover the impact of mass media on instruction; design of educational radio/TV programme; editing films; production of radio/TV programme; animation and video coverage. Communication theory and practice social media and its implications for education.

EDC 829.2: Human Resource Development in Business and Industry (2 units)

Principles of behavioural science, theories of motivation and their application to the work environment; improving productivity through human resource development, overview of problem-solving procedures, training needs assessment, students visit business/industrial setting to identify problems that needs to be solved are all treated in this course.

EDC 830.2: Innovation and Change Models in Education (2 units)

The course will examine the nature of innovation and change; key stakeholders in managing change; Educational Change models: strategies for adoption of innovation, necessary conditions for successful change, a guide for planning change, keeping track of change and change models in perspective. In addition, it will cover the role of the organization's leader in managing change, and leading and managing change.

EDC 831.1: Futuristics in Learning Environment (Proacting Instead of Reacting) (2 units)

This course will look at the future of Educational Technology in terms of online courses of distance education. Students will be encouraged to brainstorm on issues that might emanate from ICT in education, corporate academic partnership; interweaving technology into the fabrics of academic life; putting education within the reach of more individuals around the world with greater specialization in curriculum and pedagogy.

EDC 832.1: Curriculum & Instruction in School Mathematics (2 units)

Current trends and development in Nigeria school Mathematics curriculum, Evaluating Mathematics programmes with respect to (a) Instructional procedures, (b) Methods, (c) Strategies. Review of Mathematics curriculum at different levels of

Education, Relevance of learning theories in the instruction of Mathematics will be focused.

EDC 833.1: Diagnostic and Remedial Teaching of Mathematics (2 units)

Characteristics of Mathematics ability in students, Learning disability, Mathematics disability, Study of causes and effects of Mathematics disability, useful diagnostic techniques and instruments useful in diagnosis and remediation, Survey of Mathematics topics and methods appropriate for remediation in specific handicap areas, Mathematical errors in Mathematics processes, Innovative Strategies for combating errors, Mathematics disability in students, Defects in present the teaching of Mathematics in schools and their possible remedies are the concerns of this course.

EDC 834.2: Elementary and Secondary Mathematics Instruction (2 units)

This course covers trends in the elementary and secondary school Mathematics programmes. Developmental theories of learning Mathematics. Curricular Issues in elementary and secondary school Mathematic; methods used in teaching elementary and secondary Mathematics are to be examined and concluded by looking at supervision in elementary and secondary school Mathematics instruction and literature review of research studies on post-primary Mathematics programmes.

EDC 835.2: Materials and Resources for Teaching School Mathematics (2 units)

Examination of the materials and resources essential for Mathematics teaching at different levels of education; role of manipulate equipment in the teaching and learning of school Mathematics; management of Personnel in resources Mathematics teaching are to be treated, This also includes consideration of materials for individual differences in Mathematics teaching; and developing a Mathematics laboratory. Improvisation of materials for instruction in Mathematics

EDC 836.1: Curriculum Development in Science Education (2 units)

Different views on curriculum and their implications for science curriculum development; examination of the major curriculum efforts in Nigeria, in the USA, in the UK and in a selected Eastern block country; practical experiences in the development of a science curriculum in a chosen field; New approaches in science curriculum

development; challenges in science curriculum development and the way forward are all contents of this course.

EDC 837.2: Foundations of Science Education (2 units)

Nature of science, Ancient and modern development of science; Philosophical issues relating to scientific concepts, Nature of scientific concepts, Types and levels of concepts, Psychological theories and their implications in science teaching to include Gagne, Ausubel, Piaget and Bruner, Constructivists theories all form the components of this course.

EDC 838.1: Special Topics in Science Education/Integrated Science (2 units)

A critical study of the philosophy and methodology of Integrated Science, A detail study of the Nigerian Integrated Science Project materials, Concepts in Science will be discussed in an integrated manner. In addition, the knowledge of modern ideas in science that affect man and his environment shall be discussed. Also, Energy resources and utilization, fossil fuels, petroleum and natural gas formation, renewable energy, nuclear power, solar energy (solar heating, active solar heating), Geothermal power, Hydropower, Tidal power, Wind energy, Biomass, alcohol as fuel, Biogas, energy conversion, prospect for future resources in Nigeria. Exploitation and conservation of natural resources to include water resources, wildlife, mineral, forestry and soil resources. Food processing and preservation, Genetically modified food (GM food), Erosion, waste management and pesticides, Environmental pollution to include water, land (soil or terrestrial) air and noise pollution, Ecosystem Genetic cloning and HIV/AIDS all form the nucleus of this course,

EDC 839.2: Science in Elementary! Secondary Schools (2 units)

The course shall focus on analysis of methods and programmes for teaching science in Upper basic and Senior Secondary Schools and development of teaching skills. The course includes element of both theory and practice which serve as a foundation for additional professional development. Field experiences in which students observe others teach and implement their own teaching strategies are an important component of the course. Other issues shall be demonstrations and laboratory work models, planning, science activities and the teaching of some difficult concepts in the science curriculum.

EDC 840.2: Advanced Science Laboratory Development (2 units)

This course will consist of demonstration equipments, longitudinal investigations in growth and development that engage students in scientific research. Field trip/fieldwork ideas and discrepant events focusing on Physics, Chemistry, Biology, Geosciences and environmental science shall be discussed. Others are science kits activities, microscopy and instrumentation as well as science laboratory instruction statement (NSTA position statement) shall be points of focus.

EDC 841.1: Science, Technology and Society (2 units)

This course emphasizes the teaching of scientific and technological development in their cultural, economic, social and political contexts. Its design is to encourage students' engagement in issues pertaining to the impact of science and technology on the society. It is intended to make students take responsible decisions about how- to address such issues like climate change, global warming, genetic engineering, animal testing, deforestation, nuclear testing and environment legislation such as EU waste legislation and Kyoto protocol.

EDC 242.2: Materials and Resources for Science Teaching (2 units)

The course will focus on the exploration of various materials for science teaching, It will include facts about standardized and improvised materials. It will also explore materials for teaching difficult concepts in science; laboratory resources and materials; utilization and management of teaching materials and resource personnel in science teaching.

EDC 843.1: Curriculum and National Development (2 units)

Study of component of curriculum, a review of significant questions about curriculum planning and responsive curriculum for national issues, Analysis of curriculum programmes and content for transformation, relevance and methodology options are the focus of this course.

EDC 844.1: Principles of Curriculum Development (2 units)

A review of theory of curriculum and curriculum change. A thorough consideration of the approaches to curriculum construction, organization and institutionalization, a consideration of primary, secondary and tertiary Curriculum offerings in Nigeria and their relevance, Principles and processes of innovation,

adaptation and adoption shall be analyzed. Research trends in the diffusion of innovation both social and psychological shall be analyzed.

EDC 845.2: Curriculum Innovation and Change 2 units)

The course will include issues for curriculum renewal and innovation, social and philosophical principles of change, strategies of curriculum innovation and change and models of educational change including the process of innovation.

EDC 846.1: Psychological Theories in Curriculum Development (2 units)

Relevance of psychological theories to curriculum development, Bloom's taxonomy and curriculum development, Piaget, Ausubel and Constructivists, etc on modern curriculum thought and sequencing are the components of the course.

EDC 847.2: Evolutionary trends in Curriculum (2 units)

Concept of curriculum during the progressive era, curriculum of the progressive movement, modern concepts of curriculum, the school curriculum in a contemporary world of science and technology are the concerns of this course.

EDC 848.1: Foundation of Nigeria Education (2 units)

A study of western educational practices, indigenous education, formal education in Nigeria under colonial governance; different educational ordinances during colonial government; Post-independence educational policies and practices; The 9-3-4 educational system; Universal Basic Education; The global Education For All (EFA) initiative and its influence on Nigerian Education; The role of international organizations in Nigerian education; The National Policy on Education and educational practice are the focus of this course.

EDC 849.1: Contemporary Issues in Curriculum Designs and Development (2 units)

This course will survey the criteria for inclusion of content in the curriculum, issues of the determination of curriculum effectiveness and the goals of a curriculum will be discussed. The nature of curriculum evolution in Nigeria and the several issues raised by it shall be analyzed.

EDC 850.2: Supervision and Instruction (2 units)

Concept of supervision and techniques for supervision will be discussed. Clinical supervision and stages in clinical supervision plus skills and instrument involved for effective clinical supervision shall be discussed.

COURSE DESCRIPTIONS FOR Ph.D PROGRAMME

EDU 901.1: Advanced Research Methods in Education: II (3 units)

The concept and nature of research; scientific processes in research; problem definition, variable identification; sources of research topics; theory construction and hypotheses formulation; techniques for literature review; principles of design, instrumentation, data collection, techniques for data analysis and presentation of results. Candidates must be introduced to computers and data analysis; analytical software and techniques in education. The orientation must be practical throughout as candidates are guided to prepare tentative research proposals they must present and defend individually in class; techniques of research reporting, and research proposal writing are the concerns of this course.

EDU 902.2: Advanced Educational Statistics II (3 units)

This course deals with concept of educational statistics; the role of statistics in education; descriptive statistics and the various areas of application in education; classroom data, school records, school demography, social relations in school; school administration and finances; Inferential statistics; population and sampling theory; non-parametric statistics in education; hypothesis assumptions, types, applications and limitation, The nature of parametric statistics, types and applications in education; statistical models in education, application and limitation (correlation, univariate and multivariate analysis of education data), the nature of significant tests, problems of inferences. Candidates must be taught to utilize computer in various phases of this course and to be familiar with various analytical software. Emphasis must be placed on educational and practical application of basic statistical concepts in various educational disciplines.

EDU 903.1: Information and Communication Technology II (3 units)

In-depth knowledge of skills and techniques of data processing in education, overview of sources, storage, retrieval and dissemination of data/information, programme design and management of data; management of data bank, general problem solving with the use of information technology. Hands-on experiences are emphasized in this course.

EDU 999.3: Dissertation (12 units)

Candidates are required to demonstrate research competencies by selecting dissertation topics in their relevant areas of specialization. The research is carried out by the individual student under the guidance of competent supervisors according to graduate school requirements. The candidate is expected to make some significant contributions to knowledge. The dissertation is defended before an appropriately constituted examining committee chaired by the Head of the Department. The External Examiner's verdict shall override all other decisions.

EDC 904.1: Special Topics in Language and Literature Education (3 units)

The course focuses on such topics as Language and parole, Communicative competence, interconnected dimensions of grammar in language education involving morphosyntax (form), semantics (meaning) and pragmatics (use). It examines constructivism in language teaching and learning, discourse analysis and the language learner (motivation, styles and strategies). The course also examines aspects of fiction, poetry and drama, reading interest and attitudes.

EDC 925.3: Seminar in Language and Literature (3 units)

The course examines Second Language learning, literacy & multilingualism. It focuses on interlanguage, language varieties and Academic Language. Issues in the teaching of Fiction, Drama and Poetry together with sub-genres such as Tragedy, Comedy, Irony, Satire and the sonnet are discussed.

EDC 929.2: Contemporary Issues in Language Education (3 units)

The course is an in-depth study of English as a Second Language in Nigeria. It examines Standards in Native English and Nigerian English contexts, and changing approaches to the conceptualization and Teaching of Grammar. It focuses on Oral English and advances in the teaching of Reading and English Composition, the teaching of English for specific purposes (ESP), Teacher Language Awareness (TLA), Subject-matter Knowledge and Professional Standards.

EDC 920.1: Contemporary Issues in Literature (3 units)

The course will address children's Literature (plot, character, theme, mood, etc). It will examine

Fiction, Drama and Poetry, with special attention to poetry written by Anglophone and francophone writers. Oral literature (praise songs, myths, legends, folktales, proverb, etc) in Education and Socio-Cultural and political influences will be described.

EDC 926.2: Theory and Research in Language and Literature (3 units)

The course examines Metacommunication, recent methods in language Teaching, notion of World Englishes and new directions in English Language Testing. Strategies for literature teaching will be examined with respect to Fiction, Poetry and Drama.

EDC 922.1: Studies in Sociolinguistics and Psycholinguistics (3 units)

Sociolinguistics is the study of language and social network relations. It focuses on language variation, Standard and non-standard forms and Codification, Prestige, Language loyalty and Language Planning. Psycholinguistics is the study of cognitive processes that support the acquisition and use of language. It investigates aspects of language retention and attrition.

EDC 905.3: Advanced Syntax and Semantics in Language Teaching and Learning (3 units)

This course is a study of current trends in syntax and semantics. It explores such features as competence and performance, the creative character of language and implications for contrastive analysis. It focuses on meanings, synonymy and antonyms. Students are encouraged to explore how lexical and syntactic ambiguities are resolved.

EDC 914.1: Contemporary Issues in Social Studies (3 units)

The principal concern of this course is to make a capsule presentation of the content of each of the selected contemporary issues so that they can serve, or be viewed as guide to meaningful curriculum design. Topics to be covered include: Poverty Alleviation education, conflict resolution education, entrepreneurial education, social education, cultural education, Human rights education, Global (International education, values education, consumer education, community education, and law related education.

EDC 930.2: Theory and Research in Teaching Social Studies Education (3 units)

This course is designed acquaint students with theory and research in social studies teaching.

Topics to be discussed include: Meaning of research, principal stages in social studies research process, functions of research in social studies education, problems of research in social studies education, significance of titles, variables and hypotheses in writing a social studies research thesis, guidelines for selecting a topic of research in social studies and areas of focus in oral presentation of completed thesis in social studies education.

EDC 928.1: Special Topics in Social Studies (3 units)

Special topics cover the interest areas of evaluation process in social studies. Focus will be on social studies Instructional/Curriculum evaluation, social studies performance evaluation: Competencies to be appraised or evaluated, social studies teacher self evaluation, students involvement in social studies teachers performance evaluation, processes and issues of modernization.

EDC 931.3: Seminar in Social Studies (3 units)

Students shall be expected to select some seminar topics from New frontier areas in social studies in Nigeria and develop/present the papers orally and in written form to the academic staff of the department.

EDC 932.2: Teaching Social Studies at the Basic and Secondary School (3 units)

This course will focus on the methods of teaching social studies education at the basic and junior secondary school levels. Topics to be discussed include: The concept, Teaching methods, Strategies and Techniques, Methods of teaching social studies such as Presentation method, Construction method, Creative Activity method, Inquiry method, Discussion method, Problem solving method, Dramatization method, Simulation method and Questioning method. Teaching large classes in social studies. Teaching of social studies to children with special needs and teaching social studies in multigrade classes.

EDC 937.1: Peace and Conflict Issues in Social Studies Education (3 units)

Concepts of peace, peace-building and conflict resolution, sources and effects of conflict attitude and value, relevance to peace-building and processes of conflict resolution in a multi-racial or ethnic society, patterns of peace-building and conflict resolution in traditional and modern African Societies, Teaching peace, peace-building process and conflict resolution/conflict management strategies/skills through reformed

Social Studies curricula are the components of this course.

EDC 938.3: Social Studies Education for Youth and National Development (3 units)

Critical analysis of developmental trends in Social Studies education will emphasize major contributions of the discipline to nation-building efforts in Nigeria since independence. The interdisciplinary perspective of the field as a major impetus for democratic and citizenship/civic training for Nigerian youths, emerging issues and challenges in social studies affecting its disciplinary and intellectual efforts towards nation- building and development are the contents of this course.

EDC 933.1: Ergonomics in the Design of Educational System (3 units)

The course will survey human capabilities, limitations, characteristics, behaviour and motivation to workplace design, environmental conditions, information input and human output and control. The focus will be on human beings and their interaction with products, equipment, facilities, procedures; how design and products influence people.

EDC 924.1: Advanced Instructional Design (ISD) (3 units)

Review of the historical and contemporary developments of instructional systems, theories of learning as it relates to instructional system design: behaviourism and instructional system design, cognitivism and instructional system design; constructivism and instructional system design, analysis of instructional design models will be carried out, and then finally introduction to multi-media instructional design.

EDC 923.2: Trends and Issues in Educational Technology (3 units)

The purpose of this course is to examine the past, current and future trends in educational technology. The course will cover the roots of instructional design, media and educational computing. An in-depth analysis of the "Apple's Classroom of Tomorrow (ACOT), teacher Development Center Project of thorough analysis of the move from learning about the technology to; adopting technology to support traditional teaching/learning (Blended Learning), adopting it to classroom practices, appropriating it to project-based and co-operative student work and inventing new uses for it shall be considered.

EDC 934.3: Seminar in Educational Technology (3 units)

The seminar will provide an opportunity for the in-depth study of substantive issues in educational technology. Each student will be expected to present a paper that will lead to a discussion on selected contemporary issues in the field of educational technology.

EDC 939.1: Historical Evolution of Educational Technology (3 units)

Conceptual frameworks and historical development of Educational Technology. Early development, systems approach, consolidation, development and criticism of the early frameworks mass communication access and control, interactionist concepts of Educational Technology and Information Technology and the information society, AECT'S definitions of educational technology over the years, contributions of selected media men in the development of educational technology are the focus of this course.

EDC 940.2: Psychology and Media (3 units)

Learning theories and their proponents, factors affecting human learning, investigations of established learning principles and their relationship to the design and the use of instructional media, applicability of research on motivation, attention, cueing, responding, reinforcement, types of learning characteristic, explored script writing for Textbooks and Media Materials, Techniques and Procedures of script writing of textbooks, mediated instructional materials and independence, correspondence learning materials, modular curricula for distance learning are the contents of the course.

EDC 941.3: Script Writing for Textbooks and Media Materials (3 units)

Techniques and procedures of script writing of textbooks for instructional purposes, mediated instructional materials and independence, correspondence learning materials. Producing modular curricula for distance and open learning make up the strength of the course.

EDC 907.1: Mathematics Teaching & Learning (3 units)

The theories and methods of mathematical problem solving with application to classroom instruction, cognitive development and learning theories, constructivism and mathematics teaching, Ethnomathematics and other socio-cultural issues affecting mathematics, the use of instructional materials in research results and methods of

teaching primary/secondary school Mathematics will be critically analyzed.

EDC 908.2: Special Topics in Mathematics (3 units)

Special topics cover the interest areas of the nation's educational objectives, Special Educational Needs (SEN) and teaching Mathematics, Mathematics for exceptional children; Relationship between Mathematics and Science in secondary schools; using mother tongue to teach Mathematics at basic levels; strategies for teaching special topics in Mathematics, application of computers in Mathematics instruction it may also involve field work and laboratory work.

EDC 909.1: History of Mathematics (3 units)

Nature and Structure of Mathematics in Schools, Historical development of major ideas in Mathematics; contributions of noteworthy mathematicians (including Nigeria), analysis of mathematical classics; Historical/comparative study of Mathematics education programmes in Nigeria, Africa and the rest of the world, trends and Developments in computer from Mathematics and the structure of modern computers characterize the course.

EDC 910.3: Seminar in the Teaching of Mathematics (3 units)

Emerging trends, issues and problems confronting the teaching and learning of Mathematics, current research in Mathematics methods and in structural process: integrating computer in teaching and learning of Mathematics, comparative study of the teaching of Mathematics in Nigeria and other nations form the nucleus of the course.

EDC 942.3: Nature, Philosophy & Structure of Mathematics (3 units)

Meaning and origin of mathematical concepts, education: schools of Philosophical thought, Cultural & ethnomathematical context of Mathematics Philosophy & Purpose of Mathematics education. Structure of Mathematics in schools. Current Issues in Mathematics education in Nigerian, Role of Mathematics teaching, natural issues are the focus of the course.

EDC 943.3: Problem Solving in Mathematics (3 units)

Mathematical problem-solving, Implication of teaching problem-solving in Mathematics theories & method of Mathematical problem-solving with application to class instruction, developing heuristic strategies in problem analysis.

Information processing, modeling of logical thinking, Methods and materials for problem solving strategies, with applications from school curriculum and Instructional settings are the features of the course.

EDC 944.1: Curriculum Mathematics Education! Critical Curriculum Issues in Mathematics Education (3 units)

Trends and Issues in Mathematics education at global level, curricular issues affecting Mathematics education in Nigeria, Pedagogical Issues affecting Mathematics education in Nigeria, Materials & Technological Issues in Mathematics education in Nigeria, Scientific graphical calculators, Computers and other devices in solving problems in Mathematics, software packages in teaching Mathematics, teachers' belief about learning and teaching Mathematics comprise the components of the course.

EDC 916.1: Issues in Science Education (3 units)

Science for citizenship: this explores the effective teaching and learning of issues relating to the society (that is socio-scientific issues) Positive and negative impacts of science on the society, who should be blamed? Scientists, technologists or the communities? Issues on integration of science rationale, essence and models of integration; Gender issues in science education: involvement of females in science education at all levels; the trend, hindrances and the prospects, science literacy: components and interference with African Cosmology. Entrepreneurship in Science curricula and entrepreneurship. Communication in Science Education: Objectivity and honesty, laboratory issues in Science Education; Laboratory skills and their inculcation, measurements in Science Education all form the elements of this course.

EDC 917.2: Theory and Research in Science Education (3 units)

A study of contemporary theory and research in Science Education, The relationship between research, theory and science education shall be critically examined. Students shall develop their research designs in the identified content of their areas of interest.

EDC 918.1: Advanced Process Skills in Science Education (3 units)

A review of science process skills as broadly transferable intellectual skills, appropriate to all scientific endeavours they include basic process skills (e.g., observing, inferring, measuring,

communicating, classifying, predicting, using time space relation, using numbers) and integrated process skills like controlling variables defining operationally and formulating models all make up the focus of the course.

EDC 919.1: Science Teaching in Higher Institutions (3 units)

The aim of the course is to develop an understanding of the main concept, themes, and laws developed within the domains of the biological, chemical and physical sciences. It is intended further to create an awareness of the interrelatedness of the physical, chemical and biological worlds. The development of an understanding of the nature of scientific inquiry, the scientific enterprise, scientists and how they work, the multiple methods of science and the role of imagination and creativity in science will be emphasized. Further areas shall include attitude toward science, critical-thinking, questioning, analysis, problem solving and decision-making skills involving natural phenomena.

EDC 935.3: Workshop and Laboratory practice in Science Education 3 units)

This course deals with a wide range of skills needed to deliver high quality technical support in a School, School or University's science laboratory. Contents will include fundamentals of science, using science in the workplace, perception of science, scientific investigation, scientific practical techniques, medical physics, industrial applications and biomedical techniques. Others are, complying with statutory regulations and organizational safety requirements; developing and maintaining working relationships; use of laboratory information systems/measurements and basic laboratory activities.

EDC 921.3: Seminar in Science Education

The course is designed to give students the opportunity to engage in an in-depth analysis of their post-field experience in the field of science education and related studies.

EDC 945.2: Contemporary Policy and Reform in Science Education (3 units)

This course will deepen students' study of the origin, nature and consequences of science education reform in Nigeria and the world over. It will present special focus on the movement towards increased development of national standards in Science Education and professional preparation. Emphasis will be given to exploring current reform efforts, trends and policies.

EDC 911.1: Contemporary Issues in the Curriculum Development (3 units)

This course will survey the criteria for inclusion of content in the curriculum, issues of the determination of curriculum effectiveness and the goals of a curriculum will be discussed. The nature of curriculum evolution in Nigeria and the several issues raised by it shall be analyzed.

EDC 912.1: Theory and Research In Teaching (3 units)

Critical study of contrasting approaches to the study and findings in research on the teaching process, the teaching process in relation to the purposes of education, human growth and personality, the nature of learning, the dynamics of groups, the nature of subject matter and evolution are the contents of the course.

EDC 913.2: Designing Curriculum and Instruction (3 units)

Curriculum design based on the rationale, empirical evidence, engagement and open models will be discussed. Students shall be required to develop specific segments of the Secondary School Curriculum based on these emergent models.

EDC 915.3: Seminar in Curriculum and Instruction (3 units)

This course considers examination and consideration of issues and problems in Nigerian School Curriculum. Discussion will also include research plans in Curriculum and Instruction, Language Education and Social Studies.

EDC 946.1: Curriculum and Instruction in Higher Education (3 units)

An examination of the developmental needs of the University, Colleges of Education, Colleges of Agriculture, Colleges of Theology, and Poly/Monotechnic students, and appropriate instructional means to meet the needs, considerable emphasis on social-psychological research relevant to curricular concern form the nucleus of the course.

EDC 927.2: Formative and Summative Evaluation of Curriculum (3 unit)

The concepts of formative and summative evaluation as applied to curriculum development, and cognitive, affective and psychomotor achievement of recipients of components of the developed curriculum, principles for construction of measuring instruments for these purposes are considered.

EDC 936.3: Observational Techniques and Curriculum and Instruction (3 units)

The use of various interaction analysis instruments for evaluating transactions in the classroom, coding systems for classroom observation will be analyzed.

GUIDELINES FOR THESIS/ DISSERTATION DEFENCE

(1) Abstract

This is an abbreviated summary, usually at the beginning but could come up at the end also. However for consistency, it should come at the beginning. It should not be more than a page. It should also contain purpose of study, brief research questions cum hypotheses, design of study, results, discussion, etc.

(2) Introduction

This should include the “background to the study”, theoretical framework, research questions, hypotheses, scope (delimitations) of study, definitions of special terms used in the study, and limitations of the study. This chapter must clearly spell out whether the research is quantitative or qualitative.

(1) Literature Review

The literature must be relevant and be related to the problem being investigated. The literature must be current. Except where relevant, literature below 10 years backwards should be discouraged. Care must be taken to distinguish between investigators interpretation of what is read in the literature and verbatim copies. Quotation rules must be followed according to the A.P.A. Style.

It is good practice to have a summary of the literature reviewed. Has the review been able to list past researches in the area being investigated? Has the review been able to throw “theoretical” light into the problem being investigated? Sources of literature should be noted:

Books, Journals and Computer databases. All sources of the literature should be acknowledged.

(2) Research Methodology

A Research Design: Experimental, Ex-post-factor, survey, qualitative?

(A) Variables of the investigation/ characteristics of investigation

Dependent and independent variables must be well spelt out and the levels of measurement. For example, are the variables nominal, ordinal, interval or ratio? What type of design is being

used? Prospective or Retrospective. The former deals with prediction of effects from known causes and the latter searches backwards for causes from known effects.

(B) Sample:

Type of sampling: Random, stratified, cluster or opportunistic? Sampling methods must be well spelt out because this will help control internal validity of the research (i.e. control of extraneous variables). Issues dealt with here also include size of sample (the larger the sample, the better).

(C) Measurement of variables (Instrumentation)

I. Types of Measures

How were the variables measured, attitude scales, use of tests, questionnaires, interviews, focus groups, observations and secondary or existing data.

II. Psychometric Properties of Instruments:

- (a) Validity how was this established, any evidence of it in the research.
- (b) Reliability how was this established, any evidence of it in the research
- (c) Easy use of instrument

(D) Analysis of data

Has appropriate statistics been used for data analysis? How were the data analysed? By hand,

calculators, or by computers? They must be well stated. Appropriate statistics must be used for how variables were measured. For example, non-parametric statistics for ordinal versus nominal data and parametric statistics for interval or ratio measures.

(3) Results

Results, usually in chapter 4, should be presented with Tables that are properly titled according to A.P.A. format. Results should be presented according to research questions or hypotheses. Results should be well described and should be explicit as to whether the hypotheses being tested have been retained or rejected.

(4) Discussion

The results from chapter 4 should be discussed according to research questions and hypotheses. Discussion must be related to findings and the literature reviewed.

(5) Conclusions, Implications and Suggestions

What are the conclusions to be drawn from the investigation? Are the results and subsequent discussion related to the problem investigated and to the results presented? Have new grounds been broken? Have issues of internal and external validity been appropriately addressed in relation to the problem investigated? Any suggestion for future research?

ACADEMIC STAFF

Name	Qualifications	Field of Specialisation	Designation
Awotua-Efebo E.B.	B.Sc. (Kent State), M.Ed, Ph.D (Wayne State)	Educational/ Information Technology	Professor
Obomanu, B.J.	B.Sc (RSUST), M.Ed, Ph.D (UPH)	Science Education	Professor
Olele, C.N. (Mrs)	B.A. (Ed) (UNN), M.Ed, Ph.D (UPH)	Educational Technology	Professor
Williams, C.	B.A. Ed., M.Ed, Ph.D (UPH)	Educational Technology	Senior Lecturer
Nwanekezi, A.U. (Mrs.)	B.Ed., M.Ed., Ph.D (UPH)	Science Education	Senior Lecturer
Arokoyu, A. (Mrs.)	B.Ed., M.Ed., Ph.D (UPH)	Science Education	Senior Lecturer
Dike, J.W.	B.Sc., Ph.D	Science Education	Senior Lecturer
Ndioho, O.F.	B.Ed., M.Ed., Ph.D (UPH)	Science Education	Senior Lecturer
Okoro, C.O. (Mrs.)	B.Ed., M.Ed., Ph.D (UPH)	Language Education	Lecturer I
Mumuni, A.A.O.	B.Sc Ed., M.Ed, Ph.D (UPH)	Science Education	Senior Lecturer
Mezieobi, A.U.	B.Ed, M.Ed, Ph.D (UPH)	Social Studies Education	Lecturer I
Karanwi, M.N.	B.Ed., M.Ed., Ph.D (UPH)	Educational Technology	Lecturer II
Nbina, J.B.	B.Ed., M.Ed., Ph.D (UPH)	Science Education	Lecturer I
Abraham, L.N. (Mrs.)	B.Ed., M.Ed, Ph.D (UPH)	Science Education	Lecturer I
Obafemi, T.A.	B.Ed., M.Ed., Ph.D (UPH)	Science Education	Lecturer II
Anikpo, F.	Ph.D, UPH	Curriculum Studies	Lecturer I
Avwiri, E.	B.Sc (Ed), M.Ed (RSUST), Ph.D (UPH)	Science Education	Lecturer II

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Vision

The vision of the Library and Information Science degree programme at the postgraduate level is to equip scholars with more creative and sophisticated diverse expertise, such that, they would be independent in carrying out the responsibilities of quality service delivery in this digital information-driven economy.

Mission

The programmes will train information professional to carry out duties on library and information science related responsibilities, contribute, knowledge to the wellbeing of the economy, and add to distinguished knowledge managers.

Philosophy

In general, the philosophy of education of Library and Information Science is based on the national objectives contained in section-1, paragraph-1 of the national policy on education which harps on the realization of a free and democratic society, the attainment of an egalitarian society, the achievement of a united, strong and self-reliant nation and the realization of a dynamic economy. In pursuance of the national policy on education (section 5 and 9), the goals provided under Higher education (section 5) are as follows:

- (i) The acquisition, development, and inculcation of proper value-orientation for the survival of the individual society.
- (ii) The development of the intellectual capacities of the individual to enable him/her to understand and appreciate his/her environment,
- (iii) The acquisition of both physical and intellectual skills which will enable the individual to develop into a useful member of the community,
- (iv) The acquisition of an objective view of local and external environments.

Based on this, the department intends to run three levels of postgraduate studies namely: postgraduate Diploma in Library and information science (PGDLIS), Master's Degree in library and information science (MLIS), and Doctoral degree (Ph.D.).

POSTGRADUATE DIPLOMA IN LIBRARY AND INFORMATION SCIENCE (DipLIS)

Duration: The duration for DipLIS is for two semesters with 2 months of supervised compulsory library attachment in between the semesters.

The DipLIS is structured in such a manner that those who possess a first degree in Library and Information Science (BLIS Hons.) with a GPA of 2.5 and below and those who possess a first degree

in other disciplines who wish to pursue a Postgraduate Diploma programme in Library and Information Science are eligible for admission into DipLIS programme.

COURSES OFFERED FOR THE PROGRAMME

The courses offered for this programme are in two categories; the core, (compulsory courses), and the Elective (Optional courses). The compulsory (core) are the courses a candidate must choose and pass, while the optional courses are at the discretion of the candidate. Any optional course chosen by the candidate must be passed.

COURSE OUTLINE	Units
1st Semester	
DIPLIS 721.1-Organisation of Knowledge	3
DIPLIS 722.1-Reference Services and Resources	3
DIPLIS 723.1-Research Methods in Library and Information Science	2
DIPLIS 724.1-History of Nigerian Librarianship	2
DIPLIS 725.1-Information User	2
Total	12
2nd Semester:	
DIP LIS 735.2- Book trade and Publishing	2
DIP LIS 736.2 Organization of Technical Services	2
DIPLIS 737.2 Information and Communication Technologies in Libraries	2
DIP LIS 738.2 Project	6
Total	12

COURSE DESCRIPTION

DipLIS 721.1- Organization of Knowledge – 3 units

This course aims at introducing students to various areas of catalogue outlines- second and third levels; rules for cataloguing and entry of catalogue headings; use of Dewey and Library of Congress Classification Schemes; Subject analysis; determination of Subject headings and Classification; Call numbers and Cutter numbers.

DipLIS 722.1 - Reference Services and Resources -3 units

This course covers the definition of Reference services and Reference resources; types of reference services and resources; levels of reference services; how to provide reference services to different types of user groups; functions of reference services, such as encyclopedia; dictionaries; directories; almanacs and yearbooks, etc.; the future of reference services and resources in a globalized information and communication technology environment.

DipLIS 723.1 - Research Methods in Library and Information Science -2 units

Areas concerned are meaning of research in library and information science, characteristic functions, research phases; research designs, sampling, and sampling methods; an instrument for data collection; validation of instrument; valuables; hypothesis; literature review and data analysis; presentation of findings and tools for data analysis.

DipLIS 724.1 - History of Nigerian Libraries- 2 units

History of libraries in Nigeria; Personalities that brought librarianship in Nigeria; beginning of library and information science schools in Nigeria; Library Education in Nigeria- their functions, roles/activities in the growth of librarianship in Nigeria; the future of Library professionals and librarianship in Nigeria.

DipLIS 725.1 - Information User- 2 units

This covers the meaning and characteristics of information users; Information needs- types, characteristics, and methods of provision; types of users; information user profile; information flow charts; information packaging and repackaging; information-seeking behavior- methods, factors that affect information seeking.

**SECOND SEMESTER
COURSE DESCRIPTION**

DipLIS 735.2 - Publishing and Book Trade- 2 units

This covers the meaning of publishing; characteristics of publishing; types of publishing; factors for publishing; resources required for publishing; challenges of publishing in Nigeria; the meaning of book trade; characteristics of book trade; socio-economic forces that affect book trade; book trade and publishing in a Nigerian economy.

DipLIS 736.2 - Organization of Technical Services- 2units

This course covers the meaning of technical services; features of technical services; functions of technical services; collection development-practices, rules, and methods; Ranganathan’s five laws of librarianship in collection development, cataloguing practices, classification, Departments in

technical services; Guidelines in technical services (Rules and Regulations).

DipLIS 737.2 - Information and Communication Technologies in Libraries- 2 units

This covers automation in the library; affiliation of computers and other ICT tools/resources in library operations, services delivery; outline services, etc.

DipLIS 738.2- Projects- 6 units

Each student should be able to select a topic for research. A supervisor will be assigned to each student immediately as the programme commences. Duration - DipLIS is for two semesters with 2 months (6 WEEKS) of supervised compulsory library attachment (I.T.) in between the semesters. Postgraduate Diploma in Library and Information Science (DipLIS)

Master of Library and Information Science (MLIS)

The Master’s degree in Library and Information Science (MLIS) programme is structured to strengthen grandaunts who already have the background of LIS discipline, thereby exposing them to broader areas of interest or specialization. This would help them discharge responsibility in terms of knowledge and skills required for meeting diverse users’ information needs considering the training and education had in the areas of their specialization.

Duration of the Programme: FULL TIME (3 semesters)

The course is expected to run for 18months as its Minimal time and 24 months as the maximal time. For

PART-TIME PROGRAMME: the duration is 24 months minimum and 36 months maximum. Students are assigned supervisors immediately after they are admitted.

ADMISSION REQUIREMENTS

Students for master’s degrees may have had a First degree in Library and Information Science (BLIS) to qualify for admission with a class grade of first to second class lower division of 2.5 and above. If a student has a degree in other disciplines such a student is to offer a diploma in LIS (Dip LIS) first before enrolling for a master’s programme.

COURSES TO OFFER

First Semester

Core (compulsory)	Course Title	Units
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courses) course code		
SGS 801.1	ICT and Research Methodology	2
.MLIS 821.1	Artificial Intelligence	2
MLIS 822.1	Knowledge Management in Libraries and Information Centres	2
MLIS 823.1	Advanced Studies of Cataloguing and classification	2
MLIS 824.1	Research Methodology	2
MLIS 825.1	Seminar in New Media in Libraries	2
Elective courses (one from the following)		
MLIS 826.1	Information Storage and Retrieval System	2
MLIS 827.1	Data Science	2
MLIS 828.1	Virtual Libraries and Human Library	2
Total		18

Second Semester

SGS 801.2	Management and Entrepreneurship	2
MLIS 830.2	Information Literacy	2
MLIS 831.2	Bibliometrics, Scientometrics, and Informetric	2
MLIS 832.2	Health Information Management	2
MLIS 833.2	Seminar on types of Libraries (National, Public, Academic, Special, and Schools' Libraries)	2
MLIS 834.2	Dissertation	6
Electives (one from the following)		
MLIS 835.2	Publishing Studies	2
MLIS 836.2	Records Management	2
MLIS 837.2	Entrepreneurship in Library and Information Science	2
Total		22

COURSE DESCRIPTION:

SGS: 801.1 ICT and Research Methodology (2 UNITS)

This course should cover essentials of spreadsheets, internet technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of hypothesis, formulation and testing, organization of research and report writing.

MLIS 821.1: Artificial Intelligence (2 UNITS)

This course will explore the meaning of Artificial Intelligence looking at its concepts, how it is used in the libraries, strategic plans for the use of AI, the primary goals of AI in the library. The course shall look at the relationship between AI and Maker space etc.

MLIS 822.1: Knowledge Management in Libraries (2 UNITS)

This course examines the organization of knowledge, the selection and use of suitable knowledge representation methods or tools, the access to stored knowledge through search and retrieval techniques. It further addresses contemporary issues in managing knowledge, intellectual capital, and other intangible assets. Beginning with a view that these intangibles are strategic assets, the course will introduce the fundamentals of managing knowledge and intellectual capital, understanding some of the measurement issues, processes, and cycles involved in their management. This course concludes with a review of specific applications to the public sector and current developments in the field.

MLIS 823.1: Advanced Study in Cataloguing and Classification - (2 UNITS)

This course combines the theory of knowledge and advanced studies in cataloguing and classification; and takes an exploratory, forward-thinking approach to cataloguing and classification systems in the libraries. Digging deep and deeper into access points to information resources in the 21st century; assess the cataloguing and classification skills of librarians (school, academic, public, special, corporate) generally in three broad areas, such as descriptive cataloguing, subject analysis, and classification as well as the elements of cataloguing of bibliographic description, subject analysis and classification. Students are expected to research into RDA, AACR, AACR2, AACR2R, card and XML and OPAC metadata, Genetic and Domain-specific metadata schema, metadata standards/schema-general purpose schema (e.g Dublin core, MODS); e-GMS; science schema- Darwin core, Ecological metadata language, NASA's standards; geospatial schema-federal geographic data commit (FGDC); social science community (OLAC) metadata; Humanities schema (VRA) core; and controlled vocabulary in a different discipline.

MLIS 824.1: Research Methodology - (2 UNITS)

The course aims at introducing the students to a wide range of techniques of investigation relevant to library and information science. As much as possible real examples from research utilizing the relevant techniques covered by the course are used to classify the exposition of theory and method.

MLIS: 825.1: Seminar in New Media in Libraries - (2 UNITS)

This course is aimed at examining the concept of multimedia, the rationale for using multimedia, competencies, and skills needed by multimedia librarians, types of multimedia systems, multimedia evaluation and challenges faced in multimedia applications, multimedia applications in information service delivery, multimedia presentation model, and designing of an effective multimedia presentation. It further aims at equipping students with knowledge and skills of multimedia that will enable them to know how to select suitable multimedia resources, software, and multimedia systems for the library.

This course will further explore the rapid progress and development of social media and its associated tools and how they are utilized towards making information accessible and equally make things easy for the users, library staff, and library professionals. The library professionals will get acquainted with social media and its related tools to apply in their respective libraries. The library and Information Science Students will be guided towards creating a virtual platform using social media platforms to interact with their users also explore how social media is helping to reach out to the targeted audiences and communities.

Involves the handling of television, video cassettes, films or filmstrips, computer tapes. Computer-based communication, which is competing with printed books. There is a need for librarians at the MLS level to learn the use of the new media and how to organize them in order that they can teach the user how to utilize them effectively. The new form of information packaging would create new artificial intelligence, robotics, the internet, web development in librarianship.

MLIS 826.1: Information Storage and Retrieval System - (2 UNITS)

The course will explore through lectures, seminars discussions, and practical sessions, the general theory of information retrieval systems, the techniques for the construction of index vocabulary for information retrieval system evaluation, and the development of new storage media and recording methods in this field.

MLIS 827.1- Data Science - (2 UNITS)

The amount of data today has grown tremendously from what it was years ago, which requires effective management for information professionals-librarians. The course, however, is designed for data librarians, data managers, data curators, and research data librarians. Data science for librarians uses statistical and programming methods to extract knowledge from a large amount of data; basically, to gain better insight into current trends as well as support effective decision-making. As an

interdisciplinary field, the course requires skills in subject-specific areas; such as system analysis, programming, statistics, etc. the skills-set places emphasis on big data analytics data/text mining, data visualization, machine learning, coding, and of course statistics.

This course takes into consideration the concept of research data management, ensuring the integrity of such data, usability, and searchability of students' projects years after graduation, encourages data sharing within and across discipline easy-peasy, including archiving and data preservation in both long and short term. Effectively managing research data can be quite challenging, knowing that it comes in different digital files format, e.g text numbers, videos, photographs, etc.

MLIS 828.1 - Virtual libraries and Human Library - (2 UNITS)

This course will expose students to the concept of virtual libraries. The students will explore how virtual libraries are indexed, developed, implemented, and used. In learning about Human Library, the concept, its purposes, uses, how it works, and Human Library questions are dissected.

SGS 801.2 Management and Entrepreneurship - (2UNITS)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MLIS 830.2.: Information Literacy - (2 UNITS)

This will discuss the concept and characteristics of information, information search strategy, sources of information, knowledge of critical thinking, evaluation of web-based online resources and cyber security ethics, ethical issues in using information, research process, information synthesis, and academic writing. Plagiarism and reference techniques, APA, Chicago style, etc.

This course will also explore the concept of information users, x-ray the types of information needs, information needs satisfaction, the user seeking behaviour, characteristics of users, and information environment will also be discussed. The course will also explore the theories of information utilization.

MLIS 831.2: Bibliometrics, Scientometrics, and Informetric - (2 UNITS)

This course will be taught in a combination of lectures, seminars, and tutorials. Detailed study of types, forms, and patterns of bibliometric studies will provide students with an in-depth knowledge of bibliometrics, citation analysis, and bibliometric visualization. The course will expose the students to the role of bibliometrics in research evaluation and

development. In scientometrics, the students will explore this field of study which concerns itself with measuring and analysing scholarly literature also in informetric.

MLIS 832.2: Health Information Management - (2 UNITS)

This course will take the students through an overview of what the concept is all about. The four basic stages of health information management, its importance to information professionals and health care give, the skills health information management uses, and health care administration will be tutored.

MLIS 833.2: Seminar on Types of Libraries (National, Public, Academic, Special and Schools Libraries) - (2 UNITS)

This course will take the students through the types, functions, administration/establishment of the various libraries, and seminars on these libraries. Law librarianship and Medical librarianship as special kind of libraries will be explored under Special Libraries.

MLIS 834.2: Dissertation - (6 UNITS)

On assignment of an internal supervisor, every student will be expected to carry out research work on an approved topic under the supervision of academic staff of the department. The topic to be studied may be chosen from any of the following areas: Library/Information science, computer applications publishing, automation, archives, and other related areas.

ELECTIVE COURSES

MLIS 835.2: Publishing Studies - (2 UNITS)

Aims at developing Nigeria's publishing industry more fully to meet the demand of the UBE scheme and the needs of the various adult literacy classes. The course will include the History of publishing in

Nigeria; nature of publishing; books arts and book production; relationships between the publisher and the author; publisher and printer; publisher and the bookseller; manuscript collection and the role of the editor, royalty payments; contracts and agreements copyright and piracy; indigenous publishing; kinds of publications. It covers the history of printing and the book arts, illustration and designing of books; paper, and printing material. Stages of book production; machines and equipment used for printing. All activities which transfer ownership of the completed book from the publisher to the consumer; book distribution through bookshops and bookstalls; book promotion and advertising of materials. Displays and exhibitions, stocking the bookshops' bibliographical tools including publishers' catalogues, booklist. Development of a marketing technique. Librarians who are well educated in the art of bookselling may build up very successful bookshops which would create the impulse that brings people in the bookshop.

MLIS 836.2: Record Management - (2 UNITS)

This course also known as information management will take the students through the management of information in the library or in libraries from the time of creation or received to its eventual disposition. The functions, purposes, and types of record management will be explored. The general concept will be reviewed with a seminar presentation.

MLIS 837.2: Entrepreneurship in Library and Information Science - (2 UNITS)

The entrepreneurship course is aimed at teaching students how to think and act entrepreneurially in an information-based economy. Students learn how to start up and operate it will also take the students through inforpreneurial skills.

ACADEMIC STAFF LIST

S/N	NAME	QUALIFICATIONS	RANK
1	Prof Felicia U . Etim	B.Sc Biochemistry(UI), MLS, (UI) Ph.D (UI) Information literacy, Information Management.	Professor
2	Prof Helen U. Emasealu	B.A. (Russian Language), MLS, Ph.D. (LIS),	Professor
3	Prof. Uche, Chineze M.	B.Ed., MLS, M.Ed., Ph.D. Administration of Higher Education	Professor
4	Prof. Lois N. Abraham	B.A.Ed (English), M.Ed., Ph.D. (Curriculum and Educational Technology) (UPH)	Professor
8	Dr. Susan N. Umeozor	B.A. (Psychology), MLS, Ph.D. (LIS) UniUyo, Uyo	Reader
10	Dr. Juliet C. Alex-Nmecha	N.C.E. (Social Studies/Economics), B.Ed. Economics, MLS, (IMSU), M.Ed. (UPH), Ph.D. IMSU, Owerri	Senior Lecturer
11	Dr.Boma Torukwein David-West	B.A. (English), MLS (UNIUYO), Ph.D. LIS. (UNICAL), Calabar	Senior Lecturer
12	Dr. Emmanuel N.Owushi	BLS (ABU) ,LLB ,MPA , LLM (UNIBEN) BL, (Abuja), MLIS(UNN), Ph.D (UMUDIKE)	Reader
13	Dr. Comfort N. Owate	B.Sc Public Administration MLS, Ph.D. (LIS) IMSU, Owerri	Senior Lecturer
14	Dr. Hilda Eno Obi	B.Sc. (Banking and Finance), MLS, Ph.D. (LIS) UniUyo, Uyo	Senior Lecturer
15	Dr. Glory T. Edet	B.Sc. (Lib. Sci./Biology), MLS, Ph.D (LIS) UniUyo, Uyo	Senior Lecturer
16	Dr. Millie N. Horsfall	B.Sc. Pure & Industrial Chem. MLS, Ph.D. (LIS) Nsukka	Senior Lecturer

INSTITUTE OF EDUCATION CENTRE FOR HIGHER EDUCATION STUDIES (CHES)

UPDATED ACADEMIC PROGRAMME OF POSTGRADUATE DIPLOMA IN EDUCATION (PGDE)

INTRODUCTION

The academic programme leading to the award of Post-Graduate Diploma in Education (PGDE) of the Centre for Higher Education Studies (CHES) of the Institute of Education, Faculty of Education, University of Port Harcourt, is designed for education and non-education graduates who wish to professionalize in the field of education. The mode of study is full-time and part-time.

DURATION

The course work lasts for one academic year of two semesters for full-time students or two long vacations for eight weeks each (Sandwich

Programme) for part-time students. There is in addition, a six-week period of internship during which students will undertake supervised teaching practice. The period of internship for full time students is between March and April while internship for part-time students is between September and October of the first long vacation.

OBJECTIVES OF THE PROGRAMME

1. To provide the students with professional grounding in the theory and practice of education.
2. To enable students acquire the relevant methods and techniques in teaching of their special subjects.
3. To acquaint students with procedures and methods of research in the field of education.

- | | | |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------|
| 4. To provide a training for the professional growth and personal improvement of serving teachers. | (3) 2.40 – 3.49 – Merit
(4) 1.50 – 2.39 – Pass
(5) 1.00 – 1.49 – Pass
(6) Below 1.00 – Fail | (C)
(D)
(E)
(F) |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------|

ENTRY QUALIFICATIONS

- a) Candidates who graduated from Faculty of Education and other disciplines with at least a third class Degree and a minimum CGPA of 1.50 are eligible to apply.
- b) Higher National Diploma (HND) – Upper Credit.

STRUCTURE OF THE DIPLOMA PROGRAMME

To be eligible for the award of the post Graduate Diploma in Education (PGDE), the candidates must successfully complete all the prescribed courses in Education. The course (Programme) consists of four main area namely:

- (a) Studies in the theory and practice of Education
- (b) Specialized procedure in the teaching of a subject
- (c) Supervised practice in teaching
- (d) Supervised project

REGULATIONS

1. Each student is required to register for all proscribed courses in each semester or long vacation.
2. A student who fails to successfully complete a minimum of 21 units of course work at the end of the normal period of his programme shall be required to withdraw.
3. To qualify for the award of the Diploma, a student must have successfully completed all the prescribed courses including the teaching practice and must have scored at least a grade of “C” (50%) in each of the courses.
4. The University regulations in respect of the conduct of postgraduate examinations shall apply to the programme.
5. Evaluation of student performance shall be based on:
 - (a) Continuous assessment and final examination – in the taught courses.
 - (b) Assessment of supervised teaching practice.
 - (c) Assessment of supervised project.
6. Continuous assessment shall account for 40% of a student’s grade for each taught course.
7. The Diploma shall be awarded with a distinction, credit, merit or pass grade based on a candidate’s grade point average as follows:

(1) 4.50 – 5.00 – Distinction	(A)
(2) 3.50 – 4.49 – Credit	(B)

COURSE OUTLINE

FIRST SEMESTER

IED 701.1	History of Education	3 credits
IED 702.1	Curriculum Development and Evaluation	3 credits
IED 703.1	Sociology of Education	3 credits
IED 704.1	Educational Research Methods	3 credits
IED 705.1	Philosophy of Education	3 credits
IED 706.1	Test and Measurement	3 credits
IED 707.1	Educational Psychology	3 credits
IED 712.1	Library Studies	3 credits

SECOND SEMESTER

FIRST SEMESTER

IED 708.2	Guidance and Counseling	3 credits
IED 709.2	Education and Information Technology	3 credits
IED 710.2	Educational Administration	3 credits
IED 711.2	Method Course	3 credits
IED 713.2	Comparative Education	3 credits
IED 714.2	Introduction to Adult and Non-formal Education	3 credits
IED 717.2	Physical Education and Sport	3 credits
IED 700.2	Teaching Practice	3 credits
IED 799.2	Supervised Project	3 credits

COURSE DESCRIPTION

IED 701.1 History of Education 3 credits

This course will focus on salient historical factors in the development of Western Education in general and the Nigerian formal educational system in particular. The various periods in the history of education will be highlighted.

IED 705.1 Philosophy of Education 3 credits

The course will expose the students to the general philosophy as well as the schools of thought of philosophy and their application to educational sector. General philosophical concepts and values

which determine educational aims, policies and practice will also be examined.

IED 707.1 Educational Psychology 3 credits

The course will include a study of the process and patterns of intellectual, emotional, social, moral and personality development of children and in particular the Nigerian child, from conception through adolescence, as well as sources of individual differences in development. It shall also examine different theories of learning and their implications; reward and punishment as incentives, emotions and learning.

IED 709.2 Education and Information Technology 3 credits

The course will emphasize the relevance of Information and Communication Technology (ICT) in the educational system. The various ways ICT can be used to facilitate teaching and learning will be emphasized. The various ICT tools for education will be covered.

IED 711.2 Method Course 3 credits

The course focuses on different methods and techniques of presenting learning experiences and criteria for selecting them. The importance of and conditions for effective classroom communication will be discussed. Students will be exposed to the methods of selecting and improvising instructional materials/aids. The course will equally provide opportunities for experience in the micro-teaching and instructional planning (including the planning of instructional units and teaching notes). Special methods of teaching different school subjects at the secondary school level shall be explored. Students will be grouped into classes according to their major teaching subjects. The nature, scope and content of each subject will be discussed together with the analysis of reasons for teaching/studying the subjects.

IED 703.1 Sociology of Education 3 credits

The main focus of this course will be on the need for and importance of maintaining cordial relationship between school and society and partners in the educational enterprises. The course will also provide a comparative analysis of the general social, political and economic factors and institutions that influence the form, content, acquisition and development of education in different countries. In all, students will be exposed to the basic theoretical concepts of the discipline and their application to the study of education system and environment.

IED 710.2 Educational Administration

3 credits

An analysis of the nature and scope of school and educational administration. Emphasis will be placed on elements of administrative behaviour, decision-making, planning, organizing, assembling of resources, supervising, controlling, evaluation etc. Approaches to educational planning, manpower, social demands, rate of return and the relationship between educational planning and economic planning will also be examined. Special attention will be paid to problems and issues in the management and planning of Nigerian education with particular attention to supervision of instruction, staff and students, personnel administration and budgeting.

IED 702.1 Curriculum Development and Evaluation 3 credits

An examination of the factors that determine the curriculum content of an educational system, determination of objectives; selection and organization; learning experiences; problems of curriculum planning; and principle and methods of curriculum evaluation. Students will be guided to attempt a social diagnosis of the Nigerian society and to examine the implications of any diagnosed attributes of the society for curriculum planning.

IED 704.1 Educational Research Methods

3 credits

Participants in this course will be exposed to the nature, designs, techniques and procedures of educational research. The course will equally highlight some of the statistical tools for educational research.

IED 706.1 Test and Measurement 3 credits

The fundamental principles and objectives of test, and other assessment procedures in relation to education will be examined. Basic statistical and psychometric test and measurement in education will be covered.

IED 700.2 Teaching Practice 3 credits

There is a supervised practical experience in teaching and classroom management in the candidate's special teaching subject. A student will be supervised by a lecturer during the period of practice that will last for a period of at least six weeks. Students who are not in-service training may be posted to schools around the University while those who are already on the job may be supervised in their places of work.

IED 799.2 Supervised Project 3 credits

A student shall be assigned to a lecturer as his or her supervisor on any contemporary topic that is of interest to the student. The supervised project shall be graded.

**IED 717.2 Physical Education and Sport
3 credits**

The course will expose the students to the historical development, nature of physical education and different sporting activities. The phases of physical education, concepts, terminologies and areas of specialization in physical education shall be discussed. The contribution of physical education to the general education of a child shall be discussed.

IED 714.2 Introduction to Adult and Non-formal Education 3 credits

The course will expose the students to the special field and andragogy of adult education. The characteristics of adult learners as well as lifelong education will be highlighted. Adult education

programmes and agencies/organizations for community development will be examined.

IED 708.2 Guidance and Counseling 3 credits

The course will expose the students to the principles and practice of guidance and counseling. The course will emphasize the processes and rules of counseling especially in educational system.

IED 712.1 Library Studies 3 credits

The course will expose the students to the various sections and services of the library. Library personnel, techniques and practices will be examined. Problems facing library operations will be examined.

IED 713.2 Comparative Education 3 credits

The course will expose the students to a comparative analysis of education across different periods, times, countries, regions and locations. The strengths and weakness of the education systems of countries will be highlighted.

STAFF LIST

S/no	Names	Qualification	Rank	Area of specialization
1.	Prof. T. T. Orunaboka	BSc. Ed., MSc Ed., Ph.D	Professor	Sport Management and Marketing
2	Prof. B. N. Iruloh	BEd., MEd., Ph.D	Professor	Guidance and Counseling
3	Prof. M. A. Oyebamiji	BEd., MEd., Ph.D	Professor	Adult and Non-formal Education
4	Prof. N. M. Abraham	BEd., MEd., Ph.D	Professor	Educational Administration
5	Prof. C. N. Olele	BEd, MEd., Ph.D	Professor	Educational Technology
6	Prof. V. U. Dienye	BEd, MEd., Ph.D	Professor	Sociology of Education
7	Prof. L. N. Abraham	BEd, MEd., Ph.D	Professor	Educational Technology
8	Prof. A. U. Nwanekezi	BEd, MEd., Ph.D	Professor	Science Education
9	Prof. C. O. Okoro	BEd., M Ed., Ph.D	Professor	Curriculum Development
10	Prof. G. W. Orluwene	BEd., M Ed., Ph.D	Professor	Measurement and Evaluation
11	Prof. G. N. Amadi	BEd., M Ed., Ph.D	Professor	Educational Psychology
12	Prof. G. Adekola	BEd., MEd., Ph.D	Professor	Adult and Non-formal Education
13	Prof. J. U. Anekwe	BEd., MEd., Ph.D	Professor	Educational Technology
14	Prof. G. O. Ekenedo	BEd., MEd., Ph.D	Professor	Health Education
15	Prof. O. G. Kemjika	BEd., MEd., Ph.D	Professor	Guidance and Counseling
16	Dr. I. C. Elendu	BSc. Ed., MSc Ed., Ph.D, Ph.D	Reader	Sport Management and Sport Sociology
17	Dr. I. R. Ernest-Ehibudu	BSc. Ed., MSc Ed., Ph.D	Reader	Guidance and Counseling
18	Dr. Y. M. Abdulrahaman	BSc. Ed., MEd., Ph.D	Reader	History and Comparative Education
19	Dr. D. O. Nwaokugha	BEd., MEd., Ph.D	Reader	Philosophy of Education
20	Dr. H. Emasealu	BSc. Ed., MEd., Ph.D	Reader	Library and Information Science
21	Dr. J. A. Onyido	BEd., MEd., Ph.D	Reader	Sociology of Education
22	Dr. T. S. Birabil	BEd., MEd., Ph.D	Reader	Social Science Education
23	Dr. M. E. Hanachor	BEd., MEd., Ph.D	Reader	Adult and Non-formal Education
24	Dr. L. E. S. Kaegon	BEd., MEd., Ph.D	Reader	Educational Administration
25	Dr. E. C. Onyenemezu	BEd., MEd., Ph.D	Reader	Adult and Non-formal Education
26	Dr. I. R. Opara	BEd., MEd., Ph.D	Reader	Measurement and Evaluation
27	Dr. M. Izuchi	BEd., MEd., Ph.D	Reader	Educational Psychology
28	Dr. A. A. Arokoyu	BEd., MEd., Ph.D	Reader	Science Education
29	Dr. C. U. Okorie	BEd., MEd., Ph.D	Senior Lecturer	Adult and Non-formal Education
30	Dr. G. O. Obiechina	BEd., MEd., Ph.D	Senior Lecturer	Health Education
31	Dr. I. Uzoagu	BEd., MEd., Ph.D	Senior Lecturer	Adult and Non-formal Education
32	Dr. F. O. Mbalisi	BEd., MEd., Ph.D	Reader	Adult and Non-formal Education
33	Dr. C. Chujor	BEd., MEd., Ph.D	Senior Lecturer	Guidance and Counseling

34	Dr. J. Alex-Nmecha	BEd., MEd., Ph.D	Senior Lecturer	Library and Information Science
35	Dr. J. O. Onyezere	BEd., MEd., Ph.D	Senior Lecturer	Health Education
36	Dr. A. N. Ugwu	BEd., MEd., Ph.D	Senior Lecturer	Adult and Non-formal Education
37	Dr. E. Abbey	BEd., MEd., Ph.D	Senior lecturer	Science Education
38	Dr. B. N. Nyewusira	BEd., MEd., Ph.D	Senior Lecturer	History and comparative Education
39	Dr. M. Horsfall	BEd., MEd., Ph.D	Senior lecturer	Library and Information Science
40	Dr. L. Nziadam	BEd., MEd., Ph.D	Senior lecturer	Philosophy of Education
41	Dr. O. O. Ochuba	BEd., MEd., Ph.D	Senior Lecturer	Language Education
42	Dr. C. Njoku	BSc. Ed.,MEd., Ph.D	Senior Lecturer	Social Science Education
43	Dr. W. M. Ogeh Obitor	BEd., MEd., Ph.D	Senior Lecturer	Comparative Education

POST-GRADUATE DIPLOMA (PGD) IN GENDER STUDIES AND WOMEN DEVELOPMENT

(i) Qualification for Admission

To qualify for admission into the Post-Graduate Diploma programme, a candidate must possess a third class (3rd) degree or equivalent level with a CGPA of 1.5 points on 5-point scale of the University of Port Harcourt in any field. For HND background, lower credit pass shall be considered.

(ii) Duration

The Post-Graduate Diploma programme in Gender and Women Development Studies runs full time for twelve (12) calendar months minimum duration and 24 months maximum duration.

(iii) Requirements

A candidate is required to offer nine (9) taught courses which shall lay emphasis on gender and women development issues. In addition, one seminar paper is to be presented by every candidate before graduation. On successful completion of the programme, each candidate is awarded a PGD Certificate in Gender and Women Development Studies.

Course Code and Title

First Semester

Course Code	Course Title	Unit
GWDS 701.1	Introduction to Gender and Development Studies	3
GWDS 702.1	Gender, Culture and Society	3
GWDS 703.1	Man and Masculinity versus Female and Femininity	3
GWDS 704.1	Gender, Arts and Science	3
GWDS 705.1	Gender and Religion	3
	Total	15

Second Semester

Course Code	Course Title	Unit
GWDS 706.2	Gender, Education and Politics	3
GWDS 707.2	Gender Relations in Selected Organisations	3
GWDS 708.2	Women in Development	3
GWDS 709.2	Introduction to Research Methods	3
GWDS 710.2	Research Seminar	3
	Total	15

COURSE DESCRIPTIONS

GWDS 701.1: Introduction to Gender and Women Development Studies

The course introduces Gender and Women Development Studies as a multidisciplinary and multicultural programme. It focuses on reviewing concepts and theories in the social sciences, Humanities, Natural and Behavioural Sciences that are related to inequalities between male and female population in different societies.

GWDS 702.1: Gender, Culture and Society

Gender as a socio-cultural construct is examined. It adopts an interdisciplinary approach to examine different societal cultures over time. Particularly, attention is given to norms, values, beliefs and customs as they provide a guide towards societal issues such as violence, punishment, role differentiation, sexualit3ç inequality, etc.

GWDS 703.1: Man and Masculinity versus Female and Femininity

With particular reference to Africa, the concepts of man/masculinity and female/femininity that brought about unequal conditions are explored. The role of sociocultural factors overtime and across different cultures is examined.

GWDS 704.1: Gender, Arts and Science

The course adopts a historical approach to explore the involvement of male and female in the arts and science. Different religious tenets on gender and development issues will be introduced as well as their relationship with the choice of career. Biological theories of gender will be compared with the religious tenets. On the other hand, gender and development issues in this era of science and technology are considered. The sociocultural influence on the choice of career for both male and female in these areas are equally examined.

GWDS 705.1: Gender and Religion

Different religious tenets on gender and development issues will be introduced as well as their relationships with the choice of career. Biological theories of gender will be compared with religious tenets.

GWDS 706.2: Gender, Education and Politics

The course examines feminist theories in relation to male and female participation in education and

politics. Critical analysis of both legal and legislative demands of women in both developed and developing countries will be considered.

GWDS 707.2: Gender Relations in Selected Organizations

This course focuses on a study of different social relationships among and between males and females in different organizations. Such areas include job position/responsibility, promotions, violence and the like. This provides an opportunity to observe and reflect on the already acquired knowledge.

GWDS 708.2: Women in Development

Women’s role expectations in traditional and modern periods are compared. Particularly, attention is given to role expectations of women in the globalizing world. Discussions include recent policies that focus on women development in the New Millennium. Responses from different developing countries, especially in Africa, are compared in order to identify possible obstacles and propose the way forward.

GWDS 709.2: Introduction to Research Methods

Areas to be covered include an introduction to the principles of research in gender and women development studies, bearing in mind the multidisciplinary nature; design of research instrument; empirical studies design as well as the qualitative and quantitative methods of analysis, bearing in mind the different approaches for project writing.

GWDS 710.2: Research Seminar

Independent topics in different areas of interest are to be researched and presented as seminar series. However, chosen topics shall be supervised to be in line with the area of specialization of each candidate.

MASTER OF ARTS (M.A) IN GENDER AND WOMEN DEVELOPMENT STUDIES

(1) Qualification for Admission

The qualification for admission into the Master of Arts programme will be considered as follows:

- a candidate must possess at least a Second Class Lower Division (2²), in Gender and Women Development Studies or a degree in social sciences/Humanities/Education from any recognized Tertiary Institution, with a

CGPA of 3.00 on 5-point scale of the University of Port Harcourt.

- a candidate must possess the University of Port Harcourt Post-Graduate Diploma in Gender and Women Development Studies, with a minimum grade of Merit.

(ii) Duration

The Master’s Degree Programme in Gender and Women Development Studies shall run full time for one year minimum duration and two years maximum. On the other hand, the Part-time will run for two years minimum duration and four years maximum duration.

(iii) Requirements

For the Masters Degree programme, a candidate is required to offer a minimum of ten (10) taught courses, including Seminar and Thesis, all of which shall focus on gender and women development issues. On successful completion, each candidate is awarded a Master of Arts Degree in Gender & Women Development Studies.

Course Code and Title

First Semester

Course Code	Course Title	Unit
SGS 801.1	ICT and Research Methodology	2
GWDS 801.1	Feminist Theories	3
GWDS 802.1	Gender and Theories of Development	3
GWDS 803.1	Race and Culture in Africa	3
GWDS 804.1	Gender and Globalization	3
GWDS 805.1	The Role of NGOs and International Organizations in Gender and Development	3
GWDS 812.2	Research Methods	3
	Total	20

Second Semester

Electives (any two courses): 6

Course Code	Course Title	Unit
GWDS 806.2	Gender Issues in Literature	3
GWDS 807.2	Gender Issues in Music and Dance	3
GWDS 808.2	Gender Issues in Films and Media	3
GWDS 809.2	Gender Issues in Education	3
GWDS 810.2	Gender and Health Issues	3
GWDS 811.2	Gender Issues in Management	3
SGS 802.2	Management and Entrepreneurship	2
GWDS 815.2	Statistical Methods in Gender and Women Studies	3
GWDS 813.2	Research Seminar	3
GWDS 814.2	Supervised Thesis	6

Total 20

COURSE DESCRIPTIONS

SGS 802.1: ICT and Research Methodology (2 Credit Units)

This course should cover Essentials of Spreadsheets, Internet Technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing, Organization of Research and Report writing.

GWDS 801.1: Feminist Theories (3 Credit Units)

The course explores information on contemporary feminist debate as presented in Structuralism, Marxism and Socio.cultural studies, to mention a few. The main objective is to analyze unequal conditions of male and female population in society. It provides an opportunity to critical issues such as sexuality, values and identity. The Nigerian context of feminist theory is equally discussed.

SGS 801.2: Management and Entrepreneurship (2 Credit Units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

GWDS 802.1: Gender and Theories of Development

Different perspectives of gender as an interdisciplinary concept and their applications in different fields are examined. Equally, the course examines critically both classical and contemporary theories of development in relation to gender in order to identify and discuss their implications for effective policy planning and implementation for achieving development in Nigeria.

GWDS 803.1: Race and Culture in Africa

Topics should concentrate on contemporary issues in different parts of Africa to be able to compare and contrast different experiences of gender and development issues with local experiences such as autonomy and control, equality of educational opportunity, stratification and employment opportunity, gender and occupational choice, etc.

GWDS 804.1: Gender and Globalization

The concept of globalization is examined. The course introduces gender issues in development,

particularly with reference to developing areas where poverty, high illiteracy rate, unemployment, underemployment and early retirement appear to be common, yet the effort is to achieve partnership between and among nations. In addition, both feminist and queer theories are considered as issues of nationality, ethnicity, race and sexuality are discussed in the effort to identify a universal ground to effectively accommodate male and female population in the globalized world.

GWDS 805.1: The Role of NGOs and International Organizations in Gender and Development Issues

The course examines the contributions of International organizations such as UNDP, World Bank, UNESCO, UNICEF as well as NGOs in different parts of Africa and Nigeria in particular. Local examples include the Association of Female Lawyers, National Council for Women Society, Men's Christian Association, Women in Nigeria, etc.

GWDS 812.1: Research Methods

Areas to be covered include principles of research with particular reference to gender and women development studies, bearing in mind the multidisciplinary nature of the programme; design of research instrument; empirical studies design; qualitative and quantitative methods of analysis and different approaches for project writing.

Electives (Any Two)

GWDS 806.2: Gender Issues in Literature

GWDS 807.2: Gender Issues in Music and Dance

GWDS 808.2: Gender Issues in Films and Media

GWDS 809.2: Gender Issues in Education

GWDS 810.2: Gender and Health Issues

GWDS 811.2: Gender and Management

In each of the selected areas, different presentations of masculinity and femininity, with regard to mainstreaming, role expectations, expected code of conduct, language, dressing and sexuality in a changing socio-economic condition. Different avenues through which social change could be achieved in each area are equally examined.

GWDS 806.2: Gender Issues in Literature

Attempt will be made to explore the relationship between gender and literature, particularly with regard to historical and theoretical issues. Different image representations related to social, economic, cultural and political issues will be

explored in relation to male and female gender roles.

GWDS 807.2: Gender Issues in Music and Dance

Attempt is made to explore the ideological representations of male and female gender in music and dance, with regard to the creation/composition (including sound and tunes) and performance/movement of varieties of music and dance.

GWDS 808.2: Gender Issues in Films and Media

Attempt will be made to examine the social, cultural, economic and political contexts of gender representations in film and media writings and reproductions. Focus will be on Nigeria, with emphasis on the post-colonial period in relation to male and female film and media representations. Generally, texts and materials will be critically analyzed with specific examples.

GWDS 809.2: Gender Issues in Education

The focus is on critical examination of education theory and exploration of the relationship between gender and education, with regard to gender role and access to education, job placement/opportunity, gender and educational challenges. Strategies for achieving gender equality in education, including teaching methods and materials will equally be examined.

GWDS 810.2: Gender and Health Issues

This course will introduce students to gender as a theoretical concept and the way gender has contributed to differential structuring of women and men's experiences of health. The course aims to provide information on the influence of gender in construction of health behaviour in diverse societies, particularly Nigeria; how social frameworks and structures, such as gender, affect people's experiences and expectations of health. Equally, the course will cover a broad range of health issues for which gender has been of special importance. Topics to be covered include: reproductive health, violence; mental health, female genital mutilation, gender disparity in health. Issues relating to public health experiences and expectations, including health and gender policies will be addressed across sessions. Mode of delivery (teaching method) will include lecture method, class discussion and students' presentations.

GWDS 811.2: Gender and Management

There is the recognition of continued male dominance to explore gender roles in management and the extent of gender discrimination in different jobs and professions and their consequent power differences in favour of the males. Development challenges will be explored in different situations, along with the critical examination of adopting feminism as a way forward.

GWDS 815.2: Statistical Methods in Gender and Women Studies (3 Credit Units)

Review of basic statistical concepts; descriptive, parametric, inferential and non-parametric statistics; t-statistic, ANOVA, ANCOVA, Regression Analysis, Chi-Square and Statistical techniques for post-hoc analysis; application of computer in statistical analysis; meaning and results in statistical analysis.

GWDS 813.2: Research Seminar

Independent topics in different areas of interest are to be researched and presented as seminar series. However, chosen topics shall be supervised to be in line with the area of specialization of each candidate.

GWDS 814.2: Supervised Thesis

A candidate's choice of topic must be related to his area of specialization.

Expected Outcome

Certificates and Diplomas will be awarded to participants, on successful completion of the programme. Through the interdisciplinary approach, the academic programme is expected to contribute towards organized quality teaching as well as training for the knowledge spread in the study of gender and women development. Consequently, the graduates shall be growth points for the spread of knowledge and skills acquired.

PLANNING, RESEARCH AND STATISTICS UNIT

This unit sets out objectives on knowledge spread and researches aimed at promoting gender and women development studies. These objectives should be followed by identifying strategies on how to achieve the set goals of which implementation should embrace possible deployment of lectures, seminars, workshops, training and empowerment. In doing so, the right skills in form of consultancy, partnership, specialists and knowledgeable groups could be engaged to make contributions. Performance could be measured, based on pre-determined success factors and performance indicators. A review will

be carried out at the end of key activities, using, where applicable, statistical methods to measure performance. Results against intended performance are fed back into the system for corrective measures and improvements. In all, it is expected that this unit shall contribute towards providing a strong knowledge-base in gender, women development and related issues.

INFORMATION/OUTREACH UNIT

This unit liaises with relevant agencies such as governments at the Federal, State, and Local levels, Non-Governmental Organizations, nationally and internationally, as well as gender and women development establishments at all levels for partnership and sponsorship on gender and women-related projects and issues. Through available expertise co-operation of these affiliates and facilities, some approaches to be adopted include public lectures, seminars and focus group

discussions. The centre shall organize non-formal education as an outreach programme regularly to solve myriads of gender-related problems within the environment for improved development.

WOMEN'S HEALTH, EMPOWERMENT AND SJULLACQUISJTJON UNIT

All efforts in this unit are focused on identifying and developing women's health and potentials in all areas for them to become self-reliant at the end of their exposure and training. The programmes are mainly in non-formal style in which services should be extended to their localities. In some cases, their subsistence engagements are used for the take-off, for the women themselves to witness achieved improvement through the expert application of the knowledge achieved. The female recipients should equally participate in collaborative exercises.

FACULTY OF SCIENCE

DEPARTMENT OF ANIMAL AND ENVIRONMENTAL BIOLOGY

1.0 Approved programmes

Postgraduate programmes are approved at the postgraduate diploma (PGD), Master's (M.Sc), and Doctoral Degree levels (Ph.D) in the following fields;

- Animal Health and Physiology
- Entomology and Pest Management
- Environmental Parasitology
- Fisheries Biology and Hydrobiology

These programmes could be obtained presently in the following research areas;

1.1 PGD IN: Animal and Environmental Biology

1.2 M.Sc. and Ph.D. in:

- (a) Entomology and Pest management with options
 - i. Environmental Entomology and Pest Management
 - ii. Medical Entomology and Pest Management
- (b) Hydrobiology and Fisheries Biology
- (c) Environmental Parasitology
- (d) Animal Health and Physiology
- (e) Environmental and Conservation Biology

Admission into postgraduate programmes of the Department can be completed on Full-time or Part-time basis. Admission into the Master's Degree programmes requires at least a Second Class Honours Degree Lower Division of the University of Port Harcourt or any other recognized University in relevant subjects. Candidates for the Ph.D Programmes must have a Master's Degree and should normally have had an average of at least 60% or its equivalent grade in the relevant disciplines at the Master's level. For candidates who obtained their Master's exclusively by research assessment, admission will be based on the quality of their dissertation.

Candidates may be required to attend a pre-admission interview session. Final selection of a candidate is based on his/her interview performance. Candidates for the Part-time Postgraduate Degree programmes must in addition to the normal admission requirements;

- (a) Be engaged in approved employment
- (b) Submit evidence that they can devote a good proportion of their normal working hour to their studies,
- (c) Satisfy the Department that they will be available for attendance at courses and for regular consultation with their supervisors.

2.0 Admission Requirements

2.1 PGD

Applicants must have five credits which must include English, Mathematics and two other relevant science subjects at 'O' level; plus

Either, A degree from a recognized academic institution with a minimum of pass degree in relevant science discipline (such as Animal science, Microbiology, Plant science and Biotechnology, Physiology, Anatomy, Education Biology, etc.)

Or,

A Higher National Diploma (H.N.D) with a minimum of upper credit (in disciplines such as Public Health Technology, Laboratory science, Aquaculture, Fisheries Management, Environmental Conservation and Management etc.)

2.2 M.Sc Programmes:

Admission into Master's Degree programmes requires at least a second class Honour's degree of the university of Port Harcourt or any other recognized University, in relevant subjects (e.g. Zoology, Biology, Crop science, Environmental science, Biology Education, etc.)

2.3 Ph.D Programmes:

Candidates for the Ph.D programmes must have a Master's Degree and should normally have an average of at least 60% or its equivalent grade in the relevant discipline at the Master's level.

For candidates who obtained their master's exclusively by research assessment, admission will be based on the quality of their dissertation. Candidates may be required to attend a pre-admission interview session. Final selection of a candidate is based on his/her interview performance.

Candidates for the Part-Time Postgraduate degree programmes must in addition to the

normal admission requirements;

- a) Be engaged in approved employment.
- b) Submit evidence that they can devote a good proportion of their normal working hour to their studies.
- c) Satisfy the department that they will be available for attendance at courses and for regular consultation with their supervisors.

3.0 Programme Structure and Duration of Residential Requirements of Postgraduate Students

3.1 PGD

This is structured as a two-semester programme composed of taught courses, seminars and a short research project. After the taught courses students are expected to go on to complete a short research project equivalent to an 8-week investigative research on any aspect of Animal and Environmental Biology.

3.2 M.Sc

The programme scheme involves taught courses, seminars and preparation of a research dissertation. Students admitted in the programme do register for alt courses to be taken once every session, at the beginning of each academic year.

Part-time students register for a maximum of four (4) taught courses in the first year of the programme, i.e. two (2) per semester and are required to spend a minimum of 24 calendar months and a maximum of 48 calendar months. Full-time students register for a maximum of four (4) coinses per semester. They are required to spend a minimum of 12 calendar months and a maximum of 24 calendar months.

3.3 Ph.D Programme:

The Doctor of Philosophy programme includes taught courses and research. The product of the research is expected to be original and independent with major contribution to knowledge and presented as a thesis. There is provision for both Part-time and Full-time registration.

Full-time Ph.D. candidates are required to spend a minimum of 24 calendar months and a maximum of 60 calendar months. Part-time Ph.D. candidates on the other hand, are required

to spend a minimum of 36 calendar months and a maximum of 84 calendar months. Graduate students are required to undergo registration procedure at beginning of each academic year during the course of their programme. This is done within the first week of resumption except otherwise stated.

3.4 Application Forms and Registration:

Application forms for all postgraduate programmes are obtained, completed and deposited at the School of Graduate Studies of the University of Port Harcourt. Admitted graduate student is expected to collect registration forms from the School of Graduate Studies, complete and return same after discussion with the Supervisor and the Head of Department. Every student is expected at first registration to sign the University Register of Graduate Students at the School of Graduate Studies.

The details of requirements for the graduate registration are given in the Handbook General Regulations for Graduate Programmes issued by the University's School of Graduate Studies.

4.0 Curricula and Course Description of Postgraduate Programmes.

4.1 PGD Animal Biology and Environmental

FIRST SEMESTER COURSE CONTENTS

Course No.	Course Title	Units
AEB 701.1	Environmental Animal Physiology	3
AEB 702.1	Fish Biology	3
AEB 703.1	Environmental Entomology	3
AEB 704.1	General Parasitology	3
Total Units		14

SECOND SEMESTER

Course No.	Course Title	Units
AEB 705.2	Animal Nutrition	3
AEB 706.2	Hydrobiology	3
AEB 707.2	Arthropods of Field Crops	3
AEB 708.2	Applied Parasitology	3
AEB 709.2	Seminar	2
AEB 710.2	Research Project	6
Total Units		20

Grand Total Credit Units	34			SECOND SEMESTER		
4.2 M.Sc. Environmental Parasitology				Course No.	Course Title	Units
FIRST SEMESTER				AEB 804.2	Freshwater Ecology	3
Course No.	Course Title		Units	AEB 805.2	Aquaculture	3
AEB 855.1	Community Health Parasitology		3	AEB 806.2	Hydrobiology Techniques	3
AEB 856.1	Epidemiology and Diagnosis in Parasitology		3	AEB 807.2	Seminar	3
AEB 857.1	Immunology of Parasitic Infections		3	AEB 808.3	Research Entrepreneurship and Management	6
SGS 801.1	ICT & Research Method		2	SGS 802.2	Management	2
	Total Units		11	Total		20
Elective:				Grand Total		31
AEB 858.1	Agro-Nematology			4.4 M.Sc Entomology and Pest Management		
SECOND SEMESTER				FIRST SEMESTER		
Course No.	Course Title		Units	Course No.	Course Title	Units
AEB 859.2	Vector Biology, Control and Management		3	AEB 865.1	Insect Ecology and Conservation	3
AEB 860.2	Environmental Health Parasitology		3	AEB 866.1	Pesticides Arthropods in Human and animal Health	3
AEB 861.2	Control and Management of Parasitic Diseases		3	AEB 867.1	and animal Health	
AEB 862.2	Socio-Economic Parasitology		3	AEB 868.1	Biostatistics ICT & Research Method	3
	Elective			SGS 801.1	Method	2
AEB 863.2	Seminar Course		3	Total		14
AEB 864.2	Research Project		6	SECOND SEMESTER		
SGS 802.2	Entrepreneurship and Management		2	Course No.	Course Title	Units
Total Units			23	AEB 869.2	Cultural and Forensic Management of Arthropod and other Pest	3
Grand Total			34	AEB 870.2	Management of Arthropod and other Pest	3
4.3 M.Sc. Fisheries Biology and Hydrobiology				AEB871.2	Aquatic Entomology and Environmental Assessment	3
FIRST SEMESTER				AEB811.2	Seminar Entrepreneurship and Management	3
Course No.	Course Title		Units	SGS 802.2	Management	2
AEB 801.1	Estuarine Ecology		3	AEB 873.0	M.Sc Thesis	6
AEB 802.1	Fisheries Biology		3	Total		20
AEB 803.1	Fisheries Management		3	Grand total Units		34
SGS 801.1	ICT & Research Method		2	4.5 M.Sc Environmental Animal Physiology		
Total Units			11	FIRST SEMESTER		
				Course No.	Course Title	Units
				AEB 810.1	Advanced Environmental Animal Physiology	3
				AEB 811.1	Advanced Patho-	3

	physiology	
	Drug Actions in	3
AEB812.1	Physiology of Animal	
	Environmental	3
	Contaminants and	
AEB 813.1	Animal Reproduction	
	ICT and Research	2
SGS 801.1	Methodology	
Total Units		14

SECOND SEMESTER

Course No.	Course Title	Units
AEB 814.2	Environmental	3
	Pollution Effect on the	
	physiology of Animals	
	Toxins and	3
AEB 815.2	Therapeutic Agents	
	from Animals	
AEB 825.2	Biostatistics	3
AEB 816.2	Seminars	3
AEB 817.2	M Sc thesis	6
SGS 801.2	Management and	2
	Entrepreneurship	
Total		20
Grand total Units		34

**Ph.D ENVIRONMENTAL ANIMAL
PHYSIOLOGY**

YEAR ONE FIRST SEMESTER

Course No.	Course Title	Units
AEB 910.1	Seminar I	3
AEB 942.1	Advanced	3
	Environmental	
	Assessments and	
	Monitoring	

YEAR ONE SECOND SEMESTER

Course No.	Course Title	Units
AEB 911.2	Seminar II	3
	Qualifying	3
	Examination	

YEAR TWO

Course No.	Course Title	Units
AEB 912.0	Research (thesis)	12
Total		21

**Ph.D ENVIRONMENTAL ENTOMOLOGY
AND PEST MANAGEMENT**

YEAR ONE FIRST SEMESTER

Course No.	Course Title	Units
AEB 920.1	Seminar I	3
AEB 921.1	Advanced Genetics/ Molecular Biology	3

YEAR ONE SECOND SEMESTER

Course No.	Course Title	Units
AEB 922.2	Seminar II	3
	Qualifying	
	Examination	

YEAR TWO

Course No.	Course Title	Units
AEB 923.0	Research (thesis)	12
Total		21

**Ph.D ENVIRONMENTAL
PARASITOLOGY**

YEAR ONE FIRST SEMESTER

Course No.	Course Title	Units
AEB 930.1	Seminar I	3
AEB 921.1	Advanced Genetics/ Molecular Biology	3

YEAR ONE SECOND SEMESTER

Course No.	Course Title	Units
AEB 931.2	Seminar II	3
	Qualifying	
	Examination	

YEAR TWO

Course No.	Course Title	Units
AEB 923.0	Research (thesis)	12
Total		21

**Ph.D HYDROBIOLOGY AND FISHERIES
BIOLOGY**

YEAR ONE FIRST SEMESTER

Course No.	Course Title	Units
AEB 941.1	Seminar I	3
AEB 921.1	Advanced	3
	Environmental	
	Assessment and	
	Monitoring	

YEAR ONE SECOND SEMESTER

Course No.	Course Title	Units
AEB 943.2	Seminar II	3
	Qualifying	

Examination

YEAR TWO

Course No.	Course Title	Units
AEB 944.0	Research (thesis)	12
	Total	21

COURSE DESCRIPTION

AEB 701.1 Environmental Animal Physiology

Water, ions, and osmotic physiology; Animal water balance, osmoregulation and excretion; Metabolism and energy supply; Respiration and Circulation; Temperature and its effects; Coping with the environment; marine, estuaries, freshwater, terrestrial life; Extremes in terrestrial habitats; Parasitic habitats.

AEB 702.1 Fish Biology

The gross external and internal anatomy of a typical cartilaginous fish. The different types of anatomical systems and basic functions of each system of organs in the fish, embryology important fish e.g. Tilapia, Clarias and mullet. Ecology of fishes with special reference to distribution and natural history and application of this knowledge for fisheries management and obtaining maximum returns from fishery resources. Characteristics of the aquatic environment, organic production in aquatic fauna and flora-algal blooms and entrophical planktons and benthos, biomass assessment, food and feeding habits of fishes, feed and habitat selection, population, niche concept, food chains. Reproductive behavior and life cycles of some selected species.

AEB 703.1 Environmental Entomology

Arthropod indicators of pollution in terrestrial and aquatic ecosystems. Identification and management of breeding sites. Environmental control of insect pests of humans and animals. Patent, Distribution and use of pesticides, landscape modifications by ant hills, termites mounds, bee hives, breeding sites of other insects, Ecological consequences associated with environmental control of arthropods.

AEB 704.1 General Parasitology

The History and scope of Parasitology; Basic

principles and concepts of parasitology; The ecological nature of Parasitology; types of parasites; protozoa, Platyhelminthes, Nematodes, other parasites; the transmission of parasites; the physiology of parasite transmission; The metabolism and physiology of the parasitic stages; Host-parasite interactions; host susceptibility; effects of parasites on their hosts, Reaction of the host to patasites, immunity to specific parasites.

SECOND SEMESTER

AEB 705.2 Animal Nutrition

Animal dietary requirements; protein, carbohydrates, fats, oils, and minerals; species difference in nutrition; Nutritional requirements at different physiological states: growth, reproduction; Sex differences; Physiology of digestion; Feed formulation.

AEB 706.2 Hydrobiology

Physical and chemical properties of both inland and seawater; hydrobiology and water cycle; properties of natural and manmade lakes, thermal properties and stratification; hydrobiological cycles; Physico-chemical and morphometric variable of inland waters; biogeochemical cycling of essential nutrients.

AEB 707.2 Arthropods of Field Crops

Arthropod pests of vegetable crops, legumes, cereals, tuber crops and cash crops with reference to the nature of damage, life history, distribution, pest stage and control. Different control measures in the management of these pests.

AEB 708.2 Applied Parasitology

Diagnosis, and control of parasitic infections Diagnosis, control, treatment and MGT of parasitic infections of man, domestic and farm animals and crops; List of a few of them. Basic histology; Histological techniques; Isolation and maintenance of parasites in vivo and in vitro; Maintenance and cultivation of snails and other vectors of parasites. Identification characterization of major parasite groups viz. Protozoa, helminthes and nematodes; Some culture techniques used in Parasitology; Faecal, urine, blood and other tissue examinations techniques. Measurement and qualification of intensity of parasitic infections.

AEB 709.2 Seminar

Candidates must extensively review a current topic in a discipline complementary to their area of training to broaden their knowledge of Entomology.

AEB 710.2

An innovative research project to be carried out by the candidate following stringent scientific procedures and that will yield results acceptable by experts worldwide. Each project must contribute to knowledge in Animal and Environmental Biology.

DURATION OF THE PROGRAMME

M.Sc Programme

The Maximum length of time that a Full-time M.Sc. Degree candidate is permitted to spend on a 12-month M.Sc Degree programme is three years and a part-time candidate five years. A student who fails to meet this deadline is asked to withdraw from the programme.

Ph.D Programme

The Maximum length of time that a full-time Ph.D. student is permitted to spend on a 3-year Ph.D Degree programme is five years, and a Part-time student seven years. A student who fails to meet this deadline is asked to withdraw from the programme,

DEGREE CLASSIFICATION

Masters and Doctorate Degree Programmes The Masters and Doctorate Degree Programmes of the department lead to the award of Masters of Science (M.Sc) and Doctor of Philosophy in the following areas;

1. Environmental Parasitology
2. Entomology and Pest Management
3. Environmental Physiology of Animals
4. Hydrobiology/Fisheries

COURSE DESCRIPTIONS FOR M.Sc ENVIRONMENTAL PARASITOLOGY

First Semester

AEB 855. 1 Principles of Community Health Parasitology

The concepts and practice of community health. Some community health milestones. Community Health significance and techniques. Concepts of community diagnosis. Diagnosis in

Planning health interventions. Types of community action. Community participation. Evaluation of community health action programmes. Use of community diagnosis for Training programmes.

Community health services. Primary Health Care and Parasitology. Use of health services in parasite control (3 Credits)

AEB 856.1 Epidemiology and Diagnosis

Epidemiology; Concepts, tools and methods. Basic principles of demography. Health statistics vital rates, disease counting, morbidity. General principles of diagnosis of Parasites, laboratory and field techniques in major parasitic infections. Epidemiological surveys. Feedback and report writing statistical methods in epidemiology, Epidemiology of vector and water-borne, water washed and water based parasitic infections. (3 Credits).

AEB 857.1 Immunology of Parasitic Infections

General principles of Immunology. Immunodiagnosis of parasitic infections. Immunology of tissue. Blood and gastrointestinal parasites. Immunity of Parasitic infections. Immune evasion mechanisms. Parasite antigens and development of vaccines. Principles of immune pathology of parasitic diseases. (3 Credits).

AEB 858.2 Agro-Nematology

Nematode parasites of plants. Extraction from soil and plant tissues. Preservation, staining and counting of nematodes. Life cycles of nematodes of Nigeria food crops. Interaction of nematodes with insects, fungi, bacteria and viruses in disease complexes. Pathology of nematode infections on food crops. Control of plants and soil nematodes. Nematicides. Nematode and food production in Nigeria. (3 Credits).

Second Semester

AEB 859.2 Vector Biology, Control and Management

Breeding biology and ecology of arthropod vectors- insects, crabs. Snail vectors of Schistosomiasis, identification of species.

Impacts of human and industrial activities on vector biology/population. Vector dynamics and

infection, biting rates. Infection rates transmission potentials, vector capacity, vector control. Insecticides, molluscides, biological control, vector management. (3 Credits)

AEB 860.2 Environmental Health Parasitology

Principles of environmental health. Environmental components of parasitology, sanitation, water supply, waste disposal, housing, occupational hazards, food borne parasitic diseases, nutritional status, health education. Parasites as indicators of environmental degradation. Impacts of industrial activities on parasite dynamics, environmental manipulation in parasitic disease control. (3 Credits)

AEB 861.2 Control and Management of Parasitic Diseases

Chemotherapy in disease. Problems of drug resistance drug combinations, resistance in Nematode infections. Techniques in management of selected parasitic diseases- protozoa, platyhelminthes and nematode diseases. Local management techniques. KAP of common parasitic infections- schistosomiasis, filariasis, onchocerciasis. Review of activities of parasitic disease control and evaluation programmes in Nigeria, Africa and global. (3 Credits)

Electives:

AEB 862.2 Socio-Economic Parasitology

Socio-economic status, and social stratification within communities. Investigating the culture of community. Social impacts of parasitic diseases onchocerciasis, filariasis, schistosomiasis. Economic impacts of parasitic diseases. Health economic, cost effectiveness assessment.

AEB 863.2 Seminar

Seminar based on extensive review of a topic in parasitology. The seminar is written up, delivered by the student and submitted for examination.

AEB 864.0 Research Project

COURSE DESCRIPTIONS FOR M.Sc. FISHERIES AND

HYDROBIOLOGY

AEB 801.1 Estuarine Ecology

Primary producers: Macroalgae, higher plants, consumers: study of local taxonomic groups and communities. Tidal levels, substrate types, salinity zones, river types. Strates: sedimentation physicochemical and biological processes within soft substrates. Physiological problems of estuarine organisms. Estuarine food chain and productivity.

AEB 802.1 Fisheries Biology

Classification of fishes: characters used in species level taxonomy, internal features and basic physiology (sensory, respiratory, osmoregulation, etc) Food and feeding habits; method of diet analysis. Age and growth in fish, methods of marking and growth-ring analysis, mortality. Reproductive biology: sex determination and ratio; gonad development and staging; breeding behavior and cycles; embryonic development and larval stages. Food abundance, distribution and migration.

AEB 803.1 Fisheries Management

Fisheries of the major African lakes. Niger and Cross River and the Niger Delta. Inland fisheries development in Africa. Fish populations: methods of determining population size, recruitment, growth and yield survival and mortality. The inter-relationship of fishing effort, catch, recruitment and stock size equilibrium, yield. Basic statistics, collection and tabulation of data. Presentation of data; measures of dispersion; correlation and regression.

AEB 804.2 Freshwater Ecology

The freshwater biota of West Africa, especially. Plankton, macrophytes and benthic invertebrates; identification, ecological adaptations, indicator species and species important to man (nuisance and economic species, disease vectors). Zoogeography of the African freshwater fauna. Ecological characteristics of the main freshwater habitats rivers, flood plains, manmade lakes swamps and ponds.

AEB 805.2 Aquaculture

Pond constructions sizes; soil conditions;

construction methods and types of ponds. Useful species, native and exotic general characters, breeding, seed/fingerling supply, stocking and harvesting programs. Fertilization and supplementary feeding; needs, types, regimes; productivity Health of stock: water quality pollution, disease, parasites and predators. General care of ponds; maintenance, public health aspects. Fish marketing and economics of management.

AEB 806.2 Hydrobiology Techniques

Physical and chemical factors and primary production in aquatic environmental their measurement, their influence on the distribution and adaptation and their influence on the functioning of particular ecosystems.

AEB 807.3 Seminar

AEB 808.3 Research

COURSE DESCRIPTIONS FOR M.Sc PROGRAMME IN ENVIRONMENTAL ENTOMOLOGY AND PEST MANAGEMENT

AEB 865.1 Insect Ecology and Conservation (3 Units)

Population growth - growth curves, age distribution (pyramids), survivorship curves Life tables etc. reproduction strategies r and k selections reproductive effort, etc. Searching behaviour patterns in insects. Pollination biology. Social Systems and behavior dominance, hierarchies, territoriality. Cannibalism Niche concept, might packing, habitat, biotope, adaptive radiation. Ecological genetics natural selection, population variation, meta-populations, poly oiphism, industrial melanism. Population interactions Competition, Predation, Parasitism, Host Predator Interactions, Roles of parasitoids in regulation of natural populations, applications in pest management.

Population dynamics natural regulation. The Argents for density dependence and the response of the density independent school, first line of resolution (contributions from Mathematical theoretical Ecologists Chesson, May, etc. Insects Conservation-Historical Perspective (past and present events leading to

insect conservation concerns, emergence of insect conservation biology) Insects and fragmented/disturbed landscapes. Individual insects and their conservation. The entomologists' Dilemma, Insect conservation Ethics.

AEB 866.1 Pesticides (3 Units)

Historical perspective, main classes of pesticides e.g. insecticides e.g. insecticides, herbicides, fungicides, etc Modes of action. Efficiency and Principal routes of entry into target pests, arsenicals, Botanicals and bio-pesticides, chlorinated hydrocarbons, Organophosphates, Chlorinated hydrocarbons, Organophosphates, Carbamates, Insect growth regulator. Fumigants, chemosterilants; Development and production of pesticides. Benefits and limitations of pesticides. Effect on environment and non-target organisms. Types of formulation solution concentrate, wettable powders, Emulsifiable concentrate. Dusts, Granules, Baits, Miscible liquids. Microencapsulation, Fumigants, Smokes, Ultra-low-volume formulation. Application of pesticides-Methods of application, application to water, seed, crop, weeds, etc. Equipment for pesticide application. Commonly available sprayers and nozzles. Bioassays-Methods of dosing targets and measurement of toxicity, median lethal concentrations/doses. Pesticide toxicology and poisoning.

AEB 867.1 Arthropods in Human and Animal Health (3 Credit Units)

Arthropods as direct agent disease or discomfort Entomophobia, Envenomization, Dermatitis. Myiasis, Allergy, Toxicosis, etc. Arthropods as intermediaries in parasitic transmission Mechanical carriers, obligate Vectors, - intermediate hosts. Connection between a specific arthropod with transmission of disease. Types of transmission Vertical and horizontal transmission, Types of biological transmission Cyclopropagative, cyclodevelopmental. Propagative, Definitions Vector effectiveness (Efficiency), Vector Competence, Vector Potential factors affecting vector competence Extrinsic (Arthropod-host interactions reservoir hosts, environmental factors, etc). Inherited traits. Internal barriers, behavioural

traits, etc) Epidemiology of arthropod-borne disease (Malaria, Onchocerciasis, Human Sleeping Sickness, etc) in human health-Epizootiology of arthropod-borne disease (Animal trypanosomiasis, Heartwater, East Coast Fever, etc) in Animal Health Emerging and Resurging arthropod-borne diseases.

AEB 868.1 Biostatistics (3 Units)

Definition; Types of Biology Data; Frequency Distribution: Cumulative Frequency Distributions. Populations and Samples-Random Sampling; Parameters and Statistics. Measures of Central Tendency. The Arithmetic Mean; Measures of Dispersion and Variability the Range; The Mean. Deviation; The Variance; The Standard Deviation; Standard Error. The Coefficient of Variation. Introduction of Statistical Hypothesis Testing-One Sample Hypothesis. Two-tailed Hypothesis Concerning the Mean: Students test; One-tailed Hypotheses Concerning the Mean; Confidence limits for the Population Mean. Two Sample Hypotheses Testing for Difference between Two Means; Confidence Limits for Population Means: Non-parametric statistical Methods. The Mann-Whitney Test. Multi-sample Hypotheses: The Analysis of Variance Single Factor Analysis of Variance; Multiple Comparisons. The Turkey test; The Newman-Kuls test. Two-Factor Analysis of Variance (with Equal and unequal Replication), Two-Factor Analysis of Variance without Replication. The Randomized Block Experimental Design, Data Transformations. The Logarithmic Transformation; The Square Root Transformation; The Arcsine Transformation Sample Linear Regression. Simple Linear Correlation Chi-Square Goodness of Fit and Analysis.

- *To be taken by all M.Sc students in all the programmes in AEB Department.*

AEB 869.1 Cultural and Forensic Entomology (3 Units)

Overview- The three domains in the pursuit of human intellectual activities. Historical emphasis of Entomology. Scope of cultural entomology. Relationship to entomology. Insects in Literature and language. Music and Performing Arts, Graphic

and Plastic Arts, Interpretive History, Philosophy, Religion and Folklore, Recreation and Curiosities. Species of special Cultural significance Definition of forensic entomology Categories (Urban, Stored Products, Medicolegal), History-Perspectives and Overview. Rationale for the use of insects in medico-legal investigations. Estimating in Post-Mortem Interval (PMI).

Carrion-associated arthropods (necrophages, parasitoids, cryptozoic, etc) Dipteran biology (species identification, age determination of maggots, puparia and adults, species invasion, patchy distribution and biological invasion, delayed corpseinvasion) Corpse decomposition. Applications of dipteran biology and corpse decomposition data to forensic problems, application of forensic entomology to conservation of natural resources. Case studies. Current perceptions of forensic entomology.

AEB 870.2 Management of Arthropod and other pests (3 Units)

Arthropod pests of vegetable crops. Legumes. Cereals, tuber crops, and cash crops with reference to the nature of damage, life history, distribution, pest stage, and control, Arthropod pests of Stored cereals, legumes, oil seeds, timber, clothes, hides, skins kola, and, fish with reference to their biology, bionomics, behavior, population dynamics, and adaptations to the storage ecosystem. Impact of type of storage system on pest populations, growth rates and role of pheromones in pest biology, Non-arthropod pests of field and stored products: vertebrates such as rodents, large mammals both wild and domesticated, birds and reptiles their seasonal activity cycles, damage, control/management. Fungi. Bacteria and Weeds.

AEB 871.2 Aquatic Entomology and Environmental Assessment (3 Units)

General morphology of aquatic insects-Head, Thorax and Abdomen Methods of Collecting, sampling, and rearing of insects Respiration in aquatic insects Habitat, life history, and behavioural adaptations in aquatic insects Ecology and distribution of aquatic insects. Genem 1 classification and key to the order of

aquatic insect; Collembola, Ephemeroptera, Odonata, Plecoptera. Hemiptera, Trichoptera, Coleoptera, Diptera, and Lepidoptera. Definitions: Biological Monitoring and Environmental Assessment Entomofauna as an important biological component of aquatic and wetland ecosystems. Effects of street (pollution) at various levels of entomofauna organization organism, population, community. Use of insects as indicators in environmental assessment. Use of insects as monitor and sentinel species in biological monitoring. Preferred characteristics of insects used in biological monitoring.

AEB 872.2 Seminar

AEB 873.0 M.Sc Thesis

CURRICULUM COURSE DESCRIPTIONS FOR M.SC ENVIRONMENTAL ANIMAL PHYSIOLOGY

AEB 810.1 Advanced Environmental Animal Physiology

Fundamental Mechanisms of Adaptation including physiological regulation of gene expression, Homeostasis; environmental stress and animal response; Critical factors and tolerance limits; Osmotic stress; Low oxygen environment and organismal response (Aerobiosis and Anaerobiosis); responses to temperature changes; Environmental toxicity; Acid rain and its effects; Bioaccumulation and Biomagnification of contaminants and their effects; Elimination of toxic materials; Energy flow in the environment.

AEB811.1 Advanced Pathophysiology

Abnormalities in the physiology of Animals (humans). Alterations in cellular growth, the Neurologic system, the Endocrine System the Hematologic System, cardiovascular system, pulmonary System, renal and urologic system. Digestive System, Reproductive System, the musculoskeletal and the integumentary systems.

AEB 812.1 Drug Actions on the Physiology of Animals

Principles of Drug Absorption, Disposition and Action Drugs affecting: Peripheral

Neurohumoral Transmission, Autacoids and their Antagonists. Anesthetics. Drug acting on the Cardiovascular system, the CNS and the Gastrointestinal tract. Diuretics, Endocrine Pharmacology, Nonnarcotic Analgesics and Nonsteroidal Anti-inflammatory Drugs. Antimicrobial drugs. Antineoplastic drugs, Antiparasitic Agents, Drug Interactions Treatment of Poisoning.

AEB 813.1 Environmental Contaminants and Animal Reproduction

Effects of environmental pollutants on spermatogenesis, ovulation, folliculogenesis, fetal viability, embryonic mortality, the neonate. Teratogenic effects of heavy metals; Abortion; endocrine levels, cyclicity and fecundity; discussions on current publications

AEB 814.2 Environmental Pollution Effects on the Physiology of Animals

Types of Environmental pollutants; Toxic chemicals; Natural and synthetic toxins; Air, Soil and Water pollution; Natural human-based pollution; Primary and Secondary pollutants; Effects of climate, topography and atmospheric processes on air pollution (human health, PH and Acidity; aquatic effects; forest damage and feed availability; Visibility; animal health etc); Environmental pollution control Effect of oil spillages. Effect of different types of wastes.

AEB 815.2 Toxins and Therapeutic Agents from Animals

Different types of Animals toxins. Natural History of Venomous Animals Mammals, Reptiles, Amphibians, Fish, Arachnids, Insects, Echinoderms, Coelenterates, Molluscs. Effect of toxins on other animals and on humans. Useful and Therapeutic agents found in animals. Their extraction, purification, identification, conversion of natural to synthetic active form for remedy of ailments.

AEB 825.2 Biostatistics

Definition; types of Biological Data; Frequency Distributions; Cumulative Frequency Distributions. Populations and Samples- Random Sampling; parameters and Statistics. Measures of Central Tendency- The Arithmetic Mean; Measures of Dispersion and Variability- The Range; The Mean Deviation;

The Variance; The standard Deviation; Standard Error. The Coefficient of Variation. Introduction to statistical Hypothesis Testing; Onetailed Hypothesis, two tailed Hypothesis Concerning the mean; student's test; One-tailed Hypothesis Concerning the mean; Confidence limits for the population Mean. Two tailed Hypothesis Testing for difference between Two Means; Confidence Limits for Population Means; Non-parametric statistical Methods. The Mann-Whitney Test. Multi-sample Hypothesis: The Analysis of Variance Single-Factor Analysis of Variance; Multiple Comparisons, The Tukey Tests; The Newman-Keuls test. Two- Factor Analysis of Variance (with Equal and unequal Replication); Two-Factor Analysis of Variance without Replication; The Randomized Block Experimental Design, Data Transformations. The Logarithmic Transformation; The Arcsine Transformation. Simple Linear Regression. Simple Linear Correlation. Chi-Square Goodness of Fit and Analysis.

M.Sc. PROGRAMME IN ENVIRONMENTAL AND CONSERVATION BIOLOGY.

Admission Requirements

Admission into Master's Degree programmes requires at least a Second Class Honours Degree of the University of Port Harcourt or any other recognized University, in relevant subjects (e.g. Zoology, Biology, Crop Science, Environmental Science, Biology Education e.t.c)

Programme Structure, Duration and Residential Requirements for Postgraduate Students

The programme scheme involves taught courses, seminars and preparation of a research Thesis. Students admitted in the programme do register for all courses to be taken once every session, at the beginning of each academic year. Part-time students register for a maximum of four (4) taught courses in the first year of the programme, i.e, two (2) per semester and are required to spend a minimum of 24 calendar months and a maximum of 48 calendar months.

Duration of the Programme

Full time candidates are required to spend a

minimum of 12 calendar months and a maximum of 24 calendar months. Part time candidates would be required to spend a minimum of 24 calendar months and a maximum of 72 calendar months. (Also, see overstay policy)

Requirements for a Master of Science Degree in the Department

To obtain a Master of Science Degree in any field covered by the M.Sc. programmes of the department, a student must be registered in the department for not less than 12 calendar months (for full-time students) and twenty four calendar months (for part time students), complete the academic programme, pass all the courses in the programme, and successfully defended a research Thesis.

11.0 M.Sc COURSE CONTENTS

FIRST SEMESTER

Course No.	Course Title	Units
AEB 830.1	Advanced Environmental Assessment, Monitoring and Evaluation	3
AEB 831.1	Advanced Ecotoxicology and Toxinology	3
AEB 837.1	Biodiversity Conservation and climate change	2
AEB 833.1	Ecosystem Management	2
CGS 801.1	ICT and Research Methodology	2
AEB 834.1	Environmental Laws and Policies	2
AEB 835.1	Molecular Environmental Biology	
AEB 836.1	Biostatistics and Bioinformatics	2
Sub-total		18

SECOND SEMESTER

Course No.	Course Title	Units
AEB 832.2	Sustainable waste management	3
	Seminar selected topics in Environment and	3
AEB 838.2	Conservation Biology	
CGS 802.2	Management and Entrepreneurship	2
AEB 839.2	Environmental Health	2
AEB 840.2	Research Project (Dissertation)	6

TOTAL

34

Determination and Quantification of Pollutants.

12.0 COURSE DESCRIPTION

FIRST SEMESTER

AEB 830.1 Advanced Environmental Assessment, Monitoring and Evaluation (3units)

Risk assessment and management, risk assessment matrix, environmental sensitivity index mapping, Biological amplification of pollutants, bioaccumulation and bioavailability modeling. Biological Monitoring using indicator species. Environmental Impact Assessment (EIA); **EIA** Phases in Environmental Assessment Predictive Monitoring; Interpretation of Environmental Effects during and after Development Activity; Impact Assessment Network Simple Models in Environmental Assessment Phases in Ecological Risk Assessment, Limitations, Case studies of EIAs in Marine, Coastal/Brackish (Wetland) Ecosystems, Forest Ecosystems, Agro-Ecosystems Freshwater Ecosystem, And Ecosystem. Environmental management programmes, ISO standardization, IMM, EISEnvironmental Audits; types of audits; compliance audit, issues audit, health and safety audit, site audit, corporate audit, due diligence audit, activity or operational audit, product or life cycle audit, environmental legislation and company policy, evaluation of compliance with environmental legislation and corporate policies; measure performance against the requirements of an environmental management system standard, IS014001 Certification process.

AEB 831.1 Advanced Ecotoxicology and Toxinology (2 Units)

Types and Sources of Pollutants; Transport and Fate of Environmental Pollutants; Application of Bioassays in the Study of Effects of Environmental Pollutants on Biological Systems; Effects of Emerging Contaminants; Endocrine Disrupters, Environmental Mutagen, Xenobiotics, Acute and Chronic toxicity tests; Range finding test. Dose Response Assessment, Exposure Assessment, Risk Characterization, Dose-Response Curves and Determination of LC, EC50, LD, etc., Plant and Animal Toxins,

AEB 832.1 Sustainable Waste Management (2 units)

Biological and non-biological wastes, strategies of waste management, municipal waste stream characterization, control and treatment of degradable wastes. Urban and rural waste management strategies, application of environmental biotechnology in waste management, bioremediation of contaminated sites, enzymes in sewage treatment, .renewable energy and waste management-biogas and organic manure production, management of e-waste, radioactive waste and abattoir waste, waste-to-wealth.

AEB 833.1 Ecosystem Management (2 units)

Characteristics of Major ecosystems in Nigeria; Biology and Ecology of Marine Ecosystem; Coastal Ecosystems- Biology and Ecology; Marine Biogeochemistry, Seabed Assessment, Sources of Marine Pollution-Industrial Discharges, Domestic, Agricultural, Oil and Gas Industry; Monitoring Marine Pollution-Monitoring and Survey Programme Design; Methodology Interpretation and Presentation of Results-Hazardous Waste, Nutrients; Marine Litters and Pesticide; Biological MONITORING, Marine Ecosystems Services-Carbon- Dioxide Sequestration; Integrated Management of Coastal Watersheds-Role of Wetlands and Coastal Marshes, Role of National and International Organization(Marine Protected Areas),Marine and Coastal Resources of Nigeria, Impact of Anthropogenic Activities on Salt Marshes, Mudflats, Rocky and Cobble Shore, Sandy Shore, Mangrove forest, Inters transference of materials between Contaminated Shelves and the Marine Environment, Restoration Ecology.

SGS 801.1 Management and Entrepreneurship (2 Units)

This course covers business environment. General management, financial management, entrepreneurship development, feasibility studies. Marketing and' managerial problem solving

AEB 834.1 Environmental Policies and Laws/Biosafety (2 units)

National and International environmental policies and laws, Environmental litigation, Green house index as (lobalecological indicator, ecological forecasting, duisance, negligence, Transbaudary policies and laws, [(institutional framework for environmental regulation in Nigeria, sources of environmental laws. Environmental Impact Assessment Act, 1992, Fundamental principles of EIA, Nigeria natural tnvironmental problems. Policy on legal response to environmental pollution and degradation, Sources of environmental pollution/degradation in Nigeria, Rule in Rylands and Fletcher, Biosafety.

AEB 835.1 Molecular Environmental Biology/ Modified Organisms (2 units)

Molecular Biology, Advanced genetic Engineering, DNA replication and DNA repair mechanism, mutagens and mutation, carcinogens and cancer, modified organisms and Biosafety, genetic pool and human impact.

AEB836.1 Biostatistics and Bioinformatics (2 units)

Definitions; types of Biological Data; molecular biology data, genome sequence, gene characterization, protein sequence, geometry; Frequency Distributions; Cumulative Frequency Distributions. Populations and Samples- Random Sampling; parameters and Statistics. The Mean Deviation; The Variance; The standard Deviation; Standard Error. The Coefficient of Variation. Introduction to statistical Hypothesis Testing; student's test; Confidence limits. Non-parametric statistical Methods the Mann-Whitney Test. Multi-sample Hypothesis: Single-Factor Analysis of Variance; Multiple Comparisons, The Tukey Tests; The Randomized Block Experimental Design, Data Transformations. The Logarithmic Transformation; The Arcsine Transformation. Simple Linear Regression. Simple Linear Correction. Chi-Square Goodness of Fit and Analysis, Biostatistics

SECOND SEMESTER

AEB 837.2 Seminar (3 units)

Selected current topics in Environment and

Conservation Biology

AEB 838.2 Biodiversity Conservation and Climate Change/Biogeography (2 units)

Biological diversity; biodiversity differences in terrestrial and aquatic ecosystem; numeric diversity measures; reasons for preserving diversity evaluation; principles of conservation; sustainable conservation; translocation; re-introduction; re-establishment; succession, Ozone layer depletion, global warming/ greenhouse effects, carbon dioxide sequestration and carbon trading, Climate change, effects on agriculture, human and ecologic health, climate change coalitions and conventions, meteorology and atmospheric pollution; Landscape concept, Minimum viable population, biogeography.

AEB 839.2 Environmental Health (2 units)

Environmental contaminants, Environmental mutagens. Organic and Inorganic contaminants, Sources, pathways and fate of environmental contaminants; Effects of environmental contaminants on humans and Animals. Ecological Stress, Threshold effects, environmental carrying capacity. Acute and Chronic toxicities, Risk Assessment; Habitat Restoration and Recovery, Habitat Protection and Conservation Areas; Waste Management and Environmental Biotechnology-Solid Waste and Effluent; Wastewaters-Process and Procedure; Renewable Energy Sources-Biogas, Wind Energy; National Environmental Legislative Framework; NESREA.NOSDRA, FMEnv etc; State Legislation. Occupational Health and Safety Policies, Programmes, Legislation and Compliance; Health, Safety and Environmental Awareness; Responsibilities and Roles of Management, Employees and Third Party. Emergency Preparedness and Response; HSE Training and Evaluation

AEB 840.2 Research Project (6 units)

Research on current topics in Environment and Conservation Biology

CURRICULUM AND COURSE DESCRIPTIONS OF Ph.D DEGREE

PROGRAMMES IN THE DEPARTMENT

CORE COURSES

For Ph.D Environmental Animal Physiology

Advanced Environmental Assessment and Monitoring

For Ph.D Environmental Entomology and Pest Management

Advanced Genetics/Molecular Biology

For Ph.D Environmental Parasitology

Advanced Genetics/Molecular Biology

For Ph.D Hydrobiology and Fisheries Biology

Advanced Environmental Assessment and Monitoring

Note that all core courses must be passed at C (5(1%) level

COURSES DESCRIPTION

AEB 942.1 Advanced Environment Assessments and monitoring Regulatory policies and laws Evolution of Environmental impact Assessment, Project screening scoping and baseline data collection: impact prediction a id Evaluation: management/mitigation monitoring p Ian, environmental auditing social impact and Health/assessment stakeholder consultation; Strategic Environmental; Assessment (SEA) Uncertainly in EIA. Risk management Application of EIA. Bio-indicators, Bio-monitors.

COURSE DESCRIPTION

AEB 921.1 Advanced Genetics/Molecular Biology

Concepts of molecular biology, signal transduction and molecular arrays cell cycle and cellular regulation micro molecular structures and functions advanced techniques ii molecular biology, gene expression and control, genetic diseases and gene therapy, population genetics, molecular genetics and evolution, bio-ethics and genetically modified organisms, informatics and genomic.

COURSES DESCRIPTION

AEB 921.1 Advanced Genetic/molecular biology

Concepts of molecular biology, signal transduction and molecular arrays cell cycle and cellular regulation, micro molecular structures and functions, advanced techniques in molecular biology, gene expression and control, genetics diseases and gene therapy, population genetics, molecular genetics and evolution, bio-ethics aid genetically modified organisms, informatics and genomic.

COURSE DESCRIPTION

AEB 942.1 Advanced Environmental Assessment and Monitoring Regulatory policies and laws Evolution of Environmental impact assessment.

Project screening, scoping and baseline data collection; impact management/mitigation monitoring plan, environmental auditing, social impact and Health assessment stakeholder consultation in EIA. Risk management. Application of EIA. Bio-indicators, Bio- monitors.

Ph.D. PROGRAMME IN ENVIRONMENTAL A VD CONSERVATION BIOLOGY

1.0 BACKGROUND

Environmental biology is a multi-faceted science borne of interdisciplinary hybridization. It welcomes students from diverse backgrounds Zoology, Botany, M exobiology, Biochemistry, Medical and Biomedical sciences e.t.c. It instills competence essential for the promotion and protection of sustainable healthy living environments for plants and animals as well as o living organisms.

2.0 JUSTIFICATION/ RATIONALE

Achievements in reducing human sufferings occasional by ecological disasters can be traced to environmental initiatives. Improving environmental outcomes is t major challenge for environmentalists the world ova. There is a dearth of environmental professionals in-Nigeria to teach, practice and do research to improve tie general health and well-being of plants, animals and human communities in

this country. Environmental biologists are also needed to effectively formulate programmes and policies needed to improve the quality of our living environment.

Few states in this country have appropriately trained and qualified environmental scientists; there is therefore obvious need and demand for training in Environmental Biology and Conservation in Nigeria. The proposed Ph.D programme in Environmental Biology and conservation will help to fill the human resource gaps in the field in his country. It is intended that at the end of the programme, successful students would have acquired approval knowledge, skills and competences to enable them apply; environmental biology principles in the planning, implementation and evaluation of environmental programmes. They will also be expected to be able to critically assess environmental factors and intervention and their potential impacts on both human and ecosystem health.

3.0 OBJECTIVES OF THE PROGRAMME

- To provide training in Environmental Biology for qualified candidates;
- Develop research capacity for environmental management; and
- Produce Environmental managers for the Nation.

4.0 ADMISSION REQUIREMENTS

Candidates for the Ph.D programme must have a Master Degree and should normally have an average of at least; 60% or CGPA of 3.50 in the relevant discipline at the Masters level.

For candidates who obtained their Masters exclusively by research assessment, admission will be based on the quality of their thesis. Candidates may be required to attend a pre-admission interview session. Final selection of a candidate shall be based on his/her interview- performance and other criteria.

If a candidate is deficient in some fundamental knowledge, the candidate would be required to take requisite courses recommended in the department to enhance his/her knowledge.

5.0 PROGRAMME STRUCTURE, DURATION AND RESIDENTIAL REQUIREMENTS FOR POSTGRADUATE STUDENTS

The Doctor of Philosophy programme is by coursework and research and a presentation of a Thesis based on the product of independent original research. There is a provision for both part-time and full-time registration. Graduate students are required to undergo registration procedure at the beginning of each academic year during the course of the programme. This is done within the first week of resumption except otherwise stated.

5.1 DURATION OF THE PROGRAMME

Full-time Ph.D candidates are required to spend a minimum of 24 calendar months and a maximum of 60 calendar months. Part-time Ph.D candidates on the other hand, are required to spend a minimum of 36 calendar months and a maximum of 48 calendar months. A student who fails to meet this deadline maybe asked to withdraw from the programme, (see overstay policy)

5.2 GRADUATION REQUIREMENTS FOR A DOCTOR OF PHILOSOPHY DEGREE IN THE DEPARTMENT

To obtain a Doctor of Philosophy Degree from the Department of Animal and Environmental Biology, a student must be registered in the department for not less than 24 calendar months (for full-time students) and 48 calendar months (for part-time students) and present a Thesis based on original research conducted in his/her chosen field of study.

6.0 GUIDELINES ON THE SUPERVISION OF GRADUATE STUDENTS

Academic staff below the rank of Reader/ Professor shall not supervise more than one Ph.D candidate in any annual intake. A Reader/Professor may supervise two Ph.D candidates in annual intake. Academic staff supervising Ph.D students should not normally be below the rank of Senior Lecturer.

7.0 COURSE ASSESSMENT

A Ph.D student is expected to pass all taught courses with a minimum pass score of 50% (Grade "C"). Students are also assessed through continuous assessment which

constitutes 30% of the examination score of each course. A student who fails a course shall register for it at the next available opportunity. A graduate student may not register for a course more than twice. Students may be required to undertake courses in the department necessary for the programme if such a student has no such background.

At the end of the first-year course work, the student should have a **cumulative** grade point average (CGPA) of not less than 3.00. Any student whose CGPA falls below at the end of the first year shall be asked to withdraw from the programme. No student is allowed to proceed to thesis production without a CGPA of at least 3.00. A student who has exhausted both opportunities for all required courses without attaining a CGPA of 3.00 shall be asked to withdraw. The comment "W" (withdraw) shall be used for the record of the student who withdraws from their programme.

8.0 COURSE WORK GRADING

MARK	LETTER GRADE	GRADE POINTS
70 and above	5	A
60-69	4	B
50-59	3	C
0-49	0	F

EXAMINATION

A qualifying Ph.D examination shall be taken and passed at the end of the first year, which can be resat in the event of failure (less than C grade) only once.

To obtain a Ph.D degree in any of the fields covered by the Ph.D programme of the department, a student must be registered in the department for not less than 24 calendar months(for full time students) and 48 calendar months (for part-time students), complete the academic programme, present and successfully defend a research thesis.

THESIS/ RESEARCH PROJECT

a) *Examination of Thesis*

In addition to being successful in the coursework and the qualifying examination, candidate's thesis shall be orally assessed by a

panel of examiners.

b) *Additional regulation governing presentation of Thesis*

The research project must be supervised by a senior academic staff and write-up must conform to the format of the university.

9.0 ACADEMIC AD VISERS

Every student in the department is attached to an academic adviser who is a member of academic staff assigned to each student on post graduate programme at the beginning of each academic session.

Academic advisers are expected to follow their student's academic progress and provide counseling to them on academic affair as well as on personal matter.

10.0 SCHOLARSHIPS, ACADEMIC AWARDS AND PRIZES

The School of Graduate Studies has a scholarship scheme aimed at supporting indigent Ph.D students who have financial problems, and is driven by the University of Port Harcourt Alumni Association.

11.0 TEACHING AND RESEARCH ASSISTANTSHIP

In addition to scholarship the CGS provides for the award of Research and Teaching Assistantships to carefully- selected number of students who will, in addition to being registered for a specified higher degree, be required to assist in practical and tutorials and act as research/teaching assistants to Academic Staff subject to or reserved exclusively for candidates registered for Ph.D programmes. Holders of the award are not allowed to hold any other paid employment.

12.0 COURSE CONTENT

FIRST SEMESTER YEAR ONE

Course No.	Course Title	Units
AEB 931.1	Seminar I (selected topics in Environment and Conservation Biology)	3
AEB 931.1	Advanced Environmental Assessment, Monitoring and Evaluation	3

Sub-total		6
SECOND SEMESTER YEAR ONE		
Course No.	Course Title	Units
AEB 934 .2	Seminar II (selected topics in Environment and Conservation Biology) Qualifying Exam	3
Sub-total		3

Note:

- (i) Student who have no background in environmental biology may be required to take some courses at the Masters level to update the relevant knowledge
- (ii) Any student that has not done CGS 801.1 and CGS 802.2 will have to take these courses with the M.Sc class

13.0 COURSE DESCRIPTION

FIRST SEMESTER

AEB 933.1 Advanced Environmental Assessments, Monitoring and Evaluation (Units3)

Risk assessment and management, risk

assessment matrix, environmental sensitivity index mapping, Biological amplification of pollutants, bioaccumulation and bioavailability modeling. Biological Monitoring using indicator species. Environmental Impact Assessment (EIA) Phases in Environmental Assessment Predictive Monitoring; Interpretation of Environmental Effects during and after Development Activity; Impact Assessment Network Simple Models in Environmental Assessment Phases in Ecological Risk Assessment, Limitations, Case studies of EIAs in Marine, Coastal/Brackish(Wetland) Ecosystems, Forest Ecosystems, Agro-Ecosystems Freshwater Ecosystem, Arid Ecosystem. Environmental management programmes, ISO standardization, IMM, EIS; Environmental Audits; types of audits; compliance audit, issues audit, health and safety audit, site audit, corporate audit, due diligence audit, activity or operational audit, product or life cycle audit, environmental legislation and company policy, evaluation of compliance with environmental legislation and corporate policies; measure performance against the requirements of an environmental management system standard.

ACADEMIC STAFF WITH AREAS OF SPECIALIZATION

Name	Qualifications	Area of Specialization	Rank
Sikoki, F.D.	B.Sc (Ibadan), M.Sc (Mich), Ph.D (Jos)	Fisheries and Hydrobiology	Professor
Nduka, F.O. (Mrs)	B.Sc., M.Sc., Ph.D (Nig)	Parasitology	Professor
Hart, A.I. (Mrs)	B.Sc (Ibadan), M.Sc., Ph.D (UPH)	Fisheries and Hydrobiology	Professor
Awi-Waadu, G.D.B. (Mrs)	B.Sc (Ibadan), M.Sc., Ph.D (Aberdeen)	Parasitology, Vector Biology/ Ecology	Professor
Imafidor, H.O. (Mrs)	B.Sc., M.Sc., Ph.D	Nematology/ Parasitology	Professor

	(UPH)		
Noutcha, M.A.E,	B.Sc (Maiduguri), M.Sc., Ph.D (Ibadan)	Entomology/Molecular Biology and Immunology	Professor
Vincent-Akpu, I.F. (Mrs)	B.Sc. (Lag), M.Sc., Ph.D (UPH)	Fisheries and Hydrobiology	Professor
Abah,A.E.	M.Sc., Ph.D (UPH)	Parasitology	Reader
Woke, G.N.	B.Sc., M.Sc., Ph.D (UPH)	Fisheries and Hydrobiology	Senior Lecturer
Nzeako, S.O.	B.Sc(UNN), M.Sc., Ph.D (UPH)	Nematology/Environmental Parasitology	Senior Lecturer
Gbarakoro, T.N.	B.Sc., MPhil (RSUST), Ph.D (UPH)	Environmental Entomology/Arachnology	Senior Lecturer
Eze, N.C. (Mrs)	B.Sc (Nsukka), M.Sc., Ph.D	Environmental Parasitology	Senior Lecturer
Babatunde, B.B.	B.Sc., M.Sc (Ibadan). Ph.D (UPH)	Ecotoxicology/Environmenta l Radioactivity	Senior Lecturer
Oriakpono, O.E.	B.Sc (Unical), M.Sc., Ph.D (UPH)	Genetic Toxicology/Ecotoxicology	Senior Lecturer
Komi Gentle W.	B.Sc, M.Sc., Ph.D (UPH)	Fisheries and Hydrobiology	Lecturer I
Dr. Abajue, M.C	B.Sc, Ph.D (NAU, Awka)	Forensic Entomology	Lecturer I
Dr. Wogu, M. N.	B.S.C. (Benin) M.Sc. Ph.D (UPH)	Parasitology	Lecturer I
Dr. Obinna, V.C.	DVM (UNN), M.Sc., Ph.D (UPH)	Reproductive Physiology and Toxicology (Animal Health & Physiology Unit)	Lecturer I
Mrs. E. P. Kika	B.Sc (UPH) M.Sc	Environmental Biology	Lecturer II
Dr. Ojimekwe	B.Sc (UPH), MSc (London), PhD (UPH)	Epidemiology and Ecology	Lecturer II

DEPARTMENT OF PLANT SCIENCE AND BIOTECHNOLOGY

INTRODUCTION

The Department of Plant Science and Biotechnology started as the Botany discipline in the School of Biological Sciences of the University of Port Harcourt in 1999. On the 1st of October 1983, the School system was changed to the faculty system with the creation of the Faculty of Science. The former Schools of Chemical, Biological and Physical Sciences formed the component parts of the Faculty. In 1998, the name of the programme was changed from 'Botany' to 'Plant Science and Biotechnology'. The Faculty of Science was transformed into the Collegiate system with the name 'College of Natural and Applied Science' headed by a Provost in 2012 – a reflection of the growth recorded in over 25 years of her existence. However, in 2015 the collegiate system was reverted back to the faculty system.

From inception the Department was located at the University of Port Harcourt temporary site at Choba Park but later in 1994, it was relocated to the multipurpose Complex (Ofirima Hall) at the University Park. The Departmental general office is on the first (1st) floor of the south wing of Ofirima Complex. The staff offices, Herbarium, Library and Laboratories are located on the East and North wings (on the 2nd floor) while the lecture rooms are located at the west wing (on the 2nd floor).

THE PHILOSOPHY AND OBJECTIVES OF THE DEPARTMENT

Philosophy

The philosophy of the programme is to endow our graduates with the lucid knowledge and sound understanding of the concepts and techniques of Plant Science and Biotechnology to meet critical societal needs pertaining to plant life. All aspects of human existence including food security, shelter, medicines and environmental regeneration are touched on by the sustenance of plant biodiversity therefore the student of the programme is exposed to the body of knowledge to meet these needs.

This is in keeping with the National Universities Commission (NUC) statement on Minimum Academic Standards (MAS). In the formation of

the curriculum, care has been taken to ensure that the appropriate courses are taught at any given level of exposure. The students are provided with a broad-based exposure to knowledge that produces a well-rounded individual fit to take up responsibilities at the higher-level labour needs of the nation.

The undergraduate programme leads to award of Bachelor of Science (Honours) degrees in Plant Science and Biotechnology

THE OBJECTIVES OF THE DEPARTMENT ARE:

The objectives of the programme are:

- (a) To advance knowledge in Plant Science and Biotechnology in order to enhance the skills and expertise required for self-reliance and gainful employment;
- (b) To provide a good academic environment as a necessity in preparing the students for scholarship and service;
- (c) To educate the students on the importance of "Research and Development" using the concepts and techniques of Plant Science and Biotechnology for the development of our immediate community and the nation; and,
- (d) To enable the students acquire knowledge through the broad-based training in relation to the BMAS as required by the National Universities Commission (NUC), thereby making our graduates competitive in various challenges and ventures.

Generally, the overarching objective of the programme is to groom graduates with sound understanding of the basic and applied aspects of Plant Science, Plant Biotechnology and Environmental Plant Science. These are expected to come out with high prospects of fulfilled careers in relevant aspects of our national economy.

THE JOB PROSPECTS OF THE PROGRAMME

There exists a plethora of career/job opportunities for graduates of the programme including the Oil and Gas Industry (from exploration to prevention of pollution), Pharmaceutical Industries and

Laboratories, Chemical and Agrochemical establishments, Police Departments, Conservation, Teaching and Research Institutes (e.g. University, NIFOR, IITA, NIHORT, and FIIRO etc). Others are Government Ministries and Agencies - NABDA, Customs & Excise, Environmental Protection Agencies (NESREA, NOSDRA), Agricultural and Natural Resources Management Concerns, Banks, Agriculture/Insurance Companies, Agricultural Estates, Consultancy Services, Tissue Culture and Micro propagation. The department has produced many prominent personalities both in Government and in the organized private sector.

The Department is well endowed with highly qualified scientists as lecturers, kind and friendly administrative and technical staff who are ever willing to help students build a future. This is reflected in the high number of our staff engaged in numerous extra curricula activities in and outside the University of Port Harcourt.

We have adequately equipped laboratories and highly trained technical members of staff that are happy to assist students in the safe and proper use of equipment. The department provides a platform hands-on training alongside peer interaction and review for our students and those in similar courses of other universities through field trips and excursions. Moreover, students are encouraged to belong to the approved professional association (National Association of Plant Science and Biotechnology Students).

We hold sacrosanct the six-month Industrial exposure period for our students to benefit from the Students Industrial Work Experience (SIWES). This is a worthwhile avenue for our students to identify, meet and interact with prospective employers and acquire requisite experiences and work ethics outside the classroom.

The department also participates in the Basic Studies programme, Post ACE/NCE Sandwich programmes, School of Science Laboratory Technology (SSLT) Programmes other certificate courses.

Approval has been obtained to expand our departmental Botanic Garden which we expect to be provided with state-of-the art facilities equipped

with standard Herbarium, Green/Screen houses, arboretum, etc for outdoor/field experiments.

The department also offers graduate programmes leading to award of Postgraduate Diploma. Other graduate degree programmes are: Master of Science (MSc) and Doctor of Philosophy (PhD) in Plant Ecology; Plant Taxonomy, Cytogenetics and Biosystematics, Plant Physiology, Plant Biotechnology, Mycology and Plant Pathology. On behalf of the Department of Plant Science and Biotechnology, I welcome everyone to a rewarding stay with us.

GRADUATE PROGRAMME

General:

The Postgraduate programmes in the department include

1. Postgraduate Diploma 'PGD' in Plant Science and Biotechnology,
2. Master of Science "MSc" in Plant Science and Biotechnology with options in
 - a. Plant Physiology
 - b. Plant Ecology
 - c. Plant Pathology/ Mycology and
 - d. Plant Taxonomy/Biosystematics.
3. Doctor of Philosophy "PhD" degrees in Plant Science and Biotechnology with options in:
 - a. Plant Physiology
 - b. Plant Ecology
 - c. Plant Pathology/Mycology and
 - d. Plant Taxonomy/Biosystematics.

POST GRADUATE DIPLOMA PROGRAMME (PGD)

Duration and mode of study

1. The Full time PGD programme will run for a minimum of two semesters (2) and a maximum of four (4) semesters in line with both NUC BMAS for graduate programmes and the academic calendar of the College of Graduate Studies of the University of Port Harcourt.
2. The second mode of study is a Part time programme which runs for a minimum of four semesters (4) and maximum of six (6) semesters; however, start up for this mode is subject to approval by the departmental graduate board.

Admission Requirements

Admission into the Post-Graduate Diploma Programme of the department requires that:

1. All candidates must have five credit passes including English, Mathematics and two other relevant science subjects at 'O' Level.
2. Candidates with Bachelors degree from an approved university who have obtained a minimum of pass degree in the relevant science discipline.
3. Holders of HND in relevant programmes from approved institutions with a minimum of Upper Credit may be considered for admission. Relevant disciplines include but not restricted to Botany / Plant Science, Microbiology, Agriculture, Crop Science, Biochemistry, Genetics, Biotechnology or related fields depending on the preferred PGD option.

Graduation Requirements

A candidate must fulfill the following conditions to be awarded the Postgraduate Diploma.

A candidate must take a minimum of 30 credit units made up of 15 credit units in core courses, 9 credit units in electives and 4 compulsory credit units of Research Project. An enlisted student in this programme should obtain minimum CGPA of 3.5 (Lower credit on a 5 point scale) to be qualified to pursue a Master of Science degree in the applicable option in the department.

Academic Regulations

1. The programme shall be run on modular basis with courses spread out for two 15-week semesters ending with two weeks of examination.
2. A student shall duly complete registration of courses for the semester in not later than two weeks of the start of the semester. Once registered, a student may not withdraw from the course after 5 weeks of lectures except with a written permission from the Dean, School of Graduate Studies.
3. Where a student violates the requirements in 2 above, he/she is deemed to have failed the course.
4. If a student fails to sit for more than 2 courses at the end of a semester without approval, such student is deemed to have voluntarily withdrawn from the programme.

5. A student is in good standing when his/her CGPA for each semester is not less than 3.00/5.00; if for two consecutive semesters a student's CGPA is less than 3.00/5.00 the student shall be withdrawn from the programme.
The pass mark in any course shall be 50%.

The Course content of the Programme

PGD IN PLANT SCIENCE AND BIOTECHNOLOGY

FIRST SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 700.1	Plant Morphology and Anatomy	3
PSB 701.1	Plant Taxonomy	3
PSB 702.1	Mycology	3
PSB 703.1	Plant Physiology	3
PSB 704.1	Plant Ecology	3
PSB 705.1	Plant Genetics and Breeding	3
Total		21

SECOND SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 706.2	Plant Biotechnology	3
PSB 707.2	Biometrics	3
PSB 708.2	Biodiversity and Conservation of Natural Resources	3
PSB 709.2	Plant Pathology	3
PSB 710.2	Seminar	3
PSB 799.2	Research Project	4
Total		19

SYNOPSIS OF COURSES FOR PGD PROGRAMME

PSB 700.1: Plant Morphology and Anatomy

Plant life cycles and Alternation of generations; Vegetative structures of lower plants; Reproductive structures of lower plants; Structures and structural variations of parts of angiosperms: The leaf, the stem, the root, the flower; the fruit, the seed; Structural response to changes in the environment; Modifications in reproductive structures; Modifications in vegetative structure; specialized morphological structures such as

thorns, tendrils, carnivorous structures etc. Cells, tissues and organs; Internal structures of lower plants; fungi, algae, lichens, bryophytes, pteridophytes, Ferns; Anatomy of leaves, stems, roots, flowers, fruits, seeds. Anatomical variations due to modifications of the environment; specialized anatomical structures: trichomes, stomata, periderm, hydathodes etc. Anatomy of the embryo. (3 Units)

PSB 701.1: Plant Taxonomy

Origin of classification; The renowned early days of classification; the taxonomic hierarchy, Systems of classification; Nomenclature classification and identification; Construction of taxonomic keys; Rules of the International Code of Botanical Nomenclature (ICBN); Collection, storage, and retrieval of taxonomic evidence. Character and character states; The sources of taxonomic evidence: Cytogenetics and molecular genetics as sources of taxonomic evidence; Application of structural information to classification (vegetative, and reproductive structural information including palynology); application of information on plant biochemistry, occurrence and distribution of chemical compounds in plants as sources of taxonomic evidence; phytogeography and effect of the environment on sources of taxonomic evidence; Procedure for collection, identification and preservation of biological specimens. Wax embedding techniques. Photometry. Colorimetry (3 Units)

PSB 702.1: Mycology:

Morphology, taxonomy, physiology, reproduction and ecological characteristics of various groups of fungi (3 Units)

PSB 703.1: Plant Physiology

Water absorption, Transpiration, Stomatal movement, Mineral nutrition, Active uptake of ions, Photosynthesis, Respiration, Transport systems in Plants, Dormancy, Germination, Juvenility, maturation, senescence and Death, Tropisms, Flowering; Growth physiology. Dynamics of growth and development. Patterns of growth. Factors affecting growth morphogenesis, morphogenetic phenomenon and morphogenetic factors. Physiological effects of hormonal action, auxins, gibberellins, cytokinins ethylene, inhibitors. Physiology of some special organisms,

tree physiology and physiology of angiosperm parasites. (3 Units)

PSB 704.1: Plant Ecology

Ecological concepts. Ecosystem structure, organization and functions. Succession and climax; a survey of the structure and functions of the major vegetation types of Nigeria and the world. Qualitative and quantitative analysis of plant communities. Pattern, ordination and classification. Analysis of vegetation and environmental factor relationships. Analysis of competition in plant communities. The concept of population. Characteristics of populations. Growth, dispersal and dynamics of plant populations. Plant production processes. Thermodynamics and factors of production in the communities. Gross and net primary productions. Measurements of production (below/above ground and litter) in various communities aquatic, rangelands and forests. (3 Units)

PSB 705.1: Plant Genetics and breeding

Definition and historical development of plant breeding; its significance and scope; genetic basis of breeding. Review of Mendelian principles of inheritance, linkage, heritability; sources of variation/mutation including genic and chromosomal; Deviation from Mendelism; Heritable and non-heritable characteristics. Mendelian genetics. Gene interactions, quantitative genetics. Extrachromosomal inheritance. Sex determinations, linkage and recombination in eukaryotes. Introduction to recombination in prokaryotes. Chromosome morphology; variations in ploidy level and chromosome behavior; organization of chromatin and chromosomes; Mutation. Recombination in prokaryotes and viruses. Sex-linked inheritance introductory cytogenetics. Genetic engineering; cloning and recombinant DNA technology. Introduction to population genetics. Molecular genetics; DNA methylation and gene manipulation; *In situ* hybridization and its application in genetic studies (3 Units)

PSB 706.2: Plant Biotechnology

Cell and organism transformations, rapid micropropagation of plant materials; germplasm conservation and exchange, *in vitro* production of plant secondary metabolites, modern techniques in

plant biotechnology RFLP, PCR, RAPD, ELISA, MBA, AFLP, SSR etc., biohazards and biosafety, Intellectual property rights (IPR) and patents; Bioethics and Biosafety; Bioremediation; Local materials and techniques used in plant biotechnology. (3 Units).

PSB 707.2: Biometrics

Use of statistical methods in biology and agriculture. Frequency distributions. Laws of probability. The binomial, Poisson and normal probability distributions. Estimations and tests of hypothesis. The binomial design of simple agricultural and biological experiments. Analysis of variance and covariance, simple regression and correlation, contingency tables. Some non-parametric tests. (3 Units)

PSB 708.2 Biodiversity Conservation and Development of Natural Resources

Introduction to diversity in the plant kingdom ranging from bacteria, algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms, concepts important to conservation, history of conservation. Classification of natural resources: Abiotic and biotic resources; stock and flow resources: and rationale for conservation. International problems of conservation.. Inventory techniques for bio-natural resources. Conservation approaches for abiotic and biotic resources. Development and management of bio-natural resources, human communities, grassland, forests, fisheries and wildlife. Conservation of our biophysical environments urban and rural. (3 Units)

PSB 709.2: Plant Pathology:

Definitions to concept of Disease, History of Plant pathology, Diagnosis of Diseases and Disease symptoms. Characteristics of disease causing agents. Development of plant Disease. Loss assessment. Role of Enzymes toxins and Growth Regulators. Host plant response to pathogenic attack. General principles of Disease Control. (3 Units)

PSB 710.2: Seminar

The seminar is to be presented on a topic outside the students' research work agreed with the supervisor and assessed based on requirements

being defined by the academic board of the department. (3 Units)

PSB 799.2. Research Project

An independent study and investigation of a problem in Plant Science and Biotechnology with well defined objectives utilizing laboratory analysis, data interpretation and the preparation of a report. It is to be examined by a panel of examiners (4 units)

M.SC. PROGRAMME IN PLANT SCIENCE AND BIOTECHNOLOGY

The broad areas of specialization include Plant Physiology; Mycology and Plant Pathology; Plant Taxonomy and Biosystematics; and Plant Ecology.

1. Admission requirements - All Masters Programmes in the department shall be Academic Master's and not professional Master's programmes. To qualify for admission into the programme, eligible candidates must have obtained:

- a. Five credit passes with English and Mathematics in addition to any two relevant subjects at 'O' Level.
- b. A Bachelor's degree from an approved university with a minimum of Second Class Lower Division for an academic programme.
- c. Candidates with at least third class degree or HND and University PGD with CGPA of 3.50/5.0 may be considered for admission into the MSc programme.

2. Duration of Programme

A full time MSc programme shall run for a minimum of 3 semesters and a maximum of 5 semesters whereas a part time programme shall run for a minimum of 5 semesters and a maximum of 8 semesters. Any extension of programme for any reason must be with approval from Senate.

3. Graduation requirements

To be awarded the Master of Science degree, a candidate must fulfil the following conditions:

- a. Pass a minimum of 30 credit units; 24 of which shall include general courses,

- research projects and seminars and 6 elective credit units.
- b. Present at least one seminar, submit and defend a dissertation proposal
 - c. Carry out research project in a relevant area of specialization, submit an acceptable dissertation as well as undergo a *viva voce* before a panel of internal and external examiners.

4. Academic Regulations

1. The programme shall be on modular system with courses spread out for two 15-week semesters ending with two weeks of examination.
2. A student shall duly complete registration of courses for the semester not later than two weeks of the start of the semester. Once registered, a student may not withdraw from the course after 5 weeks of lectures except with a written permission from the Provost College of Graduate Studies.
3. Where a student violates the requirements in 2 above, he/she is deemed to have failed the course.
4. If a student fails to sit for more than 2 courses at the end of a semester without approval, such student is deemed to have voluntarily withdrawn from the programme.
5. A student is in good standing when his/her CGPA for each semester is not less than 3.00/5.00; if for two consecutive semesters a student's CGPA is less than 3.00/5.00 the student shall be withdrawn from the programme.

The pass mark in any course shall be 50%.

In compliance with NUC Post graduate studies BMAS the core courses for the award of Master of Science degree in the discipline shall be as follows:

FIRST SEMESTER

Compulsory Courses for all Options

COURSE CODE	COURSE TITLE	CREDIT UNITS
SGS 801.1	ICT and Research Methodology	2

PSB 801.1	Advanced Plant Biotechnology	3
PSB 802.1	Environmental Audit and Impact Assessment	3
PSB 803.1	Field Studies of Nigeria Flora	3
PSB 804.1	Advanced and current techniques in Plant Breeding	3
PSB 805.1	Science, Environment and Innovations	3
PSB 806.1	Evolution and Diversity of major Plant Groups	3
Total		20

SECOND SEMESTER

Compulsory Courses for all Options

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 800.2	Seminar	3
PSB 899.2	M.Sc Dissertation	6
SGS 801.2	Entrepreneurship and Management	2
Sub-Total		11

M. Sc PLANT ECOLOGY (ANY THREE COURSES)

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 807.2	Techniques in Plant Ecology	3
PSB 808.2	Ecosystem Pollution/Landscape Restoration Ecology	3
PSB 809.2	Production Ecology	3
PSB 810.2	Biogeography	3
PSB 811.2	Ecology of Aquatic Macrophytes	3
Total CU for 2nd Semester		9
Total CU for 2nd Semester		20

Note: * Means the course is compulsory for the option

M.Sc PLANT PHYSIOLOGY OPTION (ANY THREE COURSES)

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 812.2	Plant Growth Regulatory Substances	3

domestication and utilization in medicine. (3 Credit Units)

PSB 805.1: Science, Environment and Innovations

Element of global warming, environmental protection issues, biodiversity, pollution, species at risk, social and ethical implications of science, enterprise and productivity, intellectual property rights, private public partnership and investment will be covered in this course. (3 Credit Units).

PSB 806.1: Evolution and Diversity of Major Plant Groups

Origin of plants: Green algae multicellular and mosses as aquatic ancestors. Movement of land: mosses and liverworts. Characteristics of first terrestrial plants. Origin of seeds. Evolution of higher plants and their diversity. Importance of plant diversity. Relationship between families of flowering plants. Diversity and evolution of gymnosperms. Reticulate evolution of higher plants. Evolution of flower. Ecological importance of species diversity. (3 Credit Units).

SGS 801.2. Management and Entrepreneurship

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving. (2 Credit Units)

PSB 807.2: Techniques in Plant Ecology

Plant sampling techniques in aquatic, forest and savanna ecosystems. Elements of forest mensuration; data collation, cleaning, coding, information retrieval, significance testing, multiple and partial correlation and regression. Classification, clustering, ordination and principal component analysis. Analysis of abiotic and biotic components of ecosystems. Soil analysis. Diversity and similarity indices. Competition in plant communities. Ecosystem modeling and systems approach to ecological problem. (3 Credit Units).

PSB 808.2: Ecosystem pollution and Restoration Ecology

The study of major pollutants: oil and petrochemical, heavy metals, solid wastes of aerial, terrestrial and aquatic environment and their effects on other components of ecosystems.

Causes and effects of land degradation; deforestation, overgrazing, over cultivation, fire/bush burning, soil erosion, contamination by oil, pesticides and other polyaromatic hydrocarbons (PAHs). Forest decline and soil acidification. Land restoration and reclamation. Plant species selection and planting materials. Nursery and field practices for reforestation/re-vegetation. Watershed management. Ecological succession. Energy and nutrient dynamics of climax communities. Landscape horticulture. (3 Credit Units).

PSB 809.2 Production Ecology

The characteristics of freshwater brackish, marine, wetland and habitats and their effects on ecosystem production. Primary and secondary production processes. Basis of ecosystem production. Nutrient status factors. The structure and architecture of ecosystems. Diversity and production relationships. Ecological energetic. Laws governing energy transformation in nature. Energy budgets. The trophic dynamic aspect of ecology. Food chains and food webs etc. Wetland conservation (Government policies governing wetland conservation). (3 Credit Units)

PSB 810.2: Biogeography

Importance of biogeography; distribution of species, genera and families: Endemic species and genera. Pan tropical species and genera. Discontinuous species and genera; Factors of distribution (climatic, edaphic, geographic and dispersal effects). Theory of tolerance. Floristic regions of the world. Vegetation mapping. (3 Credit Units).

PSB 811.2 Ecology of Aquatic Macrophytes

Diversity of aquatic habitats and their vegetation; Growth form and life form classifications; Distribution and growth of aquatic macrophytes; Reproductive strategies of aquatic macrophytes. Structural and dynamic characteristics of aquatic plant communities: Primary production and energetics; Nutrient uptake and release. Problems and control of noxious weeds: conservation of aquatic macrophytes. (3 Credit Units).

PSB 812.2: Plant Growth Regulatory Substances

The auxins, chemical nature and roles of auxin translocation. Gibberellins: chemical nature and

roles of Gibberelins, translocation of Gibberellins. The cytokinins: roles of the cytokinins, synthesis of cytokinins. Abscisic acid: roles of abscisic acid. Vitamins. Ethylene: effects of ethylene. Other hormone like substances in plants. Mechanism of hormone action. Interactions among hormones. Ecological importance of hormonal actions. (3 Credit Units).

PSB 813.2 Growth and Developmental Physiology in Plants

Plant growth: Effects of irradiance, light quality, temperature, duration of light on reproductive growth. Seasonal and geographic aspects of photoperiodism. Long-day, and short-day plants as the basic categories. Photoperiodic induction, mechanism of photoperiodism. Rhythmic behavior of plant processes. Growth and vernalization and apical dominance cyclical periodicity abscission and mechanism of abscission. Dynamics of primary vegetative growth. Tootipotency. Measures of indices of growth and rates of growth. Alternative ways of plant growth of their products for world market. Hormones in horticulture and agriculture. (3 Credit Units).

PSB 814.2: Advanced Biological Techniques

Phytochemical Methods: Electrophoresis, chromatography, anatomical and histological techniques. To demonstrate chemical processes involved in variety of biologically important processes e.g., photosynthesis, mitochondrial respiration, nitrogen fixation, and carbon transfer etc. (3 Credit Units).

PSB 815.2 Nutrient Metabolism in Plants

Plant soil and water relationships. Nutrient uptake; Mechanisms and theories of nutrient uptake; Roles of major and minor plant nutrients in plant metabolism. Nutrient interactions and deficiency symptoms. Biofortification and Genetic improvement of plants for enhanced micronutrient content. Analytical techniques in plant nutrition studies hydroponics. Techniques in radio labeling/tracer studies. (3 Credit Units).

PSB 816.2: Advanced Physiology and Metabolism

Energy metabolism, electron donors and acceptors and their electron potentials. Enzymes, coenzymes and mechanisms of action. Catabolism and

anabolism pathways for proteins, lipids and carbohydrates. Nitrogen fixation and its function in plant development. Types and distribution of proteins, lipids and carbohydrates. (3 Credit Units).

PSB 817.2: Taxonomic Data Processing and Presentation

Collection of plants; preparation of herbarium specimens; preparation of microscope slides. Geographical and morphological methods in presentation of data, literature mapping, tabulation, symbolic and graphical methods. Identification: keys, comparison with named materials, nomenclature. Use of methods of numerical taxonomy in construction of taxonomic groups. Relevance of taxonomy in plant identification and usage. (3 Credit Units).

PSB 818.2: Principles and Procedures of Plant Taxonomy

Historical background: the natural system and the value of character. Phonetic and phylogenetic concept in taxonomy including rules and nomenclature, the categories in taxonomy. Evolution, identification of flowering plants. Recent trends in plant taxonomy. (3 Credit Units).

PSB 819.2: Cytogenetics, Evolution and Phylogeny

Chromosomal organization in relation to gene environment, genetic recombination in population the use of genetic system in evolution, the origin of species of hybridization its origin and its significance polyploidy occurrence, distribution and its importance. (3 Credit Units).

PSB 820.2 Palynology

Pollen diagrams and their interpretation. Fossil vegetation maps. Palynology and mineral oil exploitation. Pollen load of the atmosphere. Pollen grains and allergy. (3 Credit Units).

PSB 821.2: Physiology of Plant Diseases

Degradation of host plant tissue by pathogens, breakdown of cellulose; unienzyme theory, two enzyme theory and multi-enzyme theory. Pectic substances, mechanisms of wilting physiological wilting and pathological wilting; production of toxins blocking of vascular elements by substances tyloses. Production of enzymes by parasites. Production of substances with growth regulating

activity. Respiration of diseased plant. Plant vigor and protection. (3 Credit Units).

PSB 822.2: Advanced Phytopathology

Advances in mechanisms of disease development and control. Methods and materials used in plant disease control and the problems involved in their application. Survey of principles of hand and mechanically operated machinery for applying pesticides. Biological control. The physiological and biochemical of plant parasitic diseases. Pre and post penetration, interactions of the host and pathogen. Assaying of phytotoxins, phytoalexins, cell wall-degrading enzymes and growth substances produced during pathogenesis. (3 Credit Units).

PSB 823.2: Viral and Mycoplasma Diseases

A review of plant diseases including distinction between bacterial diseases, fungal disease and viral diseases should be highlighted. Transmission of plant viruses: through insects, animals, mechanical transmission, vegetative propagation, seeds, dodder, fungi, etc. Physical and chemical properties of viruses, virus structure and chemistry; diseases swollen shoot, cassava mosaic, pepper mosaic. Applications in plant breeding. (3 Credit Units).

PSB 824.2: Control of Plant Diseases

The chemical structure and mode of action of fungicides. Factors influencing fungicides. The evaluation of fungicides in the laboratory. Methods of application of fungicides. Different treatments of lumber with fungicides. Application of nematicides. Current trends in the control of plant diseases. (3 Credit Units).

PSB 825.2: Advanced Mycology/ Mushroom science

Evolutionary patterns of fungi and the criteria used in fungal taxonomy. Fungal ecology in relation to both man and plants. Aeromycology with emphasis on spore liberation and dispersal. Fungal differentiation and biotechnology. The history, basic principles and cultural practices of Mushroom production, including a survey of locally occurring edible species. Various methods of growing mushrooms. Factors affecting growth and basidiocarp formation *in vivo* and *in vitro*. Mushroom abnormalities; their pests and control. Mushroom chemistry, including nutritive value,

poisons and treatment. Growth habits of selected local species of edible mushrooms. (3 Credit Units).

PSB 800.2: Seminar

A candidate for the M.Sc degree will be required to present a seminar on a topic selected from within the study area before the Departmental Graduate Committee. The performance of a candidate shall be evaluated for the award of marks by a panel selected by the Departmental Graduate Committee.

Apart from the oral presentation, the seminar shall be typewritten, soft-bound and submitted to earn credit. (3 Credit Units)

PSB 899.0: Project Work

A candidate for the M.Sc degree shall undertake an independent research in the particular field of specialization under the guidance of a supervisor appointed by the Department Graduate Committee and approved by the Graduate School and the University Senate. A report on the research project shall be submitted to the Department. The candidate shall be examined orally by a panel of external and internal examiners. (6 Credit Units).

Ph.D PROGRAMME IN PLANT SCIENCE AND BIOTECHNOLOGY

The broad areas of specialization are Plant Taxonomy and Biosystematics; Plant Ecology; Mycology and Plant Pathology, Plant Physiology and Plant Biotechnology.

These programmes are aimed at training graduate students to become mature, independent scholars and researchers with the capacity and capability to generate research questions, carry out analyze results and apply findings to solve problems relating to sustenance of life on planet earth. Doctor of Philosophy degree holders from the department are expected to provide leadership in the academia, research institutes and industrial establishments.

Acceptance by an eligible staff to supervise a candidate is a pre-requisite to being recommended for admission by the Departmental Graduate Studies Committee. Prospective candidates

are therefore advised to make contacts with staff of the department before applying for a place.

A series of three seminars is to be delivered by each student. The first and second shall involve and center on data obtained from student's

research project. The third is the University-wide Seminar presented at the School of Graduate studies and though evaluated for content and accuracy by various academic staff, these seminars are not graded. The last seminar is usually delivered before the student is presented for Oral Defence of his/her PhD Thesis.

In consultation with a student's project supervisor, a candidate may be advised to audit courses relevant to the area of specialization, if found deficient after enrolment. (For more information, consult the general Prospectus of the School of Graduate Studies).

1. Admission requirements

Prospective candidates for admission into the PhD programmes are expected to meet the following entry requirements:

- i) MSc degree of the University of Port Harcourt or any approved University. The candidate must have a minimum CGPA of 3.5 in a 5.00-point scale or 2.80 in a 4.00-point scale.
- ii) Students deficient in any area in the MSc programme (Appendix 1) will be required to remedy the deficiency.
- iii) Shortlisted applicants are expected to submit a proposal on their intended research interest to the Departmental Graduate Studies Committee. The candidate will be interviewed by the committee and only candidates that pass the interview with scores of **50 % (C)** and above will be admitted into the programmes.

2. Requirements Governing Course and Examination

- i) The PhD degree programmes of the department are in line with the framework of the College of Graduate Studies Regulations.
- ii) The programmes comprise course work, seminars and dissertation.
- iv) The courses shall have a maximum credit unit of 3 and the dissertation shall have a credit unit of 12.

3. Fields of Specialization

Students are expected to specialize in any one of the following fields of Plant Science and Biotechnology:

- i) Plant Physiology

- ii) Plant Pathology / Mycology
- iii) Plant Ecology / Plant Taxonomy / Biosystematics
- iv) Plant Biotechnology

6. Course Requirements

The PhD students are required to take 9 credit units in the first year. This consists of one (1) taught course and two (2) seminars (involving one seminar per semester). Where a student admitted into the programme holds a degree other than that of University of Port Harcourt, the student shall take all compulsory courses as defined in the MSc Programme in addition to the regular PhD courses. The subsequent years shall be allotted to research work and writing of the Doctoral thesis.

7. Duration of the Programmes

- a) **Full Time:** The candidates offering the Full Time programme are required to complete their work in a minimum of 24 calendar months (i.e. 2 years) and a maximum of 80 calendar months (i.e. 5 years).
- b) **Part Time:** The candidates offering the Part Time programme are required to complete their work in a minimum of 38 calendar months (i.e. 3 years) and a maximum of 84 calendar months (i.e. 9 years).

9. Continuation Requirement

- i) Courses will be assessed based on written examination and continuous assessment
- ii) All courses must be completed with a grade not less than a 'C'.

10. Qualifying Examination

- i) There will be a qualifying examination at the end of the second semester of the first year of each programme.
- ii) The student is expected to have a minimum pass grade 'C' in the qualifying examination. If the student fails, the student shall be given one more chance to repeat and pass the examination.
- iii) In the first semester of the second year, the candidate and the supervisor will choose a thesis topic, which has to be approved by the Departmental Graduate Studies Committee, the Faculty Graduate Studies Committee and the Board of the School of Graduate Studies. The student is expected to meet the seminar requirement of the school of Graduate

Studies, i.e. a) Proposal seminar to the Department, b) Result Seminar to the Faculty and c) Final Seminar to the School of Graduate Studies.

11. Thesis

The research will be carried out under the supervision of supervisors, appointed for the student by the Departmental Graduate Studies Committee and approved by the Board of the Graduate School of Studies.

12. Examination of Thesis

Based on the performance of the student at the School of Graduate Studies seminar, the Department will be authorized to proceed with arrangements for external examination of the student's thesis. The panel for the defence of the student's Thesis is as recommended by the School of Graduate Studies.

The examination shall be oral, based on the student's research work, field of specialization and any other related area chosen by the examiners. The examiners shall submit their report jointly signed as follows:

- i) Chairman of Examination Panel (Dean, School of Graduate Studies)
- ii) External Examiner
- iii) Dean of Faculty.
- iv) Head of Department
- v) Supervisors.

All the above are subject to the general University regulations governing higher degree programmes.

Ph.D IN PLANT PHYSIOLOGY OPTION

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 900.1	Applied Plant Physiology	3
PSB 901.1	Seminar I: Physiological Toxicology	3
PSB 902.2	Seminar II: Plant Physiological Processes	3
PSB 912.2	Ph.D Thesis	12
	Total	21

Ph.D IN PLANT PATHOLOGY/ MYCOLOGY

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 903.1	Advances in Crop Protection, Disease Control, Field and Storage Disease of Crops	3
PSB 904.1	Seminar I: Applied Plant Pathology and Mycology (e.g. Mycotoxins)	3
PSB 905.2	Seminar II: Molecular Tools for the study of Systematics, Evolution and Ecology of Plant Pathogens	3
PSB 912.2	PhD Thesis	12
	Total	21

Ph.D IN PLANT TAXONOMY/ BIOSYSTEMATICS

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 906.1	Principles and Procedures of Plant Molecular Systematics	3
PSB 907.1	Seminar I: Advances in Taxonomic Data Processing and Presentation	3
PSB 908.2	Seminar II: Principles and Applications of Bioinformatics	3
PSB 912.0	Ph.D Thesis	12
	Total	21

Ph.D IN PLANT ECOLOGY

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 909.1	Measuring, Monitoring and Conservation of Plant Populations	3
PSB 910.1	Seminar I: Molecular Techniques used in Ecological Studies	3
PSB 911.2	Seminar II: Applied Plant Ecology	3
PSB 912.0	Ph.D Thesis	12

Total 21

Ph.D IN PLANT BIOTECHNOLOGY

COURSE CODE	COURSE TITLE	CREDIT UNITS
PSB 913.1	Applications of Plant Biotechnology in Biodiversity and Conservation of Natural Resources	3
PSB 914.1	Seminar 1: Advanced Cell Biology	3
PSB 915.2	Seminar 11: Genomics and Bioinformatics	3
PSB 912.0	Ph.D Thesis	12
	Total	21

SYNOPSIS OF COURSES FOR THE Ph.D PROGRAMME

PSB 900.1. Applied Plant Physiology

Source and sink controls. Yield components and maximization. Bionics. Hydroponics. Nutrient film techniques of selected crops, differential root/shoot development and application to spaceships and submarines. Regulants in agriculture. Plant growth modeling (modeling predicting yields) and CAD (Computer aided design) analysis. **(3 credit units).**

PSB 901.1 Seminar I: Physiological Toxicology (3 credit units)

PSB 902.2: Seminar II: Plant Physiological Processes (3 credit units)

PSB 903.1: Advances in Crop Protection, Disease Control, Field and Storage Diseases of Crops

Advances in weed control, Advances in pest control techniques; advances in seed and post-harvest storage technology; Application of crop protection in food processing; the principles and application of silo technology in plant products protection; The latest technologies applied in plant quarantine. **(3 credit units).**

PSB 904.1: Seminar I: Applied Plant Pathology and Mycology (mycotoxins) (3 credit units)

PSB 905.2. Seminar II: Molecular Tools for the study of Systematics, Evolution, and ecology of Plant Pathogens. (3 credit units)

PSB 906.1: Principles and Procedures of Plant Molecular Systematics

Manual DNA separation systems; automated DNA separation systems; DNA labelling systems and kits; nucleic acid markers; fluorescent proteins and their application in plants systematic; DNA and protei- based Bar-coding and their application to biosystematics; and germplasm conservation. **(3 credit units).**

PSB 907.1. Seminar I: Advances in Taxonomic Data processing and Presentation (3 credit units)

PSB 908.2. Seminar II: Principles and Applications of Bioinformatics (3 credit units).

PSB 909.1: Measuring, Monitoring and Conservation of Plant Population.

Monitoring overview, sampling principles objectives, and designs. Field techniques for measuring vegetations. Data management and reporting; conservation of rare and endangered plant species. **(3 credit units).**

PSB 910.1. Seminar I: Molecular Techniques used in Ecological Studies (3 credit units)

PSB 911.2. Seminar II: Applied Plant Ecology (3 Credit units)

PSB 912.2. Ph.D Thesis

This will take the form of a research project report of an investigation carried out on a topic chosen in an area of interest and proven academic competence under the supervision of not less than 2 Lecturers not below the rank of Senior Lecturer appointed by the Department Graduate Committee and approved by the Graduate School and the University Senate. A report on the research project shall be submitted to the Department. The candidate shall be examined orally by a panel of external and internal examiners. **(12 Credit units).**

Ph.D. IN PLANT BIOTECHNOLOGY

PSB 913.1 Applications of Plant Biotechnology in Biodiversity and Conservation of Natural Resources

Applications of DNA amplification and molecular markers in biotechnology. Plant tissue culture, methods and applications. Chemicals and plants interactions. Phytoremediation, methods, processes and types, merits and demerits. Phytoaccumulation and biomagnification of harmful chemicals. Modelling and Ecoevolutionary dynamics, Functional and Ecological Genomics, Molecular Ecology (3 Credit Units).

PSB 914.2. Advanced Cell Biology

Selected topics in Cell Biology – Emerging trends
Seminars and term papers (3 Credit Units)

PSB 915.1: Genomics and Bioinformatics

Selected topics in Genomics and Bioinformatics – Emerging trends
Seminars and term papers (3 Credit Units)

PSB 912.2. Thesis (6 credit units)

CURRENT STAFF LIST

The department has twenty nine academic staff, nineteen technical staff and six administrative staff as listed below.

ACADEMIC STAFF

S/N	NAME OF STAFF	QUALIFICATION	RANK	SPECIALISATION
1.	NYANANYO, B.L.	BSc (Lagos); Ph.D (Reading)	Professor	Plant Taxonomy/Biosystematics
2.	ATAGA, A.E.	BSc, MSc (JOS), PhD (MANCHESTER)	Professor	Physiology, Molecular & Environmental Plant Pathology,
3.	AKONYE, LOVE A.	BSc., MSc, PhD(UPH)	Professor	Plant /Environmental/ Stress /Physiological Toxicology
4.	NWACHUKW, E. O.	B.Sc (IMO), MSc, PhD PGDE (UPH), PGD (FUTO), REM (NREP)	Professor	Mycology/Plant Pathology & Environmental Technology
5.	OSUJI, J. O.	BSc, MSc, PhD (UPH)	Professor	Molecular Genetics & Cytotaxonomy
6.	OBUTE, G.C.	BSc (IMO), PhD (LAGOS)	Professor	Biosystematics & Cytogenetics
7.	AGBAGWA, I.O.	BSc, MSc, PhD (UPH).	Professor	Plant Taxonomy & Bioinformatics
8.	MENSAH, S.I.	BSc (ZARIA), MSc, PhD (GLASGOW)	Professor	Environmental Plant Physiology
9.	TANEE, F.B.G	B.Sc., M.Sc, PhD (UPH)	Professor	Plant Ecology
10.	AGOGBUA, J. U.	BSc (UPH) MSc (IBADAN); PhD (UPH)	Senior Lecturer / Ag. HOD	Genetics & Plant Breeding
11.	OCHEKWU, E.. B.	BSc (JOS) MSc (IBADAN), PhD (UPH)	Senior Lecturer	Ecology / Biocontrol/ Biometrics
12.	EDWIN-WOSU, N, L.	BSc, MSc (UPH), Ph.D. (Calabar)	Senior Lecturer	Ecology / Phytoremediation
13	WAHUA, C	BSc (UPH) MSc (RSUST); PhD (UPH)	Senior Lecturer	Plant Taxonomy / Biosystematics
14.	EREMRENA, P.O.	BSc (UPH) MSc (LAGOS); PhD (UPH)	Senior Lecturer	Plant Physiology
15.	ALBERT, E.	BSc, MSc, Ph.D (UPH)	Senior Lecturer	Plant Ecology
16.	OKONWU, K.	BSc, MSc, Ph.D (UPH)	Senior Lecturer	Plant Physiology
17.	IKECHI-NWOGU, C.G..	BSc, MSc, Ph.D (UPH)	Senior Lecturer	Plant Pathology/Mycology

DEPARTMENT OF BIOCHEMISTRY

POST GRADUATE DIPLOMA IN BIOCHEMISTRY

The following taught courses must be passed:

FIRST SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNIT
PGDB 700.1	Biochemical Design and Data Analysis	3
PGDB 701.1	General Metabolism and Regulation	3
PGDB 702.1	Enzyme and Protein Biochemistry	3
PGDB 703.1	Instrumentation and Techniques in Biochemistry	3
PGDB 704.1	Nutrition Biochemistry and Toxicology	3
PGDB 705.1	Biochemistry of Tissues & Organs	3
PGDB 706.1	Medical Biochemistry & Immunochemistry	3
Total		21

SECOND SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNIT
PGDB 708.2	Cell & Molecular Biology	2
PGDB 709.2	Plant & Soil Biochemistry	2
PGDB 710.2	Environmental Biochemistry	2
PGDB 711.2	Industrial Biochemistry	2
PGDB 712.2	Genetic Engineering & Biotechnology	2
PGDB 713.2	Seminar in Biochemistry	3
PGDB 714.2	Research Project	4
Total		13

NOTE: For PGDB 714.2, the candidates are required to present their findings to the Departmental Board for assessment of scope and quality before external defense and completion formalities are applied.

COURSE DESCRIPTION:

PGDB 700.1 BIOCHEMICAL DESIGN AND DATA ANALYSIS (3 Units)

What research is; scientific methods and research; comprehensive research plan. Types of research. Biochemical/experimental research. Concepts and variables. Solution of research problems using statistical methods such as variance, regression etc. choosing from a list of research topics.

PGDB 701.1 GENERAL METABOLISM AND REGULATIONS (3 Units)

General biochemistry of carbohydrates intermediary metabolism, glycogen metabolism and control, hexose monophosphate shunt, etc. general biochemistry of amino acid and proteins. Lipids, phospholipids and steroids. Biosynthesis and degradation of lipids. Comparative studies of the different pathways modifications of various pathways in different organisms. Interrelationship between the various metabolic pathways and their coordinate pathways.

PGDB 702.1 ENZYME AND PROTEIN BIOCHEMISTRY (3 Units)

Protein sequencing. Protein ligand interaction. Mechanisms and kinetics of single and bi-substrate enzyme catalyzed reaction. Transient kinetics. Concept of allosterism and cooperativity. Mechanisms for enzymes action, active site of enzymes and catalysis. Detailed study of enzymes e.g. Chyrotrypsin, ribonuclease, daspartate transcarbomylase, etc. Oligomeric proteins and multi-enzyme complexes. Roles of coenzymes and prosthetic groups. Proteins in tissue structures e.g. glycoproteins.

PGDB 703.1 INSTRUMENTATION AND TECHNIQUES IN BIOCHEMISTRY (3 Units)

Functional components of major instruments e.g. spectrophotometer, fluorimeter, centrifuges, chromatographic and electrophoretic equipments, radioactive counter, e.g. physical demonstration/introduction to these equipments. Techniques to include radio-immunoassay systems, radioisotope handling and quantification. Immunological techniques (e.g. antibody production). General principles of NMR in the laboratory.

PGDB 704.1 NUTRITIONAL BIOCHEMISTRY AND TOXICOLOGY (3 Units)

Principles of food science and technology. Processing and preservation of local food stuffs.

Formulation and practice of food standards. Significance of vitamins. Mineral salts, food additives and colourants in nutrition. Significance of fertilizers and pesticides in food production. Principles of drug metabolism; Detoxification of toxic materials in the body. Effects of environmental pollutants on food. Role of gut bacteria, bile and nutritional status in drug metabolism.

PGDB 705.1 BIOCHEMISTRY OF TISSUES AND ORGANS (3 Units)

Biochemistry of muscle, kidney, liver, brain, vision, adipose tissue and endocrine system. Reproduction and morphogenesis. Constitution and function of body fluids, pathological disorders affecting tissues and organs (Briefly treated).

PGDB 706.1 PLANT AND SOIL BIOCHEMISTRY (3 Units)

Structure and function of plant cell and organelles including algae and higher plants. Significance of lignification. General Plant metabolism including plant hormones. Photosynthesis, seed development and fruit ripening. Some important constituents of plants (e.g. steroids, alkaloids, etc) and their economic values Toxic substances in plants (e.g. mushroom toxins, etc).

PGDB 707.2 -MEDICAL BIOCHEMISTRY AND IMMUNOCHEMISTRY (3 Units)

Biochemistry in health and disease. Genetic diseases (e.g. sickle cell anaemia, diabetes, gout, etc) and intermediary metabolism. Hormones, reproduction and evaluation of sterility and other hormonally-induced disorders (e.g. gigantism, dwarfism, etc) role of microorganism in natural immunity. Immunology- theory and practice. Antibody-antigen reaction. Use of immunological techniques in diagnosis. Blood clotting factors and haemophilia. Clinical diagnosis of body fluids. Nutrition and health.

PGDB 708.2 - CELL AND MOLECULAR BIOLOGY (3 Units)

Cell structure and functions of organelles (prokaryotes and eukaryotes). Characteristics and functions of DNA and RNA (including replication and transcription processes). The organization of the chromosomes. Protein, biosynthesis. Mutation (agents and modes, significance, etc) recombinant DNA studies (use of plasmids, enzymology, applications of protein design and modification, medicine, etc) control of gene expression and cell differentiation. Genetic recombination mechanisms. Cloning techniques and consequences of cloning.

PGDB 709.2 ENVIRONMENTAL BIOCHEMISTRY (3 Units)

Pollutants of air, land, water and foods (e.g. fishes etc). Effects of pollutants on environment. Effect of refrigerants, automobile exhaust and industrial discharges (untreated) in streams, rivers and lakes. Role of governmental organizations in environmental pollution. Policies, rules and regulations on drug. Food and environmental management. Use of chemicals and biological agents in fishing industry. Indiscriminate use of fertilizers and effects on environment. Biochemical consequences of pollution and oil spillage.

PGDB 710.2 INDUSTRIAL BIOCHEMISTRY (3 Units)

Introduction to industrial processes (e.g. raw material sourcing, machinery). Quality control. Food industry production of carbohydrate-based materials e.g. starches, alcohols, explosives, confectioneries). Preservation of foods. Packaging (canning /bottling of foods). Industrial biochemistry and medicinal products (e.g. production of steroids, etc). Use of enzymes in industry and medical diagnosis. Production of diagnostic kits. Extraction of aroma and pigments. Byproducts from coal industry, fat (e.g. candles, soaps etc) commercialization of biochemical information genetic nutritional and general health (e.g. marriage counseling with respect to sickle cell disease, etc). Disposal of biochemical wastes. Biodegradation of industrial wastes.

PGDB 711.2 - GENETIC ENGINEERING AND BIOTECHNOLOGY (2 Units)

Applications of genetic science in area of food and livestock production. Improved nutritional state and yields of plants and animals. Use of genetic engineering in the improvement of seeds and plants yields (e.g. B. Coli in insulin and drug production). Manipulation of resistant genes for drug industry. Production of increased milk product's on animal etc. Applications of genetically-engineered microorganisms in oil spillage control. Application of genetically-engineered plants that are resistant to disease. Ethics of cloning.

PGDB 712.2 -SEMINAR IN BIOCHEMISTRY (3 Units)

Candidates shall be expected to select some seminar topics and present them orally and in written form.

PGDB 713.2 RESEARCH PROJECT (3 Units)

The programme involves a practical-oriented project for which a seminar is expected to be presented in addition to a thesis being written up in bound form.

General Courses

All postgraduate students (irrespective of the programme) must take Management and Entrepreneurship as well as ICT & Research Methods as compulsory courses. However any student who has taken them at a particular postgraduate level is exempted at higher levels.

The taught courses in the department consist of three compulsory first semester courses, and any three from any of these specialized second semester courses as follows:

FIRST SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNIT
BCH 810.1	Enzymology	2
BCH 811.1	Advanced General Biotechnolgy	2
BCH 815.1	Research Techniques in Biochemistry	2
BCH 817.1	Bio Statics	2
BCH 820.1	Molecular Biology & Biotechnology	2
SGS 801.1	ICT & Research Method	2
TOTAL		12

SECOND SEMESTER COURSES:

ENZYMOLGY, MEDICAL BIOCHEMISTRY/ IMMUNOCHEMISTRY AND PHARMACOLOGICAL BIOCHEMISTRY.

COURSE CODE	COURSE TITLE	CREDIT UNIT
BCH 813.2	Medical Biochemistry 2	2
BCH 816.2	Biochemical Pharmacology 2	2
BCH 814.2	Advanced Protein Chemistry 2	2
BCH 821.2	Xenobiochemistry & Toxicology 2	2
BCH 818.2	Seminar 2	2
BCH 819.2	Research Project	6
SGS 802.2	Entrepreneurship & Management	2
TOTAL		18

NUTRITION & TOXICOLOGYIENVIRONMENTAL BIOCHEMISTRY

COURSE CODE	COURSE TITLE	CREDIT UNIT
BCH 812.2	Advanced Nutrition & Food Science	2
BCH 821.2	Xenobiochemistry & Toxicology	2
BCH814.2	Advanced Protein Chemistry	2
BCH 816.2	Biochemical Pharmacology	2
BCH 819.2	Research Project	2
SGS 801.2	Entrepreneurship & Management	2
BCH 818.2	Seminar	2
TOTAL		18

COURSE DESCRIPTION

BCH 810.1 ENZYMOLOGY

Catalysis and general nature of enzymes. Kinetic parameters and their determination. Kinetics if multiple binding sites. Regulatory enzymes. Nature of enzymes active site. Enzyme reaction mechanism e.g. Ribonuclease, carboxy peptidase A. Kinetic mechanisms of multisubstrate enzyme catalyzed, reactions. Probes of enzyme structure using NMR, Xray crystallography etc. Analysis of enzymic reactions.

BCH 811.1 ADVANCED GENERAL BIOCHEMISTRY

Carbohydrate, amino acid, lipid, nucleic acid and nucleotide metabolism and their regulation. Interrelationship of metabolic pathways. Biosynthesis of porphyrines, photosynthesis. The Regeneration of ATP. Oxidative phosphorylation and the election transport system. Genetic aspects of metabolism. Hereditary disorders of metabolism. Vitamins and coelizymes.

BCH 815.1 RESEARCH TECHNIQUES IN BIOCHEMISTRY

Properties of electromagnetic radiation. Application of ultraviolet and visible absorption measurements. Infra red absorption spectroscopy. Use of electrophoresis, application of nuclear magnetic reasonance spectroscopy. Mass spectroscopy, potentrometric methods. Chromatographic and other fractionation methods, animal house maintenance and use, microbiological methods.

BCH 817.1 BIOSTATISTICS

Biostatistics: Definition, scope and applications. Presentation of data. Overview of measures of central tendency. Chi square test. Scientific writing I (a) Biostatistics; Population and sample size. Sampling distribution. Research design. Study of some classical papers for experimental design and presentation of data. Normal, Binomial and Poisson distributions. Tests of significance. Students test. Analysis of variance (ANOVA). One way and two way ANOVA. Regression Analysis. Simple and multiple regression. Overview of non parametric tests. Statistical packages; Graphpad Instat, Minigtab, SAS, Epi Info, and SPSS.

BCH 820.1 MOLECULAR BIOLOGY AND BIOTECHNOLOGY

Bacterial and viral chromosomes, Bacterial plasmids. Replication, transcription and translation of prokaryotic genomes. Regulation of protein biosynthesis. Transposons as mobile genetic elements. Eukaryotic chromosome and its ultrastructural organization. DNA synthesis in eukaryotes.

Biochemical aspect of cell division, cell cloning and cell fusion. Biochemistry of growth and differentiation in eukaryotes. Principle of PCR techniques. Isolation and purification of RNA and DNA. Hybridization techniques.

Recombinant DNA technology and proteomics applications (e.g. production of insulin, drugs etc.) Microarray, Genetic engineering and its social implications.

SCI801.1 MANAGEMENT & ENTREPRENEURSHIP

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

BCH 813.2 MEDICAL BIOCHEMISTRY

Biochemical concept of clinical state, metabolic derangement in diseased state e.g. gout, cholera, cancer, anaemia, kwashiorkor. Biochemical basis of and lesion in genetic diseases e.g. sickle cell anaemia etc. Case studies on metabolic defects e.g. human haemoglobin and molecular diseases, e.g. sickle cell anaemia. Glucose-6-phosphate dehydrogenase deficiency. Disorders of carbohydrate and lipid metabolisms (Diabetes, plasma lipid and coronary heart disease, cholesterol partition in plasma lipoprotein). Inborn errors in metabolisms.

Molecular parasitology: Isolation, fractionation and culture of parasites. Comparative metabolic reactions of malarial parasite, trypanosome, and other parasites.

Chemotherapy and resistance.

Plasma isoenzyme profile in disease state.

Plasma protein and A/G ratio.

Liver function test

Case studies on metabolic defects; phenylketonuria, orotic aciduria and pseudohyperparathyroidism.

BCH 816.2 BIOCHEMICAL PHARMACOLOGY

Chemistry of Medicinal Compounds: Monocyclic, alicyclic, aromatic polycyclic, steroids, heterocyclic compounds. Quinines, coumarins, lactams. Antibiotics Amines, sulfonamides. Biological properties of these compounds: their pathways, their metabolic activities in the body. Regulation of the body function e.g. Blood pressure, pathways of interference with normal body functions. Clinical bases of these compounds. Relationship between structure and function. Alkaloids, antibiotics Biosynthesis: Pyrrolidine, Piperidine, Alkaloids: alkaloids, pyrrolizidine alkaloids. Indolizidine alkaloids, quinolizidine alkaloids. Quinoline and Ageridone alkaloids: BPhenylethylamines and the isoquinoline alkaloids. Orphenoid alkaloids, Amaryllidaceae alkaloids. Erythrae and related alkaloids, Indole alkaloids. Diterpenoid alkaloids. Ceroidal alkaloids. Miscellaneous alkaloids. Macrolide compounds Chemical and biological properties of their various classes of alkaloids structure elucidation synthesis, physiology, taxonomy, spectroscopy and x-ray crystallography of these compounds. Immunochemical techniques for the screening of infective diseases.

BCH 814.2 ADVANCED PROTEIN CHEMISTRY

Protein structure and function. Experimental methods to determine amino acid sequence. Amino acid analysis. Polypeptide chains, fragmentation and degradation. Separation methods. Structure and function of hemoglobin, myoglobin, immunoglobulin. X-ray analysis, Quaternary structure of hemoglobin. Bohr effect. Effect of molecular disease viz. Sickle cell anaemia. Enzymes as proteins e.g. Lysozymes, carboxypeptidase etc.

BCH 821.2 XENOBIOCHEMISTRY AND TOXICOLOGY

Natural and environmental toxicants. Food toxicology and carcinogens. Detoxification of toxicants. Drug and selective toxicity. Microbial and insects metabolism of xenobiotics. Resistance to drugs and pesticides. Metabolism as a determinant of toxicity. Assessment of toxicity.

BCH 818.2 SEMINAR

Each candidate is expected to deliver two seminars. The first seminar will be on a topic outside the candidate's area of specialization while the second will be on the candidate's research project.

BCH 819.2 RESEARCH PROJECT

Independent project research demonstrating professional maturity at the graduate level and knowledge to undertake and complete research shall be undertaken.

The research project will be carried out under the supervision of not less than two senior staff (who should normally be vast in the candidate's area of specialization), duly appointed for the student by Departmental Graduate Studies Committee and approved by the Board of the School of Graduate Studies.

The Thesis for academic Masters shall be defended orally before a panel of internal and external examiners. All these would be graded.

SGS 801.1 ICT AND RESEARCH METHODOLOGY

This course should cover essentials of Spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypotheses Formulation and Testing, Organization of Research and Report Writing.

BCH 812.2 ADVANCED NUTRITION AND FOOD SCIENCE

Newer findings in nutrition. Nutritional disorders, obesity, kwashiorkor etc. Nutritional problems in Nigeria. Nutrient requirements. Toxicants in food, food preservation and storage, new sources of food. Quality control. Food law, methods in Nutritional Biochemistry including basic statistical methods etc. The body fluids and their components in health and disease; enzyme metabolism in health and disease; normal and abnormal proteins (other than enzymes): cell membranes in health and disease; vitamin deficiencies, inborn errors of metabolism.

BCH 821.2 XENOBIOCHEMISTRY AND TOXICOLOGY

Natural and environmental toxicants. Food toxicology and carcinogens. Detoxification of toxicants. Drug and selective toxicity. Microbial and insects metabolism of xenobiotics. Resistance to drugs and pesticides. Metabolism as a determinant of toxicity. Assessment of toxicity.

BCH 814.2 ADVANCED PROTEIN CHEMISTRY

Protein structure and function. Experimental methods to determine amino acid sequence. Amino acid analysis. Polypeptide chains, fragmentation and degradation. Separation methods. Structure and function of hemoglobin, myoglobin, immunoglobulin. X-ray analysis, Quaternary structure of hemoglobin. Bohr effect. Effect of molecular disease viz. Sickle cell anaemia. Enzymes as proteins e.g. Lysozymes, carboxypeptidase etc.

BCH 816.2 BIOCHEMICAL PHARMACOLOGY

Chemistry of Medicinal Compounds: Monocyclic, alicyclic, aromatic polycyclic, steroids, heterocyclic compounds. Quinines, coumarins, lactams. Antibiotics Amines, sulfonamides. Biological properties of these compounds: their pathways, their metabolic activities in the body. Regulation of the body function e.g. Blood pressure, pathways of interference with normal body functions. Clinical bases of these compounds. Relationship between structure and function. Alkaloids, antibiotics Biosynthesis Pyrolidine, Piperidine, Alkaloids: alkaloids, pyrrolizidine alkaloids. Indolizidine alkaloids, quinolizidine alkaloids. Quinoline and Aeridone alkaloids: B-Phenylethylamines and the isoquinoline alkaloids. Orphenoid alkaloids, Amaryllidaceae alkaloids. Erythrae and related alkaloids, Indole alkaloids. Diterpenoid alkaloids. Ceroidal alkaloids. Miscellaneous alkaloids. Macrolide compounds Chemical and biological properties of their various classe of alkaloids structure elucidation synthesis, physiology, taxonomy, spectroscopy and x-ray crystallography of these compounds. Immunochemical techniques for the screening of infective diseases.

BCH 818.2 SEMINAR

Each candidate is expected to deliver two seminars. The first seminar will be on a topic outside the candidate's area of specialization while the second will be on the candidate's research project.

BCH 819.2 RESEARCH PROJECT

Independent project research demonstrating professional maturity at the graduate level and knowledge to undertake and complete research shall be undertaken.

The research project will be carried out under the supervision of not less than two senior staff (who should normally be vast in the candidate's area of specialization), duly appointed for the student by

Departmental Graduate Studies Committee and approved by the Board of the School of Graduate Studies.

The Thesis for academic Masters shall be defended orally before a panel of internal and external examiners. All these would be graded.

SGS 801.1 ICT AND RESEARCH METHODOLOGY

This course should cover essentials of Spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypotheses Formulation and Testing, Organization of Research and Report Writing.

DOCTOR OF PHILOSOPHY DEGREE IN THE DEPARTMENT OF BIOCHEMISTRY

Objectives:

The Ph.D programme in Biochemistry is aimed at producing high caliber research-oriented and problem-solving graduates specialized in different areas of Biochemistry. These graduates so prepared will then be repertoire of manpower both nationally and internationally.

Regulations:

The PhD programme in Biochemistry consist of an approved courses work, seminars and research projects.

Admission Requirements:

Candidates seeking for admission into the PhD programme in Biochemistry will be required to have the following entry qualifications:

- (i) M.Sc. degree in Biochemistry of the University of Port Harcourt or any approved University. Candidates must have a minimum CGPA of 3.50 on a 500 point scale or 2.80 on a 4.00 point scale.
- (ii) Students that are deficient in any area, will be required to remedy the deficiency in the M.Sc. Progrfamme.
- (iii) Short listed candidates will be required to submit a well written proposal on their intended research interest to the Department's Graduate Studies Committee. This proposal would of course be defended orally at an interview and only candidates who score 60% and above will be admitted into the programme.

Duration of Programme

(a) FULLTIME:

Full-Time candidates are required to spend a minimum of 24 calendar months (2 years) or a maximum of 60 calendar months (5 years).

(b) PART-TIME:

Part-Time candidates are required to spend a minimum of 36v calendar months (3 years) or a maximum of 84 calendar months (7 years).

Requirements Governing Courses and Examination:

- (i) The Ph.D degree programme of the Department is in conformity with the regulations of the NUC and the University of Port Harcourt School of Graduate Studies.
- (ii) The Ph.D programme consists of course work, seminars and a dissertation. The course work and seminars shall each have a minimum credit unit of 3 while the dissertation shall have 12 credit units.

Course Requirements:

Ph.D candidates shall be required to take a total of 9 credit units in the first year comprising of one (1) taught course and two (2) seminars. The other years shall be devoted to research work, writing and defense of the Ph.D dissertation. All Ph.D candidates must take and pass the recommended course in their proposed areas of specialization with a minimum pass grade of 'C' (50%).

Continuation Requirements:

At the end of the first year, the student must pass a qualifying examination and must pass with a minimum score of (50%) to continue. Students who fail will be given one more chance to repeat and pass the examination.

Fields of Specialization:

Candidates are expected to specialize in one of the following areas of Biochemistry:

- (i) Enzymology
- (ii) Nutrition and Toxicology
- (iii) Medical Biochemistry! Immunochemistry
- (iv) Environmental Biochemistry
- (v) Pharmacological Biochemistry

Courses and Area of Specialization:

Candidates are expected to take the courses listed below in their area of specialization.

PHD IN BIOCHEMISTRY (NUTRITION AND TOXICOLOGYIENVIRONMENTAL BIOCHEMISTRY OPTION)

COURSE CODE	COURSE TITLE	CREDIT UNIT
BCH 910.1	Recent Advances in Biochemistry	3
Either		
BCH 911.1		
or		
BCH 913.1	General Seminar I	3
BCH 914.2	Genêtal Seminar II	3
BCH 919.0	PhD Dissertation	12
TOTAL		21

PHD IN BIOCHEMISTRY (NUTRITION AND TOXICOLOGY/ENVIRONMENTAL BIOCHEMISTRY OPTION)

COURSE CODE	COURSE TITLE	CREDIT UNIT
BCH 910.1	Recent Advances in Biochemistry	3
Either		
BCH 912.1		
or		
BCH 913.1	General Seminar I	3
BCH 914.2	General Seminar II	3
BCH 919.0	PhD Dissertation	12
TOTAL		21

COURSE DESCRIPTION

BCH 910.1 Recent Advances in Biochemistry

Current world food crisis/problems and solutions to world food hunger. Micro and macro nutrient changes in foods during processing and storage. Enzymatic browning in foods and prevention. Microbiological, environmental /chemical and emerging food contaminants and food habits and their effects. Advances in dietary/fibre research. Calorie restriction and longevity. Review of general properties and kinetics of enzymes. V-series and K-series enzymes. KNE and MWC models of allostery. Kinetics of fast reactions. Mechanism of action of selected enzymes. Application of enzymes in medicine and industry. Enzymes immobilization. Enzymes in Laundry detergents. Biochemistry of free radicals and antioxidants in health and diseases. Advances in stem cell research. Problems and prospects. Current trends in bioinformatics. Genomics, proteomics and applications in medicine and agriculture. Biotechnology of cellular and molecular cloning. Gene expression. Ethics in biochemical research methods and publications. Use of humans/animals in research. Annual Rights. Principles, instrumentation and application of high performance liquid chromatography (HPLC), gas chromatography (GC) and

chromatofocusing in Biochemistry. Environmental monitoring and assessment Pollution studies, monitoring of air, land and water quality parameters. Environmental impact assessment. Current techniques of phyto-and bioremediation. Organic pump (a phytoremediation technology). Remediation of crude oil polluted soils by enhanced natural attenuated (RENA) techniques.

BCH 911.1 Seminar in Advanced Enzymology

Candidates will be required to review and present recent and challenging topics in the field of Enzymology.

BCH 912.1 Seminars in Nutrition and Toxicology

Candidates will be required to review and present topics on recent advances in Nutritional and Toxicological Biochemistry.

BCH 913.1 Seminars in Medical Biochemistry and Immunochemistry

In this course, it is expected that candidates review and present topics on recent advanced in Medical Biochemistry.

BCH 914.2 Seminars in Environmental, Industrial and Membrane Biochemistry

In this course, candidates would be expected to review and present topics on recent advances in Environmental. Industrial and Membrane Biochemistry.

BCH 919.2 Ph.D Research Project/Dissertation

The research project will be carried out under the supervision of supervisors duly appointed for the student by Departmental Graduate Studies Committee and approved by the Board of the School of Graduate Studies.

Dissertation Seminars:

During the period of the Ph.D research project, the candidate shall be required to present his findings in the following seminars:

- (a) Seminar in the Department
- (b) Seminar to the Faculty
- (c) Seminar to School of Graduate Studies.

S/N	COURSE CODE	COURSE TITLE
1	PGDB 700.1	Biochemistry design and data analysis
2	PGDB 701.1	General Metabolism and Regulation
3	PGDB 702.1	Enzyme and Protein Biochemistry

4	PGDB 703.1	Instrumentation and Techniques in Biochemistry	3	BCH 815.1	Research Techniques in Biochemistry
5	PGDB 704.1	Nutrition Biochemistry	4	BCH 812.2	Advanced Nutritional Food Science
6	PGDB 705.1	Biochemistry of Tissue and Organ	5	BCH 813.2	Medical Biochemistry
7	PGDB 706.1	Plant and Soil Biochemistry	6	BCH 814.2	Advanced Protein Chemistry
8	PGDB 707.2	Medical Biochemistry and Immunology	7	BCH 816.2	Biochemical Pharmacology
9	PGDB 708.2	Cell and Molecular Biology	8	BCH 818.2	Seminar
10	PGDB 710.2	Environmental Biochemistry	9	BCH 819.2	Project Defense
11	PGDB 711.2	Industrial Biochemistry	10	CGS 801.1	ICTC and Research Method
12	PGDB 712.2	Genetic Engineering and Biotechnology	11	CGS 801.2	Management and Entrepreneurship
13	PGDB 713.2	Seminar in Biochemistry			
14	PGDB 714.2	Research Project			
M.Sc			Ph.D		
S/N	COURSE CODE	COURSE TITLE	S/N	COURSE CODE	COURSE TITLE
1	BCH 810.1	Enzymology	1	BCH 910.1	Recent Advance in Biochemistry
2	BCH 811.1	Advanced General Biochemistry	2	BCH 911.1	Sessional Seminar I
			3	BCH 912.1	Sessional Seminar II
			4	BCH 914.2	Project Seminar
			5	BCH 919.1	Project Defense

ACADEMIC STAFF

S/N	Name	Qualification	Field of Specialisation	Designation
1	Onyeike, E.N.	B.Sc (UPH), PGDE (UNN), M.Sc, Ph.D (UPH)	Nutritional Biochemistry/ Toxicology	Professor
2	Akaninwor, J.O.	B.Sc., M.Sc (Benin), Ph.D (UPH)	Nutritional Biochemistry	Professor
3	Monanu, M.O.	B.Sc. (UNN), Ph.D (Alberta)	Medical Biochemistry and Enzymology	Professor
4	Uwakwe, A.A.	B.Sc., M.Sc., Ph.D (UPH)	Enzymology and Protein Chemistry	Professor
5	Monago-Ighorodje, C.C.	B.Sc., M.Sc., Ph.D (UPH)	Medical Biochemistry/ Toxicology	Professor
6	Wegwu, M.O.	B.Sc., M.Sc., Ph.D (UPH)	Environmental/ Biochemistry	Professor
7	Essien, E.B.	B.Sc (Uyo), M.Sc., Ph.D (UPH)	Nutritional/ Toxicology	Professor
8	Belonwu, D.	B.Sc, M.Sc, PhD (UPH)	Environmental Biochemistry	Professor
9	Anacletus, F.C.	B.Sc, M.Sc, PhD	Medical Biochemistry/Biochemical Toxicology	Professor
10	Ogunka-Nnoka, C. U.	B.Sc, M.Sc, PhD	Nutritional Biochemistry/ Toxicology	Professor
11	Ikewuchi, J. C.	B.Sc, M.Sc, PhD (UPH)	Medical Biochemistry	Professor
12	Chuku, L.C.	B.Sc, M.Sc, Ph.D (UPH)	Medical Biochemistry	Professor
13	Patrick-Iwuanyanwu K.C.	B.Sc, M.Sc, Ph.D	Nutritional Biochemistry/ Toxicology	Professor
14	Abarikwu, S.O.	B.Sc, M.Sc, Ph.D	Medical Biochemistry (Reproductive Biology)/ Molecular Toxicology	Professor
15	Nwaichi, E.O.	B.Sc, M.Sc, Ph.D	Environmental Biochemistry	Professor
16	Ikewuchi, C.C.	B.Sc, M.Sc, Ph.D	Nutritional Biochemistry/ Toxicology	Professor
17	Onyegeme-Okerenta, B.M.	B.Sc, M.Sc, Ph.D	Medical Biochemistry/ Environmental Toxicology	Reader
18	Peters, D.E.	B.Sc, M.Sc, Ph.D	Medical Biochemistry	Senior Lecturer
19	Omeodu, S.I.	B.Sc, M.Sc, Ph.D	Enzymology	Senior Lecturer
20	Onuoha, S.C.	B.Sc, M.Sc, Ph.D	Medical Biochemistry	Senior Lecturer
21	Ohiri, R.C.	B.Sc, M.Sc, Ph.D	Environmental Biochemistry	Senior Lecturer
22	Ezim, O.E.	B.Sc, M.Sc, Ph.D	Nutritional Biochemistry/ Toxicology	Senior Lecturer
23	Okoro, S.E.	B.Sc, M.Sc, Ph.D	Environmental Biochemistry	Senior Lecturer
24	Ogbonnaya, E.A.	B.Sc., M.Sc, Ph.D	Pharmacological Biochemistry & Toxicology	Lecturer I
25	Okonkwo, C.J.	B.Sc., M.Sc, Ph.D	Pharmacological Biochemistry	Lecturer I
26	Okonkwo, C.J.	B.Sc., M.Sc, Ph.D	Environmental Biochemistry	Lecturer II

DEPARTMENT OF PHYSICS

GENERAL INTRODUCTION

The postgraduate programmes in the department of physics are by course and research works leading to the award of Masters and doctoral degrees in Applied Geophysics, Materials Science, Radiation and Environmental Physics, Solid State Electronics Devices and Theoretical Physics (Plasma and Nuclear Physics). However, the directives from National University Commission (NUC BENCHMARK) necessitated the current review, consequently, a post graduate diploma in Industrial Physics (PGDIP) is proposed as an additional programme. In order for us to be in tandem with the minimum Bench Mark.

Consequently, the PGDIP and M.Sc. graduate programmes in Department of Physics at the University of Port Harcourt, apart from laying a strong foundation for further studies in Engineering and other scientific principles, shall equally prepare students for specialization in the areas of Applied Geophysics, Electronics, Solid State Physics, Materials Science, Radiations and Environmental Physics and theoretical physics. The content of each programme encourages both theoretical and practical approaches with added advantages of industrial exposure. Students are encouraged by these programmes to enhance their acquisition of detailed knowledge of the courses, through regular but intelligent application of the laws of Physics coupled with balanced competence in problem solving of societal challenges.

The PhD programmes are available in all the branches of physics as well as for the M.Sc. These higher level programmes have been initiated for the purposes of producing high level manpower required for research, teaching, consultancies and above all to service both the oil and non-oil industrial sectors. Some of these sectors form the mainstay of the nations economy and most of their operations are located within the city of Port Harcourt, Warr, Eket and its environs.

The research strategy of the department of physics is focused on five basic research groups (TEAMS) under which a number of research interests stated below are addressed.

1. Theoretical physics Research group
2. Applied Geophysics Research group
3. Solid State Electronics Physics group
4. Materials Science group
5. Environmental Physics and Radiation protection

APPROVED POST GRADUATE DIPLOMA IN INDUSTRIAL PHYSICS

PREAMBLE:

The objective of the department at undergraduate and post-graduate levels is to encourage scholarly and practical application of physics to national development, self-enlightenment and sustainability. In an attempt to achieve the above objective, the department has set up a broader pattern (both theoretical and practical applications) of the global concept of physics. Physics at the University of Port Harcourt therefore aims at applying thinking and reasoning based on natural laws, observation of natural-phenomena and results of designed experiments to providing solutions to problems.

Over the past decade, the department has witnessed the desire by non-graduates of physics enrolling for specialized graduate programmes in Physics. A few that were allowed for such programmes could not succeed and had to withdraw out of frustration due to lack of proper foundation. This has motivated are-think that has been buttressed by the content of the NUC minimum Bench Mark for post graduate studies. The department of Physics is proposing a post graduate diploma in Physics (PGDP).

Aims and Objectives

The programme aims at providing the equivalent of a physics content of the typical four-year undergraduate programme in twelve calendar months. The programme is suitable for Science education graduates, technicians/technologists (with HND), science and Engineering graduates and health sciences. The programme aims at producing graduates who will be adequately equipped for relevance in the global knowledge economy and would be capable of applying appropriate scientific principles for solving human developmental problems.

QUALIFICATIONS FOR ADMISSION

To be eligible for admission into the programme, a candidate should have;

- i. A minimum of 3rd class degree in the related field of science and Engineering
- ii. Minimum of upper credit at Higher National Diploma from any recognized Institution.
- iii. All candidates must have five credits passes including English, Mathematics, Physics,

and any other relevant science subjects at '0' level.

DURATION OF PROGRAMME

The programme is designed for one academic session made up of two (2) semesters. A student is to register for a minimum of 18 credit units per semester and pass them with a grade of at least C. If a candidate fails to meet the requirements for graduation; he/she will be allowed an extra one academic session only to repeat the courses failed. Thereafter he/she fails out.

FIRST SEMESTER

COURSE CODE	TITLE	UNITS
PHY 700.1	Vibration and waves	3
PHY 701.1	Mathematical physics	3
PHY 702.1	Thermodynamics and statistical physics	3
PHY 703.1	Geometric and physical optics	3
PHY 704.1	Atomic, Nuclear and Modern Physics	2
PHY 705.1	Advanced Laboratory Practice	2
Total		18

SECOND SEMESTER

COURSE CODE	TITLE	UNITS
PHY 706.2	Electromagnetism (Electricity and magnetism)	3
PHY 707.2	Solid State Physics	2
PHY 718.2	Seminar	2
PHY 719.2	Research Project	4
Total		13

Students are required to choose a minimum 9 Credit units as elective in area of specialization

ELECTIVES

COURSE CODE	TITLE	UNITS
PHY 708.2	Quantum Mechanics	3
PHY 709.2	Theoretical and fluid mechanics	2
PHY 710.2	Materials Science	3
PHY 717.2	Thin film technology and solar materials	3
PHY 711.2	Introduction to Geophysics	3
PHY 712.2	Geophysical prospecting methods	2
PHY 713.2	Introduction to Environmental Technology	3

PHY 714.2	Non-Ionizing Radiations	2
PHY 715.2	Electronics Instrumentation	3
PHY 716.2	Physics of Semiconductor Devices	3
Total		26

M.Sc IN THEORETICAL PHYSICS (PLASMA AND NUCLEAR PHYSICS)

FIRST SEMESTER

COURSE CODE	TITLE	UNITS
SGS 801.1	ICT and research methodology	2
PHY 801.1	Mathematical Physics	3
PHY 802.1	Advanced quantum mechanics & Applied Group Theory	3
PHY 803.1	Electromagnetic theory	3
PHY 804.1	Applied Electronic workshop	3
PHY 805.1	Fluid dynamics and transport theory	3
PHY 806.1	Thermodynamics and Statistical mechanics	2
Total		18

SECOND SEMESTER

COURSE CODE	TITLE	UNITS
SGS 802.2	Management and entrepreneurship	2
PHY 807.2	Nuclear Physics and Instrumentation	2
PHY 808.2	Basic Plasma Physics and Space science	3
PHY 809.2	Seminar in Advances in Theoretical Physics	3
PHY 819.2	Research Project	6
Total		16

Electives (Students are required to choose any two courses from the electives)

COURSE CODE	TITLE	UNITS
PHY 810.2	Numerical Methods and Computational Physics	2
PHY 811.2	Quantum Field Theories	2
PHY 861.1	Atmospheric physics and meteorology	3

M.Sc. PHYSICS (SOLID STATE ELECTRONICS)

FIRST SEMESTER

COURSE CODE	TITLE	UNITS
SGS 801.1	ICT and Research Methodology	2
PHY 801.1	Mathematical physics	3
PHY 802.1	Advanced Quantum Mechanics & Applied Group Theory	3
PHY 812.1	Semi-conductor Physics	3
PHY 813.1	Electronic instrumentation	3
PHY 814.1	Applied electronics and Workshop practice	3
Total		17

SECOND SEMESTER

COURSE CODE	TITLE	UNITS
SGS 802.2	Management and Entrepreneurship	2
PHY 815.2	Advanced solid state devices	3
PHY 816.2	Physics of semi-conductor Devices	3
PHY 817.2	Basic model concepts and manifest properties of solid	3
PHY 818.2	Seminars	3
PHY 819.2	Research project	6
Total		20

N/B: ELECTIVES. Students are required to choose a minimum of 2 courses from any other option

M.Sc. PHYSICS (MATERIALS SCIENCE)

FIRST SEMESTER

COURSE CODE	TITLE	UNITS
SGS 801.1	ICT and Research Methodology	2
PHY 801.1	Mathematical Physics	3
PHY 840.1	Mechanical properties of materials	2
PHY 841.1	Special engineering materials	3
PHY 842.1	Thermodynamics of materials	3
PHY 843.1	Electrometallurgy and materials degradation	2

PHY 844.1	Powder Metallurgy and Processing	2
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Total 17

SECOND SEMESTER

COURSE CODE	TITLE	UNITS
SGS 802.2	Management and entrepreneurship	2
PHY 845.2	Thin film technology and solarmaterials	2
PHY 846.2	Nano-materials and Nanotechnology	2
PHY 847.2	Introduction to ceramics and polymer materials	2
PHY 848.2	Seminar in Advances in new Materials	2
PHY 849.2	Research project	6
Total		16

ELECTIVES. Students are required to choose a minimum of 2 courses from any other

M.Sc. PHYSICS (ENVIRONMENTAL PHYSICS AND RADIATION PROTECTION)

FIRST SEMESTER

COURSE CODE	TITLE	UNITS
CSC 801.1	ICT Research methodology	2
PHY 801.1	Mathematical Physics	2
PHY 860.1	Radiation Protection guides	3
PHY 862.1	Fundamentals of Nuclear physics	3
PHY 863.1	Radiation, Detection, Dosimetry	3
PHY 864.1	Environmental Sciences and Modeling	3
Total		16

SECOND SEMESTER

COURSE CODE	TITLE	UNITS
SCS 801.2	Management and Entrepreneurship	2
PHY 866.2	Ionizing Radiation	3
PHY 867.2	Nuclear application in medicine Industries & Research	3
PHY 868.2	Seminar in Environmental innovations and Nuclear Series	2
PHY 870.2	Dissertation	6

Total **16**

Students are required to choose a minimum of 2 courses from the electives

ELECTIVES		
COURSE CODE	TITLE	UNITS
CSC 865.1	Non-Ionizing Radiation	2
PHY 813.1	Electronics Instrumentation	3
PHY 867.2	Introduction to Environmental Technology	2
PHY 869.2	Radiation Biology	3
Total		10

ELECTIVES		
COURSE CODE	TITLE	UNITS
PHY 810.1	Numerical and Computational Methods	2
PHY 831.1	Geophysical Prospecting	3
PHY 834.1	Geology for Non-Geologist (compulsory)	0
PHY 832.2	Modeling in Geophysical Prospecting	2
PHY 833.2	Principles of Paleomagnetism	2
PHY 830.2	Geophysical Instrumentation	3

M.Sc. PHYSICS (APPLIED GEOPHYSICS)

FIRST SEMESTER		
COURSE CODE	TITLE	UNITS
SGS 801.1	ICT and Research Methodology	2
PHY 801.1	Mathematical Physics	3
PHY 820.1	Physics of the Earth's Interior	3
PHY 821.1	Potential field theory	2
PHY 822.1	Electrical and electromagnetic method	2
PHY 823.1	Seismology Method (Reflection and Refraction)	3
PHY 824.1	Borehole Geophysics and Radiometrics	2
Total		16

COURSES FOR PhD PROGRAMMES IN PHYSICS

Compulsory Courses		
COURSE CODE	TITLE	UNITS
PHY 900.1	Mathematical Physics & Modeling	2
PHY 901.1	Research Methods/ Technical Writing	3
PHY 902.1	Research Project (Dissertation)	12
Total		18

N/b: Students are required to choose a minimum of 2 courses from the electives as related to their areas of specialisation.

FIRST SEMESTER		
COURSE CODE	TITLE	UNITS
SGS 801.2	Management and Entrepreneurship	2
PHY 825.2	Time series Analysis, Digital Filter theory and data processing	3
PHY 826.2	Research seminar in Geophysics	2
PHY 827.2	Geophysical field work	1
PHY 828.2	Research project in Geophysics	6
PHY 829.2	Gravity and magnetic methods in Geophysics	2
Total		16

ELECTIVES		
COURSE CODE	TITLE	UNITS
PHY 903.2	Global Geophysics	3
PHY 904.2	Current Advances in Applied Geophysics	3
PHY 905.2	Geophysical Exploration	3
PHY 906.2	Special Physics (microwave, fibre optics, telecom)	3
PHY 907.2	Current Trends in Semiconductor Electronics	3
PHY 908.2	Recent Advances in Material Science	3

PHY 909.2	Corrosion Science and Materials Degradation	3
PHY 910.2	Current Advances in Theoretical Physics	3
PHY 911.2	Advances in Solid State Physics	3
PHY 912.2	Current Trends in Environmental Physics	3
PHY 913.2	Environmental Policies & Standards	
PHY 914.2	Environmental Technology & Climate Change	33

Topics include quantum states, entropy, temperature, pressure, chemical potential, thermodynamics potential, grand sum and partition functions; distribution function, relationship of statistical variables of thermodynamic variables, applications, transport processes and fluctuation phenomenon. Maxwell-Boltzmann velocity distribution law.

PHY 703.1: Geometric and Physical Optics

Geometrical optics which discuss emission and absorption spectra and optical instruments.

Wave equation in rectangular and polar coordinates, superposition of waves; production of coherent sources by division of wave fronts and of amplitude; applications. Michelson and Jamin Interferometers with wave front Fabry-Perot etalon, Fresnel and Fraunhofer diffraction patterns, polarization of lights.

COURSE DESCRIPTION FOR POST GRADUATE DIPLOMA PROGRAMME (PGDP)

PHY 750.1: ICT and Research Methodology

This course should cover essential of spreadsheets, internet Technology, statistical packages, precision and Accuracy of Estimates, principles of scientific Research, concepts of Hypotheses formation and Testing, Organization of Research and Report Writing.

PHY 700.1: Vibrations and Waves

This course is an introduction to oscillations and waves phenomena. Topics covered will include vibrations and waves, electromagnetism waves, vibrating systems, types of waves, sound waves and wave optics.

PHY 701.1: Mathematical Physics.

This is an introductory mathematical methods course which is of particular interest to theoretical physics. Topics to be treated include introductory vector analysis; coordinate systems and their transformations. Motion in the various coordinate systems. Differential equations in two and three dimensions. Application of differential equations (partial and whole) in mechanics, electric circuits, atomic and nuclear physics, and boundary value problems.

Complex variables and application; Fourier series and transforms; matrices and determinants; special functions like Bessel functions, Laguerre functions and polynomials; Hermite functions and polynomials; Legendre equations and polynomials.

PHY 702.1: Thermodynamics and Statistical Physics

This course aims at presenting thermodynamics and statistical mechanics in a unified manner.

PHY 704.1: Atomic, Nuclear and Modern Physics

This is an introductory course on modern physics. Topics in atomic structure, photoelectric effect, black-body radiation, relativity, radioactivity, nuclear structure, mass spectrometers.

Nuclear structure and properties; Nuclear models and nuclear reactions; vector model of the atom. Nuclear spectroscopy; X-ray spectra; alkali spectra. Zeeman and Stark effect. Fundamental particles, strong and weak electromagnetic interactions. Resonance. The hydrogen atom; spin effect and relativistic effects. The diatomic molecule; the Frank-Condon principle. Identical particles and symmetry. Many electron atoms; coupling schemes and vector models. Zeeman effect and hyperfine structure. Resonance phenomena; ESR, NMR and optical pumping, Mossbauer Scattering; X-ray diffraction, microwave methods.

PHY 705.1 Advanced laboratory Practice

In the course, laboratory experiments are chosen from electronics, material science, atomic and nuclear, solid - state physics and the workshop course is intended to prepare the students for their research projects (PHY 449.0) by way of introducing them to the use of simple machine tools. Welding, soldering glass blowing, engineering drawing and design are also included. Problem solving and Technical writing.

The aim of this course is to introduce students to an important aspect of any research finding Reporting, presenting your results in an attractive way. Also, it is important that an undergraduate student should be able to define, analyze and

possibly attempt to find solution to the problem. The course will cover: Introduction to problem formulation, identification, analysis and solutions. The main scientific approach to different types of problem. Examples could be drawn from the natural world, engineering and the prevailing, environmental problems. At the end of this section, the student should be able to formulate, analyze and suggest solutions to societal problems in a scientific manner.

General introduction to technical writing (Hints on planning, content, present presentation and conclusions). Different types of writing and how they relate to the audience. Specific presentation of thesis with special reference to layout, abstract, introduction, conclusion and referencing other materials. Writing a dissertation, journal paper, technical reports. Presenting seminars, special projects and research reports. Project proposals and how to apply for research grants. Writing the first draft, editing and rewriting your own writing. Writing the submittal letters. Responding to corrections suggested by reviewers and correcting proofs. The importance of units and their abbreviations and standard symbols. Figures and how to caption your figures. Expression to avoid and apply in your writings.

PHY 706.2: Electromagnetism (Electricity and Magnetism)

This course deals with the topics of electricity and magnetism seen in PHY 112.2 at a more advanced level. Topics include electrostatics, solutions of Laplace's Equations, dielectric, static magnetic fields, magnetic materials, electromagnetic induction and Maxwell's Equation. Topics include Polarization, dispersion, reflection and refraction of E.M. waves, guided waves, radiating systems, resonance cavities, transmission lines, diffraction and electrodynamics.

PHY 707.2: Solid State Physics

Crystal structure and X-ray crystallography and its experimental methods. Theory of solid classical free electron theory, quantum theory of electron gas and the band theory of solids. Electrical and thermal properties of solids. Bond theory of insulators and semiconductors; dielectrics and fenelectrics, magnetism in solids, magnetic resonance; super-conductivity; imperfections in solids; amorphous solids.

PHY 718 Seminar

Topics on current advancement in physics and other related field shall be considered.

PHY 719 Research Project

Topics for research projects will be assigned near the end of the student's 1st Semester. The projects may be on topics of current interest in all areas of physics and Applied Physics.

ELECTIVES

PHY 708.2 Quantum Mechanics

Inadequacies of classical mechanics, differences between classical I and quantum mechanics: wave-particle properties, Heisenberg's uncertainty principles, wave and state functions; principles of Quantum mechanics; Schrodinger's wave mechanics formulation, postulates of quantum mechanics, matrix representation of Quantum mechanics, time-independent Schrodinger's wave equation; wave mechanics for some simple system: wave mechanics of atoms. Degenerate and non degenerate steady state permutation theory, identical particles, the matrix formulation of quantum mechanics. Time-dependent perturbation theory, the relativistic wave equation, origin of the electron spin.

PHY 709.2 Theoretical and Fluid Mechanics

Newtonian Mechanics. Motion of a particle in one, two and three dimension, system of particles and collision theory, Newtonian gravitation, conservative forces and potentials, oscillations, central force problems, accelerated frames of reference, rigid body dynamics, generated motions; mechanics of continuum media. Fluid statics and dynamics.

PHY 710.2 Materials Science

Introduction to material based on properties of solids, microstructure forming and shaping. This should illustrate the importance of the range of currently available engineering materials and to show that technology development depends on (1) introducing new materials and new processes (2) awareness of limitations of existing materials and processes. Topics include:

Atomic and atomic coordination, atomic order in solids and molecular disorder, single-phase materials and molecular phases, ceramic polymer materials, conducting materials, magnetic and electrical materials, phase diagrams, processing and development of microstructure/ composites. Performance materials and devices. Designing with different materials, performance criteria and standards. Selected case studies of material selection.

PHY 711.2 Introduction to Geophysics

This course introduces the students to the art of Geophysical exploration using seismic methods.

At the end of the course, the student should have mastered theoretical aspects of seismic methods, including characteristics of elastic waves and their propagation. Reflection, Refraction, Generation of seismic waves, Instruments, Digital recording and Field Instrumentation. Data acquisition principles and Data processing Basics. Basic interpretation

PHY 712.2 Geophysical Prospecting Methods

Gravity and magnetic methods, Electrical methods, seismic method, Electromagnetic method and Radiometrics shall be treated

PHY 713.2 Introduction to Environmental Technology

Environmental technology and Environmental Science. Measurement and Evaluation of environmental pollution in air, water and land: legal and technical requirements in the preparation, interpretation of environmental impacts. The procedure and interdisciplinary nature of environmental analysis.

Impact Evaluation, Qualification of Impacts, Fields, Mitigation, Understanding the sources and projects that cause Environmental degradation Remediation of gaseous pollutants.

Removal of gaseous oxides of nitrogen, Carbon and sulphur. Removal of particulates from moving and stationary sources. Removal of fluorides complex oxidants and mercury vapour. The principles of reactions and physical measurements applied for variety of analytical equipment employed in air quality studies.

Practical examples and case studies will be used. These may include evaluation and analysis of Social and industrial Noise, Vibration hazards, toxic and radioactive materials Statistical analysis and modeling of environmental systems. In-situ and online measurement of environmental pollution. Types of environmental studies, EIA. EAR. Environmental Monitoring

PHY 714.2 Non-Ionizing Radiation

Ultraviolet radiation, micro wave radiation, electromagnetic radiation x-rays, Bleared Gamma radiation. Radiometric Units Lasers. Laser operations. Lasing actions, TEM modes, biological effects: eye damage, skin damage Protection guides and standards, maximum permissible Exposure (MPE). Safety Measurements, power and energy. Beam divergence Radiofrequency (RF) and Microwave:

Communications, antennas and antenna gain. G. penetration depth GSM hand-sets and base stations. Biological Effects. Thermal and Non-Thermal Effects, temperature-humidity index microwave measurement, survey meters. Protection Guides and standard Maximum permissible exposure (MPE) Safety.

PHY 715.2 Electronic Instrumentation

Brief review; passive devices, active devices, two-port network feedback circuits, transistor oscillator. Circuit models of transistors, FET Applications. Differential amplifier, small signal analysis, trigger circuits. Operational amplifier band width, different Integrated circuit; fabrication and testing and thin film and thick film circuits, passive and active elements. Logic devices and combinational circuits; DL, DTL, TTL, CMOS, etc. digital integrated circuits, synthesis of combinational Logic Circuits, FLOP and DE multiplexers. ROM, Sequential Logic Circuits, FLOP Circuits RAM. Introduction to microprocessors and Logic applications. Network theory. Discrete electronic systems; Analog and Digital meters, transducers, rate meters (frequency domain CR0).

PHY 716.2 Physics of Semi-Conductor Devices

Semi-conducting materials. Materials used in solid-state devices and in basic research preparation and measurement of semi-conducting materials, silicon and germanium, other elemental semiconductors. Ternary and Quaternary compounds, etc. P-N junction Devices, moderate field P N junction, tunnel diodes, I M-PATT diode, etc. interface and thin film devices, Schottky effect, Metal-semi-conductor, RMPATT diode, metal Insulator Semi-conductor (MIS); or metal-oxide semiconductor (MOS), surface states charges and space charges. Optoelectronic devices, electroluminescent devices, solar cell, photo detectors, junction lasers, laser materials etc.

PHY 717.2 Thin Film Technology and Solar Materials

Preparation, structure, evaluation and properties of thin films; metallic, semiconductor and dielectric film techniques. Nucleation and growth consideration, epitaxy and metastable configuration. Solar materials characteristics and their applications. Visible and infrared light sources, black body radiations, radiation by atoms, stimulated emission of radiation, coherent light sources and electro-optics effects/application.

M.Sc./PhD PROGRAMMES

The programme is geared towards (a) the production of high caliber specialists in the various options for services in higher institutions and the industry (b) the introduction of high level of research experiences and (c) the development of originality, interdisciplinary and cooperative research, analytical and critical mind.

1. Regulations

The programmes for M.Sc. degrees shall consist of a minimum of 30 credit units and a maximum of 48 credit units. The other 4 credit units will come from approved compulsory/elective courses for graduate programmes. However compulsory courses may not be repeated at higher levels if already passed at post graduate diploma or Masters Levels

2. Duration of Programme

The M.Sc. candidates will be required to spend a minimum of 12 calendar months (1 year) and a maximum of 24 calendar months (2 years) for Full-Time. Part-Time candidates will be required to spend a minimum of 24 calendar months (2 years) and a maximum of 36 calendar months (3 years).

3. Admission Requirements for M.Sc./PhD Programmes

Admission into the Post-Graduate programme of the Department requires a Bachelor's degree in Physics or related programmes from the University of Port Harcourt or any other recognized University approved by the senate of the University of Port Harcourt. Note that five credits 0/level in Mathematics, English Language, Physics, Chemistry and Biology is required. A minimum of second-class lower degree with or PGDP holders with upper credit (CGPA 3.5 points on a Scale of 5) level pass is required for the M.Sc. admission. For those intending to pursue a PhD programme of the department, candidate must have M.Sc. Degree in relevant field with a minimum CGPA of 3.50. All prospective PhD candidates are mandatorily required to attend a pre-admission oral interview, at which he/she is expected to present and defend a well written proposal and score a minimum of 60 %. Prospective Ph.D candidates are encouraged to visit the department and interact with prospective supervisor(s) with a view to establishing area(s) of interest and vacancy.

PHY 801.1 Mathematical Physics

Difference; ordinary and partial differential equations; integral equations, green functions, the Approximation Methods (WKB, perturbation applications to solution in quantum mechanics),

Cauchy -Riemann problems, Fundamental solutions of Laplace; Wave and Heat equations; Transforms and Asymptotic methods; the calculus of variation and Non-linear problems in Physics (Special Functions).

Variational principles. Lagrange's and Hamilton's formulations. Poisson brackets. Canonical and non-canonical transformations. Hamilton-Jacobi theory. Rotation of rigid bodies. Theory of small oscillations. Symmetry and conservation laws. Introduction to relativistic dynamics.

PHY 802.1 Advanced quantum Mechanics & Applied Group Theory

Classical variables and quantum mechanical operators, commutations, eigen-functions, normalization procedures, expectation value. Stationary State, Solutions of simple problems. Orbital angular momentum operators. Slater's treatment of complex atoms: Hartree-Fock method, Thomas-Fermi model. Matrix Mechanics, Mathematical framework. Vector space, Dirac notation; operator algebra and matrices. Description of physical phenomena. Perturbation theory and approximation methods.

Applied Group Theory

Definition and theorem, theory of group representations. Symmetry in the solid state; point groups and space groups. The 3-dimensional rotation group, continuous group, single and double valued representations; physical applications; crystal field splitting, symmetry adapted functions; normal modes of vibrations, symmetry properties of wave functions in crystals; factorization of secular determinants symmetry and the magnetic state.

PHY 803.1 Electromagnetic Theory

Electrostatic potentials. Poisson and Laplace's equations. Method of images, Green's theorem, multipole expansions. Electromagnetic field stone's theorem, Gauss's theorem. Scalar and vector potentials. Maxwell's equations. Propagation of electromagnetic waves in different media conductive and non-conductive media, ionized and non-ionized media. Phase velocity, group velocity and pulse propagation, attenuation, refraction, energy propagation and transfer, polarization and dispersion. Green's function method, diffraction theory, simple radiating systems, Lagrangian derivation of Maxwell's equations and the covariant structure of electromagnetism.

PHY 804.1 Applied Electronics Workshop

Workshop safety precautions. Basic hand tools and bench work practice. Plain and cylindrical generation of smooth surface using power operated machines. Selection and properties of materials used for construction metallic and non-metallic. Metal joining devices and adhesives and common use. Soldering techniques and wrap joints. Multi-meters and oscilloscopes. Auto-ranging in measuring instruments. A survey of the use of electronics circuit devices e.g., diodes, transistors including FET, integrated circuits, photocells. Selection, use and care of test instruments. Survey of pick-ups and transducer devices. Basic circuit synthesis and analysis. Pulse circuits. Instrumentation and measuring techniques: impedance matching. Probes active and input and output impedance using the scope.

PHY 805.1 Fluid Dynamics and Transport Theory

Differentiation following the motion of fluid particles. Equations of motion and continuity for incompressible inviscid fluids. Velocity potentials and Stokes stream function. Bernoulli's equation with application to flow along curved paths. Kinetic energy, sources, sinks, doublets in 2 and 3 dimensions. Limiting stream lines.

Physics of continuum mechanics, and equations of transport; Applications to flow in various media.

PHY 806.2 Thermodynamics and Statistical mechanics

Basic postulates of thermodynamics of simple, homogeneous systems. Thermodynamic potentials and stability of thermodynamic systems. Gibbs's theory of thermodynamics with interaction effects. Partition functions of different ensembles. Fundamental equilibrium theory; Liouville's theorem and the Ergodic hypothesis. Distribution functions, entropy and connections with thermodynamics. Microcanonical, canonical and grand canonical ensembles. The density matrix. Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac distribution. Functions and statistics. Phase equilibria, first and second order transitions. Applications to classical and quantum systems. Boltzmann equation. Brownian motion and applications.

PHY 807.2 Nuclear Physics and Instrumentation

Nuclear properties. Nuclear force, single particle potentials and the two-body nuclear interactions. The deuteron. Scattering process: n-p, n-n, p-p scattering. Nuclear structure and nuclear models including vibrational modes and rotational states of the nucleus. Fission and fusion reactions,

aspects of nuclear reactions and energy generation. Relativistic description of nuclear particle states. Nuclear Instrumentations

PHY 808.2 Basic Plasma Physics and Space science

Concept of plasma Physics; Equation of Gas dynamics (the conservation laws); Basic plasma parameters; Neutrality condition plasma frequency and the Debye length; Plasma Transport and Dynamics (the Maxwell equations); MHD Equations; instabilities in Plasmas; Examples of Natural Plasmas; the earth's ionosphere; the ionosphere of other planets; magnetosphere; reactions in the sun; solar wind and solar flux, Space Science and Applications

Earth's atmosphere; Ionospheric layers and processes; Ionospheric Dynamics/changes; Ionospheric current; Basic Astrophysics, solar environment; solar wind, solar terrestrial interactions

PHY 809.2 Seminar in Advances in Theoretical Physics

Students will be required to give seminars on topics of current research interest in solid state Physics including those of their project(s) and/or other branches of Physics.

PHY 819.2 Research Project in Theoretical Physics This will be in the form of a project report of an investigation carried out on a research topic (theoretical or experimental) of interest in Physics Electives (Students are required to choose any two courses from these electives)

PHY 810.2 Numerical Methods and computation of Physics

Modeling the art of transforming real life situation into mathematical statements. Applications to problems in Physics and dynamical system, programming languages; and use of packages; Solutions of algebraic Equations; Finite difference method; interpolation techniques; Numerical differentiation and integrations; Numerical solutions of differential equations; the Finite Element and Runge-Kutta Methods; Curve fitting. Applications to the problems in fluid dynamics; heat and mass transfer and transport systems.

PHY 811.2 Quantum Field Theories

Interactions of a point particle. Symmetries and conservation laws, fundamental invariants, energy-momentum tensor. Noether's theorem. Green's functions. Radiations. Relativistic Wave equations; the Klein-Gordon equation. Dirac

equation and the Weyl equation. Dirac propagator. Quantization of fields: scalar field, quantized radiation field, massive vector fields. Interaction with external fields: emission probabilities. Compton effect, Pair creation and annihilation, Bremsstrahlung etc. perturbation theory. Feynmann rules. Feynmann diagrams. Radiative corrections and renormalization: vacuum corrections, electron propagator, vertex functions, the Lamb shift, the anomalous magnetic moment. Functional methods. Introduction to Gauge Field theories.

PHY 861.1: Atmospheric Physics and Meteorology

The Solar-Earth atmospheric processes. The parameters for climate and meteorology. Hydrological cycle, precipitation, evaporation, atmospheric circulation, Energy budget, Ozone layer, Green House effects, Global warming. Structure of the Atmosphere and its constituents. Atmospheric-Environmental Model, Land and sea Breeze. Wind flow and its dynamics, Radiation, Temperature, Humidity, Atmospheric particulates emission and control and General circulation models.

Surface and groundwater dynamics. Types of aquifers. Introduction to the theory of diffusion of pollutants and methods for estimation of dispersion in the atmosphere. Nature of turbulent motion in various environment. Dispersion of pollutants in water bodies. Air Pollution chemistry. Effects of atmospheric pollution on various forms of life including direct and secondary effects. Corrosion, contamination of inert matter by pollution, Ultraviolet Radiation, microwave Radiation, Laser Radiation, X-rays. Beta and Gamma radiation, Introduction of fuels, combustion. Pollutants, carbon dioxide, carbon monoxide. Nitrogen oxides, Sulphur dioxides. Monitoring equipment, vehicles, homogenate compound, photochemical pollution and acid rain.

COURSE DESCRIPTION

PHY 801.1 Mathematical Physics

Vector differentiation operations. Complex variables and applications, Integral transforms and applications, special functions of mathematical physics and partial differential equations and applications, integral equations, calculus of variations. Lagrange's and Hamiltonian equations. Rotation of rigid bodies (review). Tensor algebra, Inertia and stress tensors, Theory of small vibration, relativistic dynamics.

Review of basic principles of electromagnetic theory, Maxwell's equations, vector and scalar potentials, conservation laws, methods in electrostatics and magneto statics, propagation of F.M. waves in various media (conductive, dispersive, etc.). Dispersion theory, scattering and diffraction of E.M. waves. Motion of charged particles in uniform and non-uniform electric and magnetic field, collision and energy loss, Radiation by moving charge

PHY 802.1 Advanced quantum mechanics & Applied Group Theory

Classical variables and quantum mechanical operators, commutations, eigen-functions, normalization procedures, expectation value. Stationary State, Solutions of simple problems. Orbital angular momentum operators. S later's treatment of complex atoms: Hartree-Fock method, Thomas-Fermi model. Matrix Mechanics, Mathematical framework. Vector space, Dirac notation; operator algebra and matrices. Description of physical phenomena. Perturbation theory and approximation methods.

Applied Group Theory

Definition and theorem, theory of group representations. Symmetry in the solid state; point groups and space groups. The 3-dimensional rotation group, continuous group, single and double valued representations; physical applications; crystal field splitting, symmetry adapted functions; normal modes of vibrations, symmetry properties of wave functions in crystals; factorization of secular determinants symmetry and the magnetic state.

PHY 812.1 Semi-conductor Physics

The elementary properties of semi-conductors; control of carrier density, impurities and imperfections in crystal and carrier concentration in thermal equilibrium electron transport phenomena; collisions with crystalline imperfections, constant relaxation time. Relaxation time as a function of E, etc. Thermal effects in semiconductors, thermal conductivity, thermo-electric power, thermo-magnetic effects, etc. diffusion and conduction in extrinsic materials, drift mobility of electrons and holes, etc. scattering of electrons and holes, change holes; recombination mechanisms; radioactive recombination, recombination through traps, etc. optical and high frequency effects in semiconductors, free carrier absorption, plasma resonance, emission of radiation from semi-conductors.

PHY 813.1 Electronic Instrumentation.

Brief review; passive devices, active devices, two-port network feedback circuits, transistor oscillator. Circuit models of transistors, FET Applications. Differential amplifier, small signal analysis, trigger circuits. Operational amplifier band width, different Integrated circuit; fabrication and testing and thin film and thick film circuits, passive and active elements. Logic devices and combinational circuits; DL, DTL, TTL, CMOS, etc. digital integrated circuits, synthesis of combinational Logic Circuits, FLOP and DE multiplexers. ROM, Sequential Logic Circuits, FLOP Circuits RAM. Introduction to microprocessors and Logic applications. Network theory. Discrete electronic systems; Analog and Digital meters, transducers, rate meters (frequency domain CRO).

PHY 814.1 Applied Electronics and Workshop Practice

Workshop safety precautions. Basic hand tools and bench work practice. Plain and cylindrical generation of smooth surface using power operated machines. Selection and properties of materials used for construction metallic and non-metallic, Metal joining devices and adhesives and common use. Soldering techniques and wrap joints. Multi-meters and oscilloscopes. Auto-ranging in measuring instruments. A survey of the use of electronics circuit devices e.g., diodes, transistors including FET, integrated circuits, photocells. Selection, use and care of test instruments. Survey of pick-ups and transducer devices. Basic circuit synthesis and analysis. Pulse circuits. Instrumentation and measuring techniques: impedance matching. Probes active and input and output impedance using the scope.

SGS 801.2 Management and Entrepreneurship

The course will cover business environment general management, financial management entrepreneurship developments, feasibility studies marketing and managerial problem solving.

PHY 815.2 Advanced Solid State Physics

Quick review of Crystal structures and crystallographic symmetry. Theory of solids, Brillouin zones, concept of electrons and holes, Thermal properties: Phonons and Phonon spectra Optical properties, optical spectra and excitons. Magnetic properties spin waves and magnetic spectra, Para magnetic resonance. The many body problems in solid.

PHY 816.2 Physics of Semi-Conductor

Semi-conducting materials. Materials used in solid-state devices and in basic research preparation and measurement of semi-conducting materials, silicon and germanium, other elemental semiconductors. Ternary and Quaternary compounds, etc. P-N junction Devices, moderate field P N junction, tunnel diodes, IM-PATT diode, etc. interface and thin film devices, Schottky effect, Metal-semi-conductor, RMPATT diode, metal Insulator Semi-conductor (MIS); or metal-oxide semiconductor (MOS), surface states charges and space charges. Optoelectronic devices, electroluminescent devices, solar cell, photo detectors, junction lasers, laser materials etc.

PHY 817.2 Basic Model Concepts and Manifest Properties of Solids

Properties of Energy bands in solids. Wave function for an electron in a periodic potential, energy bands in a perturbed nearly free electron systems. Energy band calculations, density of states in energy bands. Introduction to energy bands in solids. Optical processes in solids. Absorption and reflection phenomena. Carrier recombination and luminescence, direct and indirect transitions. Excitations, colour and lasers. Photoelectric phenomena

PHY 818.2 Seminars in Advances in Solid State Electronics.

Students will be required to give seminars on topics of current research interest in solid state electronics including those of their project(s) and/or other branches of Physics.

PHY 819.2 Research Project

This will be in the form of a project report of an investigation carried out on a research topic (theoretical or experimental) of interest in Solid State Electronics

COURSE DESCRIPTION

PHY 820.1 Physics of the Earth's Interior

Structure of the earth's interior, continental and oceanic crust and the mantle. Isocracy; structure of the core, terrestrial heat flow, ocean ridges, mountain ranges, rift valleys and ocean trenches, continental drift and seafloor spreading. Use of geophysics techniques in the study of the earth's interior. The earth's magnetic field, its description and origin, magnetization of rocks, reversal of the earth's magnetic field, radioactive age dating isotope geology; statistical analysis of paleomagnetic data, polar wandering and continental drift. Response of geological material to applied stress. Brittle failure, plastic

deformation and creep in rocks. Applications of these principles to large scale geologic structures (principally lithospheric plates). Mechanics of lithospheric plates and mechanism of plate tectonics.

PHY 821.1 Potential Field Theory.

The concept of potential will be introduced in this course as a preparation for the more specialized discussion of potentials field methods of Applied Geophysics. Gravity, magnetic, Poisson's relationship between gravity and magnetic potential, Gauss's and Green's theorems, Laplace's equation, upward and downward continuation, Clairaut's theorem. Use of matrices in Applied Geophysics.

PHY 822.1 Electrical and Electromagnetic Method

Constitution of the atmosphere. Formation and structure of D-, E-, and F-layers of ionosphere. Vertical and Oblique propagation of radio waves in the ionosphere. Ionospheric absorption and fading, magneto-ionic theory. Ionospheric disturbances. Special features of the equatorial ionosphere.

PHY 823.1 Seismology Methods (Reflection and Refraction)

The theory of elastic waves, body and surface waves, curved wave front theory; principles of refraction prospecting; the inversion of body and surface waves data, resolution problems, modern techniques of refraction prospecting and applications. Recording methods in seismology; and introduction to earthquake seismology, seismically and seismic risk; earthquake prediction and risk reduction; African earthquakes. Principles of seismic reflection surveying; seismic sources and source array design, hydrophones and geophones, digital acquisition systems; vibroseis techniques; transmission of seismic energy, field techniques, digital processing of seismograms, migration and interpretation procedure. Introduction to seismic stratigraphy.

PHY 824.1 Borehole Geophysics and Radiometric

The theories and methods of boreholes geophysics will be introduced. Well logging techniques and interpretation principles in log interpretation will be treated. Principles of radioactivity, radioactivity of rocks and minerals, ionization chamber, Geiger Muller counter, scintillation meter, miscellaneous instrument and calibration. Field techniques. Spectrometric surveys. Aero-spectrometric methods. Interpretation techniques/procedures.

SGS 801.2 Management and Entrepreneurship

The course will cover business environment general management, financial management entrepreneurship developments, feasibility studies marketing and managerial problem solving.\

PHY 825.2 Time series Analysis, Digital filter theory and Data Processing

Signal theory. Continuous and discrete Fourier series. Convolution integral. Correlation integral. Filtering techniques-linear filter, convolution, auto-correlation, cross-correlation and power spectral analysis. Deconvolution, matched filters and application of these filters to both synthetic and real data.

PHY 826.2 Research Seminars in Geophysics

Literature study, writing up and oral presentation of a topic on an aspect of the area of specialization.

PHY 827.2 Geophysical Field work

This course is designed to introduce the students to specialization in the techniques of data collection, analysis, and interpretation through geophysical field work. Field Techniques in Applied Geophysics with emphasis on practical field work will be carried out. Improvements on existing and new techniques will also be introduced when they arise.

Geophysical Field work Each student

PHY 828.2 Gravity and magnetic methods in Geophysics

The earth's field, measurement of gravity on land and at sea, reduction of gravity observations, rock density, regional and residual anomalies separation; gravity effect of simple shapes, interpretation of gravity effect of simple shapes, interpretation of gravity anomalies in terms of two and three dimensional structures; second derivative methods, limiting depths, field examples from Nigeria and elsewhere. The earth's magnetic field; magnetometers and measurements of magnetic field on land and air, reduction of magnetic observation; magnetic properties of rocks, two and three dimensional interpretation of magnetic anomalies in terms of such models as the dyke model, field example from Nigeria and elsewhere. Magnetic reduction to pole, frequency domain analysis.

PHY 829.2 Research Project in Geophysics

Special geophysical investigation with the report including results and interpretation being presented in dissertation format.

ELECTIVE COURSES

PHY 810.1 Numerical and Computational Methods

Interpretation Scheme, the lagrangian representation, Arkin algorithm least square. Interactive process. Solution of linear equations, Gaussian elimination, inversion of matrices. Fourier series and harmonic analysis. Difference equation. Numerical integration and differentiation trapezium, Simpson's limitation of the size of grid. Solution of ordinary differential equation, step by step methods partial differential equation, simple wave propagation forward difference, backward difference, central difference in time, the implicit scheme, conditions for stability; e.g. diffusion equation, hyperbolic equation method of relaxation and other interactive schemes applied to simultaneous equations; ill-conditioned method. Functional representation, minimization and telescoping computer solutions of equations.

PHY 830.2 Instrumentation

The development and modification of Geophysical instruments will be treated.

PHY 831.1 Geophysical Prospecting

Gravity and magnetic methods, Electrical methods, seismic method, Electromagnetic method and Radiometrics shall be treated

PHY 832.2 Modeling in Geophysical Prospecting

Modeling conditions, modeling parameters. The resistivity model tank, magnetic response modeling. Electromagnetic scale modeling. Applications of modeling to geophysical interpretation.

PHY 833.2 Principles ofPaleo magnetism

Detrital magnetization, thermo-remnant magnetization, collection and treatment of Data, magnetic cleaning, measurement of natural remnant magnetization, investigation of other magnetic properties or rocks temperature effects, stereographic projection. Application of results ofpaleomagnetism.

PHY 834.1 Geology for Non-Geologist

Introduction to the basic principles of stratigraphy applied physical stratigraphy. Introduction to structural Geology and Interpretation for potential

mineral resources. Simple geological structures, interpretation of folds, faults and fractures. Basic map reading, photo- geology and interpretation, introduction to petrology: igneous, metamorphic and sedimentary. Mineral deposits, their geology and uses. Identification of various rock types and their composition, economic geology. Geology of petroleum, oil accumulation and nature, origin of oil, migration and accumulation of oil. Discussion of various traps, Basic concepts of Hydro/Engineering Geology and marine Geology option.

COURSE DESCRIPTION FOR M.Sc. MATERIALS SCIENCE

PHY 840.1 Mechanical Properties of Materials

Behavior of Materials under stress, Mechanical properties in tension, compression, direct shear, tension, flexures, true stress-strain, cold work, hardness, impact, fatigue properties. Effect of temperature on mechanical behavior of metals creep, stress and rapture. Toughness and crack production theories. Mechanical of slop, slip systems, critical resolved shear stress. Deformation in single polycrystalline materials. Impurity effects and yield point phenomena. Elements of dislocation theory. Effects of temperature and deformation of rate ofplastic flow and strain hardening.

PHY 841. 1 Special Engineering Materials

Microstructure, properties and uses of ceramics, polymers and metals as engineering materials. Dielectric and magnetic characteristics of materials. Manufacturing and processing of polymers. Mechanical behavior of polymers and their thermal and electrical properties. Valmes engineering approach and organization for materials selection. Quality standard and quality control.

PHY 842.1 Thermodynamics of Materials

Law of thermodynamics. Free energy of heterogeneous reactions. Phase rule solutions. Classical and statistical; thermodynamics with emphasis on solid state phenomenology of metallic surface, phase equilibra in multicomponent systems, calculations of phase diagrams, thermodynamics of lattice defects and substructure. Simultaneous development of concepts of mass, energy and momentum. Introduction to irreversible thermodynamics and its application to solid diffusion.

PHY 843.1 Electrometallurgy, corrosion and Materials Degradation

Electrode potential and over voltage. Electrode kinetics, corrosion types, corrosion mechanism, corrosion protection, electroplating, vacuum disposition, Galvanostatic Cathode, Anodic and potentiostatic protection methods Effects of temperature, environmental and metallurgical factors on corrosion of materials. High temperature corrosion.

PHY 844.1 Powder Metallurgy and Processing

Introduction to properties of metal and ceramic powders. Basic principles of compacting porous and dense products, Microstructure factors affecting Physical and mechanical properties of powder blending; compacting, consolidation, sintering. Production of metal parts from powder and review of commercial applications. Important patents and commercial processes. Metallurgy of iron, steel and principal nonferrous materials. Gasses in steel, materials and energy balance. Slag-metal reaction

Introduction to Physical metallurgy: Relation of properties to microstructure in materials recovery, recrystallization and grain growth. Introduction to atomic, microscopic structure of engineering materials. Effects of grain size and boundaries, work hardening and heat treatment on behavior of solids. Phase diagrams. Solidification. Iron-carbon system. Ferrous and nonferrous materials. Diffusion-controlled phase transformations, distortion-controlled phase transformation, Elementary alloy theory.

PHY 845.2 Thin Film Material Technology

Preparation, structure, evaluation and properties of thin films; metallic, semiconductor and dielectric film techniques. Nucleation and growth consideration, epitaxy and metastable configuration. Solar materials characteristics and their applications.

Visible and infrared light sources, black body radiations, radiation by atoms, stimulated emission of radiation, coherent light sources and electro-optics effects/application.

PHY 846.2 Nanomaterials and Nanotechnology

Nanotechnology bottom-up approach versus to p-down approach in materials production, carbon nanomaterials, carbon nanotubes, nanorods, nanowires, graphenes, semiconductor and nano metallic materials. Application of nanomaterials, Energy production, storage, transmission and use. Other applications of nanomaterials (Agriculture, medicine, drugs delivery, production, environmental remediation). Nano biotechnology and chemical technology.

PHY 847.2 Introduction to Ceramic Materials

Introduction to Ceramics-Minerals, Raw materials. Forming and thermal treatment obtain ceramic products. Glasses, glazes, ceramic and enamels on metals. Physical ceramics. Equilibrium and reactions between ceramic recrystallization, grain growth and microstructure of ceramics. Spatial characteristics of engineering ceramics plastic and viscous deformation in ceramics. Physical and dielectric properties.

PHY 848.2 Seminars in Advances in new Materials

Metallurgical materials, Bio-engineering materials, Computer applications in solving materials problems and advances in Materials Sciences. Students will be required to prepare and present seminars in chosen topics in which they have critically reviewed technical papers.

PHY 849.2 Project Research

Independent project research demonstrating professional maturity at graduate level and knowledge to undertaken and complete research under guidance of a department senior member who should normally be vast in the field will be undertaken. The report will include among other things critical and analytical analysis and interpretation of pertinent literature. This should in addition represent worthwhile contribution to the field. Oral and final examination of project report (thesis) is required for the award of the M.Sc degree in Material Science.

COURSE DESCRIPTION FOR M.Sc. ENVIRONMENTAL AND RADIATION PHYSICS

PHY 861.1 Atmospheric Physics and Meteorology

The Solar-Earth atmospheric processes. The parameters for climate and meteorology. Element cloud physics, Hydrological cycle, precipitation, evaporation, atmospheric circulation, Energy budget, Ozone layer, Green House effects, Global warming. Structure of the Atmosphere and its constituents. Atmospheric- Environment Model, Land and see Breeze. Wind flow and its dynamics, Radiation, Temperature, Humidity, Atmospheric particulates emission and control and General circulation models. Nature of turbulent motion in various environment.

PHY 862.1 Fundamentals of Nuclear Physics

Introduction and basic concepts: Definitions, Nuclear properties, Nuclear potential and energy levels. Radioactivity and transformation kinematics. Nuclear collisions. Nuclear instability: decay, electron capture (EC), decay and semi classical theory of decay, gamma decay and yield selection rules, internal conversion, (IC,) Auger, electron emission. Interaction of Radiation with matter: specific ionization, linear energy transfer (LET): Mechanisms and energy transfer of Heavy charged particles (Bethe-Bloch formula, Bragg curve, energy requirements etc), fast elements, gamma-rays, neutrons including attenuation and moderation. Nuclear reactions: general features of nuclear reactions, elastic scattering, direct reaction, compound nucleus reaction. Heavy ions reaction. Brief view of concepts and principles of reactors and criticality.

PHY 863.1 Radiation Detection, Dosimetry and Radiation Protection

Radiation quantities: Definitions and Units
Radiation detection methods: ionization in gases; Ionization in semiconductors. Scintillation Gamman spectrometry. Neutron detection. Thermo luminescence. Film Dosiimetry, Chemical dosimeter (Fricke). Particle Track detection, calorimetry, etc. counting statistics dosimetry: External dosimetry (gamma). Internal dosimetry. Reference Man Patient Dosimetry in radiographic external dosimetry (gamma). Internal dosimetry, Reference man patient Dosimetry in radiographic examination, mammography, fluoroscopy and computed tomography.

The external Radiation Hazard and Protection. Time distance and shielding, monitoring for external radiations (areas and personal). The internal Radiation Hazard and Protection: Sources and type of airborne contaminants, control of the internal radiation hazard, exposure reduction, internal dosimetry. Waste Management of Contamination, protection against contamination (protective clothing, decontamination of waste disposal, packaging and safe transport of radioactive materials. Principles to Radiation protection Justification, optimization, dose limit, international safety standards ICRP, BSs, NNRA, Elements of Radiation protection programmed in Medicine and dosimetry: Monitoring, Emergency preparedness planning and response. QA and QC instrument. Training, Audit, Safety of equipment.

PHY 864.1 Environmental Sciences and Modelling

The concept of Environmental Science. The interdisciplinary nature of environmental science.

Biodiversity, Man's activities, ecosystems and limitations, sources of Environmental Pollution. Environmental impacts on Air, Land and Water. Environmental control and management. The physics, chemistry, biochemistry, bacteria, etc, concepts of pollution. Environmental standard and sustainable development. Radioactive and toxic pollutants. Gaseous pollutants; carbon dioxide, carbon monoxide, sulphur dioxide, nitrogen oxides, photo chemical pollutants, acid rain, homogenate compounds. Sound and noise pollution. Sound propagation measurement and Analysis. Physics of Noise and Sound. Effect of sound. Basic sources of Noise: Character and treatment. Noise scales and indices. Noise control methods. Environmental acoustics. Sound reduction. Practical and reduction methods. Criteria and recommendation and Noise legislation.

Introduction of general concepts of mathematical modeling. Continuous and discrete techniques in mathematical modeling. Application of modeling techniques in solving measured environmental data. Testing of Hypothesis, decision theory and multivariate analysis. Numerical methods of linear equations and approximations. Sampling methods and Quality control measures/precision. The finite difference scheme. Applications in fluid dynamics and Diffusion mechanism

PHY 865.2 Physics of Fluids and Water Resources Management

General principles of Fluid Dynamics. Transport mechanism (Air, Water and Soil) capillarity, permeability. Absorption and Adsorption processes and fluid Tension. Flow network and seepage phenomenon. Surface water runoff process, linear and non-linear hydrological model, Stream flow routing, and boundary layer flow. Ground water pollution. Modeling natural waters and treatment of systems. Introduction to principles of surface and groundwater hydrology. Sources of water. Water as a renewable resource. Aquifer analysis. Groundwater quality, its chemistry, migration and relation to geologic environment. Steady and unsteady flow of water. Groundwater pollution. Hydraulic conductivity, transmission, yield and storage. Quality analysis of water. Water profile, properties and characteristics of water. Hydrologic cycle. Meteorological consideration. Analysis of precipitation, runoff, flood routing and reservoir storage. Water resources investigation. Waste water treatment comparison of alternatives, screening and formulation of management projects. System

models of water transportation to rivers and streams.

PHY 866.2 Nuclear Application in Medicine, Industry and Research (3 Credit Units)

Physics and Principles of diagnostic imaging equipment: radiographic unit, computed tomography, mammographic units. Principles of radiation therapy (teletherapy and brachytherapy). Physics of radiotherapy equipment; CO-60 unit and Linear accelerator. Physics and operational principles of Gamma camera. Physics of positron emission Tomography (PET). Physics and operational principles of Magnetic Resonance Imaging (MRI). Industrial Uses: Industrial radiography, tracing, Gauging, Material Modification, Sterilization food preservation and others. Research Uses. Neutron Activation Analysis. Particle- induced N-ray Emission PIXE and others.

PHY 868.2 Seminar in Environmental Innovations and Nuclear Issues

Students will be required to prepare and present seminars in chosen topics in which they have critically reviewed. The technical papers should cover current issue and innovations on the environment and nuclear applications.

PHY 869.2 Project work

Post-graduate project will be tailored towards proffering solution to environmental problems in a chosen area. An analytical design or empirical study in applied physics with a blend in environmental concepts will be highly encouraged. The choice of project topic shall be in consultation with the Head of Department and an academic adviser. Written thesis shall be presented to the Department in consultation with the supervisor.

ELECTIVES

PHY 852.1 Non-Ionizing Radiation

Ultraviolet radiation, micro wave radiation, electromagnetic radiation x-rays, Bleared Gamma radiation. Radiometric Units Lasers. Laser operations. Lasing actions, TEM modes, biological effects: eye damage, skin damage Protection guides and standards, maximum permissible Exposure (MPE). Safety Measurements, power and energy. Beam divergence Radio frequency (RF) and Microwave: Communications, antennas and antenna gain. G. penetration depth GSM land-sets and base stations. Biological Effects. Thermal and Non- Thermal Effects, temperature-humidity index microwave measurement, survey meters. Protection Guides and standard Maximum permissible exposure (MPE) Safety.

PHY 853.2 Soil Mechanics and Properties

General theory of soil composition and classification. Characteristic of soil properties and Dynamics. Stress distribution in homogenous and layered elastic soil. Soil consolidation theory. Settlement of structure on soils. Bearing capacity and lateral earth pressure on soil. Stability and landslide phenomena. Soil and ground water pollution. Physical concepts of soil-soil improvement, particle size analysis, laterites, site investigation. Critical evaluation and review of standard testing procedures for soil identification. Treatment of shear strength static triaxial compression test and its several variation.

PHY 867.2 Introduction to Environmental Technology

Environmental technology and Environmental Science. Measurement and Evaluation of environmental pollution in air, water and land: legal and technical requirements in the preparation, interpretation of environmental impacts. The procedure and interdisciplinary nature of environmental analysis.

Impact Evaluation

Qualification of Impacts Fields

Mitigation

Understanding the sources and projects that cause Environmental degradation

Rernediation of gaseous pollutants.

Removal of gaseous oxides of nitrogen, Carbon and sulphur. Removal of particulates from moving and stationary sources. Removal of fluorides complex oxidants and mercury vapour. The principles of reactions and physical measurements applied for variety of analytical equipment employed in air quality studies.

Practical examples and case studies will be used. These may include evaluation and analysis of Social and industrial Noise

Vibration hazards, toxic and radioactive materials Statistical analysis and modeling of environmental systems. In-situ and online measurement of environmental pollution. Types of environmental studies, EIA. EAR. Environmental Monitoring

PHY 860.1: Radiation Protection guides

The external Radiation Hazard and Protection. Time distance and shielding, monitoring for external radiations (areas and personal). The internal Radiation Hazard and Protection: Sources and types of airborne contaminants, control of the internal radiation hazards exposure reduction, internal dosimetry. Waste Management of Contamination, protection against contamination (protective clothing, decontamination of waste

disposal, packaging and safe transport of radioactive materials. Principles to Radiation protection Justification, optimization, dose limit international safety standards ICRP, BSs, NNRA. Elements of Radiation protection programmed in Medicine and dosimetry: Monitoring, Emergency preparedness planning and response. QA and QC instrument. Training, Audit, Safety of equipment.

PHY 866.2 Ionizing Radiation

The main element of the course are effects of ionizing radiation on the human body, units of measurement of ionizing radiation and doses, basic of dosimetry for the use in radiotherapy and risk assessment of radiation exposure of humans. The Physics of ionizing radiation. An overview of radioactive and non-radioactive radiation sources.

PHY 869.2 Radiation Biology

Properties of ionizing radiation, radiation field, interactions of radiation with matter, Direct and indirect effects of radiation. Radiobiological effectiveness (RBE) of different radiations. Some factors that modify the biological effect of radiation. Basic principles of radioisotope imaging. Generations and principles of acoustic waves. Detection of ultrasound. Safety of ultrasound. Imaging with ultrasound.

Ph.D. PROGRAMME

The PhD programme is geared towards (a) the production of high caliber specialists in the various options for services in higher institutions and the industry (b) the introduction of high level of research experiences and (c) the development of originality, interdisciplinary and cooperative research, analytical and a critical mind.

1) Regulations

The programmes for degree of Doctor of philosophy (PhD) shall consist of a minimum of 48 credit units out of which 30 credit units is expected from masters work. The other 18 credit units shall come from approved courses of study, Seminars and Research project.

2) Duration of Programme

The PhD candidates will be required to spend a minimum of 24 calendar months (2 years) and a maximum of 60 calendar months (5 years) for Full-Time. Part-Time candidates will be required to spend a minimum of 36 calendar months (3 years) and a maximum of 84 calendar months (7 years).

3) Course Assessment

The PhD programme is in accordance with the existing regulations of the University of Port Harcourt. To be qualified for the award of the PhD. degree in any of the options, the following requirements must be met:

The candidate will be required to take a minimum of 18 credit units courses (3 compulsory and 2 elective courses)

The candidate will be required to deliver five seminars in his/her area of specialization before graduation (3 Seminars in Department, 1 at Faculty, 1 at graduate School)

The candidate shall attend at least two professional conferences.

A thesis must be submitted after completion and defended orally before an officially appointed External Examiner in accordance with University of Port Harcourt regulations.

COURSE DESCRIPTION FOR PhD PROGRAMMES IN PHYSICS

PHY 901.1: Research Methods and Technical Writing

The concepts of research proposals, principles of scientific research presentations and the essential sound bites, essentials of spreadsheets, internet technology and power point presentations, concepts of hypotheses formulations and testing, relevant statistical models and packages, precisions and accuracy estimations. Organization of research, planning, publications and writing of different types of reports. Importance of referencing, abstracts and conclusion.

PHY 902.1: Research Project (Dissertation)

PhD research project will be tailored towards proffering solution to Physics related societal problems in a student's area of speciality. An analytical design or empirical study in applied physics with a blend in environmental concepts will be highly encouraged.

The choice of project topic shall be in consultation with the Head of Department and an academic adviser. Written thesis shall be presented to the Department in consultation with the supervisor.

PHY 903.2: Global Geophysics

This course aims at introducing the concepts, methods and results of Solid Earth Geophysics. It examines the theory, application and limitation of geophysical methods and reviews their contributions to our knowledge of the surface and interior of the Earth. It covers the following topics: Introduction to the structure and evolution of the Earth as unified by geophysical methods seismology, gravity and magnetic

Stress and Strain in Solids
Elasticity and Flexural Theory
Plate Tectonics as related to the unified theories of:
Seafloor spreading
Continental drifting Transform Faults
Heat Transfer and Heat Flow

PHY 904.2: Current Advances in Applied Geophysicss

Discussion of selected current literature and active geophysical research in Niger Delta and West African sub region. The current research efforts in Seismology, Electrical, Gravity and Magnetic methods as applied to the region

PHY 905.2: Geophysical Exploration

This course reviews and summarizes the geophysical methods used in the exploration of minerals in Nigeria. They will include techniques used in oil and gas industry, solid minerals and water resources. Environmental geophysics will also be introduced and discussed

Seismology methods

Potential Theory and methods

Electrical methods Resistivity, GPR, Radiometrics, Nuclear, etc

PHY 908.2: RecentAdvances in Materials Science

This course shall treat recent findings in the area of: (i) Metals and alloys (ii) Semiconductors (iii) Superconductors (iv) Composite Materials (v) Ceramics and polymers.

Topics shall include: Non- destructive surface analysis of composite and polymers by handheld FTIR, A new frontier in coatings analysis, AFM-IR: Nanoscale IR spectroscopy for materials and life sciences, modeling electrons and atoms for materials science, grapheme based materials: past, present and future, CuO nanostructures: synthesis, characterization, growth mechanisms, fundamental properties and applications, recent progress in antireflection and self-cleaning technology- from surface engineering to functional surfaces, 3D vascular system, Carbon nanotube super capacitors for portable electronics, phase change materials for thermal energy storage, A review of numerical analysis of friction stir welding, Grapheme oxide-based transparent conductive films, Ti based biomaterials, the

ultimate choice for orthopedic implants, grapheme based materials: past, present and future and plasticity in small sized metallic systems: intrinsic versus extrinsic size effect.

PHY 909.2: Advanced Corrosion and Degradation of Materials

This course aims at selected current special topics with interest in technology applications. Examples include; probing microbiologically induced corrosion, metal sensitivity in patients with orthopedic implants, current concepts and review of corrosion of metallic materials implants, corrosion and destructive electrochemical attack of materials, corrosion, cracking, microbiological degradation in highly corrosive marine environment, environmental degradation of materials and cathodic and anodic protection control of materials.

PHY 912.2: Current Trends in Environmental Physics

Nano Tech Application in Env. Physics; Radiation Protection in Hospitals; Occupational Exposure to Radiation & Noise Hazards; Applications of Radiation Technology to Imaging & Environmental Monitoring; Modem Methods and Equipment for Monitoring Environmental Radiation and Noise Pollution.

PHY 913.2: Environmental Policies and Standards

Env. Regulation & Standards in Nigeria (Noise & Radiation); Noise Measurements & Dose Calculations; Radiation Measurements & Dose Calculations; Radioactive Wastes' Management:- Nigerian Policies & Regulations, International Policies & Regulations; FME, NESREA & NNRA Acts; International/Regional & Regulations on Radiation Safety/Guide

PHY 914.2: Environmental Technology and Climate Change

Climate change and Dynamics of Climate change; Global Warming, Causes & Consequences; Physics of Climate Change; Environmental Standards and Sustainable Development; Instrumentation in Env. Physics; industrialization and Env. Pollution.

ACADEMIC STAFF

Name	Qualification	Designation	Field Specialisation
Avwiri, G.O.	BSc, MSc (Uniport),.PhD (RSUST), FNIP	Professor	Solid State Electronics/Environmental and Radiation Physics
Abbey, T.M.	BSc(RSUST), MSc(Ibadan). PhD(Uniport)	Professor	Applied Mathematical/Theoretical Physics (Plasma)
Chukwuocha, E.O.	BSc, MSc, PhD (Uniport)	Professor	Theoretical Physics
Osarolube, E.	BSc(FUTO), MSc(Ibadan), PhD(Uniport)	Professor	Material Science
Chad-Umoren, Y.E.	BSc (RSUST), MSc (Unilag), PhD (RSUST)	Professor	Nuclear Physics
Ehirim, C.N.	BSc (ABSU), MSc (FUTO), PhD(Uniport)	Professor	Geophysics
Nte, F.U.	BSc (Uniport), PGD (ABU). M. Phil, PhD (RSUST)	Professor	Environmental Physics
Nwankwo, C.N.	BSc (Ibadan), MSc,.PhD (Uniport)	Professor	Applied Geophysics
Ononugbo, P.	BSc (UNN), MSc (RSUST). PhD (Uniport)	Professor	Environmental/ Radiation Physics
Alalibo, T.N.	BSc , MSc, PhD (RSUST)	Professor	Theoretical Physics
Emujakporue, G.	B.Tech (FUTA), M.Sc, PhD (Uniport)	Professor	Applied Geophysics
Sofolabo, A.O.	BSc, MSc (Uniport)	Reader	Applied Geophysics
Onyeaju, M.C.	BSc(Ekpoma), MSc (Ibadan)	Reader	Theoretical Physics (condensed Matter)
Amusan, J.A.	B.Tech.,M.Tech	Reader	Electronics & Renewable Energy
Nwosu, L.	BSc, MSc, PhD (Uniport)	Reader	Applied Geophysics
Ikot, A.N.	BSc, MSc, PhD (Unical)	Senior Lecturer	Theoretical Physics
Obong, H.P.	BSc (Unical), MSc (Uniport)	Senior Lecturer	Solid State/Theoretical Physics
Onwuneme, S.E.	B.Sc, M.Sc (UNN)	Lecturer I	Theoretical physics
Otokunefor, E.B.	BSc, MSc (Uniport)	Lecturer I	Solid State Physics

DEPARTMENT OF PURE & INDUSTRIAL CHEMISTRY

PROGRAMMES

1. Programme Areas

The Department of Pure and Industrial Chemistry runs programmes leading to the award of M. Sc. and Ph. D. degrees in the following fields:

Pure Chemistry	Industrial Chemistry
i. Analytical Chemistry	i. Petroleum Chemistry and Petrochemicals
ii. Inorganic Chemistry	ii. Mineral Processing and Chemical Metallurgy
iii. Physical Chemistry	iii. Polymer Science/Technology
iv. Organic Chemistry	iv. Powder Technology/Chemical Products Processing
v. Environmental Chemistry	
vi. Pharmaceuticals/Medicinal Chemistry	

1. Registration

- There is provision for both full-time and part-time registration.
- Full-time candidates must register for all the prescribed courses/seminar/research project in their respective programmes (see item 4) at the beginning of the session.
- Part-time candidates must register for a minimum number of prescribed courses/seminar/research projects in their respective programmes (see item 4) at the beginning of the session.
- Part-time candidates must fulfill all the conditions laid down by the School governing their candidature.

2. Duration of Programmes

M. Sc. Programmes

- Full-time candidates will be required to spend a minimum of 1 calendar year and a maximum of 2 calendar years.
- Part-time candidates will be required to spend a minimum of 2 calendar years and a maximum of 4 calendar years.

Ph.D. Programme

Students admitted into the Ph.D. programme will require a minimum of 2 years to complete the programme.

3. Academic Work/Courses

M. Sc. Programme

Full-time students will take four taught courses and a seminar course in the first semester and three taught courses and a research project in the second semester.

Part-time students will take five taught courses in their first year of registration, i.e. three for 1st semester and two for 2nd semester. In the second year of registration, two taught courses and a seminar course will be taken in the first semester. A taught course and a research project will be taken in the second semester.

Each of the taught courses and seminar carries three (3) units while Research Project carries six (6) units

Ph.D. Programme

This programme consists of:

- Research Project
- Presentation of two Departmental seminars, one Faculty seminar and one School of Graduate Studies (SGS) University Wide Seminar
- Course work on Laboratory Management and Chemical Safety
- Supervision of undergraduate practical classes
- Preparation of thesis.

The prescribed courses in the various areas of specialization in the Department are outlined below.

(i) ANALYTICAL CHEMISTRY

S/N	First Semester	Second Semester
1.	CHM 835.1 Advanced Analytical Chemistry	CHM 836.2 Advanced Environmental Chemistry
2.	CHM 851.1 Advanced Inorganic Chemistry	CHM 837.2 Spectroscopic Methods for Analytical Chemistry
3.	CHM 841.1 Advanced Physical Chemistry	CHM 838.2 Advanced Analytical Instrumentation
4.	CHM 861.1 Advanced Organic Chemistry	CHM 890.2. Research Project SGS 802.2 Entrepreneurship & Management
5.	SGS 801.1 ICT & Research Method	CHM 830.2. Seminar

(ii) INORGANIC CHEMISTRY

S/N	First Semester	Second Semester
1.	CHM 835.1 Advanced Analytical Chemistry	CHM 836.2 Advanced Environmental Chemistry

2.	CHM 851.1 Advanced Inorganic Chemistry I	CHM 852.2 Advanced Inorganic Chemistry II	4.	CHM 861.1. Advanced Organic Chemistry	CHM 890.2. Research Project SGS 802.2 Entrepreneurship & Management
3.	CHM 841.1 Advanced Physical Chemistry	ICH 876.2 md. Applications of Electrochemistry & Corrosion	5.	SGS 801.1 ICT & Research Method	CHM 830.2. Seminar
4.	CHM 861.1. Advanced Organic Chemistry	CHM 890.2. Research Project SGS 802.2 Entrepreneurship & Management	(v) ENVIRONMENTAL CHEMISTRY		
5.	SGS 801.1 ICT & Research Method	CHM 830.2. Seminar	S/N	First Semester	Second Semester
(iii) PHYSICAL CHEMISTRY			1.	CHM 835.1 Advanced Analytical Chemistry	CHM 836.2 Advanced Environmental Chemistry
S/N	First Semester	Second Semester	2.	CHM 851.1 Advanced Inorganic Chemistry I	CHM 839.2. Chemical Toxicology
1.	CHM 835.1 Advanced Analytical Chemistry	CHM 845.2 Advanced Theoretical Chemistry	3.	CHM 841.1 Advanced Physical Chemistry	CHM 833.2 Waste Management
2.	CHM 851.1 Advanced Inorganic Chemistry I	CHM 847.2 Advanced Statistical Thermodynamics	4.	CHM 861.1. Advanced Organic Chemistry	CHM 590.2. Research Project SGS 802.2 Entrepreneurship & Management
3.	CHM 841.1 Advanced Physical Chemistry	CHM 849.2 Molecular Photophysics and Photochemistry	5.	SGS 801.1 ICT & Research Method	CHM 830.2. Seminar
4.	CHM 861.1. Advanced Organic Chemistry	CHM 890.2. Research Project SGS 802.1 Entrepreneurship & Management	(vi) PETROLEUM CHEMISTRY/ PETROCHEMICALS		
5.	SGS 801.1 ICT & Research Method	CHM 830.2. Seminar	S/N	First Semester	Second Semester
(iv) ORGANIC CHEMISTRY			1.	CHM 835.1 Advanced Analytical Chemistry	CHM 836.2 Advanced Environmental Chemistry
S/N	First Semester	Second Semester	2.	CHM 851.1 Advanced Inorganic Chemistry I	CHM 883.2 Petroleum Chemistry
1.	CHM 835.1 Advanced Analytical Chemistry	CHM 862.2 Applied Spectroscopy in Organic Chemistry	3.	CHM 841.1 Advanced Physical Chemistry	CHM 884.2 Petrochemicals
2.	CHM 851.1 Advanced Inorganic Chemistry I	CHM 867.2 Natural Product Chemistry	4.	CHM 861.1 Advanced	CHM 890.2 Research Project
3.	CHM 841.1 Advanced Physical Chemistry	CHM 863.2 Organic Synthesis			

	Organic Chemistry	SGS 802.2 Entrepreneurship & Management
5.	SGS 80.1 ICT & Research Method	CHM 830.2 Seminar

6. CHM 830.2 Seminar
* Choose one course from these Electives

(ix) POWDER TECHNOLOGY AND PRODUCT PROCESSING

(vi) MINERAL PROCESSING/ CHEMICAL METALLURGY

S/N	First Semester	Second Semester
1.	CHM 835.1 Advanced Analytical Chemistry	ICH 874.2 Advanced Mineral Processing and Chemical Metallurgy
2.	CHM 851.1 Advanced Inorganic Chemistry I	ICH 876.2 Ind. Applications of Electrochemistry & Corrosion
3.	CHM 841.1 Advanced Physical Chemistry	CHM 882.2 Introduction of Chemical Metallurgy
4.	CHM 861.1 Advanced Organic Chemistry	CHM 890.2 Research Project
5.	SGS 80.1 ICT & Research Method	SGS 802.2 Entrepreneurship & Management CHM 830.2 Seminar

S/N	First Semester	Second Semester
1.	CHM 835.1 Advanced Analytical Chemistry	ICH 871.2 Advanced Industrial Chemical Processes and Techniques
2.	CHM 851.1 Advanced Inorganic Chemistry I	ICH 873.2 Industrial Powder Technology
3.	CHM 841.1 Advanced Physical Chemistry	ICH 881.2 Surface Coatings
	CHM 861.1 Advanced Organic Chemistry	ICH 879.2 Wood, Pulp and Paper Chemistry
4.		ICH 877.2 Surface Reaction and Catalysis CHM 890.2 Research Project CHM 830.2 Seminar SGS 802.2 Entrepreneurship & Management

(vi) POLYMER SCIENCE/ TECHNOLOGY

S/N	First Semester	Second Semester
1.	CHM 835.1 Advanced Analytical Chemistry	ICH 871.2 Advanced Industrial Chemical Processes and Techniques
2.	CHM 851.1 Advanced Inorganic Chemistry I	ICH 875.2 Polymer Science
3.	CHM 841.1 Advanced Physical Chemistry	ICH 881.2 Surface Coatings SGS 802.2 Entrepreneurship & Management
4.	CHM 861.1 Advanced Organic Chemistry	ICH 879.2 Wood, Pulp and Paper Chemistry
5.	SGS 801.1 ICT & Research Method	CHM 890.2 Research Project

* Choose one course from these Electives

(x) PHARMACEUTICAL/MEDICINAL CHEMISTRY

S/N	First Semester	Second Semester
1.	CHM 835.1 Advanced Analytical Chemistry	CHM 863.2 Organic Synthesis
2.	CHM 851.1 Advanced Inorganic Chemistry I	CHM 865.2 Medicinal Chemistry
3.	CHM 841.1 Advanced Physical Chemistry	CHM 866.2 Advanced Pharmaceutical Chemistry
	CHM 861.1 Advanced Organic Chemistry	CHM 890.2 Research Project
4.		CHM 830.2 Seminar

SGS 801.1 SGS 802.2
ICT & Entrepreneurship &
Research Management
Method

**COURSE CONTENT/OUTLINE FOR
RECOMMENDED M. Sc. COURSES**

CHM 835. 1 Advanced Analytical Chemistry

Course Objective: Theoretical principles and the application of analytical methods to the study of chemical system with emphasis on separation and radio chemical methods.

Chromatography, HPLC, Other Separation Methods, Radiochemical Methods, Electrophoretic Methods

Polarographic Methods, Absorption Spectroscopy, AAS, X-Ray Methods, Mass Spectrometry, NMR Spectroscopy, Thermal Analysis.

CHM 851.1 Advanced Inorganic Chemistry I

Outline: This course covers such topics as symmetry and structures, structures and energetics of ionic solids, reactions in non-aqueous solvents and physical methods in Inorganic Chemistry. The aim is to provide more fundamental principles that may be necessary for a research work.

Part A Symmetry and Structures, Ionic solids and other extended arrays, Reactions in non-aqueous solvents, Physical methods in Inorganic Chemistry.

Part B. Spectra, Uranium chemistry and chemistry of the trans-uranium elements, Structure of ionic solids.

CHM 861.1 Advanced Organic Chemistry

Optical activity and chirality; methods of determining configuration; cis/trans isomerism in alkenes, monocyclic compounds and fused rings; conformational analysis. Reaction mechanisms: types of mechanisms; Thermodynamic and kinetic requirements for reactions; methods of determination of the presence of intermediates, isotopic labelling and isotope effects, stereochemical and kinetic evidence for mechanisms. Reactive intermediates such as carbocations, carbanions, free radicals, carbenes, nitrenes and arynes.

CHM 841.1 Advanced Physical Chemistry

PART A Molecular Dynamics-The kinetic theory of gases, Ion transport and molecular diffusion, Macromolecules.

PART B Chemical Kinetics- Complex reaction system (reversible, concurrent, and chain reactions). Unimolecular gas phase reactions (the Lindemann mechanism, PRK theory, Absolute

Rate theory, RRKM theory). Bimolecular gas phase reactions (hard elastic sphere model, Absolute Rate theory). Solution phase reactions (Transition State theory, effects of pressure, ionic strength and dielectric constant on relative rates of reaction, diffusion-controlled reactions).

PART C Electrochemistry- Processes at electrodes. Electrochemical processes. Power generation and storage. Corrosion.

CHM 836.2 Advanced Environmental Chemistry

The objective of the course is to expose candidates to advances in the scientific study of the chemical phenomenon occurring in nature. More fundamentally, the course is rooted in the fate, of chemical species and the impact of anthropogenic activities on air, water and soil environments. Mechanisms and fate of pollutants and their transfer between environmental compartments. Atmospheric Chemistry and Pollution chemistry, Air Nature of our atmosphere, structure and properties, Water Chemistry and Pollution. Water: Nature of our aquatic environment, Soil Environment, Standard remedial techniques, Introduction to Environmental Forensics

CHM 837. 2 Spectroscopic Methods for Chemical Analysis

Course Objective: The study of the interaction of electromagnetic and other forms of radiation with matter and the application of the great variety of spectroscopic methods to the study of chemical systems.

Absorption Spectroscopy, AAS, X-Ray Methods, Mass Spectrometry: NMR Spectroscopy:

CHM 838. 2 Advanced Analytical Instrumentation

Course Objective: The study of instrumentation of modern analytical methods.

IR, UV/V is Spectrometry, X-ray Methods, Mass Spectrometry, NMR Spectroscopy, NMR spectrometer, Chromatographic Methods.

CHM 639.2. Chemical Toxicology

This course introduces candidates to the basic concepts of toxicology and the principles and procedures of environmental impact assessment (ETA).

Systematic toxicology, ecotoxicology, Toxicological evaluation. Pesticide pollution, Pollution by heavy metals and intoxication, biotransformation, bioaccumulation, biodeterioration, biocorrosion, ecological magnification

Origin and development of ETA, Nature & purpose, ETA decree, General ETA process, Impact assessment methodologies

CHM 833.2. Waste Management

Solid wastes: Sources of solid waste generation: waste water treatment, industrial, municipal. General solid waste management: reduction, reclamation, recycling, reuse and recovery. Solid waste disposal methods specific to plastics, petroleum, chemical, pulp and paper, textile, food industries. Incinerations and its environmental effects.

Liquid wastes: Classification, types and sources, Generation of waste water, domestic, industrial, etc. Waste water treatment 10, 20, and 30 treatments.

Gaseous Wastes: Classification, types and sources, Particulate pollutants, analysis and methods of control and air purification.

Advanced adsorption processes as waste remediation technique and heavy metal removal from liquid wastes. Thermal air pollution

CHM 845.2 Advanced Theoretical Chemistry

PART A Molecular Structure- The hydrogen atom (development of the Hamiltonian operator, separation of variables, determination of the relation between the quantum numbers n , l , and m , determination of ionization potential for the hydrogen atom). The H_2 molecule. The H_2 molecule. Homonuclear diatomics. Heteronuclear diatomics. The variation method. LCAOMO methods applied to planar, unsaturated and aromatic molecules (Butadiene. Benzene).

PART B Chemical Application of Group Theory - Fundamentals of group theory. Molecular orbital theory. Electronic spectroscopy. Vibrational spectroscopy. Nuclear magnetic resonance spectroscopy.

CHM 847. 2 Advanced Statistical Thermodynamics

Mathematical prelude (Green's theorem, Legendre transformations and Maxwell's relations, Lagrange's method of undetermined multipliers, permutations and combinations). Gibbs ensembles (microcanonical, canonical, and grand canonical ensembles). Thermodynamic properties in terms of Gibbs ensembles. Statistics of an ideal monatomic gas. Statistics of an ideal diatomic gas. Application of statistical mechanics to chemical equilibria. Fermi-Dirac and Bose-Einstein statistics.

CHM 849.2 Molecular Photophysics and Photochemistry

Theory of electronic transitions (Einstein transition probability, Born-Oppenheimer separation, Franck-Condon factors, selection rules). Kinetics of fluorescence and phosphorescence (detailed consideration of Jablonski diagram, efficiencies of singlet-triplet intersystem crossing, quenchers). Kinetics of other luminescence processes (singlet excimer formation and decay, E-type and P-type delayed fluorescence, triplet excimers, excimers in polymer systems). Electronic energy migration and transfer. Photophysical processes in polymers. Chemical reactions of electronically excited molecules. Selected photochemical reactions.

CHM 862.2 Phytochemistry

The course will deal with isolation characterization and synthesis of selected natural products of medicinal value.

CHM 863.2 Organic Synthesis

This course is concerned with synthetic strategy; its design and planning; bond formations, functionalization and functional group interconversion as well as functional group protection; asymmetric and multistep synthesis.

CHM 864.2 Applied Spectroscopy in Organic Chemistry

Advanced theories and practical applications of IR, UV, MS and NMR in elucidation of complex structures. Its application in organic transformations.

CHM 865. 2 Medicinal Chemistry

Physicochemical properties in relation to biological action. Rational drug design. Introduction to pharmacokinetics, chemotherapeutic agents; psychotropic drugs; antibiotics, antimalarial drugs; structure-reactivity relationship.

CHM 866.2 Advanced Pharmaceutical Chemistry

Advances in pharmaceutical analysis and quality control, drug production, dispensing and control.

ICH 871.2 Advanced Industrial Chemical Processes

Scale-up from pilot plants (Chemical Similitude Method): Dimensionless groups for homogeneous reaction systems. Dimensionless groups for heterogeneous reaction systems. Fluid and particle dynamics: Fluid rheology. Flow of fluids in conduits. Flow of fluids around obstacles. Flow through beds of solid particles. Residence time distribution (RTD) - mixing in pipelines. Reaction

vessels: Types of reaction vessels and performance equations. Conversion in terms of rate and temperature profile. Equilibrium constant from thermodynamic relationship. Reaction path for the optimum size of a reaction (vessel adiabatic operation). Reaction path for the optimum size of a reaction vessel (non-adiabatic operation). Analysis of approximate methods for solving transient (or unsteady-state) heat transfer: Problems in chemical processing operations. Use of the energy (or heat-balance) integral method for solving the boundary value problems of one-dimensional transient heat conduction. Numerical integral of unsteady state heat transfer problems. Application of finite difference techniques to one-dimensional time-dependent heat conduction. Graphical analysis of transient heat conduction problems.

ICR 873.2 Industrial Powder Technology

Transportation or circulation of powdered solids in suspensions: Flow of high bulk density mixtures. Pneumatic transport or flow of low bulk density mixtures.

Separation, classification of solid particles: Filtration in solid liquid separation. Settling and sedimentation in particle fluid separation. Fluidized bed (Hydraulic) classifiers. Centrifugal separation processes. Mixing of fine industrial powders: The countercurrent back mixing model. The dense phase diffusion model. The slug flow (or bubbling bed) model.

ICR 874.2 Advanced Mineral Processing and Chemical Metallurgy

Part A. Mineral Processing

Outline: The basic principles involved in the various processes for the production of some metals are discussed. The emphasis is not on how the various processes are performed, but on what is actually happening and why the processes are carried out in certain ways.

The topics include phase separation, fuel and ore preparation, reduction of metal oxides, malte smelting, metallothermic reductions halide metallurgy and hydrometallurgy. The basic tools of metallography will be discussed, namely reflected-light microscope, X-ray metallography and electron microscopy; types and properties of slags and refractories. Metallography:

Specimen preparation, the reflected light microscope, defects of lenses. X-ray metallography, white and characteristic radiation, the Bragg law, the structure factor power method and the accurate measurement of lattice parameters, diffraction. Electron microscopy.,

Electron wavelength, the electron microscope., Specimen assembly, resolution and preparation of specimens. Metallography at the atomic level metallography held microscope, neutron diffraction.

PART B. Principles of Chemical Metallurgy

Outline: This course is intended to introduce the student to some basic principles of chemical metallurgy. The topics include alloy thermodynamics, phase equilibria, phase diagrams and heat-treatment of selected industrial alloys. The theories of microstructural stability will be treated also.

ICR 876.2 Industrial Application of Electrochemistry! Corrosion

Electrolytic conduction, applications of conductivity measurements, the determination of pH, other electrochemical detectors. Electrode processes, polarography and voltammetry, electrocatalysis and eletrosynthesis, further applications of electrode processes. Basic corrosion theory. Corrosion types and methods of minimizing them. Corrosion kinetics activation and concentration overpotentials, mixed potentials and pourbaix diagrams, corrosion rates, atmospheric corrosion and microbiological influenced corrosion (MIC). Corrosion monitoring techniques and laboratory corrosion tests, corrosion control methods.

ICR 877.2 Surface Chemistry and Catalysis

Preparation of catalysts. Deactivation of catalyst modelling equation. Kinetics of catalytic reactions determination of kinetic constants. The measurement of catalytic reaction rate. Analysis of kinetic results. Principle of adsorption

ICR 878.2 Colour Chemistry

Colour chemistry A historical background. Raw materials for the manufacture of dyes and dye intermediates: Major reaction types in the production of dye-intermediates, viz nitration, reduction, sulphurisation, halogenation, oxidation, condensation, etc. Manufacture of dyes: Azo dyes Triphenylethane dyes, xanthene dyes, simple anthraquinone and related dyes, indigoid and thioindigoid dyes. Phthalosyanines and fluorescent brightening agents. Textile fibres: Their chemistry as background to the understanding of the chemistry of dyes. Major classes of substrates hydrophilic and hydrophobic cross-dyeing. Classification of dyes: Classification according to application method and according to chemistry type or the colour index. Properties and applications of dyes:

Application and end-use properties; fibre prep., dye-bath prep., dye application and finishing. Dyeing machinery or equipment: A descriptive outline. Pigment dyeing and printing: direct, dyed, discharge and resist printing. Dyestuffs as pigments applications in paints and plastics. Non-textile uses of dyes. Future trends in dyestuffs: An overview.

ICR 879.2 Wood, Pulp and Paper Chemistry

Chemical composition of wood: cellulose, lignin, etc. Raw materials for paper, plywood and particle board manufacture such as bagasse, timber, etc. Preservation methods for wood: Wood treatment, painting, etc. Pulping methods: Mechanical, chemical and semi-chemical methods with emphasis on bagasse pulping methods (Celdesor, Cusi's and Sivola processes). Bleaching of wood pulp: Alkaline extraction, hypochlorite, chlorine and peroxide bleaching. Pigmentation of pulp for paper manufacturing and dyeing: types and preparation of fillers. Effects of fillers on the properties of paper. Retention of filler and factors that affect retention of fillers colouring materials and classification of dyes. Effect of additives on dyeing of paper. Methods of dyeing paper. Sizing of paper: Effect of sizing on the properties of paper. Sizing processes. Factors affecting sizing. Sizing materials. Properties of paper: Physical, chemical, mechanical (strength), optical and resistance properties of cellulose based products. Quality control and paper defects.

ICR 881.2 Surface Coatings

Paints, Varnishes and Lacquers: Components of coating systems binder, pigment, solvent and other additives. Flow behaviour of polymer systems (viscosity). Effect of binder, concentration, solvent and molecular weight on viscosity. Effect of evaporation rate of solvent on coatings. Pigmentation of coatings. Pigment/binder geometry, pigment volume concentration (PVC) and pigment packing factor, porosity. Critical pigment volume concentration (CPVC): Determination of CPVC optical properties that undergo abrupt to gradual changes at CPVC. Reduced pigment volume concentration: a key formulating parameter. Oil absorption values: Methods of determination, significance and interpretation of oil absorption value. Relationship between CPVC and oil absorption value (OA). Formulating principle; paint manufacture; pigment dispersion and processing operations. Varnish and lacquer manufacture. The substrate and its preparation and surface coating defects. Testing and quality control. Adhesion and Adhesives, Phase changes. Theories of adhesion. Survey of

adhesive types. Formulation principles choice of components. Testing of adhesive bondlines.

ICR 883.2 Petroleum Chemistry II

A brief introduction to the Nigerian oil industry. Origin of crude oil chemical aspects. Chemicals in oil production. Chemical nature of crude oil and natural gas crude analysis. Classification of crude oils. Characterization of crude oils. A review of basic hydrocarbon reactions. Carbonation reactions. Free radical reactions. Refinery processes: Separation process distillation and crude oil treatments, e.g. absorption, adsorption and solvent extraction. Conversion processes (Chemistry and Technology). Catalytic reforming, Isomerisation, Catalytic cracking, Hydrocracking, Visbreaking, Delayed coking, Alkylation reactions, Dehydroisulphurisation, Dimerisation, Finishing, Hydrotreating and finishing, Gasoline blending and some aspects of gasoline quality. Lubricating oils chemistry and technology. Basic test for petroleum products and quality control. Fuels, Lubricants. Economics of the fuel industry.

ICR 884.2 Petrochemicals

Introduction to the petrochemical industry: Relationship with the refinery. Growth and economics. Production of olefins, Gas feedstock, Liquid feedstocks, Processes: Steam cracking (chemistry and technologies). Other sources of olefins. Petrochemicals from methane chemistry of reactions. Petrochemicals from paraffins chemistry of reactions. Chemistry and technology of petrochemicals from ethylene. Chemistry and technology of chemicals from propylene and higher olefins, Chemistry and technology of petrochemicals from benzene, toluene and xylene.

Introduction to polymer chemistry:

Classification, Polymerisation reactions, Polymerisation techniques, Physical properties, Thermoplastics, Thermosetting and engineering resins, Synthetic fibres, Synthetic rubbers.

Seminar

Seminar topics will be selected from courses which relate to the student's area of specialization.

Continuation Requirements

A student in the M.Sc. Programme must score an average of C at the end of the first semester examinations to continue in the programme.

5. Research Projects and Supervision

Project supervisor(s) will be allocated to students during course registration at the beginning of their programme. Project supervisor, in consultation

with project students, assign research project to students.

6. Examinations

Course examinations will be conducted as stipulated by the School of Studies! Faculty of Science. Oral examinations can only be conducted for candidates who have met all the prescribed regulations by both the School and the Faculty of Science.

POST-GRADUATE DIPLOMA IN CHEMISTRY (PGDC)

A. Objective of the Programme

The PostDiploma Programme in Chemistry is intended to cater for the high manpower need of the economy.

B. Mode of Study

The PGDC programme shall be an evening programme. The mode of study shall be by course work with practicals in all relevant courses. Students shall be required to write term papers and deliver seminars. Project work shall be in form of laboratory research work.

C. Admission Requirements

Candidates wishing to be admitted into the PGDC programme are expected to have any of the following qualifications: A Bachelor's degree in Chemistry, Applied/Industrial Chemistry, Biochemistry, Geology, Chemical Engineering, Gas Engineering, Environmental Engineering, Microbiology, Pharmacy, Pharmaceutical Chemistry, Pharmacology, Education and related areas from the University of Port Harcourt or any other approved university.

D. Courses for the Programme

Students admitted into the programme must register and pass the following courses:

1st Semester

Course Code	Course Title	Unit
CHM 702.1	Physical Chemistry	3
CHM 703.1	Inorganic Chemistry	3
CHM 704.1	Organic Chemistry	3
CHM 700.1	Seminar	3
	Total	12

2nd Semester

Course Code	Course Title	Unit
CHM 701.2	Analytical Chemistry	3

CHM 700.2	Project	3
Any other Electives	two courses from the	6
	Total	12

Elective Courses for Second Semester

Course Code	Course Title	Unit
CHM 702.1	Electrochemistry	3
ICH 703.2	Mineral Processing/Metallurgy	3
CHM 704.2	Organic Synthesis	3
ICH 705.2	Process Chemistry & Technology	3
ICH 706.2	Polymer Science	3
ICH 707.2	Petroleum Chemistry	3
CHM 708.2	Environmental Chemistry	3
CHM 709.2	Natural Products Chemistry	3

COURSE CONTENT/OUTLINE FOR RECOMMENDED PDGC COURSES

CHM 701.2 Analytical Chemistry

Course Objective: The emphasis is based on theoretical principles and practical applications of analytical methods to the study of chemical systems.

Introduction: Types of Analysis. Steps in an Analytical Process. Statistical Evaluation of Analytical Results. Electrogravimetry and Coulometry: The Faraday's Laws. Electrogravimetry. Conditions for good electrogravimetry. Polarization effects. Controlled currentl Controlled-potential coulometry. Coulometric titration. Electrolytic stripping. Applications.

Voltammetry: Dropping mercury electrode. Polarographic currents. Stripping voltammetry. Anodic stripping analysis. Chronopotentiometry. Amperometry. Amperometric titration. Applications.

Complexometry: Classification of ligands. Masking and demasking. Complexometric titration. Metal ion indicators. Applications. Absorption Spectroscopy: IR absorption and molecular structure, quantitative application. UV-Visible absorption, photometric titration, quantitative application. Atomic absorption spectroscopy, emission and absorption in flames, atomization and ionization, quantitative analysis. Separation Techniques: Thermodynamics of partition between two phases. Thermodynamics of separation: batch and continuous extraction. Solvent extraction, chelate extraction, masking and pH effects. Chromatographic methods: GC,

GSC, LLG, IEL, Gel chromatography, HPLC, Paper and thin layer chromatography. Quantitative applications. NMR Spectroscopy: Principles, Proton NMR, spectra and molecular structure elucidation, quantitative analysis, NMR spectrometer.

Mass Spectrometry: Principles, resolution, use of stable isotopes, the mass spectrum, analysis of mixtures, analytical applications Thermal Analysis: Principles, types, instrumentation and analytical applications X-ray Methods: Production of X-ray and X-ray spectra, X-ray methods, Direct absorption, emission fluorescence and diffraction, electron microprobe analysis.

Radiochemistry: Nuclear reactions and radiations, measurement of radioactivity, applications of radionuclides, analytical applications.

CHM 702.1 Physical Chemistry

Equation of State for Real Gases: Van der Waals Equation, Redlich Kwong Equation, Virial Equation of State. Physical Equilibrium: The Relation between Fugacity Co-efficient. Calculating Fugacity. Estimating the Fugacity of a Gas.

Chemical Equilibrium: Properties of Reaction. Perfect Gas Equilibrium. Effect of Temperature on Equilibrium Constant. The Kinetic Molecular Theory of Gases: The Most Probable Speed, the Mean Speed, and the Root-Mean-Square Speed, of Gases. Diffusion of a Gas. Thermal Conductivity of a Gas.

Viscosity of a Gas. Physical Transformations of Simple Mixtures: Partial Molar Quantities. The Thermodynamics of Mixing. Ideal Solutions. Colligative Properties.

Chemical Kinetics: Rate Laws and Rate Equations. Reaction Order and Molecularity of Reaction. Determination of Order and Rate Constant. The Arrhenius Equation. The Mechanism of a Reaction. Catalysis. Basic Laws of Thermodynamic.

CHM 702.2 Electrochemistry

Introduction: Faraday's Laws of Electrolysis. Electrochemical Series. Ionic Activities. Mean Activity Coefficients. The Debye-Huckel Limiting Law. Electrochemical Cells: Galvanic Cells and Electrolysis Cells. Half-cells and Standard Electrode Potentials. Classification of Electrodes. Representation of Electrochemical Cells. The Nernst Equation. Applications of reduction potentials: Equilibrium Constants. Solubility Product Constants. The Measurement of pH and pKa. Thermodynamic Functions from EMF Data. Conductivity of Electrolyte Solutions: Specific Conductivity and Molar Conductivity. Ostwald's Dilution Law. Kohlrausch Law of Independent

Migration of ions. Kohlrausch Equation. Ionic Mobilities. Transport Numbers.

CHM 703.1 Inorganic Chemistry

Characteristics of transition metals, theories of bonding (valence bond theory, Crystalfield theory, Molecular-Orbital theory), Carbonyl. The chemistry of the transition metal groups (Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Zn groups). General Chemistry of the Lanthanides and Actinides, Coordination Chemistry.

ICH 703.2 Mineral Processing and Metallurgy

Ore Dressing/Mineral Processing (Combination Processing crushing and grinding)

Classification processes, separation or concentration processes, agglomeration techniques. Extraction Processes: Roasting of metal oxides, smelting matte converting, Reduction of metaloxides, fire refining. Extraction of iron-Blast furnace (BF) and Direct Reduction (DR) methods, Extraction of CU, Pd Zn, Al and Mg Steel making. Metal melting: Types of melting furnaces, casting methods and casting defects. Metal working techniques - rolling, forging, extrusion, wire drawing, etc.

CHM 704.1 Organic Chemistry

Reactants and Reactions. Types of reactants; Types of reactions, S_NI, S_N2, E1 and E2. Reaction mechanisms - product studies, kinetic and non-kinetic methods. Structure and Reactivity. Electronic and field effects: interpretation of physical properties of organic molecules using inductive, mesomeric and hyperconjugative effects. The Hammett's Equation: stereochemical principles in organic reactions; conformation of organic molecules. Chemistry of di- and polyfunctional compounds: General survey of di- and polyfunctional compounds. General reactions of sugars and amino-acids as polyfunctional compounds.

CHM 704.2 Natural Products Chemistry

Advances in Natural Products Chemistry: Identification, isolation, structural determination and uses of essential oils, alkaloids saponins. Naturally occurring compounds of pharmaceutical importance. Review on recent trends in Natural Products Chemistry.

CHM 705.2 Process Chemistry and Technology

Fundamental concepts and equations in heat, mass, and momentum processes. Mass transfer with and chemical reaction. Single and multiple isothermal chemical reactors. Non-isothermal chemical reactors. Selected topics in heat conduction and in

mass and modal concentration diffusion processes. Ideal-stage and non-ideal stage separation techniques in chemical process operations. Ideal (or equilibrium) - Stage calculations of trayed and packed columns (or towers). Studies of process techniques for separating mixtures of chemical species in the petroleum/ petrochemical, natural gas liquid and chemical industries. Real (or non-ideal) - Stage approach of separation techniques, Non-equilibrium stage approach to the determination of the performance of distillation columns, hydrocarbons absorbers, trayed and packed absorbers and strippers for the removal of acidic components like CO₂, H₂S and CO from gas streams.

ICH 706.2 Polymer Chemistry/Technology

Basic concepts: Polymer, structural unit, macromolecule, resin, monomer, etc. Different types of polymers. Sources of monomers. Monomer functionality. Polymer Utilization - Thermoplasticity and Thermosetting resins. Polymer sation - Addition and Condensation (simple treatment. Polymerization conditions - Bulk, Solution, Suspension and Emulsion Techniques (Introductory principles). Crystallinity in polymers. Characterization of Polymer molecular weights. Polymer solubility and solutions. Transitions in polymers.

ICR 707.2 Petroleum Chemistry

Introduction: Brief chronological history of oil and gas. Origin of petroleum. Nature of Oil and Gas:

Definition of crude oil. Composition of crude oil. Analysis and properties of crude oil. Classification of crude oil. Gaseous Petroleum (natural gas). Composition of natural gas. Chemicals used for oil production and chemistry of oil drilling. Environmental Implications of oil and gas production. Oil Refinery Processes. Separation processes: crude oil distillation. Review of basic hydrocarbon reactions: Carbocation reaction. Free radical reactions. Conversion Processes:

Catalytic reforming. Catalytic. Isomerization. Hydrocracking. Dehydroisulphurization. Lubricating Oils Chemistry Technology. Basic tests for petroleum products and quality control.

CHM 508.2 Environmental Chemistry

The objective of this course is to introduce students to chemistry of the environment and environmental pollution control methods in various industries.

Basic definition of environmental terms, Regulatory policies and programs, Soil ecosystems, Differences between pollution and contamination, Oil spill/hydrocarbon identification, Bioremediation /pollution abatement, Soil sampling.

Air pollution: Sources, Effects. Control and abatement

Water pollution: Sources, Effects. Control and abatement

Thermal Pollution: Effects. Use of waste heat. Radiation and its effects on life. Introduction to waste management and Adsorption process.

CHM 509.2 Organic Synthesis

Synthetic Design: Planning synthesis, Disconnection and connection. Carbon-Carbon single bonds (CC). Carbon-Carbon double bonds (C=C). Carbon-Carbon triple bonds (C≡C). Functional group interconversion. Transformation of Organic molecules. Oxidation. Reduction. Applications of Infrared spectroscopy, Mass spectrum, ultra-violet, and nuclear magnetic resonance spectroscopies in synthesis.

E. REQUIREMENT FOR THE AWARD OF THE DIPLOMA

Students must register and pass all courses. Each student's performance shall be based on:

- (i) Continuous assessment and final examination in the taught courses
- (ii) Assessment of seminars
- (iii) Assessment of Project work by supervisors

DEPARTMENT OF PURE AND INDUSTRIAL CHEMISTRY

S/N	Name	Qualifications	Field of Specialisation	Status
1.	Ngochindo, R.I.	BSc, PhD (Liverpool), CChem, FRSC, FCSN, FICCON	Organic Chemistry	Professor
2.	Akaranta, O.	BSc (Nigeria), MSc (ABU), PhD (UPH)	Polymer Science & Technology	Professor
3.	Abayeh, O.J.	B.Sc (Benin), MSc (UMIST)	Polymer Chemistry	Professor
4.	Ogali, R.E.	BSc (Nigeria), M.Phil, PhD (London)	Organic/Pharmaceutical Chemistry	Professor
5.	Horsfall, M. (Jnr)	B.Sc, M.Sc, Ph.D (UPH)	Analytical/Environmental Chemistry	Professor
6.	Osuji, L.C.	BSc (UPH), PGD, Pet. Engr., MSc, PhD (Ibadan)	Petroleum/Environmental Chemistry	Professor
7.	Okoye, I.P.	B.Sc (Benin), M.Sc., Ph.D (UMIST)	Petroleum Chemistry	Professor
8.	Monago, K.O.	B.Sc (Nigeria) DIP Chem. Eng (aston), M.Sc, Ph.D (London)	Process Development/ Applied Thermodynamics	Professor
9.	Obuzor, G.U. (Mrs.)	BSc (Washington, DC), MSc (UPH), PhD (UMIST), FCSN	Organic/Organometallics	Professor
10.	James, A.O. (Mrs.)	B.Sc (OSU), MSc (Ibadan), PhD (UPH)	Corrosion Chemistry	Professor
11.	Orubite-Okorosaye, K. (Mrs.)	BSc (UNIBEN), M.Sc, PhD (UPH)	Inorganic Chemistry	Professor
12.	Ibezim-Ezeani, M.U. (Mrs.)	B.Sc, MSc, PhD (UPH)	Physical Chemistry	Professor
13.	Osu, C.I.	BSc (ABSU), MSc, PhD (MOUA)	Environmental Chemistry	Reader
14.	Chukwu, U.J.	BSc (NAU), MSc, PhD (UPH)	Analytical/Inorganic Chemistry	Reader
15.	Obi, C.	BSc (IMSU), MSc, PhD (UPH)	Physical Chemistry	Reader
16.	Onojake, M.C.	BSc (DELSU), MSc (UPH), PhD (UPH)	Petroleum/Environmental Chemistry	Reader
17.	Achugasim, O.	B.Sc (Calabar), MSc, Ph.D (UPH)	Organic/Petroleum Chemistry	Senior Lecturer
18.	Iwuoha, G.	BSc (IMSU), MSc (FUTO), PhD(UPH)	Environmental/Analytical Chemistry	Senior Lecturer
19.	Onyema, O.M.	BSc (IMSU), MSc, PhD (UPH)	Petroleum Chemistry	Senior Lecturer
20.	Ngobiri, N.	BSc (ABSU), MSc (FUTO)	Material Chemistry	Senior Lecturer
21.	Oriji, O.G.	BTech (FUTY), MSc (UPH)	Polymer Chemistry	Senior Lecturer
22.	Pereware, A.	B.Sc. Delsu; PGDC, MSc. Ph.D. (UPH)	Environmental Chemistry	Lecturer 1
23.	Chikwe, T.N.	B.Sc., MSc. Ph.D. (UPH)	Petroleum Chemistry	Lecturer 1
24.	Duru, R. U.	B.Sc., MSc. Ph.D. (UPH)	Organic/Oilfield Chemistry	Lecturer 1
25.	Ekpo, I.E.	B.Sc.(Cal), PGDM, MSc. Ph.D.(UPH)	Industrial Chemistry	Lecturer 1

26	Victor-Orji, C.	B.Sc., MSc. Ph.D. (UPH)	Industrial/Process Chemistry	Lecturer 11
27	Tamunosaki, G. D.	B.Sc., MSc. Ph.D. (Physical Chemistry	Lecturer 11
28	Eke, W.I.	B.Sc., MSc. Ph.D. (UPH)	Polymer/Organic Chemistry	Lecturer 11
30	Anuchi, S.	B.Sc.,(UPH) MSc. (Aberdeen)	Analytical Chemistry	Lecturer 11

DEPARTMENT OF GEOLOGY

Introduction

The Department of Geology commenced academic activities in 1976 at the undergraduate level. However, postgraduate studies did not begin until 1986 with the M.Sc programme followed by the Ph.D programme in 1996 while the Postgraduate Diploma in Geology commenced in 2004. The department provides specialized Postgraduate programmes to meet the needs in oil and solid mineral industries and other public sectors. The programmes are, at the M.Sc and Ph.D levels, organized in Biostratigraphy, Engineering Geology, Environmental Geology, Exploration Geophysics, Hydrogeology, Petroleum Geology, and Sedimentology and Reservoir Geology, Exploration and Mining Geology, Petrology and Applied Geochemistry, and Structural Geology. There is strong emphasis on research in all programs of the department. The training programme is based on the concept of research apprenticeship in which each student's training is, through consultation with the supervisor, adapted to the interest and objectives of the student. The courses offered in the different programmes are the key to a challenging and satisfying career in the profession both in Nigeria and Overseas. However, since academic programming is not static, the department has seen the need to provide training and re-training opportunities for graduates in line with current developments in the profession. Therefore necessary changes in course contents and expansion in areas of specialization have been introduced. Presently, the Department runs three separate postgraduate programmes, namely: Postgraduate Diploma (PGD), Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.).

Philosophy

The philosophy of postgraduate programmes is anchored on the unbiased and systematic observation, accurate documentation and interpretation of facts and phenomena with a view to generating a body of knowledge.

POSTGRADUATE DIPLOMA IN GEOLOGY (PGDG)

Aim and Objectives

The aims and objectives of the PGDG programme are:

1. To train and re-train graduates in the private and public sectors engaged in exploration and exploitation of petroleum, solid minerals, ground and surface water resources, and environmental neolo ev.
2. To re-train geologists and other professionals/ scientists wishing to improve their academic records in order to satisfy the prerequisites for admission into professional post graduate degree programmes.

ADMISSION REQUIREMENTS

The criteria for admission are:

- i) All candidates must have five credit passes including English and Mathematics and three other relevant science subjects at O'Level
- ii) Candidates with Bachelors degree from approved university must obtain a Third Class degree in the relevant science discipline as determined by the Department.
- iii) Holders of HND in relevant programmes from approved institutions with a minimum of Upper Credit may also be considered for admission.

Options in the Programme/Areas of Specialization

There is no option of specialization in the PGDG programme. Students undertake research work based on supervisor's area of interest.

Mode of Study/Duration of Study

Full Time:

The PGDG programme candidate will be required to spend a minimum of 12 calendar months (1 year) and a maximum of 24 calendar months (2 years).

Graduation Requirements

The PGDG degree is awarded after candidates have satisfied their research supervisors that their dissertation based on research is a substantial original contribution to knowledge and have also demonstrated a higher degree of competence in passing of all qualifying examinations based on their course work, and submitting a dissertation

embodying the results of their own original research on an approved topic by their supervisor.

PGDG Course Outline

First Semester CU

PGDG 750.1	The Earths Resources	2
PGDG 751.1	Principles of Stratigraphy	2
PGDG 752.1	Biostratigraphy	2
PGDG 753.1	Geotectonics	2
PGDG 754.1	Principles of Geochemistry	2
PGDG 755.1	Introduction to Geophysics	2
PGDG 756.1	Laboratory Methods in Geology	2

Second Semester CU

PGDG 757.2	Igneous and Metamorphic Petrology	2
PGDG 758.2	Geology of fossil fuels	2
PGDG 759.2	Water Resources and Engineering Geology	2
PGDG 760.2	Environmental Geology	2
PGDG 761.2	Field Geology	2
PGDG 762.2	Seminar	2
PGDG 763.2	Project	4

M.Sc Geology: Biostratigraphy Option

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 803.1	Applied Micropaleontology and Palynology	2
GLY 804.1	History of Vegetation	2
GLY 805.1	Cretaceous-Neogene Mineral Walled Fauna and Flora	2
GLY 806.2	Biostratigraphic Applications	2
GLY 830.2	Sequence Stratigraphy	2

GLY 833.2	Advanced Sedimentology & Basin Analysis	2
SGS 802.2	Management and Entrepreneurship	2
GLY 808.2	Seminar in Geology	2
GLY 809.2	M.Sc Thesis	6
	Total	30

M.Sc Geology: Biostratigraphy Option

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 807.1	Engineering Geological Properties of Soils	2
GLY 808.2	Engineering Geological Properties of Rocks	2
GLY 809.2	Foundation Geology/Engineering	2
GLY 810.2	Geomechanics & Slope Stability	2
GLY 811.2	Engineering and Environmental Geophysics	2
GLY 812.2	Special Topics in Engineering Geology	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	6
	Total	30

M.Sc Geology: Environmental Geology Option

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 807.1	Engineering Geological Properties of Soils	2

GLY 817.1	Advanced Geomorphology and Geologic Hazards	2
GLY 818.1	Climate Change, Green Energy and Water Resources Sustainability	2
GLY 811.2	Engineering and Environmental Geophysics	2
GLY 816.2	Contaminant Hydrogeology	2
GLY 819.2	Characterisation and Remediation of Contaminated Sites	2
GLY 820.2	Environmental Impact Assessment	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	6
	Total	32

M. Sc Hydrogeology

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 813.1	Water Resources Exploitation & Management	2
GLY 811.2	Engineering and Environmental Geophysics	2
GLY 814.2	Waste Disposal and Water Pollution	2
GLY 815.2	Groundwater Flow and Modelling	2
GLY 816.2	Contaminant Hydrogeology	2
GLY 818.1	Climate Change, Green Energy and Water Resources sustainability	2
SGS 801.2	Management and Entrepreneurship	2

GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	2
	Total	30

M. Sc Geology: Exploration Geophysics Option

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 821.1	Magnetic and Gravity Methods (Potential Field Methods)	2
GLY 822.1	Seismic Method of Exploration	2
GLY 823.1	Mineral deposits and Electrical Methods	2
GLY 824.2	Filter Theory and Signal Processing	2
GLY 825.2	Wireline Log Interpretation	2
GLY 826.1	Petroleum Resources	2
GLY 828.2	Sequence Stratigraphy	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	2
	Total	32

M. Sc Geology: Petroleum Geology Option

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 803.1	Applied Micropaleontology and Palynology	2
GLY 822.1	Seismic Method of Exploration	2
GLY 826.1	Petroleum Resources	2

GLY 827.1	Advanced Sedimentology & Basin Analysis	2
GLY 828.2	Sequence Stratigraphy	2
GLY 829.2	Reservoir Characterization and Modelling	2
GLY 836.2	Petroleum Geochemistry of Nigeria Basins	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	2
	Total	32

M. Sc Geology: Sedimentology and Reservoir Geology Option

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 803.1	Applied Micropaleontology and Palynology	2
GLY 822.1	Seismic Method of Exploration	2
GLY 826.1	Petroleum Hydrocarbons	2
GLY 827.1	Advanced Sedimentology & Basin Analysis	2
GLY 828.2	Sequence Stratigraphy	2
GLY 829.2	Reservoir Characterization and Modelling	2
GLY 830.2	Carbonate and Siliciclastic Deposits	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	2
	Total	32

M.Sc Organic Geochemistry Option

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 831.1	Source Beds & Reservoir Geochemistry	2
GLY 832.1	Biomarker Geochemistry	2
GLY 833.1	Coal Deposits	2
GLY 834.2	Oil Spills and Remediation	2
GLY 835.2	Geochemical Methods	2
GLY 836.2	Petroleum Geochemistry of Nigeria Basins	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	2
	Total	30

M.Sc Exploration and Mining Geology

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 837.1	Ore Deposits, Non-Metallic and Industrial Minerals	2
GLY 838.1	Economic Mineral Deposits of Nigeria	2
GLY 839.1	Mineral Exploration Geochemistry & Geophysics	2
GLY 840.2	Geologic Exploration, Mining and Mineral Processing	2

GLY 841.2	Mineral property Evaluation and Economics	2
GLY 847.2	Advanced Sampling, Rock and Mineral Analysis	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	2
	Total	30

M.Sc Petrology and Applied Geochemistry Option

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 8421	Advanced Mineralogy and Crystal Chemistry of Silicate Minerals	2
GLY 843.1	Advanced Optical Mineralogy and Ore Microscopy	2
GLY 844.2	Advanced Techniques in rock crystallization-deformation analysis	2
GLY 845.2	Advanced Igneous and Metamorphic Geochemistry	2
GLY846.2	Advanced Igneous and Metamorphic Petrology	2
GLY 847.2	Advanced Sampling, Rock and Mineral Analysis	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	2
	Total	30

M. Sc Geology: Structural Geology

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
GLY 800.1	Advanced Structural Geology & Geotectonics	2
GLY 801.1	Remote Sensing and Geo-Information	2
GLY 802.1	Field School	2
GLY 820.1	Advanced Geomorphology	2
GLY 851.1	Applied Structural Models	2
GLY 852.2	Geotectonics	2
GLY 832.2	Fabrics And Structural Analysis	2
GLY 854.2	Geomechanics And Fault Modelling	2
GLY 855.2	3D Structures: Techniques and Visualisation	2
GLY 856.2	Nigeria Sedimentary Basins and their Structures	2
SGS 801.2	Management and Entrepreneurship	2
GLY 860.2	Seminar in Geology	2
GLY 870.2	M.Sc Thesis	2
	Total	32

PGDG Course Description

PGDG 750.1: The Earth's Resources

The composition and structure of the Earth, rocks, minerals and mineral resources. The geology cycle and geologic time scale, surface processes and products.

PGDG 751.1: Principles of Stratigraphy

Concepts and principles of historical geology, sea level changes in time and space. Stratigraphic relations, stratigraphic classification and nomenclatural procedure, sequence stratigraphy.

PGDG 752.1: Biostratigraphy

Concepts and principles of biostratigraphy, biostratigraphic classification and nomenclatural procedure. Bathymetry paleoenvironment, high-resolution biostratigraphy, forams, pollens and spores.

PGDG 753.1: Geotectonics

Continental drift, sea-floor spreading, plate tectonics. Plate tectonics and origin of basins and structure. Plate tectonics and mineral deposits.

PGDG 754.1: Principles of Geochemistry

Geochemistry of atmosphere, hydrosphere, biosphere and lithosphere, primary geochemical environment, halos, dispersion, pathfinder and indicator elements, geochemical associations, secondary geochemical environments. The major, minor and trace element geo-chemistry of some common sedimentary, igneous and metamorphic rocks.

PGDG 755.1: Introduction to Geophysics

Electrical conduction and EM induction in rocks, seismic wave propagation, SP, Resistivity, IP and EM surveying techniques, seismic refraction shooting, Geologic interpretation of electrical and EM anomalies and time distance curves. Density, magnetic and gravity surveying.

PGDG 756.1: Field and Laboratory Methods in Geology

Granulometric analysis, Geochemical Methods, Geophysical/hydrogeologic methods, Biostratigraphic methods, Geotechnical methods with emphasis on site investigations for foundations

PGDG 757.2: Introduction to Igneous and Metamorphic Petrology

Igneous and metamorphic rock types and their origins. Their distribution in time and space. Tectonics, economic and mineral affinities.

PGDG 758.2: Geology of Fossil Fuel

Coal genesis, composition and classification, coal distribution in time and space. Nigerian coal origin of petroleum, migration, extraction and production, exploration and exploitation techniques. The Niger Delta.

PGDG 759.2: Water Resources and Engineering Geology

Principles and concepts of hydrogeology/hydrology. Water well drilling and construction, strata log, aquifer and pump test, water cycle and analysis of hydrographs. Physical and chemical properties of water. Water sampling and analytical techniques. Data presentation and

analysis. Groundwater pollution. Engineering properties of soils and rocks, geologic hazards in engineering geology, foundations, site investigations.

PGDG 760.2: Environmental! Economic Geology

Concepts of Environmental geology, geodynamics. Environmental Impact Assessment. Waste disposal and effects on soils and ground water. Geological hazards. Metallic and non-metallic mineral resources; their composition, distribution and uses. Mineral resources of Nigeria, Exploration and exploitation of minerals.

PGDG 761.2: Field Geology

Mapping of sedimentary, igneous and metamorphic terrains. Field note taking and geological report writing. The different sedimentary basins and basement complexes of Nigeria. Stratigraphic evolution of the basins in Nigeria.

PGDG 762.2: Project

Data collection, analysis, interpretation and report presentation of original projects.

PGDG 763.2: Seminar

Seminar report/presentation.

MASTER'S DEGREE (M.Sc) PROGRAMME

The Masters of Science (M.Sc) programme of the Department of Geology commenced in 1986.

AIMS AND OBJECTIVES

The objectives of the programme include the following:

- i. To upgrade the knowledge and skills of candidates, and increase their competence as professional geologists to provide manpower in areas of geology in the academia, research institutions, public service and the private sector of the economy
- ii. To enable prospective candidates have the opportunity to specialize in an area of geologic interest.
- iii. To provide specialized academic knowledge oriented towards research.

Options/Areas of Specialization in the Programme

1. Biostratigraphy

2. Engineering Geology,
3. Environmental Geology
4. Exploration Geophysics
5. Hydrogeology
6. Petroleum Geochemistry
7. Petroleum Geology
8. Sedimentology and Reservoir Geology.
9. Structural Geology
10. Sequence Stratigraphy, Utilizing Palynology, Paleontology and Sedimentology
11. Remote Sensing
12. Exploration and Mining Geology
13. Petrology and Applied Geochemistry

Mode of Study/Duration of Study

Full Time:

The M.Sc programme candidate will be required to spend a minimum of 24 calendar months (2 years) and a maximum of 36 calendar months (3 years).

Graduation Requirements

The M.Sc degree is awarded after candidates have satisfied the Board of Examiners that their thesis based on research is a substantial original contribution to knowledge and have also demonstrated a higher degree of competence in areas of knowledge related to their specialization. The first requirement is satisfied when candidates have demonstrated a broad knowledge of their field to the satisfaction of the department, normally by completion of all and passing of all qualifying examination for assigned programme of courses with a minimum score of "C". The second requirement is satisfied when candidates have presented and defended a thesis embodying the results of their own original research on an approved topic

M.SC PROGRAMME COURSE OUTLINE

M.Sc Course Description

SGS 801.1 ICT and Research Methods 2 units

Essentials of spreadsheets, internet technology, statistical packages, Precision and Accuracy of Estimates, Principles of Scientific Research. Concepts of hypotheses formulation and testing. Organisation of Research. Technical writing/Research report writing (resumes, abstracts, proposals).

Oral and written communication skills in geosciences. Presentation skills using PowerPoint.

SGS 801.2 Management and Entrepreneurship 2 units

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving

Scientific research conceptual framework including empirical methods, innovative techniques and improvisation. Earth science technology life cycle and emerging research techniques. Internet research and search tools including web directories and external linkages. Modern field methods in earth science research. Geologic workstation and field data analysis, evaluation and interpretation. Advanced laboratory techniques including bench-scale, tools kits and modern methods.

Research instrumentation types in the earth sciences. Instrumentation methods, calibration, measurement and validation of data. Geologic data processing and quantitative analysis including geostatistical analysis, mathematical modeling and operations research. Application of geologic softwares in advanced modeling methods. Application and interpretation of phase diagrams and geologic data plots.

Research project costing and value of experimentation. Advanced research project reporting format and synthesis. Participatory approach to external linkage support for advanced geologic field and laboratory research. Development, demonstration and deployment of earth science research data. Research data security, privacy policy, patents and disclaimers.

GLY 800.1 Advanced Structural Geology

Structures and fabrics of rocks, stress, strain, deformation Mechanism. Various terrain mapping techniques, stereo plots, structures, boreholes / subsurface problems. Terrain analysis. Application of structural geology and aero geology in various areas of applied geology.

GLY801.1: Geo-Information, Remote Sensing

Principles of remote sensing in determination of natural resources. Fuel, metallic and non-metals. Geoinformatics technology. Relationship between remote sensing and Geo-informatics.

GLY 802.1: Field School

One week devoted to mapping of sedimentary, igneous or metamorphic terrains with emphasis on problems relating to area of specialization of the student. Detailed field mapping of area of interest in any of the different sedimentary basins and Basement Complexes of Nigeria. Students must demonstrate clear understanding of field geology, including measurements, field documentation, report writing, production and submission of a comprehensive geologic map of the area under investigation.

GLY 803.1: Applied Micropaleontology and Palynology

Qualitative and quantitative data and their importance. Statistical and other mathematical based faunal and floral species distribution. Stratigraphic climatic studies based on cooling direction and fauna morphological variations. Relative sedimentation rates. Absolute sedimentation rates. Changes in sea level. Paleobathymetry. Foraminifera number and planktonic test porosity. Trace elements and palaeosalinity. Displaced faunas. Biologic and hydrologic indicators. Stratigraphy and correlation pollution.

GLY 804.1 History of Vegetation.

Quaternary paleontology and palynology. Organisms and plants and their environment.

GLY 805.1: Cretaceous to Neogene Mineral-walled Fauna and Flora

Morphology, classification, distribution history from Cretaceous to Neogene of foraminifera, ostracods, diatoms, radiolaria, coccoliths, etc. Morphology, classification, distribution history from cretaceous to neogene of pollen spores, Dinoflagellates, acritarchs, chitinozoa, miscellaneous algae.

GLY 806.1: Biostratigraphic Applications

Lithostratigraphy, biostratigraphy, correlation, zonation, paleontological; and palaeobathmetric reconstructions. Assessment of environment quality; forensic art and history studies. Techniques of sample (coal, limestone, sandstone and shale) preparation and in microscopy. The examination and description of typical assemblages of pollens, spores dinoflagellates, foraminifera, etc; from selected horizons;

classification of mixed assemblages into species; statistical analysis involving polynofacies analysis and abundance and classification of micro fossils. Preparation of single mounts and sections and the study of bibliographies, indexes and other relevant literature.

GLY 807.1: Engineering Geological Properties of Soils

Particulate nature of soils, stresses and deformation, geotechnical Index properties Mechanical properties, floor resistance, compressibility and permeability laterites and wetland soils. Engineering description and classification of rocks. Elasticity and strength properties. Weathering and discontinuities, laboratory testing

GLY 808.1: Engineering Geological Properties of Rocks.

In this module, students are introduced to issues in engineering geology that they are likely to encounter working within the applied geoenvironment sector. This includes rock description, site investigation and geotechnical assessment, design of ground models, slope design and underground openings, and the impact of groundwater on rock mass strength and slope stability

GLY 809.1: Foundation Geology! Engineering

Foundation principles and practices. Bearing capacity of shallow and pile foundations. Settlement and stability calculations. Foundation improvements. Site investigation techniques. Foundation geology of dams, bridges and large buildings.

GLY 810.2: Geomechanics and Slope stability

Mass movement. Mechanics of slope failure. Classification of slope failures. Cuts and tunneling. Methods of slope stability analysis

GLY 811.2: Engineering and Environmental Geophysics

Use of applied geophysical techniques for environmental, geotechnical and groundwater investigation. Common geophysical methods; electrical resistivity, electromagnetic, seismic down-hole geophysical logging case histories. (These should include, but not limited to Shallow seismic refraction methods and application to dam

sites, highways, depth of weathering and material quality). Electrical methods and application to determination of depth to bedrock, location of water table and salt water intrusion. Magnetic, electromagnetic and gravity methods as applied to engineering problems. Geophysical well logging. Aero-geological mapping/studies and application to Engineering Geology and Hydrogeology).

GLY 812.2 Special Topics in Engineering Geology

This is a selection of topics to deal with those not normally covered in specified courses. Topics also to cover emerging issues in the application of geology in civil engineering practice. e.g. Geological Models and Ground Investigation where students are introduced to issues in engineering geology that they are likely to encounter working within the applied geo-environment sector. This includes rock and soil description, site investigation and geotechnical assessment, design of ground models, slope design and underground openings, and the impact of groundwater on rock and soil mass strength and slope stability

GLY 813.1 Water Resources Exploitation and Management

Analysis of aquifer tests. Behaviour of aquifer-aquitard systems. Aquifer exploration. Recharge and discharge equilibrium. Safe yield estimation of water resources. Regional planning, development and management of water resources for domestic, industrial and agricultural uses. Conjunctive use of surface and groundwater. Effects of excessive groundwater withdrawals.

GLY 814.2 Waste Disposal And Water Pollution

Types of waste and disposal management methods. Waste reduction; landfill management methods. Geological and geotechnical factors affecting selection of disposal sites for domestic, industrial hazardous radioactive waste. Measures to prevent pollution.

GLY 815 Groundwater Flow, Hydrogeochemistry and Modelling

Physical and mathematical principles of porous media flow with emphasis on groundwater. The continuum concept. Equations of motion and

continuity. Confined and unconfined flow. Principles of regional groundwater flows. Hydrogeochemistry and groundwater quality. Sources and transportation of contaminant. Application of modelling in groundwater studies

GLY 816.2 Contaminant Hydrogeology

Characterization of aquifers. Mineral and hydrodynamic properties influencing flow of contaminant in earth materials. Dispersion theory and modeling of pollutants in aquifers. Water quality and protection.

GLY 817.1 Advanced Geomorphology and Geologic Hazards

The course focuses on Geomorphological process and the effects of landform alterations by human activities. Erosion, landslides, flooding and allied processes. Coastal and river processes and management of these processes. Plate Tectonics. Geologic hazards to include Earthquakes, Volcanism, Erosion, Mass movement, Flooding etc

GLY 818.1 Climate Change, Green Energy and Water Resources Sustainability

Carbon Cycle. Green house Effect and Global warming. Climate Change: Natural and anthropogenic causes. Effects. United Nations Protocols and Conventions on Climate Change. Green Energy sources. Climate change and water resources.

GLY 819.2 Characterisation and remediation of Contaminated Sites

Conceptual site model and characterisation. Contaminated land legislation, risk assessment Evaluation of the occurrence, nature and magnitude of contamination at a site; Evaluation of transport mechanisms and migration pathways of contaminants. (diffuse contamination, NAPLs,) site investigation, and monitoring; groundwater protection by barriers and land use planning; groundwater remediation methods. Remediation Technologies.

GLY 820.2 Environmental Impact Assessment

Definition and rationale for Impact Assessment. Components of International Standard Impact Assessments. Biophysical, Health, and Social Impact Assessments. Impact prediction, Impact

Management and Monitoring Plans. Stakeholder involvement.

GLY 821.1: Magnetic and Gravity Methods

Inverse square law. Terrestrial gravity and magnetic fields. Gravimeters and magnetometers. Planning and operation of field surveys. Data reduction. Interpretation- Resolution, Limiting formula, Ambient, mass estimation, Fields and depth rules for geometric models. Computation of anomalies, reduction to pole and remanent magnetism. Aeromagnetic surveys. Element of potential field theory- conversion field scalar potential. Laplace Equation. Magnetic Scalar potential. Poisson's formula relating magnetic and gravitational fields, inversion, Planning and execution of gravity surveys. Reduction of results. Interpretation and modeling. Case histories for petroleum and mineral exploration.

GLY 822.1: Seismic Methods

Propagation of seismic pulse, refraction and reflection. Pulse generation. Seismic recording instruments. Planning and operation of field surveys. Data acquisition, reduction and processing. Velocity determination. Refraction and reflection surveys. Preparation of time and geological sections. Bright spots.

Theory and practice of seismic refraction method. Seismic wave propagation through earth materials. Acquisition of seismic data, field procedures and instrumentation and total system performance. Refraction interpretation methods: simple 2D refraction interpretation from shallow seismogram. Refraction interpretation for horizontal, dipping and irregular surfaces. Blind and hidden layer problems. Refraction interpretation methods; static and dynamic corrections, velocity determinations from profiles and well shots, reflection coefficients, dipping reflections. Computation exercises and stratigraphy; seismic mapping techniques. Case histories.

GLY 823.1 Mineral deposits and Electrical Methods

Electrical Properties Associated with Rocks. Direct-Current Resistivity Methods Varying Current Methods, Resistivity Method: Resistivity Profiling, Resistivity Depth Sounding. Electro-

Magnetic Methods. Very low Frequency (VLF) Radiation, VLF Instruments and Presentation of VLF Results. Natural and Controlled-Source Audio-magnetotelluric

GLY 824.2 Filter Theories and Signal Processing

Wave forms and spectra; Fourier and Fast Fourier transform, digital signals, linear filters; convolution, autocorrelation and cross correlation and power spectrum analysis. De-convolution. Wiener matched filters and application of these filters to both synthetic and real data.

GLY 825.2: Wire Line Log Interpretation

Well logs. Different types of log. Log patterns for different rock types. Interpretation of environment by means of well logs.

GLY 826.1 Petroleum Resources

Course is designed to cover both conventional and unconventional hydrocarbons with emphasis on recent advances in the genesis of petroleum hydrocarbons and their application to petroleum exploration and exploitation. Composition, Origin. Migration. Maturation and Geochemistry of Petroleum generation and depths of burials, time, temperature and composition of sedimentary organic matter. Clay and carbonate diagenesis and roles in Petroleum Generation. Abnormal formation pressures. Reservoir rocks and traps. Petroleum hydrogeology. Other hydrocarbon resources including oil shales, bitumen, asphalt, tar sand and coal. Concept of Reserves and Resources and their classification.

GLY 827.2 Advanced Sedimentology and Basin Analysis

Carbonate and Clastic Sedimentology. Origin, growth and classification of basins. Analysis of Sedimentary facies and environments (continental margin, shallow and deep marine) of petroleum. Facies control on hydrocarbon distribution. Trap classification. Paleogeographic principles and exploration and exploitation of petroleum. Porosity and Permeability and exploitation of petroleum. Porosity and Permeability and inter-relationship. Borehole geophysical logging. Geology of some of the world's giant oil/ gas field and basins. Regional patterns of petroleum distribution.

Time span involving stratigraphic range and possible worldwide megasequence; geometry and basin type including shape, area, volume, and maximum thickness; sedimentology including kinds, proportions, distribution and composition of lithic fill and paleocurrents for interpreting integrated depositional systems; structure style (pre-depositional, syndepositional and post-depositional). Tectonic setting; paleoclimate; thermal burial history; economic interest

GLY 828.2: Sequence Stratigraphy

Basic concepts of sequence stratigraphy. Definition of key terms, Basin fill model, Strata patterns and strata termination patterns. Their geological interpretation and their relation to relative changes of sea level (base level). Interpreting sequences and system tracts from strata discontinuity and their relation to relative changes of sea level (base level).

GLY 829.2: Reservoir Characterization and Modeling

Subsurface faces analysis, subsurface diagnosis of sedimentary environments from cores, ditch cuttings and wire line logs and the use of this knowledge in the prediction of the distribution, geometry and orientation of reservoir rocks. Petrography of reservoir rocks, morphology and genesis of porosity and its relationship to rock composition. Texture and Diagenesis. Description and analysis of reservoir rocks from cores and ditch cuttings.

GLY 830.2 Carbonate and Siliciclastic Deposits

Origin and classification of Carbonates, Siliciclastics and Evaporites.

GLY 831.1 Source Bed and Reservoir Geochemistry

Origin, Discovery and Geochemistry of Crude Oil. Organic matter evolution, Diagenesis, catagenesis, metagenesis and metamorphism. 1-low oil forms, natural hydrocarbons. Hydrocarbon migration. Biomarker chemistry and technology. Geochemical markers in crude oil. Application of biomarkers, pristane, phytane, terpenoids, etc. Chemistry of crude oil: Classification and characterization, Base oil, ternary diagrams etc. Chemical oil production. Drilling fluids completion and workover fluids, drill-in fluids,

etc. Gaseous hydrocarbons: Development of natural Gas, Types of natural gas accumulation.

GLY 832.1 Biomarker Geochemistry

Introduction to biomarkers, classes of biomarker, isoprenoids, steroids, hopanoids, aromatic hydrocarbons, non-hydrocarbon biomarkers. Biomarkers in sediments. Application of biomarkers in petroleum geochemistry: biological sources, maturity.

GLY 833.1 Coal Deposits

Types of dispersed organic detritus. Distribution of particular organic matter in the sedimentary basins and degree of metamorphism. Basic notions of organic matter petrography. Transmitted and reflected white light microscopy, fluorescence, microscopy, organic matter origins, kerogen and maceral classifications, organic facies, Rock-Eval pyrolysis, ternary diagrams, fluorescence preservation scale, TOC and grain size. Kerogen - Maturity and Type How do we analyse kerogen? Principal kerogen types and evolution paths of kerogen, Kerogen composition and relationship to petroleum potential, Overview of diagenesis, catagenesis and metagenesis. Catagenesis- from kerogen to petroleum, Geothermal gradient - what are the factors that control it? Principal zone of oil generation. Effects of temperature and pressure on kerogen stability and petroleum generation. Metagenesis and gas generation.. What do we mean by thermal history? Relationship between thermal history and petroleum generation. Vitrinite reflectance, Vitrinite reflectance and maturity, Vitrinite reflectance interpretation, Palynomorph colour.

GLY 834.2 Oil Spills and Remediation

Composition of crude oil and some petroleum products and naturally occurring hydrocarbons. Sources of hydrocarbon spillage in the environment. Polycyclic aromatic hydrocarbons their origins, properties and effects. Oil spill remediation and minimization of their impact. Hydrocarbon toxicity, determination and the effects of hydrocarbon pollution in the environment. Case studies of actual oil spills, including the effects of public perception on actions for the treatment of petroleum pollution. Atmospheric pollutants arising from the use of petroleum products as fossil fuels, their effects and their minimization

GLY 835.2 Geochemical Methods

Sampling design and sample preparation (clean and crush), Extraction of rocks, introduction to fractionation of bitumen, Liquid column chromatography-Thin layer chromatography, Principles, nomenclature and types of Chromatography, Frontal analysis, displacement method, elution development.

GLY 836.2 Petroleum Geochemistry of the Niger Delta Basins

Location of Niger Delta Basin, structural evolution & geology, stratigraphy and geological history, facies and environments, source rocks, reservoir rocks, cap rocks, concept of petroleum systems, exploration history. Calculating the volumetric oil yield of a given body of source rock. Source rock heterogeneity and varying maturation. Producing a source rock report.

GLY 837.1 Ore Deposits, Non-Metallic Minerals and Industrial Materials

Identification of fluid inclusions; theoretical basis for studying fluid inclusions; Fluid inclusion population types; Ore bearing fluids (magmatic, metamorphic and meteoric fluids, thermal springs); determination of homogenization of freezing temperatures of fluid inclusions; use of fluid inclusion studies to determine the role of fluids in geological processes; use of fluid inclusion studies in geothermometry; origin of ore deposition; provinces of metallogeny; types of ore deposits and ore deposition in geochemical cycle; structural environment of ore deposition. Geological criteria for occurrence of ores in Nigeria. Case histories of selected metallic mineral deposits.

Classification; processes of formation and geological environment of the non-metallic minerals and building materials (crushed rocks, sand, gravels, etc; carbonates, evaporites, asbestos, clays, etc); methods of prospecting, processing and use in the industry; Occurrences in Nigeria.

GLY 838.1: Economic Mineral Deposits of Nigeria

Geochemical and geophysical methods of mineral exploration. General geology of Nigeria. Mineral exploration projects and methods of exploration in Nigeria; metallogenic provinces -in Nigeria.

Geology of non-metallic and metallic mineral deposits of Nigeria. Mining methods, production and marketing of minerals in Nigeria.

GLY 839.1: Mineral Exploration Geochemistry and Geophysics

Dispersion patterns of elements; elemental associations; pathfinders; background; anomaly; geochemical province; exploration geochemistry sequence; geochemical survey, mapping, sampling, analyses of samples; trace element analysis; geochemical drainage survey; heavy mineral prospecting; geochemical soil surveys; vegetation surveys (biogeochemical and geobotanical methods); lithogeochemical surveys; geochemical surveys in Nigeria; environmental geochemistry; Field and Laboratory analytical methods; Statistics in Exploration Geochemistry. Principles and application of magnetic, gravity, electrical, electromagnetic, seismic and radioactive methods of exploration for economic mineral deposits.

GLY 840.2 Geologic Exploration, Mining and Mineral Processing

The idea of mineral prospecting and exploration. Exploration indicators. Stages in exploration process. Exploration philosophy and management. Grid setting, borehole drilling and prospect generation. Ore reserve estimation. Environmental and legal issues in mineral prospecting and exploration. Cut-off grade estimation and its relation to reserve estimation. Planning of exploration programmes.

The meaning of mining engineering; branches of mining; mining methods and systems. Mining equipment selection and mine parameter estimation; environmental and legal issues in mining operations; elements of mine planning and design; mineral processing basics; mine unit operations.

GLY 841.2 Mineral Property Evaluation and Economics

The subject matter of mineral evaluation. Production rate estimation and scheduling; cash flow development; capital cost estimation. The time value of money. Discounted cash method and its application in mineral evaluation. Estimation of net present value and internal rate of return.

Sensitivity analysis in mineral evaluation. Hoskold's formula and its inadequacies. Break-even analysis. Internationally traded minerals. The demand function in mineral economics.

GLY 842.2: Advanced Mineralogy and Crystal Chemistry of Silicate Minerals

Silicate structures; chemistry, and optical and other properties of silicate minerals as well as their assemblages in common igneous rocks.

GLY 843.2: Advanced Optical Mineralogy and Ore Microscopy

Optical determinations of minerals under transmitted and reflected light; four-axis U-stage techniques; use of U-stage in petrofabrics; determination of composition of some silicate minerals by optical methods. Microscopic determinations of ore minerals; Etch reactions; micro-chemical testing of polished sections; ore petrology; introduction and practice of fluid inclusion studies.

GLY 844.2: Advanced Techniques in rock crystallization-deformation analysis

Structural control of a dyke's intrusion; relationships of flowing structures; deformation (differences, associations); structural analysis of a synkinematic intrusion and its relations with the surrounding rocks; "Syncooling" deformation of a granite and associated structures; C axis analysis using a universal stage as biotite-quartz-amphiboles; "Post-cooling" deformation of a granite and associated structures related tension gashes and crystallization (micro pull apart structures); structural control of volcanism. Concept of ante-synpost kinematic crystallization; analysis of ante-syn-post crystallization; rotational criteria of non-coaxial deformation; study of the plastic deformation of quartz; statistical analysis of C axis fabric of quartz under cross Nichols; statistical analysis of C axis fabric of quartz using a universal stage; relation of C axis fabric of quartz; conditions of crystallization using C axis fabric of quartz as a rational criterion of non-coaxial deformation.

GLY845.2: Advanced Igneous and Metamorphic Geochemistry

Advanced treatment on Phase Equilibria and the practical use of phase Equilibria; eutectics and solid solutions; theoretical crystallization curves;

mafic and intermediate magmas; felsic magmas; effect of pressure on differentiation; origin of basaltic and granitic magmas; problem of trace element distribution in igneous rocks. Rules of distribution; examples of minor-element distribution; regularities of distribution in igneous rocks; rare earth elements; Geochemistry of some selected rock suits in various parts of the world and in Nigeria. Metamorphism as a geochemical process; phase Equilibria in metamorphism; distribution of trace elements in metamorphic rocks; behaviour of trace elements during metamorphic recrystallization. Rare earth elements.

GLY 846.2 Advanced Igneous and Metamorphic Petrology

Igneous fractionation process and compositional variation of magmas; petrography of volcanic rocks; experimental works on natural basaltic and allied rocks; water-bearing basic rock systems; compositionally zoned magma bodies and their bearing on crystal settling; petrography of plutonic rocks; interpretation of data for plutonic rocks; trace elements in igneous processes and use of isotope in petrology; petrography aspects of lunar rocks and meteorites. Advanced study of pyroclastics rocks, carbonatites, alkaline and peralkaline rocks, spillites, lamprophyres and kimberlites; igneous processes and metallogenesis; petrographic provinces of the world.

Evolution of metamorphic rocks with emphasis on phase Equilibria; fundamental metamorphic changes in rocks; thermal, dynamothermal, dynamic and regional metamorphism; metasomatism, metamorphic fabrics macro- and micro-fabrics); geometric and thermodynamic treatment of metamorphic mineral assemblages; metamorphism and metallogenesis; metamorphic belts of the world and metamorphic processes; trace element behaviour during metamorphic; metamorphism in West Africa with emphasis in Nigeria

GLY 847.2 Advanced sampling, Rock and Mineral Analysis

Selection of sampling locations, sampling methods, patterns and density. Sample preparation for analysis by XRF, XRD, gravimetric and spectrographic methods; presentation of data and statistical representation; principles and

application of electron probe, electron microscopy and other analytical methods; density determination and analyses by transmitted and reflected microscopy; mineral separation techniques; recalculation of analyses and representation of chemical data in diagrammatic forms. Mathematical treatment and application of geostatistics in sampling error analysis.

GLY 848.1 Applied Structural Models

Concepts of structural deformation in outcrop and subsurface data. Structural models, fault growth and interactions of faulting and folding. Integration of class based teaching with field examples of both compressional and extensional systems.

GLY 849.1 Geotectonics and Basin Evaluation

Large scale tectonics and geodynamic processes in both extensional and compressional systems. Lithospheric extension, models of continental extension, influence of stretching factors and implications on heat flow. Field component on the influence of lithospheric compression on basin evolutions to address large scale processes.

GLY 850.2 Fabrics and Structural Analysis

Geometric, kinematic and dynamic analysis of structures produced by deformation. Stress and the origin of faults, brittle and ductile strain in rocks. Extensional strike slip and compressional structural associations. Regional structure, orogens and crustal tectonics. Laboratory exercises include structural interpretation for mineral exploration, stereographic techniques for structural analysis and the study of rock fabrics.

GLY 851.2 Geomechanics and Fault Modelling

The impact of stress, deformation and brittle failure of rocks in the upper crust, along with how these impact fracture systems, rock strength and failure, and microscale fault deformation using the Scanning Electron Microscope. Use of Petrel in 3D modelling.

GLY 852.2: 3-D Structure: Techniques and Visualization

Analysis of stereographic data, reducing of geological maps and construction of accurate cross sections. Exercises on how to develop 3D and 4D thinking of complex geological setting through

paper based exercises to work station based exercises.

GLY 853.2 Nigeria Sedimentary Basins and their Structures

GLY 860.1 Seminar in Geology

The student is required to present a seminar based either on his/her research project or any chosen subject in geology after an in depth study through either extensive literature survey and/ or data analysis and data interpretation.

GLY 870.2 M.Sc Thesis

An independent study of a geological problem in the student's area of interest, utilizing laboratory analysis, data interpretation and the preparation of a geologic report.

DOCTOR OF PHILOSOPHY (Ph.D) PROGRAMME

AIMS AND OBJECTIVES:

The primary objective of the Ph.D programme is the accomplishment of independent and original research work which is reported in the form of a dissertation. Complementary to this is the completion of a suitable course work programme, passing a qualifying examination and receiving a satisfactory review on the recommendation of a supervisor.

The Ph.D degree programme in Geology is designed to provide specialized academic knowledge oriented research. At the end of the training successful candidates would have been able to upgrade their knowledge and skills, and increase their competence as Professionals Geologist to provide manpower in areas of geology in the academia, research Institutions, Public Service and the Private Sector of the Economy.

Regulation

The Ph.D programme shall consist of course work, seminars and research as approved by the Senate of the University of Port Harcourt.

Admission Requirement

In order to be admitted to Ph.D candidacy, applicants must have demonstrated research capabilities. They must satisfy the Department that they are able to carry out independent research. Since the Department cannot admit all candidates

who apply for admission even with high standing, the Departmental Graduate Studies Committee pays close attention to samples of applicants' written proposals, transcripts and past records as a whole, and to letters of reference written on their behalf by former lecturers.

Candidates for admission to the programme shall normally be persons who have

- i. Obtained an M.Sc. degree in Geology or any relevant discipline of the University of Port Harcourt or any approved University and have a CGPA of not less than 3.50 on a 5 point scale or equivalently computed for scales other than 5.
- ii. Scored a minimum of 70% in a Ph.D admission interview organized by the Departmental Graduate Studies Committee.
- iii. Students deficient in any area in the M.Sc programme will be required to remedy the deficiency from M.Sc Courses.

Students in the Ph.D programme will not be accepted as candidates for the Ph.D degree until they have presented and successfully defended to the department a proposal for research and during that presentation have demonstrated a comprehensive knowledge of the particular major field of study and thereafter, presented two seminars and satisfied the department in the course work aspect by presenting two seminars and passing the course work examinations.

Options in the Programme / Specialization Fields of Specialization

Students are expected to specialize in any one of the following fields of specialization.

- Biostratigraphy,
- Engineering Geology,
- Environmental Geology
- Exploration Geophysics
- Hydrogeology,
- Petroleum Geology
- Sedimentology and Reservoir Geology
- Exploration Geology (Mineral Exploration Option)
- Petrology and Applied Geochemistry
- Structural Geology

Mode of Study / Duration of Study

Full Time:

The Ph.D programme candidate will be required to spend a minimum of 24 calendar months (2 years) and a maximum of 80 calendar months (5 years).

Part Time:

Candidates requiring a part time programme will be required to spend a minimum of 38 calendar months (3 years) and a maximum of 84 calendar months (7 years.) Requirements governing course work and examination.

The course work designed for the Ph.D programme in the Department of Geology is intended to provide a foundation for advanced learning in the chosen field of research.

1. The Ph.D degree programme in Geology shall follow the general regulations of the School of Graduate Studies, University of Port Harcourt as spelt out in the prospectus
2. The programme consists of course work, seminars and research for the doctoral dissertation,
3. The courses shall be evaluated in terms of course units, with a minimum of three (3) and maximum of six (8). The dissertation shall have a credit unit of 12.
4. All candidates shall be required to register for not less than fifty (50) credit unit courses in the programme. Out of this, a maximum of thirty (30) credit units may be earned from relevant courses at the M.Sc programme. However, students with deficiency will be required to audit some courses at M.Sc level.

COURSE CONTENT

Compulsory Courses:

With effect from 2011, all PhD programmes shall be completed by course work and research. Thus beginning from 2011/2012 academic session, all new PhD candidates are expected to take and pass each of the following courses in their area of specialization with a minimum of C (50%) grade of the University of Port Harcourt.

S/N	Specialization Course	Course Code				
		Course Work	General Seminar I	General Seminar II	Qualifying Examination	Doctoral Dissertation

	Credit Units	3	3	3	Based on course work	12
1	Biostratigraphy	GLY 901	GLY 902	GLY 903		GLY 904
2	Engineering Geology	GLY 901	GLY 902	GLY 903		GLY 904
3	Environmental Geology	GLY 901	GLY 902	GLY 903		GLY 904
4	Exploration Geophysics	GLY 901	GLY 902	GLY 903		GLY 904
5	Hydrogeology	GLY 901	GLY 902	GLY 903		GLY 904
6	Petroleum Geology	GLY 901	GLY 902	GLY 903		GLY 904
7	Sedimentology and Reservoir Geology	GLY 901	GLY 902	GLY 903		GLY 904
8	Exploration Geology (Mineral Exploration Option)	GLY 901	GLY 902	GLY 903		GLY 904
9	Petrology and Applied Geochemistry	GLY 901	GLY 902	GLY 903		GLY 904
10	Structural Geology	GLY 901	GLY 902	GLY 903		GLY 904

In addition, according to Benchmark minimum academic standards for postgraduate programmes in sciences in Nigerian Universities, all postgraduate students (irrespective of the programmes) must take management and Entrepreneurship as well as ICT and Research Method as compulsory courses.

An outline of the courses in the various areas of specialization is given in part Appendix D.

Course Assessment

The courses will be assessed on the basis of written examinations and continuous assessment. Candidates will be required to obtain a minimum pass grade of C (50%) in the course work

Qualifying Examination

There will be a qualifying examination at the end of the second semester of the first year of the programme. The qualifying examination must be passed with a minimum grade of C (50%) before proceeding for the dissertation writing stage.

SEMINARS

General Seminar

These two seminars, each consisting of three credit units shall be held in the first and second semester of the first year to cover major topics excluded from other available courses. Students shall be required to present for the discussion short colloquia based on their reading of the assigned topics. Participation in the discussions as well as actual presentation of papers will be an integral part of the course.

Dissertation

Candidates shall be required to carry out their research under supervisor(s) appointed/assigned

by the Departmental Graduate Studies Committee. During the first semester of the second year, the candidate in consultation with the supervisor will choose a Ph.D dissertation topic to be approved by the Departmental Graduate Studies Committee.

Seminar based on research

This shall consist of three non-credit unit seminar presentations. The first two shall be presented in the department. The third seminar shall be presented before the Board of School of Graduate Studies examiners at the conclusion of the Ph.D dissertation in accordance with the graduate studies regulations of the University of Port Harcourt.

GLY 901.1 COURSE DESCRIPTION

PETROLEUM GEOLOGY OPTION

GLY901.1 Advanced Fossil Fuel Geology

Reservoir depositional models; Diagenetic developments; Reservoir Geological models; Petroleum Source rock evaluation Paleotemperatures; Paleopressures and Geothermal analyses; Trap analysis; Reserve estimation methods; Coal and Uranium geology; Exploitation Trends analyses; Sequence and Seismic stratigraphy; Geostatistical analyses of geologic data; Geologic Resources. Project management; Petroleum exploration and risk analyses techniques; Petrophysics.

EXPLORATION GEOPHYSICS

GLY 901.1 Applied Subsurface Geology

Advance seismology reflection and refraction of elastic waves, amplitudes of surface motion due to seismic waves in a spherically stratified earth model, seismology and earth's interior. 3D, seismic exploration and interpretation, Seismic

tomography and seismic stratigraphy. Gravity and magnetism, instrumentation and measuring techniques, data reduction and interpretation, Stokes theorem. Laplacian equation, boundary value problems, continuation of potential fields. Electrical and electromagnetic, conduction process, current flow in layered media, application of various electrode configurations, polarization, primitivity and dielectric losses, induced polarizations, electromagnetic induction theory, transmitter-receiver configurations in EM prospecting magnetotellurics. Computation of apparent resistivity model curves from other electrode configurations. Hankel transformation, Maxwell's equation for electromagnetic field and the physical interpretations.

Pretrophysical analysis, plate tectonics and materials of the earth, rheology of the earth and Basin analysis.

BIOSTRATIGRAPHY OPTION

GLY 901.1 Biofacies Analyses

Cretaceous Tertiary quantitative palynology and Micropaleontology; Palynostratigraphic and Biostratigraphic zonation; Biostratigraphy and West African Geologic boundaries; Palynofacies events and geochronology; Palynocycles and sequences stratigraphy; Paleovegetation and Paleosalinity analyses; Biogenic/ichnnofacies/Biolithic deposits.

ENVIRONMENTAL GEOLOGY OPTION

GLY 901.1 Advanced Environmental Geology

Migration of contaminants in porous media; environmental Impact Assessment and sustainable environmental management, Organic and inorganic contaminants; Strategies for monitoring contamination of soils and ground water. Site characterization for subsurface remediation.

HYDROGEOLOGY OPTION

GLY 901.1 Applied Hydrogeology

Groundwater resources evaluation and development. Unsaturated and multiphase Flow; well hydraulics; fractured aquifers; finite differential method; linear saturated steady-state flow in porous media; confined aquifers; salt water encroachment; groundwater contamination; Hydrogeochemistry, pump and aquifer tests and groundwater survey techniques.

SEMINARS

GLY 902.1 General Seminar 1 GLY 903.2 General Seminar II

Biostratigraphy Option

Advances in Biostratigraphic Analysis

This involves interdisciplinary research on the history of the earth and its biota and their interaction through time. Research programme in paleontology encompass the systematics of specific animals and plant groups, the evolutionary processes underlying phylogenetic patterns, palaeology, the response of ecosystems to abiotic and biotic change, and the relationship of ecological patterns to evolving lineages. Studies of environmental history emphasize the responses of shallow water depositional systems to changing climates and rates of subsidence. Reef dynamics and the history of ocean basins. The course is subdivided into 3 sections;

Principles: Systematics, paleontological techniques, processing and microscopy, protozoans (animal and plants; megafossils).

Application: Introduction top biostratigraphy and time scales; Mesozoic-Tertiary palynormorphs, Mesozoic- Tertiary planktic and benthic foraminifera etc. potential for zonation, intercontinental correlation, palaeology, palaeoclimatology, palaeoceanography and palaeoprovincialism; aquatic and non aquatic Quaternary; climate and vegetation reconstruction.

New directions. Other applications and floral history: Archaeological palynology; underwater pollen analysis; prehistoric diet reconstruction; melissopalynology; Entomopalynology; medical palynology; forensic studies in palynology; computer analysis; analytical biostratigraphy and correlation; palynofacies; fecal pellets; palynology in ores and petroleum exploration and exploitation; vegetational history, economic application of palynology and foraminiferal studies.

Engineering Geology and Hydrogeology options

ADVANCED TOPICS IN ENGINEERING GEOLOGY AND HYDROGEOLOGY

1. Advanced Geomechanics (rocks & soil mechanics) and mechanical property testing and analysis.
2. Advanced geotechnical site investigation for major civil engineering structures and dams.
3. In-situ field testing and analysis and use of latest computerized techniques.
4. Advanced slope stability analysis of gully erosion problems.

5. Analysis of aquifer pumping test results and sustainable water resources exploitation.
6. Water resources modeling and evaluation.

Environmental Geology Option

ADVANCED TOPICS IN ENVIRONMENTAL GEOLOGY

1. Reconciling various approaches to concept of sustainable development.
2. Advanced framework for environmental sustainability.

3. Advanced tools for environmental management systems including ETA, SIA, risk assessment, EMP, IMM and environmental audit.
4. Holistic approach to mitigation of gully erosion and flood geo-hazards.
5. Contaminant fate, movement and mitigation and effects of geology.
6. Site investigation for remediation of contaminated sites.

ACADEMIC STAFF

S/N	Name	Qualification	Designation	Specialization
1.	K. O. Okengwu	B.Sc(Calabar), M.Sc, Ph.D (UPH)	Professor/HoD	Petroleum Geology, Sedimentology
2.	V.U. Ukaegbu	B.Sc (UPH), M.Sc (Jos), Ph.D (UPH)	Professor	Mineralogy, Petrology& Geochemistry
3.	G.J. Udom	B.Sc, M.Sc, Ph.D (Calabar)	Professor	Hydrogeology, Environmental Geology
4.	A.C. Tse	B.Sc (ABU), M.Sc, PhD (UPH)	Professor	Engineering Geology & Environmental Geology
5.	J.I. Nwosu	B.Sc, Ph.D, (St.Petersburg, Russia)	Professor	Mining Geology, Economic Geology
6.	S.A Ugwu	B.Sc, M.Sc, Ph.D (UNN)	Professor	Geophysics
7.	N. Egesi	B.Sc, M.Sc, (Jos), Ph.D (UPH)	Professor	Minerology, Petrology
8.	S. Abrakasa	B.Sc (Calabar), M.Sc, Ph.D (Newcastle)	Reader	Geochemistry
9.	G.C. Soronnadi-Ononiwu	B.Sc, M.Sc , Ph.D (UPH)	Reader	Biostratigraphy
10.	R. U. Ideozu	B.Sc, M.Sc, Ph.D (UPH)	Reader	Sedimentology, Petroleum Geology
11.	K. N. Onwualu	B.Sc (Awka), M.Phil (RSUST), P.h.D (UPH)	Senior lecturer	Petrology
12.	A. E. Jones	M.Sc (B.Sc, M.Sc, UPH)	Senior Lecturer	Sedimentology, Petrology
13.	C. U. Ugwueze	B.Sc, (ESUT), M.Sc, Ph.D (UPH)	Senior Lecturer	Petroleum Geology
14.	D. O.. Okujagu	B.Sc, M.Sc, Ph.D (UPH)	Senior Lecturer	Structural Geology/ Remote Sensing/ GIS
15.	F. I. Chiazor	B.Sc, M.Sc, Ph.D (UPH)	Senior Lecturer	Petroleum Geology
16.	F.D. Giadom	B.Sc. (UPH), M.Phil (RSUST), Ph.D (UPH).	Lecturer I	Environmental Geology
17.	R. Oghonyon	B.Sc, M.Sc, Ph.D (UPH)	Lecturer 11	Exploration Geophysics
18.	E. U. Nnurum	B.Sc, M.Sc, Ph.D (UPH)	Lecturer 11	Engineering Geology
19.	M. M. Kekwaru	B.Sc, PGD, M.Sc (UPH)	Asst. Lecturer	Hydrology

DEPARTMENT OF MATHEMATICS/STATISTICS

DEPARTMENTAL POST-GRADUATE PROGRAMMES

PREAMBLE: To provide broadened academic knowledge that will produce self-oriented research.

The Department of Mathematics and Statistics offers Postgraduate Programmes in the Mathematical Sciences. The programmes are designed to provide broadened academic knowledge that will produce self-oriented research. It is hoped that at the end of the training, successful students would be able to advance academic pursuit and provide the much needed manpower in our institutions of higher learning, public service and the private sectors of our economy. The Department's postgraduate programmes lead to the award of:

- 1) Postgraduate Diploma in Mathematics (PGDM)
- 2) Postgraduate Diploma in Statistics (PGDST)
- 3) M.Sc. degree in Pure Mathematics with specialization in any of the areas in Pure Mathematics
- 4) M. Sc. Degree in Applied Mathematics with specialization in any of the areas in Applied Mathematics
- 5) M. Sc. in Statistics
- 6) Ph.D. in Pure Mathematics
- 7) Ph.D. in Applied Mathematics
- 8) Ph.D. in Statistics

ADMISSION REQUIREMENTS:

Candidates seeking admission into the PGD Statistics programme must be holders of the Bachelor of Science degree in the sciences or related disciplines obtained from the University of Port Harcourt or any other recognized University or its equivalent. Admission to the Master's degree programmes shall be as contained in the general postgraduate School requirement for admission into the degree of M.Sc.

REGISTRATION:

- 1) There are provisions for full-time and part-time registration.
- 2) Students are allowed to register for any of the options provided by the Department.
- 3) Registration is done once every year.
- 4) Part-time students shall register for a maximum of Six (6) taught courses in the first year, i.e. Three (3) per semester.

- 5) Full-time students shall register for a maximum of Six (6) courses per semester.

DURATION:

Fulltime students will be required to spend a minimum of 12 calendar months and a maximum of 24 calendar months for the PGD and M.Sc. Programmes. Part-time students will be required to spend a minimum of 24 calendar months and a maximum of 48 calendar months for the PGD and M.Sc. Programmes. For the Ph. D programmes, full-time students will be required to spend a minimum of 24 calendar months and a maximum of 60 calendar months. Part-time students will be required to spend a minimum of 36 calendar months and a maximum of 84 calendar months.

SCHEME OF STUDIES:

The Examination Requirements include all the following:

- 1) A candidate must pass with a minimum grade of C in all the courses taught.
- 2) No student can proceed to the thesis without having achieved the appropriate Grades in the second semester examination;
- 3) An important and integral part of the M.Sc. and Ph.D programmes will be the research seminar in which attendance is compulsory. Such seminar will be organized at least once in a quarter. The seminar is a place where research projects and their results, including those of the students are presented and critically assessed. An M.Sc student is expected to present at least one departmental seminar, a Ph.D candidate is expected to present at least two departmental seminars. These Seminars are integral part of the student's theses or dissertation. Candidates would not be presented for external examination without presentation of these seminars.
- 4) An M.Sc student upon submission often copies of his/her thesis in paper binding shall be examined by a board of Examiners.
- 5) A Ph.D student upon submission often copies of his/her thesis in paper binding shall be examined by a board of Examiners.

PGD MATHEMATICS

LIST OF COURSES

CORE COURSES

- The generic core courses may be better taken at the M.Sc level.

Programme Core Courses / Elective Courses

There are five Programme Core Courses and an elective courses to be chosen from the list of elective courses for each semester which are as follows:

1ST SEMESTER

Course Code	Course Title	Credit Unit
MTH 711.1	Real Analysis	3
MTH 712.1	Algebra	3
MTH 713.1	Differential Equation I	3
MTH 714.1	Mathematical Methods	3
MTH 715.1	Analytical Dynamics	3
One	Elective course from	
MTH 716.1	Fluid Mechanics	3
STA 741.1	Operations Research	3
CSC 501.1	Structured Programming	3
	Total	18

2ND SEMESTER

Course Code	Course Title	Credit Unit
MTH 721.2	Functional Analysis	3
MTH 722.2	Algebra II	3
MTH 723.2	Differential Equation II	3
MTH 724.2	Complex Analysis	3
MTH 725.2	Topology	3
MTH 700.2	Research Project	3
One	Elective course from	3
MTH 726.2	Computational Mathematics (Modeling)	3
MTH 727.2	Measure and Integration	3
MTH 728.2	Quantum Mechanics	3
MTH 729.2	Introduction to Semi-group Theory	3
CSC 508.2	C/C++ Language Programming	3
	Total	22

PGD STATISTICS

1ST SEMESTER

Course Code	Course Title	Credit Unit
STA 741.1	Operations Research	3
STA 742.1	Regression Analysis and Model Building	3
STA 762.1	Design and Analysis of Experiments	3
STA 763.1	Distribution Theory	3
STA 746.1	Statistical Inference	3
	Total	18

2ND SEMESTER

Course Code	Course Title	Credit Unit
STA 747.2	Time Series Analysis	3
STA768.2	Probability Theory	3
STA 748.2	Analysis of Categorical Data	3
STA 767.2	Econometric Methods	3
STA 764.2	Multivariate Analysis	3
STA 700.2	Research Project	4
	Total	22

M.Sc. MATHEMATICS (PURE MATHEMATICS) FIRST SEMESTER

1ST SEMESTER

Course Code	Course Title	Credit Unit
MTH 801.1	Semigroup Theory I	3
MTH 802.1	Functional Analysis	3
MTH 803.1	Ordinary Differential Equations	3
MTH 805.1	Advanced Algebra	3
MTH 804.1	Algebraic Topology	3
SGS 801.1	ICT and Research Methodology	2
	Total	17

M.Sc. MATHEMATICS (APPLIED MATHEMATICS)

Course Code	Course Title	Credit Unit
MTH 823.1	Fluid Mechanics I	3
MTH 802.1	Functional Analysis 3	3
MTH 803.1	Ordinary Differential Equations	3
MTH 805.1	Advanced Algebra	3
MTH 824.1	Quantum Mechanics	3
SGS 801.1	ICT and Research Methodology	2
	Total	17

M.Sc. MATHEMATICS (PURE MATHEMATICS)

SECOND SEMESTER

Course Code	Course Title	Credit Unit
MTH 812.2	Complex Analysis	3
MTH 816.2	Representation Theory	3
MTH 809.2	Semigroup Theory II	3
MTH 810.2	Lie Group And Lie Algebra	3
MTH 822.2	Seminar	2
MTH 800.2	Research Project	6
SGS 801.2	Management and Entrepreneurship	2

Course Code	Course Title	Credit Unit
	Total	22
MTH 812.2	Complex Analysis	3
MTH 827.2	Fluid Mechanics II	3
MTH 825.2	Partial Differential Equations	3
MTH 822.2	Seminar	2
MTH 800.2	Research Project	6
One	Elective Course From	6
MTH 826.2	Finite Element Methods	2
MTH 829.2	Advanced Operations Research	3
	Total	22

STA 817.2	Probability Theory II	3
STA 818.2	Bayesian Inference	3
STA 819.2	Statistical Computing/ Consulting	3
	Total	19/22

*Two or three or three courses shall be allocated upon availability of man-power.

COURSE DESCRIPTION

MTH 711.1 Real Analysis (3 Credit Units)

Integration: The Riemann-Stieljes Integrals. Improper Riemann- Stieljes integral. Function of bounded variation. Sequences and series functions. Uniform convergence of sequences and series of function. Uniformly convergent series. Power series. Wieiestrass approximation theorem. Infinite products.

Function of several variables: The n-dimensional Euclidean space. Partial and total derivative, directional derivatives. Higher partial derivatives. The mean value theorem. The Taylor series. Maxima and minima of functions of several variables. Necessary conditions for free and constrained cases. Lagrange multipliers. Integration of functions of several variables. Multiple integrals.

MTH 712.1 Algebra I (3 Credit Units)

Groups and subgroups. Cosets in groups Lagrange's theorem and applications, cyclic subgroups and cyclic groups. Normal subgroups Quotient groups. Group Homomorphism. Rings, integral domains, division rings, field rings of polynomials, and matrices, quaternion rings. Quotient rings. Ideals, polynomials, rings and factorization- Euclidean algorithm and gcd for rings. Rings Homomorphism Fundamental theorem of algebra.

MTFI 713i Differential Equations I (3 Credit Units)

Higher order differential Linear equations: with constant coefficients. Finding the general solution. Existence and uniqueness theory. To ronskian. Laplace transform method. Linear with variable coefficients. The Legendre and Euler linear equation. Exact equations, variation of parameters. Homogeneous system of ordinary differential equations with constant coefficients. Phase plane. Critical points. Sturmloiuville problems. Orthogonal functions. Applications series solutions of second order linear equations Bessel,

M.Sc. STATISTICS

FIRST SEMESTER

Course Code	Course Title	Credit Unit
*STA 801.1	Statistical Inference	3
*STA 802.1	Probability Theory	3
*STA 803.1	Sample Survey Techniques	3
SGS 801.1	ICT and Research Methodology	2
	Any three of	
STA 804.1	Stochastic Processes	3
STA 805.1	Linear Statistical Models	3
STA 806.1	Time Series Analysis	3
STA 807.1	Quality Control and Practice	3
STA 808.1	Biostatistics	3
STA 809.1	Non-parametric statistic	3
	Total	17/20

SECOND SEMESTER

Course Code	Course Title	Credit Unit
*STA 811.2	Design and Analysis of Experiments	3
*STA 813.2	Categorical Data Analysis	3
STA 822.2	Seminar	2
STA 800.2	Research Project	6
SGS 801.2	Management and Entrepreneurship	2
	Any two of	
STA 812.2	Multivariate Analysis	3
STA 814.2	Advanced Operations Research	3
STA 815.2	Advanced Statistical Theory	3
STA 816.2	Econometrics	3

Legendre and hypergeometric equations and functions.

MTH 714.1 Mathematical Methods (3 Credit Units)

Calculus of variation. Lagrange's functional. Weak relative extremum. Hamilton's principles. Lagrange's equations and geodesic problems. The Du BoisRaymond equation and corner equation. Variable and points and related theorems. Sufficient condition for a minimum. Isopermetric problems. Variational integral transforms. Laplace Jouner and Hankel transforms. Application to solution of differential equations.

MTH 715. 1 Analytical Dynamics (3 Credit Units)

Degrees of freedom. Holonomic constraints. Generalized coordinates. Lagrange's generalized coordinates. Lagrange's equations for holonomic system impulsive force.

MTH 716.1 Fluid Mechanics (3 Credit Units)

Cartesian tensors. Eulerian and Lagrangian coordinates. Continuity equation. The substantive derivative. The Navier-Stokes equation. Dynamical similarity. Reynolds number and other non-dimensional parameter. Low and high Reynolds number. Some solution of the viscous flow equations.

Inviscid flow: The Euler equation velocity potential and stream functions. Circulation and vorticity. Conformal transformation. Boundary layer flow: The incompressible boundary layer flow similar exact solutions. Approximate solutions.

STA 741.1 Operations Research (3 Credit Units)

Definition and scope of operations research; elementary inventory models; replacement; maintenance and reliability problems; linear programming formulation, simplex, simplex method; allocation problems (simplex, assignment and transportation algorithms) and their application to routing problems. Queuing theory; game theory; sequencing problems.

CSC 501.1 Structured Programming (3 Credit Units)

Principles of programming style; structured programming concepts, modularity; stepwise refinement; language for structured programming; test construction; program verification.

MTH 721.2 Functional Analysis (3 Credit Units)

Metric spaces. Contraction mapping principle. ArzelaAscoli lemma. Stone-weierstrass theorem. Normed linear spaces:-Banach spaces. Hahn-Banach theorem. Uniform boundedness principle. Duality theory in Banach space. Dual of LP spaces. Riesz representation theorem. Compact operators. Hubert Spaces: projection theorem. Riesz representation theorem.

MTH 722.2 Algebra II (3 Credit Units)

Abelian group. Structure of finitely generated abelian groups. Permutation of group actions. Burnside lemma; sylow theorems. Derived groups. Series of sub-groups. Nilpotent and soluble groups. Free groups. Groups of order 8 to 15. Fields, Homomorphism of fields. Finite fields prime fields. Irreducibility. flistein criterion. Introduction to Galois Theory.

MTH 723.2 Differential Equations II (3 Credit Units)

Introduction to Partial Differential equations. Linear partial differential equations of the first and second order. Non-linear pde's of the first order and second order characteristics. Existence and uniqueness of solution. Second order linear and quasi-linear pde's in two independent variables. Elliptic, hyperbolic and parabolic equations. Applications to equation of mathematical physics.

MTH 724.2 Complex Analysis (3 Credit Units)

Analytic function. The canchy-Riemann Equations. Bilinear transformations, conformal mapping. Complex integrals. Cauchys theorem. Cauchy's integral formula. Taylor and Laurent series isolated singularities and residues. Calculus of residue, and application to evaluation of integrals and to summation of series. Maximum modulus principle. Argument principle. Rouche's theorem. The fundamental theorem of algebra. Principle of analytic continuation.

MTH 726.2 Computational Maths (modeling) (3 Credit Units)

Modeling with differential and integral equations. The logistic curve. Problems of growth and decay. Solution of problem of growth of two conflicting population. Physical models starring rocket and flow problem. Differentive models chemical models. Mathematical modeling of intramuscular MTH 728 .2 injection. The problem of pendulum and introduction to elliptic integrals. Solution of integral equations. Stochastic modules and applications to games theory.

MTR7 28.2 Quantum Mechanics (3credit Units)

Dirac formulation of quantum mechanics: Linear spaces and operators, kets and bras. Hermitian operators: Observables, eigen-function, eigen values, expectation values, probability amplitudes. Quantization condition, Poisson brackets and commutators, Schrodinger representation in Cartesian coordinates. Unitary operators, spatial translations and their infinitesimal generators, conservation of momentum. Schrodinger and Heisenberg pictures. Heisenberg equation of motion: Angular momentum. Operation as infinitesimal rotation generation.

MTH 727.2 Measure And Integration (3 Credit Units)

Countability of sets and cardinal numbers. Outer measure, measurable set and Lebesgue measure. Measurable function, the Lebesgue integral, convergence of sequence of measurable function. General Lebesgue integral. LP spaces. Riesz-Fischer theorem.

MTH 729.2 Introduction to Semigroup Theory (3 Credit Units)

Basic notion of semigroup. Monogenic semigroups. Ordered sets. Semi-lattices and lattices. Congruences. Three semigroups. Green's relations. The structure of D-classes. Regular D-classes. Regular semigroup. 0-simple and simple semigroups. Rees's theorem. Primitive idempotents. Semilattice of groups. Inverse semigroups.

MTH 725.2 Topology (3 Credit Units)

Review of metric spaces. Dense subsets of metric space. Compactness connectedness of metric space. Topological spaces, definition open and closed sets, neighbourhoods, coarser, and finer topologies. Basis and sub-bases. Separation axioms. Compactness, local compactness, connectedness. Construction of new topological spaces from given ones; subspaces, quotient spaces. Continuous functions, homeomorphism, topological invariance, spaces of continuous functions: point-wise and uniform convergence. Pre-requisite.

CSC 508.2: C/e++ Language Programming (3 Credit Units)

Modular programming; Object-oriented programming; C union structures; classes; object; messages; methods; Encapsulation; operator overloading; applying object-oriented programming techniques.

PGD STATISTICS

Programme Core Courses/Electives

There are Programme Core Courses and elective courses for each semester which are as follows:

COURSE DESCRIPTION

STA 741.1 Operations Research (3 Credit Units)

Definition and scope of operations research; elementary inventory models; replacement; maintenance and reliability problems; linear programming formulation, simplex, simplex method; allocation problems (simplex, assignment and transportation algorithms) and their application to routing problems. Queuing theory; game theory; sequencing problems.

STA 742.1 Regression Analysis And Model Building (3 Credit Units)

Simple/Multiple linear regression models, polynomial regression: Test of independence and goodness-of fit; use of dummy variables; non-linearity in parameters requiring simple transformation; simple correlation, partial and conditional regression and correlation; Test of independence of regression coefficient; Multicollinearity and other problems associated with "Best regression models".

STA 762.1 Design and Analysis Of Experiments (3 Credit Units)

Basic design; completely random; randomized block and Latin square designs; use of models for estimating effects; missing data and confidence limits; Graeco Latin square and split plot designs; analysis of variance and hypotheses tests; factorial experiments; the 22 and 23 experiments; standard error for factorial effects; confounding factorials in block; fractional factorials; factors at 2 levels and 3 levels; incomplete block designs; same examples of balanced incomplete blocks (BIB); design estimation of model parameters; analysis of variance for BIB experiments (with symmetrical BIB arrangements).

STA 763.1 Distribution Theory (3 Credit Units)

Bivariate normal distribution; the gamma distribution; chi-squared distribution; Beta distribution; (two types), distribution; distributions of functions of random variables: cumulative distribution function; moment generating function; transformation (change of variable) techniques; distribution order statistics.

STA 746.1 Statistical Inference (3 Credit Units)

Estimation: Normal, least squares and maximum-likelihood methods; interval estimates; Test of hypothesis-one and two tail tests; likelihood ratio test; Nyman-Pearson theorem; Bayesian estimates; goodness-of-fit test; fitting a straight line; linear models; parameter estimates; test of significance and confidence intervals; residual plot and test of fit.

STA 764.2: Multivariate Analysis (3 Credit Units)

The multivariate normal distribution; estimation of mean vector and covariance matrix; the distribution and uses of sample correlation coefficient; the generalized T²-statistics; classification of observations; procedures of classification into one of two or three specified multivariate normal populations; discriminant function when populations are unknown; principal components and factor analysis.

STA 747.2: Time Series Analysis (3 Credit Units)

Components of time series, measurement of trend, the seasonal index, the cyclical component and random fluctuations, serial correlation, correlogram, stationary time series, estimation of mean and their covariance function; linear prediction in time series; autoregressive.

STA 748.2: Analysis of Categorical Data (3 Credit Units)

Analysis of simple, double and multiple classification of balanced data in crossed and nested arrangement; Analysis of two-way, three-way contingency tables for tests of homogeneity; independence and interactions: Analysis involving incomplete tables; missing values, etc: Analysis of variance involving unbalance data; Multivariate analysis of variance; Analysis of multi- factor, multi-response of variance such as missing observations; Non-normality; heterogeneity of variance, etc.

STA 767.2: Econometrics Methods (3 Credit Units)

Nature and quality of econometrics data and use of econometrics models; problems of regression analysis; multicollinearity; heteroscedasticity; autocorrelation; errors in variables and their effects time as a variable; dummy variable; grouped data; lagged variables and distributed lag models; application to cross-section and time series data; demand studies; measurement of production;

consumption and investment functions; simultaneous equations and identification; bias in reduced form; estimation; indirect least squares and twostage least squares; ideas of model specification and specification error; maximum likelihood error applied to econometrics.

STA 768.2: Probability Theory (3 Credit Units)

Probability spaces; measures and distribution; distribution of random variables as measurable functions; product spaces: product of measurable spaces; product probabilities; independence and expectation of random variables: weak, convergence, convergence almost everywhere, convergence in nth mean; central limit theory; laws of large number; characteristic function and Laplace transforms.

M.Sc MATHEMATICS

PROGRAMME CORE COURSES

There are list of Programme Core Courses and elective courses for each semester. These shall be allocated upon availability of manpower. The selection of programme core courses and elective shall be in line with the Benchmark minimum academic standards of the NU

COURSE DESCRIPTION

MTH 801.1 Semigroup Theory 1 (3 Credit Units)

Semigroups: Types of semigroup including regular, inverse etc (emphasizing in each the concept of cancellative, commutative, semilattice, idempotents etc). Ideals, Green's Relation and their generalization. Rees Semigroups. Simple and Completely Simple Semigroups, Semilattices. The structure theorems of regular semigroups. Unions of groups, Inverse semigroups. Moon's Semigroup. Bisimple and Simple inverse semigroups. Fundamental inverse semigroup.

MTH 802.1 Functional Analysis (3 Credit Units)

Revision of Banach and Hilbert spaces with emphasis on properties of the norm, properties of L_p-spaces and C-spaces, dual spaces, basic theorems in functional analysis

Linear bounded operators: Norm of operators, continuity of linear operators, Fredholm's operators, adjoint operators, operator algebra, Gelfand theorem, compact operators and application to classical analysis. Measurable set and measurable functions, Lebesgue integration,

convergence theorem, decomposition and differentiation of measures.

MTH 803.1 Ordinary Differential Equations (3 Credit Units)

Existence and uniqueness of solutions of initial value problems: The Cauchy-Peano existence theorem, the Picard-Lindelof theorem, Continuation theorems, Continuous dependence of solutions on initial conditions and parameters, Boundary value problem and Sturm-Liouville theory, Comparison theorem for second order equations.

Reduction of system of first order scalar equation to a first order equation in \mathbb{R}^n , Linear equations in \mathbb{R}^n , Homogeneous and non-homogeneous equations, the Fundamental matrix, the method of variation of parameters.

Asymptotic behavior of non-linear equations: Stability, uniform stability, asymptotic stability and uniform asymptotic stability. Autonomous system: Stability of linear and perturbed linear systems, Phase space, Orbits and limit sets, two dimensional autonomous systems: Linear systems: Modes, spiral points, centres and saddle points. Perturbation theorem and Poincare-Bendixon theorem.

MTH 805.1 Advanced Algebra (3 Credit Units)

Commutative rings; Prime Ideals, Maximal Ideals, Radical Noetherian and Artinian rings, Dimension theory, Modules over commutative rings, The module of homomorphisms from the module to another. Exact sequences projective and injective modules, Tensor products, flat modules. Sylow theorems, direct products, fundamental theorem of finite abelian groups, field of quotients, Euclidean rings, Polynomial rings over commutative rings, inner product spaces, field's extension, field's elements of Galois theory, solvability radicals.

MTH 804.1 Algebraic Topology (3 Credit Units)

Homotopy, Homotopy equivalence, the fundamental group, Simplexes, simplicial complexes, simplicial maps, Simplicial approximation theorem. The edge path group, its homomorphism with the fundamental group, calculations of π_1 especially for closed surfaces. Brouwer fixed point theorem in the plane. Simplicial homology theory (integer co-efficient), oriented simplexes, chain, boundary and cycle groups, The induced homomorphism. Calculation of $H_n(S^m)$ generalized Brouwer fixed point theorem, Mayer-Vietoris sequence, calculation of

homology group. Review of categories and functions, covering transformation, Singular homology, Universal coefficient theorem for homology and cohomology. Spectral sequence.

MTH 823.1 Fluid Mechanics I (3 Credit Units)

Fundamental Equations of fluid Mechanics and Exact Equation, Viscosity, real and ideal fluid, Reynolds number and other non-dimensional parameters, General features of laminar, turbulent and transitional flows, The differential equation of motion: the Navier-Stokes equation, Limiting cases for small and large Reynolds number, Thermodynamic relations and the differential form of energy equations, Some exact solutions of Navier-Stokes equation (i) flow through a straight channel bounded by two, parallel plates, (ii) Hagen-Poiseuille flow (iii) Couette flow, (iv) flow between two concentric rotating Cylinders (v) Stokes' first and second problems, (vi) flow due to a rotating disc. Boundary Layer Theory: Boundary-layer concept, Prandtl's boundary-layer flow along a flat plate. Boundary-layer thickness, displacement thickness, and momentum thickness, Dependence of boundary layer on Reynolds number, Thermodynamics Compressible flow; waves, shocks, supersonic flow, stability; Turbulence.

MTH 824.1 Quantum Mechanics 1(3 Credit Units)

Fundamental principles of Quantum mechanics; review of classical mechanics, axiomatic basis, Interpretative postulates, Simultaneous measurability of observable, uncertainty principles, different representative postulates simultaneous measurability of observable, uncertainty principles, different representations of state vectors, and observable. Introduction to group theoretical ideas, groups of transformation, rotation operations, invariant representation of groups.

Background of the axiomatic approach to Quantum mechanics, axioms of continuum and Basic Concepts. Constitutive Relations. Equations of Motion and other Equations. Equations of Motions and other Equations of Balance. The place of the Classical Theories.

MTH 812.2: Complex Analysis (3 Credit Units)

Elementary properties of holomorphic functions, Algebraic functions, Harmonic functions, the mean value property, Poisson's formula, the reflection principle, Conformal mapping, Dirichlet's problem, Harnack's principle, Periodic functions, Weierstrass functions, elliptic curves.

Modular forms, Riemann surfaces. Covering surfaces, covering transformations. Discontinuous groups of linear transforms, automorphic forms, Elliptic functions, Several complex variables; Weierstrass theorems. Riemann extension theorem, Analytic varieties complex manifolds.

MTH 809.2 Semigroup Theory Ii (3 Credit Units)

Representations of Inverse Semigroups, Type A Adequate and Abundant Semigroups, Congruencies, Idempotent separating congruence, cancellative congruencies, Other types of semigroups unipotent, separative idempotent, adequate and Type A semigroups and their relationship to inverse semigroups.

MTH 816.2 Representation Theory (3 Credit Units)

Representations of groups by linear transformations, group algebras, character theory and modular representations, Representation theory of algebraic groups, representation of finite groups, representation of compact and locally compact groups, representation of Lie groups, Unitary representation theory.

MTH 810.2: Lie Group and Lie Algebra (3 Credit Units)

Lie groups, Local lie groups and examples, subgroups, Local transformation groups with examples, Matrix group, one-parameter groups, exponential map, Campbell-hausdorff formula, Generalized lie derivatives, Representation and realizations of lie algebras, Lie algebras, Lie algebra of a matrix group, integration on matrix groups, Abstract Lie groups.

MTH 827.2: Fluid Mechanics Ii (3 Credit Units)

Flow in pipes, Channels and Ducts: Steady and unsteady fully developed flow. Pulsate flow. Flow in an elastic tube. Flow in curved pipe. Flow in slowly varying channel. Applications. Flow through porous media: Scope. Permeability, Darcys law, Beavers and Joseph boundary conditions at a naturally permeable wall, Some boundary and initial value problems. Flow of immiscible and miscible fluids. Applications, Diffusion process and basic hypothesis of mathematical theory, Diffusion equations, Methods of solution when the diffusion coefficient is constant and variable. General equations of diffusion and reaction. Diffusion in single and multi-component systems. Diffusion in porous media. Applications. Non Newtonian Fluids: Description of various type of non-Newtonian

fluids including polar and Casson fluids. Steady and unsteady flow in pipes and channel and some miscellaneous flow problems. Applications.

MTH 825.2: Partial Differential Equation (3 Credit Units)

First order quasi-linear PDE. Classification of 2nd order PDE. Sobolev spaces. Green Formulae, Principles of Elliptic equations, Existence Theorems for Elliptic and parabolic equations, Fredaolius theorem, Frontier expansion of solutions of homogeneous boundary value problems. Trace theorems, Elements of potential theory. Basic examples of linear partial differential equations and their fundamental equations and fundamental solutions, Existence and regularity of solutions (Local or Global) of the Cauchy problems, boundary value problems and mixed boundary value problems. The fundamental solution of their partial differential equations.

MTH 826.2: Finite Element Method (3 Credit Units)

Introduction to the Finite Element Method: Formulation of the Finite Element Method using the Principle and Virtual Displacement. General Isoparametric Formulation, and Variational Techniques, Generalization of the theory, Application of the Finite Element Method to the Solution of Engineering Problems. E.g. in Solid Mechanics. Heat Transfer, Fluid Dynamics and Mass Transfer, Development of appropriate Computer Programme, Case Studies. Solution of self-adjoint elliptic boundary value problems by finite element method. Numerical solution of integral equation. Reformulation of Elliptic boundary value problems in terms of boundary integral Equations Applications.

MTH 829.2 Operations Research (3 Credit Units)

Network definition, minimal spanning tree algorithm, shortest route problems, examples of the shortest route application and shortest route algorithm, maximal flow model, enumeration of cuts, maximal flow algorithm, minimum cost capacitated flow problem, network representation and linear programming formulation, critical path computation and construction of time schedule, branch and bound algorithm, zero-in implicit enumeration algorithm and cutting plane algorithm, recursive nature of computations in DP, forward and backward recursive cargo loading model, work force size model, equipment replacement model, inventory model, static EOQ models, classic EOQ model, EOQ with price

breaks and multi-item EOQ with storage limitations, Monte Carlo simulation, types of simulation, elements of discrete event simulation, generation of random numbers, mechanics of discrete simulation and methods for gathering statistical observations, unconstrained problems, necessary and sufficient conditions, and Newton Raphson method, constrained problems, equality constraint and inequality constraint.

COURSE DESCRIPTION

STA 801.1 Statistical Inference (3 Credit Units)

Sample theory; Bayesian and decision theoretic approach to estimation and test of hypothesis; minimum variance; unbiased and maximum likelihood and their optimal properties Efficiency of estimation under quadratic loss; Admissibility of estimators: U.M.P.; locally powerful tests; invariance; large sample criteria for comparison of tests; sequential tests of hypotheses. Conditioning, distribution theory, approximation to distributions, modes of convergence, limit theorems, statistical models, parameter estimation, properties of estimators.

STA 802.1 Probability Theory (3 Credit Units)

Probability measures and space. Probability distribution and stochastic process in R^1 and R^n ; Limit theorems; Characteristics functions and infinitely divisible and stable distribution; Renewal theory and random walks; Hartingel's theory. Introduction to measure theoretic probability; derivation and transformation of probability distributions; generating functions and characteristic functions; conditional expectation, sufficiency and unbiased estimation; methods of large sample theory including laws of large numbers and central limit theorems; order statistics.

STA 803.1 Sample Survey Techniques (3 Credit Units)

Construction and choice of strata, and various equal and unequal probability sampling schemes with properties. Estimation of means, proportion and their variances. Successive sampling scheme. Problems of non-sampling error and non-response: application to some selected specialized survey.

STA 804.1 Stochastic Processes (3 Credit Units)

Simple, compound and generalized poisson processes; Markov chains; renewal processes, queuing theory and associated waiting time

problems; inventory theory, applications; Ho-Doob calculus; Stochastic integrals.

Classification of stochastic processes. Random walk models, markov chains, inventory model, branching processes. Poisson, birth-and death processes. Waiting time models, Estimation problems.

STA 805.1 Linear Statistical Models (3 Credit Units)

Matrices and quadratic forms; multivariate normal distribution; Linear model-Classification and analysis; general linear hypothesis of full ranks; computing methods; Polynomial and curvilinear models; Regression models; Experimental design models; incomplete block models; Mixed models-two way classification models with interaction and with fixed and random effects; balanced incomplete block design models; linear arrays.

STA 806.1 Time Series Analysis (3 Credit Units)

Discrete time series; The classical model AP MA, APMA, and ARAMA. ARIMA stationary processes; Harmonic analysis and estimation linear stochastic models; Time series specified for continuous time; periodogram analysis.

Theory of stochastic models and their forecasting. Model building: identification, estimation. Diagnostic checking. Analysis of stationary Data Co-integration and error correction techniques.

STA 807.1 Quality Control and Practice (3 Credit Units)

Analysis and control of variations in a production process OC of a control chart. Control charts for attributes and variables. Cumulative sum control charts. Other control charts. Methods of controlling several related characteristics; process capability analysis. Design of control charts. Specification and Tolerance.

STA 808.1 Biostatistics (3 Credit Units)

Advance Regression, Bio-assays, Probit and Logit models, Growth Curves; Logistics Regression. Potency/efficacy determination. Theory of clinical trials, Ethical Issues in Medical Data Collection.

STA 809.1 Non-parametric & Sequential Methods (3 Credit Units)

Distribution-free methods. Distribution of order statistics and quintiles. One and two simple tests. Confidence intervals. Transformation of statistics and their asymptotic properties. OC and ASN functions of SPRT. SPRT for composite hypotheses elements of sequential estimation

stein's two stage sampling methods for point and interval estimate.

STA 811.2 Design And Analysis of Experiment (3 Credit Units)

General Linear Models, Generalized inverse of a Matrix, Factorial experiments; Symmetric and Asymmetric. Balanced and Partially Balanced Incomplete Block Designs, lattice experiments; Resolvable designs, Row- Column designs. Response Surface Methodology, Construction of Designs. Applications of statistical methods to efficient design of scientific experiments. Determination of optimum conditions. Transformable data and analysis of experiments involving singular matrices and incomplete data.

STA 813.2 Categorical Data Analysis (3 Credit Units)

Probability mass function for 2x2 tables measures of association for 2x2 tables and general cxc tables. Probability mass functions for rxc tables. Goodness of fit tests. Square tables and their applications structural models for two and higher dimension: Log-linear models and estimate of parameters. Logistic regression and bio-assays.

STA 812.2 Multivariate Analysis (3 Credit Units)

Multivariate normal distribution, estimation of mean and covariance matrix; Wishart distribution; distribution of partial and multiple correlation coefficients; Hotelling's T², Principal components. Multivariate normal distribution and associated multiple and partial correlation. Regression theory, Estimation of parameters; Hotellings T² and Mahalanobi's d; Wishart distribution; Test concerning variables and associated confidence bounds; some other multivariate distributions.

STA 814.2 Advanced Operations Research (3 Credit Units)

Network definition, minimal spanning tree algorithm, shortest route problems, examples of the shortest route application and shortest route algorithm, maximal flow model, enumeration of cuts, maximal flow algorithm, minimum cost capacitated flow problem, network representation and linear programming formulation, critical path computation and construction of time schedule, branch and bound algorithm, zero-in implicit enumeration algorithm and cutting plane algorithm, recursive nature of computations in DP, forward and backward recursive cargo loading model, work force size model, equipment

replacement model, inventory model, static EOQ models, classic EOQ model, EOQ with price breaks and multi-item EOQ with storage limitations, Monte Carlo simulation, types of simulation, elements of discrete event simulation, generation of random numbers, mechanics of discrete simulation and methods for gathering statistical observations, unconstrained problems, necessary and sufficient conditions, and Newton Raphson method, constrained problems, equality constraint and inequality constraint.

STA 819.2 Statistical Computing/consulting (3 Credit Units)

The design and use of existing statistical software: methods of simulation of random processes; numerical methods of fitting linear models, multivariate analysis; methods for nonlinear modeling. Introduction of key aspects of statistical consulting and data analysis activities, report writing and presentation.

STA 815.2 Advanced Statistical Theory (3 Credit Units)

Limiting theorems. Convergence of sequence of variables and some probability functions limiting distribution. Generating functions and inversion theorems. Special parametric univariate and muhivariate distributions and large sample theory. Further theory of statistical inference.

STA 816.2 Econometrics (3 Credit Units)

OLS, Gauss-Markov Theorem. MLE. Specification and misspecification test. Predictive and non-predictive tests, Test of hypothesis of r linear model. The likelihood ratio, wald and language multiplier Test; Multicollinearity. Specification bias. GLS. Dummy variables and seasonal variations. Inferences based on asymptotic Distribution Theory.

STA 818.2 Bayesian Inference (3 Credit Units)

Sampling theory and its critique, subjective probability, likelihood principles, Bayes theorem, Bayesian analysis of Normal theory inference problems, the BehrensFisher problem, assessment of model assumptions, robustness of inference, analysis of variance, estimation of variance components, empirical Bayes, some aspects of multivariate problems, sequential nature of Bayesian inference, prior and posterior distribution of parameters in binomial, poisson, exponential and normal populations, comparison of two normal distributions, predictive distributions, decision theory, utility, risk aversion, extensive form of analysis, two-action problems, point

estimation, best population problems, economics of sampling.

PH.D COURSE WORK IN PURE AND APPLIED MATHEMATICS

Objectives

The Ph.D degree programme in Mathematics is designed to provide specialized academic knowledge that will produce self-oriented research. At the end of the training, successful students would be able to provide the much needed manpower in our institution of higher learning, public service and the private sector of our economy.

Regulations

The Ph.D programme shall consist of approved courses of study and research.

Admission Requirements

Candidates for admission to the programme shall be candidates who have:

- i. Obtained and M.Sc degree in Mathematics of the University of Port Harcourt or any approved University and have a CGPA of not less than 3.50 on a 5 point scale or 2.8 on a four point scale.
- ii. Scored a minimum of 70% in a Ph.D admission interview organized by the Departmental Graduate Studies Committee.

Requirements governing Course and Examination:

1. The Ph.D degree programme in Mathematics follows the general regulations of the School of Graduate Studies, University of Port Harcourt.
2. The programme consists of course work, seminars and a dissertation.
3. The courses shall be evaluated in terms of course units, with a minimum of three (3) and a maximum of six (6).
- 4a. All candidates shall be required to register for not less than twenty-one (21) credit unit courses in the programme.
- b. A maximum of thirty (30) credit units may be earned from relevant courses at the M.Sc programme. However, students with deficiency will be required to register and pass the required courses at M.Sc level.

(c) Compulsory Courses:

All candidates are expected to take and pass each of the following courses in the first year of the programme with a minimum of C (50%) grade of the University of Port Harcourt.

Course Code	Course Title	Credit Unit
MTH 901.1	Analytical and Computation Mathematics	3
MTH 902.1	Research Seminar I	3
MTH 903.2	Research Seminar II	3
MTH 910	Dissertation	12
	Total	21

5. Course Outlines/Description

STA 901.1 Analytical and Computational Statistics

Recent trend in analytical and computation Statistics shall be explored. E.g analytical and computational evaluations using statistics softwares such as SIMULA, SAS etc.

STA 902.1 Research Seminar I

Seminars on research trends shall be explored. The exploration shall be summarized by each student in a seminar paper presented and scored by the Departmental Graduate Studies Committee.

STA 903.2: Research Seminar II

Advanced research seminars on statistical theory and applications in specialized areas of interest to the students and supervisors, enough to expose the students to well defined research interest. It shall be summarized in a seminar paper presented by the student and scored by the Departmental Graduate Studies Committee.

6. Duration of Programme:

- a. Full Time:
The Ph.D programme candidate will be required to spend a minimum of 24 calendar months (2 years) and a maximum of 60 calendar months (5 years).
- b. Part Time
Candidates requiring a part time programme will be required to spend a minimum of 36 calendar months (3 years) and a maximum of 84 calendar months (7 years).

Ph.D COURSE WORK IN STATISTICS

Objectives

The Ph.D degree programme in Statistics is designed to provide specialized academic knowledge that will produce self-oriented research. At the end of the training, successful students would be able to provide the much needed

manpower in our institutions of higher learning, public service and the private sector of our economy.

Regulations

The Ph.D programme shall consist of approved courses of study and research.

Admission Requirements

Candidates for admission to the programme shall be candidates who have

- i. Obtained an M.Sc degree in Statistics of the University of Port Harcourt or any approved University and have a CGPA of not less than 3.50 on a five point scale or 2.8 on a four point scale.
- ii. Scored a minimum of 70% in a Ph.D admission interview organized by the Departmental Graduate Studies Committee.

Requirements governing Course and Examination

- 1. The Ph.D degree programme in Mathematics follows the general regulations of the School of Graduate Studies, University of Port Harcourt.
- 2. The programme consists of course work, seminars and a dissertation.

- 3. The courses shall be evaluated in terms of course units, with a minimum of three (3) and a maximum of six (6).
- 4a. All candidates shall be required to register for not less than twentyone (21) credit unit courses in the programme.
- b. A maximum of thirty (30) credit units may be earned from relevant courses at the M.Sc programme. However, students with deficiency will be required to register and pass the required courses at M.Sc level.

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All candidates are expected to take and pass each of the following courses in the first year of the programme with a minimum of C (50%) grade of the University of Port Harcourt.

Course Code	Course Title	Credit Unit
STA 901.1	Analytical and Computation Mathematics	3
STA 902.1	Research Seminar I	3
STA 903.2	Research Seminar II	3
STA 910	Dissertation	12
	Total	21

ACADEMIC STAFF

S/N	Name	Qualification	Area of Specialization	Designation
1	Bazuaye, F. E.	B.Sc., M.Sc., UNIBEN, Ph.D EBSU	Applied Maths/ Numerical Analysis	Reader / HOD
2	Nduka, E.C.	B.Sc., M.Sc., UNN, Ph.D. Ibadan	Applied Statistics/ Biometrics	Professor
3	Iwundu, M .P.	B.Sc., UYO, M.Sc., Ph.D. UNN	Experimental Design	Professor
			Applied Maths/	

4	Jackreece, P.C.	B.Sc. UST, M.Sc., FUTO, MBA IMSU., Ph.D. UST	Functional Differential Equation	Professor
5	Iwok, I. A.	B.Sc. UNICAL, M.Sc. IBADAN, Ph.D. UST	Time Series Analysis	Professor
6	Ijomah, M.A.	B.Sc. IMSU, M.Sc., Ph.D. UPH, Ph.D. NAU	Applied Statistics/ Econometrics	Professor
7	Ezeora, J. N.	B.Sc. EBSU; DICTP, M.Sc. EBSU; PhD AUST	Functional Analysis	Professor
8	Akpan, N. P.	B.Sc. UYO; M.Sc. UNN; Ph.D. RSUS	Operations Research	Reader
9	Nzerem, F.E.	B.Sc. UNN, M.Sc., FUTO, Ph.D. UNN	Applied Mathematics/ Fluid Mech.	Senior Lecturer
10	Orumie, U.C.	B.Sc. UNN; M.Sc. UNN; Ph.D. UPH.	Operations Research	Senior Lecturer
11	Nwakuya, M.T.	B.Sc. IMSU; M.Sc. IMSU; Ph.D. MOUA.	Econometrics	Senior Lecturer
12	Udo-Akpan, I.U.	B.Sc. SOKOTO; M.Sc. Ibadan; Ph.D, UPH.	Applied Mathematics	Senior Lecturer
13	Musa, A.	B.Sc. ABRAKA; M.Sc. UPH; Ph.D, UPH.	Applied Mathematics/ Fluid Mech.	Senior Lecturer
14	Ogoke, U. P.	B.Ed. – UNN, M.Sc. UPH; Ph.D-UPH.	Biostatistics	Senior Lecturer
15	Udoaka, O. G.	B.Sc., UYO, M.Sc. UPH; Ph.D. UPH.	Algebra	Senior Lecturer (Part-Time)
16	Biu, O. E.	B.Sc., M.Sc., Ph.D. UPH	Time Series Analysis	Senior Lecturer
17	Alimi, A.	B.Sc., ABRAKA, M.Sc., IBADAN	Mathematics	Lecturer I
18	Ugorji, H.C.	B. Sc., UPH, M.Sc. FUTO	Mathematics	Lecturer I
19	Nwachukwu, E.C.	B.Sc. NAU, PGD CAPE TOWN, M.Sc. UPH, Ph.D. UPH.	Applied Mathematics/ Mathematical Modeling	Lecturer I

DEPARTMENT OF MICROBIOLOGY

1.0 ADMISSION REQUIREMENTS

1.1 Post-graduate Diploma in Microbiology (PGDM)

This is designed for different categories of candidates.

(a) Non-Microbiology graduates. B.Sc. in related disciplines (PSB, AEB,

Biochemistry, Anatomy, Physiology, Nursing, etc.).

(b) B.Sc. in Microbiology graduates with third class.

(c) HND graduates (in Science Laboratory Technology- Bacteriology/Microbiology/ Virology and any other approved by the Department) of Nigerian Polytechnics or

other approved comparable institution with distinction or upper credit.

1.2 M.Sc. Degree in Microbiology

(i) M.Sc. in Food Microbiology

- a) B.Sc. in Microbiology or closely related disciplines not below Second class lower division (minimum CGPA of 2.40 on a 5-point scale).
- b) B.Sc. in related discipline, not below second class lower division (CGPA of 2.40) or HND (Upper credit) PLUS a minimum of credit pass (B grade/4.00 CGPA in PGDM from University of Port Harcourt or any other approved University and in addition.
- c) A minimum grade of C in at least three of these courses: Food Microbiology; Biotechnology/Food processing/Preservation; General Microbiology and Analytical Microbiology & Quality control.

(ii) M.Sc. in Industrial Microbiology

Same as for Food Microbiology (2 above) except that the course “Industrial Microbiology” is substituted for Food Microbiology as one of the four courses indicated in 2 (c) above.

(iii) M.Sc. in Environmental Microbiology and Bioremediation

Same as for Food Microbiology 2(a) and (b) above but (c) is as follows: a minimum grade of C in at least three of these courses: Environmental Microbiology; Soil Microbiology; Microbial Physiology and Microbial Ecology.

(iv) M.Sc. in Pathogenic Microbiology and Biotechnology

Same as for Food Microbiology (2(a) and (b) above but (c) is as follows: a minimum grade of C in at least three of these courses: General Microbiology; Pathogenic Microbiology; Pharmaceutical Microbiology.

1.3 Ph.D in Microbiology (with different specializations)

- a) M.Sc. in Microbiology or related discipline with a minimum CGPA of 3.50 on a 5-point scale).
- b) A minimum grade of C is required in certain courses depending on the choice of specialization (see 2 above).

- c) In addition to the above criteria, interview performance by the candidate is a major aspect of the admission process into the Ph.D. programme. Candidates are required to bring to the interview a proposal of their intended work.

1.4 PART-TIME CANDIDATES

Part-time candidates must:

- (i) Be engaged in approved employment
- (ii) Submit evidence that they can devote a substantial proportion of their normal time to their studies; and
- (iii) Satisfy the Departmental Graduate Studies Committee that they will be available for attendance at courses and for regular consultation with their Supervisors.

2.0 DURATION AND RESIDENTIAL REQUIREMENTS

(i) PDG IN MICROBIOLOGY

A minimum of 12 calendar months and a maximum of 24 calendar months are required for full-time studies.

(ii) M.Sc. IN FOOD MICROBIOLOGY, INDUSTRIAL MICROBIOLOGY, ENVIRONMENTAL MICROBIOLOGY & BIOREMEDIATION, AND PATHOGENIC MICROBIOLOGY & BIOTECHNOLOGY

Full-time students are required to spend a minimum of 12 calendar months and a maximum of 24 calendar months. Part-time students are required to spend a minimum of 24 calendar months and a maximum of 48 calendar months.

(iii) Ph.D. IN MICROBIOLOGY

Full-time candidates are required to spend a minimum of 24 calendar months and a maximum of 60 calendar months. In contrast, part-time candidates are required to spend a minimum of 36 calendar months and a maximum of 84 calendar months.

3.0 POST-GRADUATE PROGRAMMES AND THEIR COURSES

3.1 POST-GRADUATE DIPLOMA IN MICROBIOLOGY (PGDM)

The programme is designed to assist HND holders, non-Microbiology graduates and other graduates

including those with 3rd class degree in Microbiology who would normally not qualify to undertake further studies in Microbiology. It is therefore a window of opportunity for those who successfully completed the PGD programme with outstanding overall results (CGPA 3.50/5.00) to pursue higher degree programmes in the department and elsewhere. Three options are offered in the programme viz: Medical Microbiology, Food and Industrial Microbiology, and Medical Microbiology.

COURSES

PGDM 700.1	Biology of Fungi
PGDM 701.2	Industrial Application of Microbiology
PGDM 702.1	Medical Microbiology
PGDM 703.1	General Microbiology
PGDM 704.1	Immunology and Disease
PGDM 705.1	Genetics of Microorganisms
PGDM 706.1	Microbiology of Foods
PGDM 707.1	Microbiological Techniques
PGDM 708.1	Biochemistry and Physiology of Microorganisms
PGDM 709.1	Ecology of Microorganisms
PGDM 710.1	Microbiology of the Environment
MCB 706.2	Graduate Seminar in Microbiology & Biotechnology
MCB 707.0	Research Project

OPTIONS

Environmental Microbiology	Food & Industrial Microbiology	Medical Microbiology
PGDM 700.1	PGDM 700.1	PGDM 700.1
PGDM 703.1	PGDM 703.1	PGDM 703.1
PGDM 705.1	PGDM 705.1	PGDM 705.1
	PGDM 701.1	PGDM 702.1
	PGDM 706.1	PGDM 704.1
PGDM 707.2	PGDM 707.2	PGDM 707.2
PGDM 708.1	PGDM 708.1	MCB 708.1
PGDM 709.2		
PGDM 710.1		
MCB 706.2	MCB 706.2	MCB 706.2
MCB 707.0	MCB 707.0	MCB 707.0

PGDM COURSES DESCRIPTIONS

PGDM 700.1 - Biology of Fungi

Microbiology, taxonomy, physiology, reproduction of various groups of fungi. Ecology of fungi. Relevance of fungi in the ecosystems.

PGDM 701.2 - Industrial Application of Microbiology

Concept in Applied Microbiology/Biotechnology Fundamental of fermentation technology (history and principles). Fermentation and extraction of fermentation products. Fermentation device. Primary and secondary metabolites (selected examples). Role of yeast in fermentation industry, classification and production of alcoholic beverages. Microbial extracellular enzymes techniques. Composing, biogas production. Quality control in Microbiology.

PGDM 702.2 - Medical Microbiology

Pathogens, microorganisms and disease. Virulence, system of isolation of pathogens. Bacterial and fungi infections. Principles of epidemiological survey and control of outbreaks.

PGDM 703.1 - General Microbiology

General characteristics of microorganisms of medical, agricultural and industrial importance. Isolation, purification, classification, structure, function of bacteria, viruses, fungi and Protozoa. Microbial multiplication at cellular level.

PGDM 704.1 - Immunology and Disease

Immunity and immune responses. Antigen-antibody reaction, antigens, antibody structure and formation. Blood groups complement; hypersensitivity; allergic, prophylactic and therapeutic application of immunology.

PGDM 705.1 - Genetics of Microorganisms

A Statutory of the current status of microbiology genetics including discussion of methods and findings in the areas mutagenetics, induction, isolation and biochemical characteristics of mutants, adaptation, transformation, transduction, conversion and conjugation.

PGDM 706.1 - Food Microbiology

Food-mediated disease. Microbial spoilage of foods. Mechanisms of microbial spoilage/food ecosystems. Intrinsic, extrinsic factors influencing spoilage in food borne diseases. Microbiology quality of foods, indices of sanitary quality. Quality assurance, hazard assessment. Control of

contamination, inhibition of growth of microorganisms. Food Spoilage and processing/fermentation; food biotechnology. Microbiological reference value for foods. Disease of animals transmissible to man via animal food products.

PGDM 707.2 - Microbiological Techniques

Survey of basic laboratory equipment. Preparation of buffers and culture media. Staining techniques for identification of microorganisms. Sterilization techniques. Antimicrobial agents and sensitive tests. Microbiology of air, food, milk and water. Immunological methods for the study of microbial infections. Introduction to quality control in microbiology.

PGDM 708.1 - Biochemistry and Physiology of Microorganisms

Macromolecules, biosynthesis and bioenergetics in microorganisms. Regulation of metabolism. Spore formation, composition and germination. Growth and survival of microorganisms. Electron transport systems.

PGDM 709.2 - Ecology of Microorganisms

Influence of environmental factors or activities on microorganisms. Microbiology of the soil, air, water and sewage. Microbial association.

PGDM 710.1 - Microbiology of the Environment

Microorganisms and other important organisms in aquatic systems. Freshwater microbial ecology. Pollution and water purification, transmission of water. Microbiology of waste disposal. Biological and chemical oxygen demand (BOD, COD). Characteristics of the soil environment. Soil organisms and their activities. Nitrogen, Carbon, Sulphur and phosphorous cycles; mineral transformation by microorganisms, Biodegradation and Biofuels generation.

MCB 706.2 - Graduate Seminar in Microbiology and Biotechnology

A series of two seminars is to be delivered by each student. The first shall involve a literature review on topics of current research interest. The second shall center on data obtained from student's research project. Seminars are graded.

MCB 707.0 - Research Project

Students are required to undertake approved research projects on relevant microbiological problems.

3.2 M.Sc. DEGREE PROGRAMME

(i) M.Sc. IN FOOD MICROBIOLOGY

The main objective of this programme is to train specialized graduates to meet the local and national manpower needs of Agro-food and research establishments particularly in the areas of food processing, preservation and food safety.

The programme also emphasizes:

- (a) The role of the Food Microbiologist in control of food bio-deterioration, processes and quality control of food and beverage industries and bio-technological applications;
- (b) Contamination of food by environmental pollutants and microbial standards of foods in National and International Trade. Thus, the Food Microbiology Programme contributes immensely to the public health and economy of the Niger Delta region, the nation and the world.

COURSES

Six taught courses, a seminar course and a research project are approved for the M.Sc. in Food Microbiology programme and they are:

MCB 803.1	Research Techniques in Microbiology
MCB 808.1	Biodeterioration of Foods
MCB 810.1	Food Processing and Preservation
MCB 811.1	Fermentation Microbiology
MCB 809.2	Biochemical Aspects of Food Quality
MCB 812.2	Food Sanitation, Toxicology and Quality Control
MCB 806.2	Graduate seminar in Microbiology and Biotechnology
MCB 807.2	Research Project

COURSE DESCRIPTIONS

MCB 803.1 – RESEARCH TECHNIQUES IN FOOD MICROBIOLOGY

Media design and culture collection. Safety techniques and laboratory precautions. Separation procedures for biological components. Disintegration of Microbial cells. Methods of

recovery of fermentation products. Isolation of protein. Microbial enzyme extraction, purification and assays. Estimation of microbial populations and interpretation of data. Methods of anaerobic bacteriology. Bio-deterioration test techniques. Preparation of microbial materials for microscopy. Photo-micrography. Finger-printing, typing and taxonomic aspects of microbiology.

MCB 808.1 – BIODETERIORATION OF FOODS

Physiological aspects of microbial deterioration of foods. Types of deterioration. Defects caused by microorganisms. Mechanisms of deterioration. Cell wall structure and texture of perishable and their products. Microbial deterioration of carbohydrates, proteins and liquid products. Microbial deterioration of carbohydrates, proteins and liquid foods (meat and meat products, fish and sea food products, poultry and poultry products, milk and dairy products). Economics of bio-deterioration. Ecology and taxonomy of major groups of spoilers (*Aspergillus*, *Penicillium*, *Rhizopus*, *yeast*, etc). Control of microbial spoilage.

MCB 809.1 – BIOCHEMICAL ASPECTS OF FOOD QUALITY

Food components. Quality and indices of quality. Methods of obtaining sensory information. Consumer tests. Biochemical and physiological changes in food plants. Bio-chemical reactions underlying quality change / organoleptic proportion of food. Colour changes, flavour production. Changes in carbohydrates and lipids during storage. Browning reactions in foods and the microbial implications.

MCB 810.1 – FOOD PROCESSING AND PRESERVATION

Raw materials and process suitability. Principles and methods of preservation. Thermal processing. Thermal destruction of spoilage/other microorganisms. Drying, freezing, chemical preservation and radiation methods. Microbial stress. Quality control. Behaviour of food components and micro flora during processing. Food packaging and microbial dynamics. Chemical preservative/additive. Legislation and control. Plant sanitation.

MCB 811.1 – FERMENTATION MICROBIOLOGY

General consideration of solid state fermentations. Tropical and oriental fermented foods and beverages. Ecology and physiology, genetics of industrial microorganisms. Trends in genetic engineering, Microbial proteins (SCP process, nutritional aspects toxicity testing; utilization of hydrocarbons). Food enzymology.

MCB 812.2 – FOOD SANITATION, TOXICOLOGY AND QUALITY CONTROL

Microbial contamination of raw food materials of plant and non-plant origins (vegetables, fruits, and fruit juices, protein foods, dried foods, sea foods). Microflora or public health significance. Food poisoning mechanisms of survival of organism in foods. Microorganisms in preserved foods. Microbial contamination during and after processing. Indices of sanitary quality of food specification and standards. Methods for detection and estimation of bacteria and toxins in foods (effect of bacteria and endotoxins). Microbial toxemia. Mycotoxins, fruits and fruit products. Residual analysis.

MCB 806.2 – GRADUATE SEMINAR IN MICROBIOLOGY AND BIOTECHNOLOGY

A series of two seminars is to be delivered by each student. The first shall involve a literature review on topics of current research interest. The second shall center on data obtained from student's research project. Seminars are graded.

MCB 807.0 – RESEARCH PROJECT

Students will undertake approved projects on microbiological problems relating to the Agro-food industries in consultation with their supervisors.

(ii) M.Sc. IN INDUSTRIAL MICROBIOLOGY

The programme aims to focus attention on the industrial aspect of Microbiology. Recently, the exploitation of microorganisms to enhance establishment of new industries and modification of obsolete ones has resulted in expansion of different industries especially in developed countries. Similar opportunities can be created in Nigeria by the Microbiologist working in collaboration with those from other disciplines

such as Chemical Engineering. This programme therefore endeavours to reproduce:

- (a) Graduates for research and development purposes who will be involved in the production of microbial products.
- (b) Graduates who will be of great help to fermentation and petro-chemical industries; and
- (c) Microbiologist who are capable of utilizing microbial resources to ameliorate industrial and ecological problems.

COURSES

MCB 803.1	Research Techniques in Microbiology
MCB 811.1	Fermentation Microbiology
MCB 813.1	Biodeterioration of Industrial Materials
MCB 814.1	Principles of Genetics Engineering
MCB 815.2	Fermentation Technology
MCB 806.2	Graduate Seminar in Microbiology and Biotechnology
MCB 807.0	Research Project

COURSE DESCRIPTIONS

MCB 803.1 - RESEARCH TECHNIQUES IN MICROBIOLOGY

Media design and culture collection. Safety techniques and laboratory precautions. Separation procedures for biological components. Disintegration of microbial cells. Methods of recovery of fermentation products. Isolation of protein. Microbial enzymes extraction, purification and assays. Estimation of assessing quality of foods. Methods of anaerobic bacteriology. Bio-deterioration test techniques preparation of microbial materials for micrography. Finger-printing, typing and taxonomic aspects of microbiology.

MCB 811.1 - FERMENTATION MICROBIOLOGY

General consideration of solid state fermentations. Tropical and oriental fermented foods and beverages. Ecology and physiology, genetics of industrial microorganisms. Trends in genetic engineering, Microbial proteins (SCP process, nutritional aspects toxicity testing; utilization of hydrocarbons). Food enzymology.

MCB 813.1 - BIODETERIORATION OF INDUSTRIAL MATERIALS

Introduction and Terminology. Recognition and costing of bio-deterioration problems. Range of deteriogens. Biodeterioration of natural materials (cellulosic, wood, stored products and good, natural products of animal origin. Biodeterioration of refined and processed materials (fuels and lubricants, plastics and rubber, glass, paints, pharmaceuticals and cosmetics, metals adhesives and sealants). Structures, systems and vehicles. Control of bio-deterioration and test techniques.

MCB 814.1 - PRINCIPLES OF GENETIC ENGINEERING

This course emphasizes the technique of molecular genetics/genetic engineering and their industrial applications. Applications of genetic engineering to diagnostic medicine pharmaceutical industry, e.t.c. Gene cloning in different organisms. DNA cloning vectors and re-arrangement of genetic material. Control of gene expression. Protoplast fusion. Methodology, types and applications cell cultures.

MCB 815.1 - FERMENTATION MICROBIOLOGY

Methods for transformation of organic compounds. Microbial enzymes. Cell enzymes immobilization. Application of immobilized cells. Transport phenomena in biotechnological systems (mass transfer, serratation and agitation; mixing and theology). Kinetics of biochemical reactions. Scale up of fermentation processes and computer control downstream processing. Storage of fermented materials (drying, evaporation and dehydration, freezing and irradiation). Case studies of microbiological and biochemical industries (Antibiotics, amino acids, methane production from waste, alcohol, polysaccharides, pesticides).

MCB 806.2 – GRADUATE SEMINAR IN MICROBIOLOGY AND BIOTECHNOLOGY

A series of two seminars is to be delivered by each student. The first shall involve a literature review on topics of current research interest. The second shall center on data obtained from student's research project. Seminars are graded.

MCB 807.0 – RESEARCH PROJECT

Students will undertake approved projects on microbiological problems relating to various industries in consultation with their supervisors.

(iii) M.Sc. IN ENVIRONMENTAL MICROBIOLOGY AND BIOREMEDIATION

The increasing demand by students over the years has made it imperative to design this programme. Additionally, the emphasis placed by industry on use of natural processes in environmental restoration activities has accentuated the demand for experts in this area to be engaged in numerous environmental rehabilitation projects.

COURSES

MCB 803.1	Research Techniques in Microbiology
MCB 813.1	Biodeterioration of Industrial Materials
MCB 814.1	Application of Genetics Engineering
MCB 820.1	Environmental Microbiology and Biotechnology
MCB 821.2	Environmental Bioremediation
MCB 823.2	Petroleum Microbiology
MCB 806.2	Graduate Seminar in Microbiology and Biotechnology
MCB 807.0	RESEARCH PROJECT

MCB 803.1 – RESEARCH TECHNIQUES IN FOOD MICROBIOLOGY

Media design and culture collection. Safety techniques and laboratory precautions. Separation procedures for biological components. Disintegration of Microbial cells. Methods of recovery of fermentation products. Isolation of protein. Microbial enzyme extraction, purification and assays. Estimation of microbial populations and interpretation of data. Methods of anaerobic bacteriology. Bio-deterioration test techniques. Preparation of microbial materials for microscopy. Photo-micrography. Finger-printing, typing and taxonomic aspects of microbiology.

MCB 813.1 - BIODETERIORATION OF INDUSTRIAL MATERIALS

Introduction and Terminology. Recognition and costing of bio-deterioration problems. Range of deteriorogens. Biodeterioration of natural materials

(cellulosic, wood, stored products and good, natural products of animal origin. Biodeterioration of refined and processed materials (fuels and lubricants, plastics and rubber, glass, paints, pharmaceuticals and cosmetics, metals adhesives and sealants). Structures, systems and vehicles. Control of bio-deterioration and test techniques.

MCB 814.1 - APPLICATION OF GENETIC ENGINEERING

(Modified version of an existing course in M.Sc. Industrial Microbiology Programme). Concepts, ethnics and applications of genetic engineering with emphasis on microbial strain development and improvement. Application of genetic engineering in petrochemical, pharmaceutical, medical and multi-purpose industries. New techniques and use of plasmids for enhanced industrial processes. Ecological problems and application of biological control (*e.g. Bacillus thuringiensis*).

MCB 820.1 - ENVIRONMENTAL MICROBIOLOGY AND BIOTECHNOLOGY

Environmental pollution and industrial development. Pollution phenomena. Roles of microorganisms in the pollution and depollution of environmental media. Nitrogen and sulphur cycles. Biodegradation and cometabolism of pollutants/xenobiotic compounds. Microorganisms as bio-monitors of environmental pollution. Microbial indicators of water quality. Pathogenic contamination of water, soil and air. Use of microbial mats in agro-forestry. Solid waste treatment and disposal. The roles of microorganisms in sewage and waste management. Microbiological principles in modern aqua-culture. Properties of marine bacteria (bioluminescence).

MCB 821.2 - ENVIRONMENTAL BIOREMEDIATION

Introduction to bioremediation. Laboratory treatability studies, Microbiological protocols and analytical methodologies. Microbiological site characterization. Bioengineering of soils and groundwater. Remediation design. Monitoring requirements. Bioremediation of surface and subsurface soils. Bioremediation of heavy metals. Use of microbial mat in bioremediation. Bioremediation in fresh and marine systems. Aerobic and anoxic /anaerobic bioremediation.

Application of anoxic/anaerobic processes to environmental problems. Anaerobic digestion of municipal solid wastes and biogas generation. Composting. Bioremediation case studies. Regulatory consideration in environmental bioremediation.

MCB 823.2 - PETROLEUM MICROBIOLOGY

Petroleum and its origin. Microbial production of methane. Microbial metabolism of gaseous hydrocarbons. Microbial metabolism of straight-chain, branched and cyclic alkanes. Microbial transformation of aromatic hydrocarbons; Pathways for hydrocarbon degradation. Biosynthesis of surface-active agents and their role in bioemulsification of hydrophobic molecules. Genetics of hydrocarbon utilizing microorganisms. Genetics engineering of hydrocarbons biodegradation. Fates of petroleum pollutants in marine, freshwater and soil ecosystem. Effects of hydrocarbons in microorganism and their communities. Growth dynamics of microorganisms on hydrocarbons substrates. Microbiology of heavy crude's and oil shales. Microbially enhanced oil recovery (MEOR). Biotreatment and disposal of petroleum refinery wastes. Sulphate reducing bacteria (SRB) in the petroleum industry. Hydrocarbons as substrates in industrial fermentations. Bioprocessing of coal.

MCB 806.2 – GRADUATE SEMINAR IN MICROBIOLOGY AND BIOTECHNOLOGY

A series of two seminars is to be delivered by each student. The first shall involve a literature review on topics of current research interest. The second shall center on data obtained from student's research project. Seminars are graded.

MCB 807.0 – RESEARCH PROJECT

This will take the form of supervised research work on relevant environmental microbiological related problems culminating in a written thesis to be examined by a board of external and internal examiners.

(iv) M.Sc. IN PATHOGENIC MICROBIOLOGY AND BIOTECHNOLOGY

A master's degree programme in Pathogenic Microbiology and Biotechnology is expected to

cater for the high volume of highly qualified graduates of the Bachelor of Science degree in Microbiology who have combined interest in the Medical fields of Microbiology, and Biotechnology. The programme, is hoped, will provide the highly needed manpower in Medical Microbiology and Biotechnology Research and Development, investigations, and reliable diagnosis of infectious diseases. The programme shall consist of taught courses, seminar presentations, workshops, as well as field or laboratory based Research project.

Admission Requirement

Admission into the M.Sc. programme in Pathogenic Microbiology and Biotechnology shall be open to the following category of applicants

- B.Sc. degree in Microbiology from any reputable university with not less than second class lower division.
- B.Sc. in a related discipline including biotechnology, pharmacy, and medicine with a CGPA not less than 2.40 where applicable
- HND (upper credit) with a post graduate diploma in microbiology (PGDM) from the University of Port Harcourt with a CGPA not less than 3.50

In addition to the general qualifications above, all applicants are expected to obtain a minimum grade not less than "C" in of the following subjects namely, Pathogenic Microbiology, Immunology and Biotechnology, Pharmaceutical Microbiology, or Virology.

Mode of Study/Duration of Programme

The programme would be available to both full-time and part-time candidates. Full-time students would be required to spend a minimum of 12 calendar months and a maximum of 24 calendar months. Part-time students on the other hand may spend a minimum of 24 calendar months and a maximum of 48 calendar months. The programme shall consist of taught causes, practical classes, seminars and a supervised research project on topics of local, national and regional interest.

Conditions for the award of degree

The award of the Masters of Science (M.Sc.) degree in Pathogenic Microbiology and biotechnology will be subject to

- a. Passing all approved courses with a grade point of net less than 3.0 within the duration of the programme; for the avoidance of doubt, these shall include not less than 75% attendance at lectures.
- b. Satisfactory presentation of required seminars during the duration of the programme
- c. Satisfactory completion of an approved laboratory based research project on relevant topics in Pathogenic Microbiology and biotechnology, including the production of a standard thesis.
- d. Satisfactory performance in an oral examination of the subject of the thesis and related subjects.

Course Outline

MCB 831.1	Microbes Of Medical Importance
MCB 832.1	Diagnostic Microbiology And Biotechnology
MCB 833.1	Epidemiology
MCB 814.1	Applications Of Genetic Engineering In Biotechnology
MCB 803.1	Research Techniques In Microbiology And Biotechnology
MCB 834.2	Biopharmaceutical Technology
MCB 835.2	Vaccine Technology And Production
MCB 806.2	Graduate Seminars In Microbiology And Biotechnology
MCB 807.0	Research Project In Medical Microbiology And Biotechnology

Course Description

MCB 831.1 - Microbes of Medical Importance

Host parasite relationships – detailed considerations. Commensalism, Parasitism and the symbiotic relationships. Community versus Nosocomial infections and their associated pathogens. Different categories of Microbes of Medical importance – the Universal/ traditional pathogens, the opportunistic pathogens and the normal flora.. Pathogens unique to different systems of human and animal including the major systems of the human host. Essays on New and Emerging pathogens, including the HIV, SARS,

EBOLA, LASA fever etc. Epidemiology of selected infectious diseases.

MCB 832.1 - Diagnostic Microbiology and Biotechnology

General considerations in Diagnostic Microbiology and biotechnology. Various diagnostic tools. Discussions on the sensitivity, specificity, rapidity and simplicity of diagnostics methods. Considerations in the selection of diagnostic techniques in the diagnosis of common infectious diseases. Interpretation of results of diagnostic experiments. Application of diagnostic tools in the diagnosis of infectious and non infectious diseases. Preparation of simple diagnostic kits, principles and practice. Quality control in laboratory diagnosis and diagnostic products.

MCB 833.1 - Epidemiology

Terminology; Sporadic, Endemic Epidemic, Pandemic, Morbidity, Mortality and Prevalence rate. **Features of Epidemics;** Common-source epidemic, Propagated epidemic, Herd immunity, Attenuated virulence and Epidemic cycles. **Propagation of Diseases;** Reservoirs, inanimate and animate reservoirs, and carriers. **Transmission Routes and Infectious Doses;** Air borne, Water borne, Urogenital transmissions, Arthropod borne, Direct Contact, Nosocomial or Iatrogenic Diseases and Zoonoses. **Controlling Epidemics;** Reducing or eliminating reservoirs, breaking transmission routes, Reducing number of susceptible individuals, Quarantine. **Origin of new diseases. Epidemiological investigations and Surveillance.**

MCB 814.1 - Applications of Genetic Engineering in Biotechnology

Concepts, ethics, and applications of genetic engineering with emphasis on microbial strain development and improvement. Application of genetic engineering in pharmaceutical, medical; and multipurpose industries. New techniques and use of plasmids for enhanced production of biological diagnostic tools. Ecological problems and application of biological control.

MCB 803.1 - Research Techniques in Microbiology and Biotechnology

Media design and culture collections. Safety techniques and laboratory precautions. Separation

procedures for biological components. Disintegration of microbial cells and application in biotechnology. Methods of recovery of fermentation products including antibiotics and other biologically active components. Microbial enzyme extraction, purification and assays. Estimation of microbial populations and interpretation of data. Methods in anaerobic bacteriology. Microscopy and Photomicrography. Current trends in microbial identification including phage typing and DNA finger printing.

MCB 834.2 - Biopharmaceutical Technology

Historical perspectives of Pharmaceuticals of Biological origin. Antibiotics and non antibiotic pharmaceutical products. Sources and chemical nature of antibiotics and related substances. Isolations, Purification and Production of antibiotics. Sourcing for new antibiotics and other Pharmaceutical products. Antibiotic resistance, Mechanisms, Impacts, and the race for new pharmaceuticals. Microbes as surrogate sources of Biopharmaceuticals, the case study of insulin. Essays on selected Biopharmaceuticals. Field trips to pharmaceutical industries.

MCB 835.2 - Vaccine Technology and Production

Definitions and Historical aspects of vaccines. Microbial infections and range of available vaccines in the control of infectious diseases. Types, efficiency and Potency of vaccines. Theoretical considerations in the development of vaccines. The immune systems and response to infectious diseases. Host parasite factors in the development of effective and ineffective responses to infective entities. Practical considerations in the production of vaccines, including personnel, equipment, general infrastructure, safety and quality control. Vaccine efficacy monitoring, including survival of vaccines strains in vaccinated populations and the development and maintenance of protective immunity. Field trips to vaccine production industries.

MCB 806.2 - Graduate Seminars in Microbiology and Biotechnology

Students will be required to present seminars in areas specialized areas of medical microbiology including current trends in diagnostic microbiological methods, vaccine production,

current search for novel antimicrobial agents and their mechanisms of action, current trends in antibiotic resistance among microbes of medical importance, new and emerging pathogenic microorganisms and other areas that may gain prominence with time.

MCB 807.0 - Research Project in Pathogenic Microbiology and Biotechnology

Students are required to undertake a research project in relevant fields of medical microbiology and biotechnology as approved by the project supervisor in order to fulfill the requirements for the award of the Master of Science degree in Pathogenic microbiology and biotechnology.

3.3 Ph.D. IN MICROBIOLOGY

This programme is aimed at training the students to become mature and independent scholars who will be capable of solving academic and industrially- related problems. They are therefore expected to provide leadership in academia, research and industrial establishments

Acceptance by an eligible staff to supervise a candidate is a pre-requisite to being recommended for admission by the Department Graduate Studies Committee. The areas of research are indicated below.

A series of three seminars (at least) are to be delivered by each student. The first shall involve a literature review on topics of current research interest. The second and third shall center on data obtained from student's project. The last seminar presented by each Ph.D. students will be organized by School of Graduate Studies. It is mandatory for students to register for and passed courses approved for the Ph.D. programme.

Ph.D Courses

Ph.D MICROBIOLOGY (OPTION: ENVIRONMENTAL MICROBIOLOGY)

Course Code	Course Title	Credit Units
MCB 909.1	Current Advances in Environmental Microbiology	3
MCB 902.1	General Seminar I	3
MCB 903.2	General Seminar II	3

	Qualifying Examination	
MCB 904.0	Doctoral Dissertation	12
	Total	21

Ph.D MICROBIOLOGY (OPTION: FOOD MICROBIOLOGY)

Course Code	Course Title	Credit Units
MCB 901.1	Current Advances in Food Microbiology	3
MCB 902.1	General Seminar I	3
MCB 903.2	General Seminar II	3
	Qualifying Examination	
MCB 904.0	Doctoral Dissertation	12
	Total	21

Ph.D MICROBIOLOGY (OPTION: INDUSTRIAL MICROBIOLOGY)

Course Code	Course Title	Credit Units
MCB 905.1	Current Advances in Industrial Microbiology	3
MCB 902.1	General Seminar I	3
MCB 903.2	General Seminar II	3
	Qualifying Examination	
MCB 904.0	Doctoral Dissertation	12
	Total	21

Ph.D MICROBIOLOGY (OPTION: PATHOGENIC MICROBIOLOGY)

Course Code	Course Title	Credit Units
MCB 906.1	Current Advances in Pathogenic Microbiology and Biotechnology	3
MCB 902.1	General Seminar I	3
MCB 903.2	General Seminar II	3
	Qualifying Examination	
MCB 904.0	Doctoral Dissertation	12
	Total	21

COURSE DESCRIPTIONS

Ph.D MICROBIOLOGY (OPTION:

ENVIRONMENTAL MICROBIOLOGY)

MCB 909.1: Current Advances in Environmental Microbiology

Biosensors in Microbiology. Microtox bioluminescence assay. Radiorespirometry. Quantitative and Qualitative microscopy (epifluorescence, scanning electron and brightfield microscopy). Molecular techniques in environmental microbiology: Polymerase chain reaction (PCR), gel electrophoresis e.g., Denaturing gradient gel electrophoresis (DGGE)/ Temperature gradient gel electrophoresis (TGGE); DNA microarray technologies. Plasmid profiling: DNA restriction analysis. Florescence in situ hybridization____(FISH). Sequencing and phylogenetic analysis. Community-level physiological profiling (CLPP). Compound separation techniques. Laboratory safety consideration. Scientific report writing and presentation.

Ph.D MICROBIOLOGY (OPTION: FOOD MICROBIOLOGY)

MCB 901.1: Current Advances in Food Microbiology

Quantitative aspects of bacteriology and their application to food processing. Mathematical consideration of thermal destruction. Advanced methods of detecting bacteria causing food-borne, diseases. Techniques of biology assay and immunological methods of detecting Microbial toxins in foods.

Ph.D MICROBIOLOGY (OPTION: INDUSTRIAL MICROBIOLOGY)

MCB 905.1: Current Advances in Industrial Microbiology

Pathways of biosynthesis and catabolites. Hypothesis for the occurrence of secondary metabolites. Advanced metabolic pathway of energy generation. Polysaccharases of industrial importance. Bioinformatics of relevance in Industrial Microbiology (PCR, DNA sequencing, microarrays and metagenomics). Recent techniques in search for microbial active compounds. Patent and intellectual properties laws. Microbial teaching.

Ph.D MICROBIOLOGY (OPTION: PATHOGENIC MICROBIOLOGY)

MCB 906.1: Current Advances in Pathogenic and Biotechnology

Safety consideration in pathogenic microbiology lab. Changing trends in host parasites relationship.

Understanding host-parasite interactions in the gastrointestinal tract infections. Relationship between *Helicobacter pylori* and allergies. Evolving challenges in infection control'. Impact of new diagnostic methods in control of infectious diseases.

New and emerging infections –General considerations/bacterial infections.

The multiplicity of virulence factors in *Escherichia coli* infections associated with the gastroenteritis.

New and emerging viral infections:

1. HIV-1 evolution, diversity and drug resistance.
2. Multi factorial approach to control of the malarial plague.
3. New and emerging fungal and parasitic infections.
4. The genetic basis of multi drug resistant (MDR) bacteria-A special group of emerging infections.
5. Multi drug resistant *Mycobacterium tuberculosis*.
6. Problems and prospect of vaccine development in parasitic infections.
7. Problems and prospect in vaccine development- Influenza and HIV
8. Updates on modern approaches to the development of therapeutic agents and vaccines for the prevention of microbial diseases.

3.4 Ph.D IN MICROBIOLOGY AT CENTRE FOR OIL FIELD CHEMICALS RESEARCH (CEFOR)

Admission Requirements

1. Students that have successfully completed the relevant M.Sc. degree of the University of Port Harcourt with a minimum CGPA of 3.50 as well as minimum of CGPA of 2.40 in their first degree

2. Candidates with equivalent qualifications from other Universities.
3. Qualified industry staff with relevant M.Sc. degree can apply.
4. Shortlisted candidates will be invited for interview/ presentation of research proposals. Limited sponsorship opportunity is available for students, however, candidates are encouraged to seek for sponsorship from other sponsoring agencies and employers.

Duration of Programme

Full-Time: Minimum, 24 months of intensive modular taught courses and research project.

Part-Time: Minimum, 36 months of intensive modular taught courses and research project.

Graduation Requirement

The CEFOR Ph.D programmes require a total of thirty-three (33) credit units for graduation. The courses include six taught courses, research seminar and research project as follows:

Course Code	Course Title	Credit Units
ACE 901	Research Methods and Statistics for Data Analysis	3
ACE 902	ICT, Technical Report Writing and Presentation Skills.	3
ACE 903	Entrepreneurship	3
ACE 904	Oil and Gas Industry Overview	3
ACE 905	Environmental Management and Pollution Control	3
ACE 906	Drilling Fluid Technology and Oilfield Chemistry	3
ACE 907	Seminar/Advances in Areas of specialization	3
ACE 908	Research Project	12
TOTAL		33

ACADEMIC STAFF

S/N	NAME	RANK	AREAS OF SPECIALIZATION	QUALIFICATIONS
1	Odokuma, L.O.	Professor	Environmental Toxicology. Water Management. Bioremediation. Development of Bioindicators of Aquatic Toxicity.	B.Sc., M.Sc., Ph.D (UPH)
2	Abu, G.O.	Professor	Environmental Microbiology and Biotechnology. Natural attenuation and Ecophysiology. Bioremediation and Bioenergetics. Biopolymers. Microalgal Biotechnology	B.Sc. (ABU), Ph.D (Maryland)
	Frank-Peterside, N.	Professor	Antimicrobial activities of Plant Extracts. Uses and Microbiological Assessment of African Yam Bean Products. Virology	B.Sc., M.Sc. (Ibadan), Ph.D. (Belfast)
	Okerentugba P.O.	Professor	Applied Microbiology, Yeast genetics, Protoplast fusion and cloning techniques. Fermentation Technology and Industrial Strain Development. Bioremediation. Virology	B.Sc. (Lagos), Ph.D. (Strathclyde).
	Ogugbue, C.J.	Professor	Biotransformation and biodegradation of organic pollutants, Ecotoxicology, biotechnology of biofertilizers and aeromicrobiology	B.Sc. (ABSU), M.Sc., Ph.D (UPH)
	Stanley, H.O	Professor	Environmental Microbiology and Bioremediation	B.Sc. (UPH) , M.Sc. (AAU), Ph.D (RSUST)
	Chikere, C.E.	Professor	Environmental and Pollution Microbiology, Microbial Ecology of Petroleum Hydrocarbon Polluted Matrices	B.Sc., (ABSU), M.Sc., (FUTO), Ph.D (UPH)
8	Ibiene, A.A.	Reader	Microbially enhanced oil recovery. Environmental toxicology of pollutants and bioremediation.	B.Sc., M.Sc., Ph.D. (UPH).
9	Ariole, C.N.	Professor	Environmental Microbiology; Microbial Ecology of Fish and Shellfish Aquaculture; Endophytes of Aquatic and Terrestrial Plants and their potentials in pollutants degradation, waste management and remediation of contaminated environment; Rhizoremediation	HND, FISLT, PGDM, M.Sc., Ph.D (UPH)
10	Ire, F.S.	Professor	Industrial Microbiology	B.Sc., M.Sc., Ph.D. (UNN)
11	Agwa, O.K.	Professor	Industrial Microbiology	B.Sc., M.Sc. (Awka), Ph.D (UPH)
12	Agbagwa, O.E.	Reader	Medical Microbiology	B.Sc., M.Sc., Ph.D (UPH)

13	Otokunefor, K.	Reader	Medical/Molecular Microbiology	B.Sc. (UPH), M.Sc. (Manchester), Ph.D (Nottingham)
14	Eruteya, O.C.	Reader	Food/Industrial Microbiology	B.Sc. (Abraka), M.Sc., Ph.D. (Ibadan)
15	Okonko, I.O.	Senior Lecturer	Medical Virology. Immunology. Molecular Epidemiology. Bioethics. New, Emerging & Re-emerging Infections. Viral Diversity, Evolution, and Immunogenicity. Coinfections, ART Drug Resistance Mutations and Tropisms. HIV-1 P24	B.Sc. (FUNAAB), M.Sc., FD. (Ibadan); PhD (EBSU), Cert. Ethics (WABT/Florida), Cert. Immunology (Ibadan/Luxembourg), Cert. Advanced Immunology (Boston), C-14 Certified (New York)
16	Ahaotu, I.	Senior Lecturer	Food/ Industrial Microbiology	B.Sc. (Umudike), M.Sc. (Benin), Ph.D (UPH)
17	Omorodion, N.J.P.N.	Senior Lecturer	Food Microbiology	B.Sc., M.Sc., Ph.D (UPH)
18	Wokem, V.C	Lecturer I	Environmental Microbiology and Bioremediation	B.Sc., M.Sc., Ph.D (UPH)
19	Osadebe, A.U.	Lecturer I	Environmental Microbiology, Biotechnology and Public Health Microbiology	B.Sc. (Bowen); M.Sc. (Nottingham), M.Sc. (UPH)
20	Cookey, T.I.	Lecturer I	Medical Microbiology. Virology and Immunology. Molecular Epidemiology of HIV-1 Coreceptor and Usage	B.Sc., M.Sc. (UPH)
21	Ogbodo, E.N.	Lecturer II	Medical Microbiology	B.Sc. (UPH); MSc. (Nottingham)
22	Innocent-Adiele, H.C.	Lecturer II	Virology. Molecular Epidemiology of HIV	B.Sc. (Uyo), M.Sc. (UPH), Ph.D (EBSU)
23	Ughala, E.	Lecturer II	Environmental Microbiology and Bioremediation	B.Sc., M.Sc. Ph.D (UPH)
24	Adim, C.C.	Assistant Lecturer	Public Health Microbiology, Virology. Molecular Epidemiology of Rubella Virus.	B.Sc. (Jos), M.Sc. (RSU)

FACULTY OF COMPUTING

DEPARTMENT OF COMPUTER SCIENCE

POST-GRADUATE PROGRAMME

1.1 Preamble

The Department of Computer Science offers Postgraduate Programmes in Computer Science. The programmes are organized in such a way that the students are thoroughly groomed in self-oriented research. It is hoped that at the end of the training, successful students would be able to provide the much needed manpower in our institutions of higher learning, public service and the private sector of our economy. The Department's postgraduate programmes lead to the award of:

- 1) Postgraduate diploma in Computer Science (PGD)
- 2) M.Sc in Computer Science
- 3) PhD in Computer Science.

Post-Graduate Diploma in Computer Science (PGD) Programme

1.2 Basic Admission Requirements

The criteria for admission into the PGD programme will be as follows:

- i) All candidates must have credit passes including English, Mathematics and three other relevant science subjects at 'O' Level.
- ii) Candidates with Bachelor's degree from an approved university must obtain a minimum of Pass degree in the relevant science discipline.
- iii) Holders of HND in relevant programmes from approved institutions with at least Upper Credit in the sciences or related disciplines may also be considered for admission.

1.3 Duration of Programme

- i) Full-time Postgraduate Diploma Programme shall run for a minimum of twelve calendar months and a maximum of twenty-four calendar months.
- ii) Part-time Postgraduate Diploma Programme shall run for a minimum of twenty-four calendar months and a maximum of thirty-six calendar months.

1.4 Requirements for Graduation

A candidate must have fulfilled the following conditions to be awarded the Postgraduate Diploma:

A candidate must pass a minimum of 28 credit units, made up as follows:

- ✓ 15 credit units in core courses.
- ✓ 9 credit units in elective courses.
- ✓ 4 Compulsory credit units of Research Projects.

1.5 Academic regulations

- i) **Academic Session:** An Academic Session consists of two semesters. Each semester normally comprises 15 weeks of teaching and two weeks of examination.
- ii) **Modular System:** All Postgraduate Diploma programmes shall be run on a modularized system, commonly referred to as Course Unit System. All courses should therefore be subdivided into more or less self-sufficient and logically consistent packages that are taught within a semester and examined within that particular semester. Credit units should be attached to each course.
- iii) **Definition of Credit or Unit:** Credit Units are weights attached to a course. One credit unit is equivalent to one hour per week per semester of 15 weeks of lectures or tutorials.

1.6 Programme Requirements:

1.6.1 Registration Procedure

Students shall normally complete registration for courses for the semester not later than two weeks after the start of the semester. A student may not withdraw from a course after five weeks of lectures in a given semester without permission from the Dean of Postgraduate School.

A student who withdraws after this time or who fails to seek for permission from the Dean shall be deemed to have failed that course.

A student who fails to sit for more than two courses at the end of a given semester shall be deemed to have withdrawn voluntarily from the programme.

1.7 Good standing

To be in good standing, a student must in each semester have a Cumulative Grade Point Average (CGPA) of not less than 3.00

1.8 Withdrawal

Candidates with less than 3.00 CGPA shall remain in the programme for the 1st semester but shall be withdrawn if he/she fails to attain 3.00 CGPA at the end of the second semester.

1.9 Attendance

In order to be eligible for examination in a particular course, a student shall have attended a minimum of 75% of the total periods of formal instructions delivered for the course.

1.10 Examinations, Grading Procedure & Results

10.1 Examinations

In addition to continuous assessment, final examination shall be given for every course at the end of every semester.

The total scores obtainable for every course which include continuous assessment, final Examination shall be given for every course at the end of every semester.

1.11 Pass Mark

The minimum pass mark in any course shall be 50%.

1.12 External Examiner System

The external examiner system shall be used at the end of the Postgraduate Diploma programme to assess the courses and projects.

The project shall be subject to oral examination where the student is required to show evidence that the candidate carried out the work and had pertinent knowledge of the subject matter.

1.13 Postgraduate Diploma Classification

The determination of the Postgraduate Diploma shall be based on the Cumulative Grade Point Average (CGPA) earned at the end of the programme.

CUMULATIVE GRADE	CLASS OF DIPLOMA
4.50 – 5.00	Distinction
3.50 – 4.49	Upper Credit
3.00 – 3.49	Merit
Below 3.00	Fail

1.14 Comprehensive knowledge of areas of specialization.

- i) Graduate should have comprehensive knowledge of their areas of specialization.

Encompassing an understanding of the theoretical foundations and quantitative tools of the areas of specialization, as well as the ability to apply this knowledge to solving problems.

- ii) Graduates should be able to demonstrate problem solving capacity using multidisciplinary approaches in an innovative and creative way.
- iii) Graduates should display comprehensive knowledge of areas of specialization and should have acquired entrepreneurial skills for self-sufficiency and also to meet the needs of the public and private sectors in Nigeria and beyond.

1.15 Problem solving capacity

Graduates should be able to demonstrate problem solving capacity through literal, critical, innovative and creative connections among diverse fields of study in analyzing problems using multidisciplinary approaches.

1.16 Behavioral Skills

Graduates should understand human behaviour in organizations. They should:

- ✓ have the ability to work and interact effectively in group situations;
- ✓ be disposed to mentoring and peer review;
- ✓ to be able to appreciate constructive criticism

2.1 MASTER OF SCIENCE (M.Sc) DEGREE PROGRAMME

Admission to the Master's degree programme shall be as contained in the general Postgraduate School requirement for admission into the degree of M.Sc. The department requires that courses offered at the first degree programme should meet the minimum of the University's own B.Sc. programmes. However, candidates whose first degree courses fail to meet the University's own B.Sc. programme, will be required to take and pass the relevant courses before proceeding to the M.Sc. work. Candidates with PGD in Computer Science may be considered for our M.Sc. programme provided such a candidate must have had at least an Upper Credit with a minimum CGPA of 4.0/5.0 at the PGD level. There shall be an MSc qualifying aptitude test, before admission. Any student that fails this test will not be considered for admission.

2.2 Basic Admission Requirements

The criteria for admission into the Master's degree programme will be as follows:

- i) All candidates must have credit passes including English, Mathematics and three other relevant science subjects at 'O' Level.
- ii) Candidates with Bachelors degree from an approved university must obtain a minimum of second class lower division for an academic programme. Also Candidates with third class degree from an approved university with a minimum CGPA of 3.5/5.0 may also be considered for admission.
- iii) Holders of HND in relevant programmes from approved institutions with at least Upper Credit in the sciences or related disciplines may also be considered for admission.

2.3 Registration

- 1) There are provisions for full-time and part-time registration.
- 2) Students are allowed to register for any of the options provided by the department.
- 3) Registration is done once every year.
- 4) For the Master's programme Part-time students shall register for a maximum of Eight (8) taught courses in the first year, i.e. Four (4) per semester. Full-time students shall register for a maximum of Seven (7) courses per semester.

2.4 Duration of Programme

- i) Full-time Academic Master's Programme shall run for a minimum of three (3) semesters and a maximum of five (5) semesters. While a full-time Professional Master's Programme shall also run for a minimum of three (3) semesters and a maximum of five (5) semesters.
- ii) Part-time Academic Master's Programme shall run for a minimum of five (5) semesters and a maximum of eight (8) semesters. While a part-time Professional Master's Programme shall also run for a minimum of five (5) semesters and a maximum of seven (7) semesters.

2.5 Programme Requirements:

2.5.1 Registration Procedure

Students shall normally complete registration for courses for the semester not later than two weeks after the start of the semester. A student may not withdraw from a course after five weeks of lectures in a given semester without permission from the Dean of Postgraduate School.

A student who withdraws after this time or who fails to seek for permission from the Dean shall be deemed to have failed that course.

A student who fails to sit for more than two courses at the end of a given semester shall be deemed to have withdrawn voluntarily from the programme.

2.6 Good standing

To be in good standing, a student must in each semester have a Cumulative Grade Point Average (CGPA) of not less than 3.00.

2.7 Requirements for Graduation

A candidate must have fulfilled the following conditions to be awarded the Master's degree:

A candidate must pass a minimum of 30 credit units, made up as follows:

- ✓ 24 credit units in core courses, including the general courses, projects and seminars.
- ✓ 6 credit units in elective courses.
- ✓ 6 Compulsory credit units of Research Projects.

2.71 Scheme of Studies

The Examination Requirements include all the following:

- i) A candidate must pass with a minimum grade of C in all the courses taught.
- ii) No student can proceed to the thesis without having achieved the appropriate Grades in the second semester examination;
- iii) An important and integral part of the M.Sc. programmes will be the research seminar in which attendance is compulsory. The seminar is a place where research projects and their results, including those of the students are presented and critically assessed.
An M.Sc candidate is expected to present at least two seminars. These seminars are integral part of the student's thesis assessment. Candidates would not be presented for external examination without presentation of these seminars.
- iv) An MS.c candidate upon submission of four copies of his/her thesis with paper binding shall be examined by a board of examiners made up of:
 - 1) His/her supervisor(s)
 - 2) The Head of Department
 - 3) The External Examiner
 - 4) The Dean of the Faculty (as the Chairman of the board of Examiners).

3.1 Ph.D. Programme

3.2 Basic Admission Requirements

Candidates for the Ph.D. programme should have a Master's degree in Computer Science or Information Technology, with a CGPA of at least 4.0/5.0 and thesis score not lower than 60% (B).

Candidates with PGD in Computer Science, with at least 4.0/5.0 CGPA in Master's degree and thesis score not lower than 60% (B) may be considered for our PhD programme. There shall be a Ph.D. qualifying examination, one year after registration. Any student that fails this examination will automatically be deemed to have withdrawn from the Ph.D. programme.

3.3 Registration

- 1) There are provisions for full-time and part-time registration.
- 2) Students are allowed to register for any of the options provided by the department.
- 3) Registration is done once every year.

3.4 Duration of Programme

For the Ph.D. programme, full-time students will be required to spend a minimum of 6 semesters and a maximum of 8 semesters. Part-time student will be required to spend a minimum of 8 semesters and a maximum of 10 semesters.

3.5 Requirements for Graduation

Doctorate (Ph.D) programme requires both course work and research. Courses of not more than 24 credit units will be taken by the candidates. Thesis of 12 credit unit must be defended before a panel of internal and external examiners.

3.6 Scheme of Studies

The Examination Requirements include all the following:

- ii) A candidate must pass with a minimum grade of C in all the courses taught.
- ii) No student can proceed to the dissertation without having achieved the appropriate Grades in the second semester examination;
- iv) An important and integral part of the Ph.D. programmes will be the research seminar in which attendance is compulsory. Such seminar will be organized at least once a month. The seminar is a place where research projects and their results, including those of the students are presented and critically assessed.

A Ph.D. candidate is expected to present at least four seminars, one of which must be outside his or her area of specialization. The last seminar is a University-wide presentation which is organized in conjunction with the Graduate School. These seminars are integral part of the student's dissertation assessment. Candidates would not be presented for external examination without presentation of these seminars.

- v) A. PhD candidate upon submission of six copies of his/her dissertation with paper binding shall be examined by a board of examiners made up of:
 - 1) His/her supervisor(s)
 - 2) The Head of Department
 - 3) The External Examiner
 - 4) The Dean of the Faculty (as the Chairman of the board of Examiners).

3.7 Comprehensive knowledge of areas of specialization.

- i) Graduate should have comprehensive knowledge of their areas of specialization. Encompassing an understanding of the theoretical foundations and quantitative tools of the areas of specialization, as well as the ability to apply this knowledge to solving problems.
- ii) Graduates should be able to demonstrate problem solving capacity using multidisciplinary approaches in an innovative and creative way.
- iii) Graduates should display comprehensive knowledge of areas of specialization and should have acquired entrepreneurial skills for self sufficiency and also to meet the needs of the public and private sectors in Nigeria and beyond.

3.8 Behavioral Skills

Graduates should understand human behaviour in organizations. They should:

- ✓ have the ability to work and interact effectively in group situations;
- ✓ be disposed to mentoring and peer review;
- ✓ to be able to appreciate constructive criticism

4.1 PGD in Computer Science

List of Courses

1st Semester

Course Code	Course Title	Credit Unit
CSC 701.1	Structured Programming	3
CSC 702.1	Computer Architecture	3
CSC 703.1	Data Structures	3
CSC 704.1	Database Management	
CSC 705.1	Systems Analysis & Design	3
CSC 711.1	Computer Laboratory I	3
	Total	18

2nd Semester

Course Code	Course Title	Credit Unit
CSC 706.2	Operating Systems Algorithms	3
CSC 707.2	C/C++ Language	3
CSC 708.2	Programming	3
CSC 709.2	Computer Networks	
CSC 710.2	Fourth Generation Languages	3
CSC 711.2	Computer Laboratory II	3
CSC 712.2	Programming Project	3
	Total	24

4.2 PGD COURSE DISCRIPTION

CSC 701.1: Structured Programming

Principles of good programming style, expression; structured programming concepts; control flow-invariant relation of a loop; stepwise refinement of both statement and data; program modularization (Bottom up approach, to-down approach, nested virtual machine approach); languages for structured programming debugging testing verifying code inspection; semantic analysis. Test construction. Program verification, test generation and running.

The use of PASCAL to illustrate these concepts. String processing, Record structures, file Processing, Dynamic data types for lists, etc. Recursion for tree search, sorting, etc. writing efficient programs. Turbo PASCAL project management facilities

CSC 702.1: Computer Architecture

Functional blocks of a computer system: CPU storage and peripheral devices; types of memory; memory addressing techniques; Bus organization; Addressing modes; Hardwired and micro-program controls; Illustration with a typical Von-Neuman architectural design.

CSC 703.1: Data Structures

Introduction to data structures; simple and complex data types; Arrays; string linear lists; Multi-linked structures; dequeues; stacks; graphs; trees; Application of data structures.

CSC 704.1: Database Management

Database concepts; Data integration; Data independence: Functions and architecture of a DBMS; Data models; Storage structure and access strategies; Relations and relation operators; Relational algebra and calculus; Normalization; SQL; Security and integrity issues; Entity-relationship modeling; E-R diagrams; Commercial DBMS's; DB/Z; Oracle, etc.

CSC 705.1: Systems Analysis and Design

Introduction to systems analysis and design and tools. The system's life cycle; Organizational structure; systems investigation; Feasibility studies; Determination and evaluation of alternatives; Designs of input; output and file structures; Documentation; choice of system characteristics (Hardware and software); Testing; conversion; parallel runs; Evaluation of system performance; Maintenance.

CSC 706.2: Operating Systems

Principles of operating systems; batch, multi-programming and multi-processing systems; Single-user, multi-user and network operating systems; inter-process communication; synchronization; deadlocks; Storage management and resource allocation; Illustration using popular operating systems such as DOS; windows; Unix, etc.

CSC 707.2: Algorithms

Design and specification of algorithms; Efficiency of algorithms; asymptotic time complexities; asymptotic notations; linear; logarithmic and polynomial time algorithms; Searching; Linear search trees; Fibenia search; Sorting; bubble sort; insertion sort; selection sort; quick sort heap sort algorithms; Experimental algorithms; Performance optimization.

CSC 708.2: C/C++ Language Programming

Modular programming; Object-oriented programming; C union structures; classes; object; messages; methods; Encapsulation; operator overloading; Applying object-oriented programming techniques.

CSC 709.2: Computer Networks

Objectives of computer networks; components of a network: nodes; modems; hubs; cables; Types of networks: LAN; WAN; Network topologies, Network software communication software operating systems; Illustration from common network operating systems.

CSC 710.2: Fourth Generation Languages

The concept of fourth generation programming; non-procedural code support; easy-to-use interface; Database languages; Relational data definition and manipulation; Database design; Table creation; Query formulation; fourth generation language programming; Moderately large case study; Use of an appropriate language.

CSC 711.1: Computer Laboratory I

This aim course is to familiarize the students with the most common programs on the market; MS office suite; CorelDraw; windows; SPSS etc. Students are also expected to demonstrate proficiency in at least two programming languages.

CSC 712.2: Computer Laboratory II

This aim course is to familiarize the students with the Object Oriented program such as C++, Java and other Fourth Generation Languages.

CSC 713.2: Project

The students will be expected to design and implement a medium-sized program using one of the current programming languages.

4.3 M.Sc in Computer Science

LIST OF COURSES

1st Semester

Course Code	Course Title	Credit Unit
CGS 802.1	ICT and Research Methodology	2
CSC 801.1	Operating Systems	3
CSC 802.1	Compiler Principles and Construction	3
CSC 803.1	Artificial Intelligence	3
CSC 804.1	Database Systems	3
	Total	14

2nd Semester

Course Code	Course Title	Credit Unit
CGS- 801.2	Management and Entrepreneurship	2
CSC 805.2	Computer Communications and Networks	3
CSC 806.2	Programming Languages	3
CSC 807.2	Software Methodology	3
CSC 808.2	Seminar	2
CSC 809.2	Research Project/ Thesis	6
	Total	19

4.4 MSc COURSE DISCRPTION

General Courses

All postgraduate students (irrespective of the programme) must take management and Entrepreneurship as well as ICT & Research Method as compulsory courses.

CGS- 801.2 Management and Entrepreneurship (2 Credit Units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

CGS- 802.1 ICT and Research Methodology (2 Credit Units)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing, Organization of Research and Report Writing.

CSC 801.1 Operating Systems (3 Credit Units)

Structured design aspect of an operating system: Process model, inter-process communication, synchronization mechanisms, resource management, and scheduling. Protection issues, Implementation issues of modern operating systems. Distributed operating systems. Deadlock detection, recovery and avoidance. Case studies. Project(s).

CSC 802.1 Compiler Principles and Construction

Definitions of formal grammatical arithmetic expressions and precedence grammars; context-free and finite-state grammars, compilers structure; lexical analysis and finite-state machines; syntactic analysis and parsing techniques; syntax-directed translation, algorithm for syntactic; recognisers, back-tracking, operator precedence techniques; semantics of grammatical constructs; reductive grammars, Floyd productions; simple syntactical compilation; static and run-time data representation and storage management; error detection and recovery; code generation and optimization.

CSC 803.1: Artificial Intelligence (3 Credit Units)

Introduction to search techniques. Introduction to programming techniques of artificial intelligence (AI). Domain analysis; representation of Knowledge and strategies: control of inference and search; development of interactive intelligence (CAI) programs; the role of analogical reasoning. The main contents are symbol manipulations and AI problem solving techniques. Topics include LISP primitives. LISP objects and evaluation, recursion and iteration and data abstraction (association lists, properties and DESTRUCT),

macros, object centred programming, symbolic pattern, match lug and basic solving methods.

CSC 804.1: Database Systems (3 Credit Units)

A brief introduction to database concepts: file systems and database, and the relational database model; design concepts and implementation; entity relationship (E,R) modeling: normalization of database tables and structured query language: database design and implementation. Transaction management and concurrency control and distributed database management systems; database privacy, security, failure and recovery. Object-oriented databases; client/server system; data warehouse; data mining; databases in electronic commerce; web database development and database administration.

CSC 805.2: Computer Communications and Networks (3 Credit Units)

Introduction to telecommunication. Channels and channel capacity; introduction to information theory; Network architecture and OSI model, circuit switching and packet switching; multiplexing; FDM, TDM, Statistical multiplexing; virtual circuits and datagrams; advantages and disadvantages; sharing the medium. Networking and the Internet: ISPs, physical media; LANs and bridging; WANs and point- to-point links; routing and addressing. Cyber Crime, Cyber Security and models of Cyber Solution.

CSC 806.2: Programming Languages (3 Credit Units)

Comparative study of the organization and implementation of a variety of programming languages and language features. Design principles arc explored and applied in a historical review of major languages. Procedural, functional, logic-based, object-oriented and parallel languages. Research issues such as polymorphism, formal semantics and verification explored in depth.

CSC 807.2 Software Methodology

Software lifecycle models, the development process, structured design, defect removal performance and verification models including software network modeling, correctness checking, functional transformations, theory of verification, theories of program invariance; application of performance and correctness checking methods to fundamental programs for searching, hashing, sorting and file structures; software maintenance, reliability and management

CSC 808.2 Seminar (2 Credit Unit)

The students will be expected to present a seminar to the department. The seminar topic will be approved by the department.

4.5 Ph.D. in Computer Science

LIST OF COURSES

1st Semester

Course Code	Course Title	Credit Unit
CSC 901.1	Computer Network	3
CSC 902.1	Database Management System	3
CSC 903.1	Compiler Principles and Construction	3
CSC 905.1	Fourth Generation Languages	3
Total =		12

2nd Semester

Course Code	Course Title	Credit Unit
CSC 906.2	Operating Systems	3
CSC 907.2	Advanced Artificial Intelligence	3
CSC 908.2	Programming Languages	3
CSC 909.2	Seminar	3
CSC 910.3	Dissertation	12
Total =		24

CSC 901.1: Computer Networks (3 Credit Units)

Network topologies, backbone design, performance and queering theory; datagrams and virtual circuits; technology issue; layered architecture; standard; survey of commercial Network, local area Network, and various communication protocols; encryption; security.

CSC 902.1: Database Management System (3 Credit Units)

Comparative study of hierarchical, CODASYL, and relational database models, with emphasis on the latter. Readings in theoretical database issues. Implementation of a practical database using one of the standard models. Introduction to implementation issues.

CSC 903.1 Compiler Principles and Construction (3 Credit Units)

Current issues in compilation process- operator hierarchies in Expression, maintain data type integrity, handling user defined types, data structures, implementing language scope rules,

implementing control structures, bootstrapping a compiler- T- diagram Notation for programs, T- diagram Notation for machines, T- diagram Notation for translators, T- diagram Notation for ruining programs, T- diagram Notation for ruining translators, full and half bootstrap, bootstrap to increase efficiency, Compiler Analysis and Optimization, Advances in compiler Construction for Adaptive Computers, Compiler designs issues for embedded processors, New Developments in Parsing Technology, Lex and Yacc.

CSC 905.1 Fourth Generation Languages (3 Credit Units)

Advanced concept of fourth generation programming non-procedural code support; easy-to-use interface; Database languages; Relational data definition and manipulation; Database languages; Advanced Relational data definition and manipulation; Advanced Database design; Table creation; Query formulation; fourth generation language programming; Moderately large case study; Use of an appropriate language.

CSC 906.2 Operating Systems (3 Credit Units)

Supervisory and control software for contemporary multiprogrammed computer

systems. Processes, synchronization, interprocess communication, scheduling, memory management, resource allocation, security, system performance evaluation, virtual machines, object-oriented systems, case studies

CSC 907.2 Advanced Artificial Intelligence (3 Credit Units)

In depth study of a few major areas historically considered to be part of artificial intelligence. In particular, detailed coverage will be given to the design considerations involved in the following applications: automatic theorem proving, natural language understanding and machine learning.

CSC 908.2 Programming Languages (3 Credit Units)

Comparative study of the organization and implementation of a variety of programming languages and language features. Design principles are explored and applied in a historical review of major languages. Procedural, functional, logic-based, object –oriented and parallel languages. Research issues such as polymorphism, formal semantics and verification explored in depth.

ACADEMIC STAFF IN THE DEPARTMENT OF COMPUTER SCIENCE

S/No	Name	Qualification	Specialty	Designation
1	Prof. P. O. Asagba,	B.Sc (UNN) M.Sc (Benin) PhD (UPH)	Network Security, Programming, Database Mgt.	Professor
2	Prof. C. Ugwu	B.Sc, MSc, PhD (UPH)	AI, Computer Modelling, Machine Learning	Professor
3	Prof. L. N. Onyejebu	B.Sc. (JOS) M.Sc. (NAU), PhD (UPH)	AI, Machine Learning, Data Analytics and Web Technology	Professor
4	Dr. B. O. Eke*	B.Sc, MSc, PhD (UPH)	Software Engineering, Programming	Reader
5	Dr. F. E. Onuodu *	B. TECH(MINNA) M.Sc. (UPH), PhD (UPH)	AI, Datamining and clustering	Reader
6	Dr E. E. Ogheneovo*	B. Sc. (UPH), M.Tech (FUTA) PhD. (UPH)	Natural Language Processing, AI	Senior Lecturer
7	Dr F. Egbono*	MSc (USSR), PhD (Ebony)	Computer Architecture and Control	Senior Lecturer
8	Dr B. B. Baridam*	B. Sc. (UPH), M.Sc. (UPH), PhD (SA)	Computational Intelligence, Database Systems and Bioinformatics	Senior Lecturer
9	Dr. U. A. Okengwu	B.Sc (UPH) MSc (UPH) PhD (UPH)	Artificial Intelligence, networking	Senior Lecturer
10	Dr L. C. Ochei	B. Sc. (Uyo), M.Sc. (Benin)	Programming and Software Applications	Senior Lecturer
11	Dr. M. O. Musa *	B.Sc (UPH) MSc (UPH)	Software Engineering	Senior Lecturer
12	Dr. L. U. Oghenekaro	B.Sc (UPH) MSc (UPH)	Software Engineering	Senior Lecturer
13	Dr. P. Enyindah	B.Sc (UPH) MSc (UPH)	Software Engineering	Senior Lecturer
14	Mr. A.O. Ugbari *	B.Sc (UPH) MSc (UPH)	Programming and Software Applications	Lecturer I
15	Mr. E. Wobidi *	B. Sc. (UPH), M.Sc. (Lagos)	AI, Software Engineering	Lecturer I
16	Mr R. S. Ogunsakin	B.Sc (UPH) MSc (UK)	Programming and Software Applications	Lecturer II

* Adjunct Lecturer

COLLEGE OF HEALTH SCIENCES

MASTERS PROGRAMME IN SPORTS MEDICINE

Preamble:

Sports Medicine is a relatively new branch of medicine concerned with the prevention, diagnosis and treatment of medical disorders or injuries that are related to sporting activities and improvement of fitness. Sports in itself has become a major source of national and International interaction and cohesion. More importantly, it has become a major source of income as noticed in football, tennis, boxing and golf. Consequently, sport holds an attraction for young men and women and this has led to the increased number of participants and spectators which has also led to an astronomical increase in sports related injuries with increased morbidity and mortality.

In Nigeria today, sports injuries are treated and managed by medical doctors not specifically trained for that purpose because only few specialists in sports medicine are available. The few available were even trained overseas at very high cost:

At present, no University in Nigeria offers a sports medicine programme, and so University of Port Harcourt with a strong medical curriculum and a very good sporting complex can seize the chance and run a good masters programme in sports medicine. Furthermore, the International Olympic Committee (IOC) has directed all its affiliate sports governing bodies to engage the services of sports medicine practitioners as a precondition for affiliation. This means that there is a market for the products of the programme.

Aim / Objectives:

The programme aims to train medical specialists who will manage sports related injuries, teach and conduct research in the area of sports medicine.

Knowledge and Skills to be Acquired:

The graduands of this Programme are expected:

- To know specific injuries in relation to specific sports and their signs and symptoms.
- To relate injuries to anatomical and physiological features of individuals.
- To know surgical procedures required in certain injuries.
- To have knowledge of banned drugs in sports.
- To be experts in exercise physiology.
- To know medical conditions that exclude an individual from participating in specific sports.

- To know how to handle emergencies in sports injuries.
- To know rehabilitation procedures after recovery
- To use scientific knowledge and equipment to conduct research in sports medicine.
- To be able to adopt current relevant methodologies to solve scientific problems, make reasonable deductions and adequate inference from data evidence available.

Degree Offered:

Duration of Study

The course will last for a minimum period of 18 months and maximum of 36 months. The course work will be taught in two semesters of 12 months. Students will spend the remaining 6 months in a training attachment to a sporting club in Nigeria and a thesis is expected to be concluded during this period.

COURSES OFFERED

1st Semester			
Code	Title		Credit Unit
SMD 800.1	Biochemistry of Exercise		3
SMD 801.1	Athletic Conditioning		3
SMD 802.1	Exercise Physiology		3
SMO 803.1	Nutrition and the Athlete		3
SMD 804.1	Methods of Treatment		3
SMD 805.1	Functional Anatomy of Man		3
SMD 806.1	Emergency Care and Athletic First Aid		3
SGS 801.1	ICT & Research Method		2
	Total		23
2nd Semester			
Code	Title		Credit Unit
SMD 807.2	Injuries in Running Athletes		3
SMD 808.2	Joint, Musculoskeletal Injuries		3
SGS 801.2	Entrepreneurship & Management		2

SMD 809.2	Head and Facial Injuries	3	general principles of therapeutic modalities and procedures.
SMD 810.2	The female Athlete	3	
SMD 811.2	Thermal and Cold injuries/medical problem	3	
SMD 812.2	Chest, Abdominal and Perineal Injuries	3	
SMD 813.2	Injuries to Children and Adolescents	3	
	Total	23	
3rd Semester			
Code	Title	Credit Unit	
SMD 614.1	Seminar course in area of specialization	3	
SMD 615.1	Clinical Attachment/Project TCU	6	
		55	

COURSE OUTLINE

SMD 800.1 Biochemistry of Exercise

This course will dwell on biochemical and microscopic changes that may occur with training. Hormonal control of growth and normal development will be dealt with.

SMD 801.1 Athletic Conditioning Methods

This course will dwell on types of skeletal muscle and the biomechanical changes that may take place with, training and conditioning in various specified sports, it will emphasize muscular strength, power, endurance and flexibility. The course will also teach anaerobic conditioning, the warmup period and warm-up schedule as well as neuromuscular technique. In addition it will expose the student to protective and supportive equipment

SMD 802.1 Exercise Physiology

This course will concentrate on the response of respiratory system, cardiovascular central nervous system, hormonal system and musculoskeletal system to exercise.

SMD 803.1 Nutrition and Athletics

This course exposes the student to the attributes of a well balanced diet. The student will be taught pre-event nutrition, when to increase weight and decrease weight especially in weight categorized sports. The effects of dehydration and re-hydration will be taught while the merits and demerits of carbohydrate loading diet will be reviewed.

SMD 804.1 Methods of Treatment in Sports

The course will review current analgesics, non steroidal anti-inflammatory drugs (NSAID) banned drugs in sports. It will also expose students to the use of cold packs and spray. It will teach the

SMB 805.1 Functional Anatomy

This course will teach the functional anatomy and the mechanism of injury sustenance of different regions of the human body. The Biomechanics of running jumping and throwing will be considered.

SMD 806.1 Emergency Care of Athletes

This course will prepare the students to be grounded in the act of emergency intervention in case of injuries and life, threatening conditions involving fee cardiopulmonary, cardiovascular and central nervous system. Ice (cold) application, compression, crutch fitting, gait instruction and stretcher use will be taught.

SMD 807.2 Injuries in Running Athletes

This course will teach the common running induced injuries to the back, hip, thigh and knee, lower leg, and foot. The biomechanics of a normal running gait will be taught.

SMD 808.2 Joint and Musculoskeletal Injuries

This course is designed to teach the Anatomy/Physiology of musculoskeletal Injuries arising from specific sports. It will emphasize over-use injuries and Rehabilitation periods.

SMD 809.2 Head and Facial Injuries

This course will deal with simple anatomy of the scalp, skull and coverings of the central nervous system. Evaluation of head injuries will be taught. Lacerations, contusion, concussion fractures, haematoma of the head and face will be taught. Dental, eye, nasal and ear injuries will also be taught.

SMD 810.2 The Female Athlete

The course will teach the gynaecological problems of women athletes as related to menstruation, pregnancy, contraceptive steroids and anabolic steroids. It will also dwell on the psychological aspects of women participation in sports. The prepubertal, adolescent and post-adolescent woman will be dealt with.

SMD 811.2 Thermal and Cold Injuries

This course the physiology and prevention of heat and cold injuries will be taught. Specifically, heat cramp, heat fatigue (heat vasomotor asthenia), heat exhaustion, heat stroke and mixed heat injury syndromes will form major topics of the course.

SMD 812.2 Chest, Abdominal and Perineal Injuries

This section will deal with contusions of the testes, vulvae, solar plexus, kidney and heart (cardiac).

Ruptures of the spleen, kidney and liver will be dealt with. Rib Fractures, costochondral separations, hip disruptions and topics like Spontaneous pneumo thorax will be taught.

SMD 813.2 Injuries to Children and Adolescent
Special injuries in children, prepubertal, pubertal and adolescent subjects will be taught.

SMD 814.2 Seminar Course in Area of Specialization

This course the student is expected to present a seminar in area of interest or on the project work.

SMD 815.2 Project

The student will be expected to make a project proposal which will be approved by his supervisor.

The project will be in his area of interest such as sports, nutrition or sports of interest, for example football (soccer), swimming, boxing and wrestling etc. The thesis will be examined (orally) by an external examiner.

DEGREE REQUIREMENT

A candidate is supposed to pass all the courses in not more than 36 months. A student shall be deemed to have withdrawn if at the end of 36 months he/she fails to pass all the courses. To graduate, a candidate will also satisfy all other conditions stipulated in the regulations of the postgraduate school.

ACADEMIC STAFF LIST

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALISATION
1.	Professor Ndu Eke	MB.Ch.B.Edinburgh, FRCS, England	Urology
2.	Professor B.C. Didia	MBBS, Benin MD, UPH, FASN	Anatomy
3.	Professor A. Nwafor	B.Sc London, Ph.D Wales	Biophysics/Membrane Phy
4.	Professor E.O. Ayalogu	B Sc., Ph D Ibadan	Nutritional Biochemistry/ Toxicology
5.	Professor N.D. Briggs	MBBS Lagos, MD FRCOG, FWAACS FICS	Obstetric & Gynaecology
6.	Professor A.W. Obiechina	BDS (1981), FMCDS (1988), FWALS (1995)	Dentistry
7.	Professor (Mrs) F. Eke	MBCh.S M.D Cork, MRCP.UK. EMCP. FMCP	Paed. Nephrology
8.	Prof. H.B. Fawehinmi	B Med Sc UPH, MBBS UPH, MSc	Anatomy
9.	Prof. D.V. Dapper	MBBS.UPH, B.Med,Sc UPH	Human Physiology
10.	Prof. Uwakwe, A.A.	B.Sc, MSc PhD UPH	Medical Biochemistry Enzymology
11.	Prof. (Mrs) J.O. Akaninwo	B.Sc, M.Sc., Benin, PhD UPH	Nutrition & Toxicology
12.	Prof. Siminialaye I.M.	B.Med.Sc (UPH), MBBS (UPH),	Pharmacology
13.	Prof. Dda Lilly-Tariah, O.B.	M.S (Lagos), MD (UPH) BM, B.Ch Jos FWACS	Pharmacology Otolaryngology
14.	Prof. A.U. Ekere	MBBS. Lagos FFMCS	Othopaedic Surgery
15.	Dr. R.S. Jamabo	MBBS Lagos, FRCS, FRCP, Ireland	General Surgery
16.	Dr. Bob-Yellowe, E.	MSc. Belgium, Specialist Cert. Orthopaedic	Orthopaedic Surgery
17.	Dr. (Mrs) A.I. Udoaka	B.SC (Intercalated) MB BCH, FWACS(2004)	Anatomy
18.	Prof. Chike, C.P.R.	MBBS UPH, B.Sc, M.Sc. UPH	Human Physiology
19.	Prof. P.C.E. Iro	B.Sc, Nigeria, MEd Ph.D. Lagos	Physical Education (Exercise Physiology) Physical and Health Education
20.	prof. K.C. Anugweje	MBBch,Nigeria, DSM, London, Ph.D(UPHI)	Medicine/Surgery
21.	Dr. C.E. Agi	B.Med Sc. (Pharm) MBBS UPH, FWACS (1991), FWACS (2003).	Radiology
22.	Dr. Akpa, M.R.	M.Sc (Sports Med),London (2001) MBBS Benin (1983) FWACP- (2001)	Radiology Medicine
23.	D.T.N.C. Nwankwo	MBBS Maiduguri FWACS	Radiology
24.	Dr. (Mrs) I.C. Anochie	MBBS, FWACP	Paediatrics

FACULTY OF BASIC CLINICAL SCIENCES

DEPARTMENT OF HAEMATOLOGY, BLOOD TRANSFUSION AND IMMUNOLOGY

MASTER OF SCIENCE (M.Sc) IMMUNOLOGY PROGRAMME

1. INTRODUCTION

Immunology is the scientific study of the immune system including allergies, resistance to disease, and acceptance or rejection of foreign tissue. The human immune system has undergone diverse extensive and intensive evolutionary changes due to specific and a wide diversity of antigenic challenges.

Following the discovery in 1796 of the small pox vaccine by the British Physician Edward Jenner, immunology as a discipline has evolved over the years into a recognized discipline of study. However, the study of immunology is mainly post graduate. Presently, there are few post graduate programs in immunology in Nigerian Universities; thus specialist immunologists are scarce. The present programme aims to bridge this gap.

2. PHILOSOPHY OF THE PROGRAMME

To help train high level manpower in immunology to facilitate research on various aspects of immunology, including the immuno-pathology of diseases.

3. OBJECTIVE

The course is designed to train biological science graduates as well as medical and dental graduates, who wish to broaden their knowledge in the subject and enhance their employment opportunities in both the academia and industry. For those who intend to remain in the academia, it will help them to acquire the research expertise required to undertake a PhD degree programme in immunology.

4. DEGREE OFFERED

Master of Science [M. Sc] in Immunology

5. ADMISSION REQUIREMENTS

The course is open to graduates of Medicine, Dentistry, Anatomy, Physiology, Pharmacy, Pharmacology, Nursing, Biochemistry, Molecular Biology, Microbiology, Animal Science, Veterinary Medicine, Zoology and other relevant courses.

Applicants who hold a minimum of Second Class Honors [Lower Division] degree [except for Medical, Dental and Pharmacy graduates whose degrees are unclassified] in any of the above mentioned subject, from the University of Port Harcourt or other Universities recognized by the Senate of the University of Port Harcourt shall be eligible for admission into the programme.

6. PROGRAMME DURATION AND TYPE

The course will be a taught course that will combine lectures, practical exercises and a laboratory based research project. It shall be both full time and part-time.

The full time program shall run for a minimum of 12 calendar months [1 year] and a maximum of 24 calendar months [2years]; while the part-time programme shall run for a minimum of 24 calendar months [2 years] and a maximum of 48 calendar months (4 years).

7. COURSE CONTENT

The following are the courses that constitute the course content for the proposed programme.

First Semester

Course Code	Course Title	Credit Unit
IMM. 801.1	Basic Immunology I (Immunophysiology)	3
IMM. 802.1	Basic immunology II (Immunochemistry)	3
IMM. 803.1	Clinical Immunology I (Immunopathology)	3
IMM. 804.1	Clinical Immunology II (Selected topics in Clinical Immunology)	3
IMM. 805.1	Immunology of Tropical Infections	3
SGS 801.1	ICT and Research Methodology	2
	Total	17

Second Semester

Course Code	Course Title	Credit Unit
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IMM. 806.2	Research Methodologies and Biostatistics	3
IMM. 807.2	Research Seminars	3
IMM. 808.2	Group Study	3
IMM. 809.2	Experimental Work Laboratory-Based	3
SGS 801.2	Research Project	2
	Entrepreneurship and Management	2
	Total	17
	Total Credit Unit	30

1. DESCRIPTION OF COURSE

Below is a detailed description of each of all the courses that would be taught in the programme.

IMM. 801.1: BASIC IMMUNOLOGY I (IMMUNOPHYSIOLOGY)

This course will give an understanding of the structure and functioning of the immune system, as well as cellular interactions involved in host defense mechanisms. Course details are: introduction to immunology; the lymphoid system; cells involved in immune response their organization, diversity and specialized functions; antigen processing and presentation; B and T lymphocyte receptors/activation; immunogen and immune responses, immune responses and immune tolerance. Introduction to genes and genomes.

IMM 802.1: BASIC IMMUNOLOGY II (IMMUNOCHEMISTRY)

The course will deal with serum factors that are involved in immune response and those that amplify such responses. Details include the immunoglobulin: structure, functions, metabolism, classification, monoclonal antibodies, nature and consequences of antigen-antibody interaction; the complement system- components, reaction pathways, interactions with other body systems, regulatory proteins; the role of cytokines in body defense mechanisms. Recombinant DNA technology and genomics.

IMM 803.1: CLINICAL IMMUNOLOGY I (IMMUNOPATHOLOGY)

The course deals with the immunopathology and immunopathogenesis of certain disease conditions. It will give a detailed consideration and appreciation of the role of the immune system in disease states with immunological undertone: like allergies, autoimmune diseases, transplant rejection and others. It will also lead to a better understanding of the disease conditions arising from functional aberrations of the immune system.

The following are some of the conditions: hypersensitivity states, autoimmunity and autoimmune disorders; the human leukocyte antigen (HLA) system and immunology of transplantation. Immunomodulation: immunosuppression and immunosuppressive therapy, immunopotential, immunoglobulinopathies, tumor immunology; immunodeficiency states. Basic introduction to proteomics.

IMM. 804.1: CLINICAL IMMUNOLOGY II (SELECTED TOPICS IN CLINICAL IMMUNOLOGY)

The course will lead to an in-depth understanding of health and disease conditions in which the immune system is involved at the molecular/genetic levels. It will deal with: immunology of reproduction: immunology of infertility and pregnancy complications; immunogenetics; immuno-haematology; immunopharmacology; neonatal immunology; immunology of malnutrition.

IMM. 805.1: IMMUNOLOGY OF TROPICAL INFECTIONS

The course will focus on the immunology of microbial infections, especially those microbes of importance in the tropics. It will cover: immunology of parasitic infections: malaria; trypanosomiasis, onchocerciasis, helminth infections and other worm infestations; immunology of bacterial infections; immunology of viral infections (including HTV); immunology of fungal infections.

IMM.806.2: RESEARCH METHODOLOGIES AND BIostatISTICS

Candidates will be exposed to research methodologies that will include immunological methods of determining (i) humoral parameters (ii) cellular parameters and (iii) advanced immunological techniques. Candidates will also be taught relevant areas of biostatistics including data collection and analysis.

IMM. 807.2: RESEARCH SEMINARS

Candidates will be required to present seminars on various topics on immunology.

IMM. 808.2: GROUP STUDY EXPERIMENTAL WORK

Candidates will undertake group experimental work, write up the reports of such work and present at class discussion sessions.

IMM. 809.2: LABORATORY- BASED RESEARCH PROJECT

Candidates will carry out laboratory-based research projects which will be presented as dissertations for assessment at the end of the programme. The assessment will include a successful defense of the dissertation.

2. EXAMINATIONS

There shall be periodic continuous assessment for all courses except the Research Seminar and the Research project courses i.e. IMM. 807.2 and IMM. 809.2. Continuous assessment shall make

up 30% of the entire examination. Each written examination for each course shall consist of an objective and an essay paper. The pass mark shall be 50%.

3. STAFF LIST

Although the programme is in the Department of Haematology, Blood Transfusion and Immunology of the Faculty, lecturers come from several other Departments in the College of Health Sciences and the Faculty of Science, University of Port Harcourt. This is due to the multidisciplinary nature of the discipline, as it cuts across all branches of medicine.

ACADEMIC STAFF

S/NO	Names	Qualification	Designation	Department
1	Prof. C. A. Nwauche	B. Med. Sc. (Hons); MBBS, FWACP; M.Sc. Haem. (London).	Professor	Haematology, Blood Transfusion & Immunology
2	Prof. D. V. Dapper	MBBS, MD; FASAN.	Professor	Physiology
3	Prof. B. C. Didia	MBBS(Benin), MD(UPH)	Professor	Anatomy
4	Prof. A. W. Obianime	B.Sc (Ibadan; Ph.D(London).	Professor	Pharmacology
5	Prof. S. O. Nwosu	MBBS, MSc, DCP, FMCPPath, FWACP.	Professor	Anatomical Pathology
6	Prof. A. C. Ojule	MBBS, MSc, FMCPPath.	Professor	Chemical Pathology
7	Prof. C. G. Orluwene	B. Med Sc, MBBS, FMCPPath.	Professor	Chemical Pathology
8	Prof. O. N. Ekeke	MBBS, FWACP.	Professor	Surgery
9	Dr. O. K. Obunge	BSc, MD., FWACP.	Professor	Medical Microbiology
10	Prof. O. G. Omitola	BDS, MSc, FMCDs, FWACS, FICS.	Professor	Oral Pathology & Immunology
11	Prof. (Mrs) A. U. Eneh.	MBBS, FWACP.	Professor	Paediatrics
12	Prof. K. T. Wariso	MBBS, FMCPPath.	Professor	Medical Microbiology
13	Prof. O. B. Babatunde	MBBS, PgCert Epid, MPH, FWACP.	Professor	Preventive & Social Medicine
14	Prof. H. D. Kagbo	BSc, MSc, PhD.	Professor	Pharmacology
15	Dr. V. K. Orij	B.Med Anat, MBBS, FWACS, FICS.	Senior Lecturer	Obstetrics and Gynaecology
16	Dr. C. C Obiorah	MBBS (Nsukka), FMCPPath.	Senior Lecturer	Anatomical Pathology
17	Dr. M. K Sapira	MBBS, FWACS, FMCS, FICS.	Senior Lecturer	Surgery
18	Dr. E. P. Odums	MBBS, FMCPPath.	Senior Lecturer	Chemical Pathology
19	Dr. O. Otokunefor	MBBS, FMCPPath.	Senior Lecturer	Chemical Pathology
20	Dr. K. Otokunefor	BSc, MSc, PhD.	Senior Lecturer	Molecular Microbiology
21	Dr. I. F. Allison	MBBCH, FMCPPath.	Senior Lecturer	Chemical Pathology
22	Dr. N. Nkoyo	MBBS, FMCPPath.	Senior Lecturer	Chemical Pathology
23	Dr. O. J. Olorunfemi	BSc. MSc, PhD.	Senior Lecturer	Human Physiology
24	Dr. M. A. Alex-Wele	MBBS, FMCPPath.	Lecturer I	Medical Microbiology
25	Dr. I. S. Musa	MBBS, FMCPPath.	Lecturer I	Anatomical Pathology

DEPARTMENT OF PHARMACOLOGY

POST GRADUATE DIPLOMA (PGD) IN PHARMACOLOGY (12 months minimum)

Candidates applying for the Postgraduate Diploma in Pharmacology, should have a Bachelor's Degree with a minimum of 2nd Class lowers Honours in Biochemistry, Physiology, Anatomy, Biomedical Technology, nursing, physiotherapy, radiography, optometry, medical laboratory science and related Biological Science discipline or a third class in Pharmacology. The duration of this programme is a minimum of 12 calendar months and a maximum of 24 calendar months full time; a minimum of 24 calendar months and a maximum of 36 calendar months part time to complete. Candidates are expected to register for, and pass 3 Ounitsofc oursework with minimum score of (50%) (C). In addition, candidates will be required to present a seminar, and complete a project work. To qualify for the M. Sc. programme, each candidate must pass all 24 units of taught courses, 3 units of seminar and 3 units of project work and obtain a C.G.P.A of at least 3.5and above in the Diploma Programme.

MASTER OF SCIENCE (M.SC.) IN PHARMACOLOGY (18 MONTHS MINIMUM)

To qualify for the programme, candidates must possess a good Second Class degree lower division or its equivalent in Pharmacology, Pharmacy, Medicine, Dentistry or Veterinary Medicine. Such candidates, whose background in Pharmacology is considered satisfactory, will be required to register for the Advanced Pharmacology courses, start their research projects and spend a minimum of eighteen (18) months.

The following M.Sc. Pharmacology Options exist:

- a. Cardiovascular Pharmacology
- b. Biochemical Pharmacology
- c. Immunopharmacology
- d. Toxicology
- e. Ethnopharmacology
- f. Chemotherapy

Doctor of Philosophy (Ph.D) Degree in Pharmacology

Admission to the programme will be open to candidates who possess the M.Sc. with a minimum of 3.50 Cumulative Grade Point Average, or the M.Phil Degree or an equivalent degree, in Pharmacology. Candidates should normally have had a Masters Degree with an average score of 60% or its equivalent grade. For candidates who obtained their Masters exclusively by Research

Assessment, admission would be based on the quality of their Thesis.

Candidates with an outstanding performance during the M.Sc. Pharmacology Programme may be allowed to advance to Ph.D on the recommendation of the Departmental Graduate committee to the Graduate School Board after approval by Senate of the University. Candidates may be required to satisfy the Department in a selection process.

The Ph.D. is a Research Degree finally examined by Oral Defense of the Dissertation. The Departmental Graduates Studies Committee through the Faculty Graduates Studies Committee and upon approval by the Board of the School of Graduates Studies shall appoint a Supervisor and conduct the required examinations and other conditions that may specified for the Award of the Degrees.

M.Sc. PROGRAMME IN PHARMACOLOGY (MINIMUM OF 18 Months)

OBJECTIVES: The main function of universities is to teach, conduct research and give service to the community. One of the ways of stimulating academic research is by initiating postgraduate programme. The Programme commenced in 1997. These Programmes produce specialized manpower. Thus graduate studies in Pharmacology aims at training candidate to acquire advanced knowledge and skilful research techniques as to produce:

- a) Graduates with in depth knowledge of Pharmacology.
- b) Graduates with skills to teach Pharmacology.
- c) Graduates capable of designing and conducting experiments for undergraduate students.
- d) Graduates who are vast in rational choice of therapeutic agents to advice physicians and dentists in hospital.

THESIS/DISSERTATION

After approval of the research topic by the Senate of University of Port Harcourt, the student shall carry out his/her research with Supervision. He/she shall write up his/her dissertation in accordance with University of Port Harcourt Postgraduate Studies Regulations.

M.Sc. PHARMACOLOGY

First Semester

Course Code	Course Title	Credit Unit
SGS 801.1	ICT and Research Methodology	2
PHA 830.1	Pharmacokinetics	3
PHA 831.1	Research Techniques and Instrumentation	3
PHA 838.1	Immunopharmacology and Autocold Pharmacology	3
PHA 839.1	Biostatistics	3
	Total	15

Second Semester

Course Code	Course Title	Credit Unit
SGS 801.2	Management and Entrepreneurship	2
PHA832.2	Neuropharmacology	3
PHA 833.2	Cardiovascular Pharmacology	3
PHA 834.2	Chemotherapy	3
PHA 835.2	Seminar I	1
PHA 837.2	Toxicology	2
PHA 830	Elective	2
PHA 831	Research	6
	Total	22
	Grand Total	36

Ph.D COURSE OUTLINE

Course Code	Course Title	Credit Unit
PHA 921	Research Seminars in Pharmacokinetics	3
PHA 922	Research Seminars in Chemotherapy	3
PHA 923	Research in CNS Pharmacology	3
PHA 924	Recent Advances in Pharmacology Research Seminar	3
PHA 951	Research Dissertation	12
	Total	24

COURSE DESCRIPTION

PHA 830.1: Pharmacokinetics

The Course is designed to provide in-depth knowledge in:

1. Drug absorption, metabolism and elimination
2. Linear and non-Linear pharmacokinetic model

3. Dosage regimentation based on pharmacokinetic parameters
4. Kinetics of drug concentration with response
5. Bioavailability and pathophysiologic factors in Pharmacokinetics

PHA 831.1: Research Techniques and Instrumentation

The course aims at having the student design and carry out scientific research. He must be familiar with the variety of analytical methods and their application.

PHA 832.2 Neuropharmacology

The course is designed to give the candidate an up to date knowledge of Pharmacological basis of neurological diseases or disorders and therapeutics of current drugs used in disorders of the nervous system. Areas of interest include a Review of the following Neurohumoral transmission and the CNS, Neurotransmitters and neurological disorders. History and Principles of Anaesthesiology. General and Local Anaesthetics. The therapeutic gases: Oxygen Carbon dioxide. Helium and water vapour, Hypnotics and Sedatives: Ethanol, Drug and the treatment of Psychiatric disorder. Drugs effective in the therapy of the Epilepsies. Drugs for Parkinson's disease, Spasticity and Acute muscle spasms. Opioid Analgesics and Antagonists. Drug Addiction and Drug Abuse.

PHA 833.2: ADVANCED CARDIOVASCULAR PHARMACOLOGY

The course is designed to impart advanced Knowledge of the following Renin and Angiotensin, Antihypertensive agents, Antiarrhythmic agents, Antianginal agents, Positive Inotropic Agents, Vasodilators, Anti-hyperlipoproteinaemic Agents, Drug management of circulatory shock is also emphasized.

PHA 834.2: CHEMOTHERAPY

The course aims at imparting to the candidate a sound knowledge of pathophysiology of parasitic, neoplastic and microbial diseases, with emphasis on: Mechanism of Action, Pharmacokinetics, Adverse Effects, Therapeutics and Resistance and mechanism of resistance of these drugs used for therapy. Areas that will be covered are: Drugs used in the chemotherapy of Helminthiasis; Antiprotozoal agents: useful in malaria, amoebiasis giardiasis, Trichomoniasis; leishmaniasis, Trypanosomiasis; Antimicrobial agents: sulfonamiasis, Trimethoprim-Sulfamethoxazole, Quinolones and Agents for urinary tract infections; Penicillins, Cephalosporins, Aminoglycosides, Tetracycline,

Chloramphenicol and Erythromycin, Drugs used in the Chemotherapy of Tuberculosis and Leprosy; Antifungal Agents, Antiviral Agents, Anticancer Agents.

PHA 837.2: TOXICOLOGY

Emphasis will be laid on following Mechanisms of drug toxicity, Management of acute drug poisoning, Plant, bacterial and animal poisons, Heavy metals and Heavy metal antagonists, Air Pollutants, Solvent poisoning Vapours and Gases (Aliphatic halogenated hydrocarbon, chloroform, carbon tetrachloride, Benzene, Kerosene, Carbon Monoxide). Pesticides, Food Toxicology Cyanide Poisoning, Aflatoxin, Hycotoxins. Radiation and Radioactive Materials External Radiation Exposure, Internal Emitters, Radiation Protection Standards.

PHA 838.1: IMMUNE-PHARMACOLOGY AND AUTOCOID PHARMACOLOGY

The course is designed to give in-depth knowledge of pharmacology of autocooids and their therapeutic uses. Emphasis will be laid on the following: Immunosuppressive Agents: Histamine, 5 Hydroxytryptamine and their antagonists. Lipid derived autocooids: Eicosanoids and platelet activating factor, Kinins, Intracellular Signalling Agents: Cytokines etc. Drugs used in different Immunopathologies .Drugs used in the treatment of Asthma, The Methylxanthines, Cromolyn Sodium and other Agent. Drugs employed in the treatment of Rheumatoid Arthritis and Gout. Analgesics antiipyretic and anti-inflammatory agents. Drugs used in different skin and immunoreactive states or disorder.

PHA 839.1: BIOSTATISTICS

An advanced course covering the following, Organization and Summarization of Data, Descriptive Statistics Probability, Sampling Distribution: Association, Contingency and Goodness of fit: The Chi-Square Distribution, Hypothesis Testing, Choosing the Study Subject and Sampling, Estimation, NonParametrics, Design of Experiment and Analysis of Variance, Correlation and Regression, Research Methodology, Vital Statistics, Demography and Health Statistics Non- parametric methods.

Ph.D PROGRAMME IN PHARMACOLOGY INTRODUCTION:

The course will provide intensive training in various are of Pharmacology and are designed for graduates in Pharmacology, Medicine, Dentistry Pharmacy, Veterinary Medicine, Physiology and Biochemistry. The objective of the courses will be to produce competent Basic and Medical Pharmacologists in Teaching and Research Institutions, in Hospital and in Industries (especially in Pharmaceutical Drug Production and Quantity and Quality Control Laboratories).The Programme is to be undertaking for duration of three year full time and four years part time after M.Sc. of this Department. The Ph.D programme will be based on independent research work. To obtain a Ph.D in Pharmacology candidate shall submit an acceptable Ph.D dissertation, act as a Demonstrator to the Undergraduate student as part of their training, give 3 research seminars on the project work and satisfy all other requirements as stipulated in the Graduate School Prospectus for graduate Students.

PHA 923: RESEARCH SEMINARS IN CENTRAL NERVOUS SYSTEM PHARMACOLOGY

Students will be required to make presentation in the Special areas of the various modulating factors in the CNS.

PHA 924: RECENT ADVANCES IN PHARMACOLOGY RESEARCH SEMINARS

Seminar Presentations of Research Projects and Review of Current Literature Related to the Works.

PHA 925: PHARMACO – EPIDEMIOLOGY SEMINAR

This will involve Presentation of Seminars

PHA 951: DISSERTATION

For candidates to meet the requirements for the award of Ph.D Degree in Pharmacology, Candidates will be required to satisfy a Minimum of six and maximum of 12 units at 900 level courses.

**DEPARTMENT OF PHARMACOLOGY
ACADEMIC STAFF LIST**

S/N	NAME	DESIGNATION	QUALIFICATION	SPECIALIZATION
1	Prof. N. Brambaifa	Professor	Vor-Dip. Dr. Re Nat (Berling)	Biochemical Pharmacology
2	Prof. A.W. Obianime	Professor	B.Sc (Ibadan), Ph.D (London)	Immunopharmacology
3	Prof. O.A. Georgewill	Professor	B.MedSc, MBBS, M.Sc, MD (UPH)	Cardiovascular Pharmacology/ Neuropharmacology
4	Prof. I.M. Siminialayi	Professor	B.MedSc, MBBS (UPH), M.Sc (Lagos), MD (UPH)	Endocrine Pharmacology
5	Dr. H.D. Kagbo	Senior Lecturer	B.Sc, M.Sc (UPH), Ph.D (Uyo), MNISP	Toxicology/ Ethnopharmacology
6	Dr. (Mrs.) Udeme O. Georgewill	Senior Lecturer/Ag. HOD	MBBCh (Calabar), M.Sc, Ph.D (UPH)	Chemotherapy/ Toxicology
7	Dr. S.G. Eyaru	Lecturer I	MBBS (Benin), M.Sc (Lagos)	Pharmacology
8	Dr. J.O. Odigie	Lecturer I	MBBS, M.Sc (UPH)	Pharmacology
9	Dr. Ijeoma H. Ogbuehi	Lecturer I	B.Sc (IMSU), MSc, Ph.D (UPH)	Reproductive Toxicology
10	Mr. D.M. Ogan	Grad. Asst.	B.Med. Sci, PGD (UPH)	Pharmacology

FACULTY OF CLINICAL SCIENCES

DEPARTMENT OF PREVENTIVE AND SOCIAL MEDICINE

MASTER IN PUBLIC HEALTH (MPH) AND MASTER OF SCIENCE IN PUBLIC HEALTH

(MSe PUBLIC HEALTH) DEGREES

Introduction

Public health has been defined as 'the science and art of preventing disease, prolonging life and promoting physical health and efficiency through organised community efforts for the sanitation of the environment, the control of community infections, the education of the individual in the principles of personal hygiene, the organization of medical and nursing services for the early detection and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health' (Winslow, 1920).

Public Health is a discipline which involves acquisition of skills and competences essential for the practice of health promotion, protection and prevention of diseases, Public Health is a multidisciplinary field comprising medical and other health-related disciplines. The MPH and MSc degrees prepare professionals for leadership positions in Public Health.

Justification/rationale

Achievements in reducing mortality and morbidity in the past can be traced to public health initiatives. Improving health outcomes towards achieving the Millennium Development Goals is a major challenge for public health in the 21st century. Hence to keep the public healthy in a world where health threats range from HIV/AIDS to epidemics of hypertension and diabetes mellitus, there is need to increase the number of public health practitioners and professionals. There is a dearth of Public Health Professionals in Nigeria to teach, practice and conduct research to improve the health of the populace. Public health practitioners are also needed to effectively shape the programmes and policies needed to improve population health.

There is therefore a growing need and demand for public health training in Nigeria. Few States in Nigeria have appropriately trained and qualified Epidemiologists, Biostatisticians, Health Managers, and Health Information Management Experts. The MPH and MSc programmes will fill the human resource gaps in public health practice in Nigeria especially in the Niger Delta Region. It

is intended that at the end of the programme, students would have acquired appropriate knowledge, skills and competences to enable them to apply public health principles in the planning, implementation and evaluation of health programmes. They will also be expected to be able to critically assess environmental factors as well as public health interventions and their potential impacts on health.

Programme Summary

Programme Titles:

1. Master of Public Health (MPH)
2. Master of Science in Public Health (MSc Public Health) (MSc PH)

Available option: Full time

The full-time admission is offered only to candidates who can satisfy the Department and the School of Graduate Studies that they are not in any employment, or that they have been relieved by their employers to undertake full-time studies. Candidates found to have made false declaration in this respect shall be withdrawn from the University

Duration - 18 months

The course work will run for two Semesters, while the third semester will be for the conclusion of the Seminar and Project work.

Total Credit Units:

MPH	43 credits
MSc PH	39 credits

Each candidate is expected to complete all the required courses under each programme and an elective

Domiciliation of the Programmes

Faculty: Clinical Sciences

Department: Preventive and Social Medicine

Objectives of the MPH and MSc Public health Programmes

- To provide training in public health to qualified health professionals and to other individuals whose prior training and experience prepares them to play a leadership role in public health;
- To adapt MPH and MSc Public Health training to the diverse backgrounds and anticipated future careers of the students;

- To award the degrees to individuals who have acquired a particular depth of knowledge in public health practice.

Intended Learning Outcomes

The major objective of the MASTER'S in public health programmes is to provide graduates with the necessary skills and background to make them well-grounded so that they can make an impact in a demanding workplace and in the community. These skills include:

Technical Skills

- Detailed technical knowledge of public health and healthcare
- Understanding of the applications of this knowledge in solving health problems in the society at large
- Technical, interpersonal and organizational competence in health

Generic Skills

- Acquire skills to become a highly effective manager and leaders
- Ability to work independently and in a team within an organisation
- Presentation skills and experience
- Social skill in dealing successfully with every individual in the workplace as public health practitioner and in the community

The intended learning outcomes on successful completion of the various trainings in Public Health are:

- a) Know the concept of Public Health and its relevance in Nigeria health care system;
- b) Describe the major ecological and social factors affecting human health.
- c) Carry out epidemiological studies to identify prevalent health problems in the community and determine the effective means of solving them;
- d) Know how to plan, organize and evaluate appropriate health programmes;
- e) Seek and mobilize resources for health care and programmes;
- f) Develop the spirit of teamwork among the members of the health team;
- g) Exhibit the highest principle of medical ethics in the promotion of health.
- h) Prevent and control major communicable diseases in the community and institutions.
- i) Describe the principles of dietetics and nutrition for all age and community.
- j) Describe the major public health laws that are applied by health authorities in the community
- k) Carry out a research project in any health-related area

In addition, the Primary Health Care training aims at enabling the health worker to possess the knowledge, attitude, and skills to:

- a) Diagnose the health problem of a community;
- b) Develop a Primary Health Care plan for the defined community
- c) Deliver the component services of Primary Health Care
- d) Provide essential curative care for common conditions at the level of Primary Health Care in a defined community
- e) Provide immunization services to a defined community
- f) Provide maternal health services and family planning to a defined community
- g) Provide health education to the individual and the community
- h) Identify and provide solutions to the problems of environmental sanitation;
- i) Describe the epidemiology of local endemic diseases and provide appropriate preventive and curative services for defined community
- j) Manage, monitor and evaluate the implementation of Primary Health Care services for a community
- k) Implement appropriate training programmes for health personnel and members of the community for delivery of Primary Health Care Services.

Admission Requirements

The two Programmes will be open to candidates who possess a first degree in medicine, basic medical sciences pharmacy, nursing and other courses allied to medicine. In addition, candidates must have at least three years post degree experience and must have completed the National Youth Service (NYSC) programme. Candidates for admission into the programme will undergo a selection process and only those who are successful will be admitted into the programme.

To serve the interest and needs of all medical, health and allied professions who desire to do the programme, there was a need to simultaneously mount two separate programmes - one for medically qualified graduates and another for non-medically qualified professionals who wish to practice Public Health.

Requirements for master's in public health (MPH)

1. MBBS/BDS or its equivalent
2. NYSC discharge certificate or an exemption from it
3. Candidates are also required to undergo an aptitude test and an interview.

Requirements for master’s in public health (MSc and MPH)

1. B.ScHonours in a Medical discipline with a minimum of Second Class Lower Division (22) Degree. Candidate who score an aggregate of 3.5 CGPA in the PGD programme would be eligible for admission into the master’s degree Programme
2. NYSC discharge certificate or an exemption from it
3. Candidates are also required to undergo an aptitude test and an interview.

Academic Regulations

Academic session - An academic session consists of two semesters. Each semester normally comprises of 17 weeks of teaching and examination

Block Modular System - The courses shall run on modular basis, commonly referred to as course unit system. All courses shall be sub-divided into self-sufficient and logically consistent packages that are taught within a semester and like most medical training, examination shall come any time after the completion of each course. Credit weights shall be attached to each course.

Definition of credit unit - Credits is weights attached to a course. One credit is equivalent to 15 hours class contacts (e.g. one hour per week per 15 weeks of lectures or tutorial). In addition to the class contact hours, all students are expected to invest on assigned minimum private study hour to make the best of every course.

Training Methods

- a) Didactic lectures
- b) Tutorials and Discussions
- c) Group activities
- d) Seminars
- e) Field visits to places of public health importance including health-related institutions and industries
- f) Clinical practice e.g. general medical practice at the primary health centres, ward rounds
- g) Community-based field training - Health surveys involving households, under-fives, primary school, and secondary school in both rural and urban communities; outbreak investigation (simulation)
- h) Research project
- i) Practical — both public health related and computer training
- j) Self-directed learning.

Attendance and Participation

A. Logbook and attendance

It is the responsibility of the student to obtain a logbook that would be used throughout their training and ensures that he/she:

- a. Attends all lectures, which must be signed by the respective instructor(s) in his/her logbook.
- b. Attends all clinical and field activities that are carried out and should be signed by the supervisors
- c. Attends and participates actively in all group activities including community service
- d. Completes a project approved by the department and duly certified by the project supervisor

Attendance at all training activities is mandatory and only students that make at least seventy-five percent (75%) attendance and participation in all activities including the urban and rural postings, duly certified by lecturer/supervisor shall be eligible to sit for the examination.

COURSE OUTLINE IN THE DIFFERENT PROGRAMMES

MPH PROGRAMME

Code	Course Title	Credit Unit
PUH 801.1	Introduction and History of medicine/ public health	1
	Virtual library	-
PUH 802.1	Ethics in Health Care	1
PUH 836.1	Social Medicine and Rehabilitation	2
PUH 832.1	Medical Sociology	2
PUH 809.1	Medical Statistics	3
PUH 805.1	Principles of Epidemiology	3
PUH 806.1	Health Promotion and Education	2
PUH 807.1	Health Systems	3
PUH 808.1	Environmental Health	3
SCI 801.1	Management and Entrepreneurships	2
PUH 811.2	Occupational Health	2
PUH 817.2	Demography	1
PUH 819.2	Public Health Nutrition and Dietetics	1
PUH 812.2	Reproductive and Family Health	2
PUH 813.2	Applied Epidemiology	2
SCI 802.2	ICT and Research Methodology	2
PUH 816.2	Public Health Laboratory Practice	1
PUH 821.2	Research project (Spread)	6
PUH 822.2	Seminar	1

PUH 823.2	Internship and MOH Attachment	1
PUH 818.2	Evidence-Based Public	1
PUH 824.2	Mental Public Health	1
PUH 825.2	Oral Health	1
PUH 826.2	Therapeutics	1

MSPH PROGRAMME

Code	Course Title	Credit Unit
PUH 801.1	Introduction and History of medicine/ public health	1
	Virtual Library	-
PUH 832.1	Medical Sociology	2
PUH 836.1	Social Medicine and Rehabilitation	2
PUH 802.1	Ethics in Health Care	1
PUH 809.1	Medical Statistics	3
PUH 805.1	Principles of Epidemiology	3
PUH 806.1	Health Promotion and Education	2
PUH 807.1	Health Systems	2
PUH 808.1	Environmental Health	3
SCI 801.2	Management and Entrepreneurship	2
PUH 812.2	Reproductive and Family Health	2
PUH 813.2	Applied Epidemiology	2
SGS 801.1	ICT and Research Methodology	2
PUH 817.2	Demography	1
PUH819.2	Public Health Nutrition and Dietetics	1
PUH 821.2	Research project (Spread)	6
PUH 822.2	Seminar	1
PUH 833.2	Internship and specialty attachment	1
PUH 818.2	Evidence-Based Public Health	1
PUH 816.2	Public Health Laboratory Practice	2
PUH 826.2	Therapeutics	1

DETAILS OF THE VARIOUS COURSES

Principles and Practice of Epidemiology

This course will teach the basic concepts and principles of epidemiology and disease outbreak investigation, the application of epidemiologic principles in the control of diseases of public health importance. It will emphasize disease distribution, determinants and deterrents in communicable and non-communicable disease conditions.

Broad aspects covered include - Epidemiology: Definition. History, Distribution and Determinants of Diseases: Biological, Behavioural, Social, etc, Epidemiological approach, Infective Agents: Reservoir of Infection, Transmission of Communicable Diseases, Host Factors, Epidemiologic triad, Natural history of disease, spectrum of diseases, Risk Factors in the Epidemiology of Communicable and Non-Communicable Diseases, Epidemiological Methods: Epidemiological Tools - Rates (Crude and Specific), Ratios, Percentages, etc, epidemiological Methods: epidemiological Studies, Disease Surveillance and Notification, Screening and Screening Tests, Uses of Epidemiology, Principles of Disease Control, Levels of Prevention, Epidemiological Transition.

Applied Epidemiology

This is a continuation of principles of epidemiology and will involve the application of epidemiological principles to the control of communicable and non-communicable diseases as well as health-related events. The course will also teach basic concepts in the principles of transmission and control of communicable diseases. Broad areas covered include - Epidemiology and Control of Communicable Diseases According to their Routes of Transmission; Epidemiology and Control of Viral Infections (Poliomyelitis, HIV/AIDS, Viral Hepatitis A-G, Yellow Fever, Chickenpox, Lassa fever, Ebola, Exotic Diseases, Rabies, Measles, Rubella, Mumps, Viral RTI5,); Epidemiology and Control of Bacterial Infections (Tb, Leprosy, Enteric Fevers, Bacillary dysentery, Cholera, Bacterial Food Poisoning, Tetanus, Bacterial Pneumonia, Meningococcal Infections, Rheumatic Fever, Pertussis, Diphtheria, Plague, Anthrax, Chlamydial Infections); Epidemiology and Control of Protozoal Infections (Malaria, Amoebiasis, Giardiasis, Trichomoniasis, Trypanosomiasis; Epidemiology and Control of Fungal Infections (Superficial Fungal Infections, Candidiasis; Epidemiology and Control of Helminthic Infestations (Ascariasis, Trichuriasis, Enterobiasis, Visceral Larva Migrans, Cutaneous Larva Migrans, dracontiasis, Taeniasis, Hydatid Disease, Fascioliasis, Hookworm, Schistosomiasis, Strongyloidiasis, Bancroftian and Malaysian Filariasis, Loaiasis, Onchocerciasis,); Epidemiology and Control of Arthropod Infestations (Scabies, Lice, Ticks, Mites); Epidemiology and Control of Special Groups of Communicable Diseases - STIs, Zoonoses, Diarrhoeal Diseases, Emerging and Re-Emerging Infectious Diseases, Hospital Infections Control Programmes for Communicable Diseases in Nigeria; Epidemiology and Control of Genetic and Congenital Diseases - Sickle Cell Disease, Down's

syndrome; Epidemiology and Control of Juvenile Delinquency Accidents - RTA and Home Accidents; Epidemiology and Control of Asthma and Peptic Ulcer; Epidemiology and Control of Diabetes (DM, DI), Hypertension, Sickle Cell Disease, Coronary Heart Disease, G6PD Deficiency, Ca Breast, Ca Cervix, Ca Prostate; Control Programmes for Non-communicable Diseases in Nigeria.

Social and Rehabilitative Medicine

Introduction to Social Medicine; Health assessments eg HDI, QALY, DALY; Social Deviance; Alcoholism; Drug Abuse; Smoking; Domestic violence eg battered wife syndrome, rape; The Underprivileged in the Society Disability, Handicap, Impairment; Classification and Causes of Handicaps; Problems of the Aged. Social Welfare Services in Nigeria and Other Countries; Care of the Handicapped; Orphanage; Old People's Home; Remand Homes; Prisons; Care of the terminally ill and hospice care; Voluntary Agencies in health and social services; Emergency preparedness and Federal, State and Local Government Levels

Medical Statistics

This course will teach basic and inferential statistics as applied to clinical and epidemiological studies. This will include standard statistical concepts of data description, hypothesis testing including test statistics, correlation, p-values, significant levels, confidence intervals and linear regression. It will equip prospective students with basic and advanced skills in quantitative reasoning and application necessary for medical research.

Broad areas include - Introduction to statistics; Types of data, types of variables, Types of distribution; Sources of Data, Tools for Data Collection; Scales of Measurement; Diagrammatic Presentation of Data - Histograms, Pie charts, Bar Charts, Graphs, Pictogram etc; Numerical Presentation of Statistical Data - Measures of Central Tendency and Location; Measures of Dispersion; Tabular presentation — simple and cross table etc; Population, Samples and Sampling Techniques; Probability Theory; Estimating Population Values; Inferential Statistics; The Standard Normal Curve; Standard errors; Confidence Intervals; Tests of Significance - Z-Test, t-Test, Chi-Square Test; Association, Correlation and Regression; Uses of Statistics.

ICT and Research Methodology

This course should cover essentials of ICT especially the use of Microsoft Word, Spreadsheet, Powerpoint, Access and Project. It will also examine common statistical packages used in health research.

The course is an introduction to project design and planning and will teach the various methods in conducting scientific medical research. It will emphasize quantitative and qualitative designs including how to conduct clinical trials and documentation. It will also introduce the use of computer in data analysis and the use of operational research and functional analysis in project design and evaluation.

Other areas covered include - Planning a Research; Ethical Issues in Research; Study Designs in Medicine and Public Health; Choice of Topic; Introduction (Problem Definition, Objectives); Formulation of hypothesis, Testing of hypothesis; Literature Search/Literature Review; Materials & Methods; Sample Size determination/Calculation; Instrument for data collection; Data Collection/Management; Presentation of Results (Data Presentation, Analysis etc); Discussion, Conclusion and Recommendations; Referencing; Project Write-Up

Management and Entrepreneurship

This course is designed to equip participants with the necessary Policy and management skills applicable to the health care system. The course will also teach how to develop interpreter and institutionalize health policy issues and trusts for public benefit. Health care financing and economic evaluation of health care will be covered. Broad areas covered include —The policy process, analysis and health policy formulation; Concepts, Principles and Functions of Management; Health Services Management - Definition, History, Elements; Principles, Scope and Nature of Health Services (Levels of Health Care); Organisation of Health Services in Nigeria (Federal, State and LGAs); Comparative Analysis of Health Care Systems in Different Countries; Planning of Health Services (Cybernetic Cycle); Evaluation of Health Services.

Others are Management of Human, Material and Financial Resources; Management of hospitals and other health organization; National Health Policy; Health quality improvement; The Health Team; Principles of Health Economics — Basic and applied; Health care financing; Public private partnership in health; Health Management Information system; Leadership training

Environmental Health

This course will teach the impact of the environment on human health. It will emphasize those aspects of human health including quality of life that are determined by physical, chemical, biological, social and psychological factors in the environment. Specifically, it will dwell on the theory and practice of accessing, correcting, controlling and preventing those factors in the environment that can potentially affect adversely the health of the present and future generations.

Emphasis will be placed water sources and purification, waste management, housing and health, food and health, vector and pest control etc. Broad areas covered include - Components of the Environment - Biological, Physical and Social; Ecological Concepts; Man's Interaction with the Environment: Adaptation Process, Balance and Change; Socioeconomic Activities and the Human Environment - Deforestation, Irrigation, Dams, Industrialization, etc; Environment and health; Geography and health; Urbanization and health; Introduction to Environmental Health.

Environmental Sanitation and its Components Water and Health, Sources of Water; Uses of Water; Examination of Water, Purification of Water, Water Supply; WHO Water Programmes; Food Hygiene; Safeguarding of Food; Housing and Health; Disposal of Wastes - Sewage and Refuse, Disposal of the Dead. Control of Vectors, Other Pests and Animal Reservoirs of Infection; Insecticides of Public Health Importance; Air Hygiene and Prevention of Atmospheric Pollution; climate change; Legislation and Environmental Health - Public Health Laws; The Petroleum Industry and the Niger Delta; The Ozone Layer; Green House Gases.

Occupational Health

This course will teach effect of occupation on health and the effect on health on occupation. It will emphasize the various prevention and control practices applied in the industry to prevent adverse consequences to human health. Also the health hazards of various industrial sectors ranging from Agriculture, energy, oil and gas, manufacturing, health industry, transportation.

Broad areas covered include - Introduction to Occupational Health, Aims and Objectives; Occupational Health, Hazards and their Control; The Environment of Working Places; Occupational Health Services; Fate of Inhaled Aerosol; Pneumoconiosis; Hazards of Radiation; Hazards of Various Occupations - Petroleum, Butchers, Bottling, Executives, Agriculture; Occupational Cancers; Environmental & Biological Monitoring; Industrial Medical Examination; Industrial Health Notification, Industrial Notifiable Diseases; Industrial Legislation - Factory Act, Workman's Compensation Act; Industrial Rehabilitation; National and International Health Regulations Relating to Occupational Health.

Health Promotion and Education

This course will teach ways and methods that will make people value health as a worthwhile asset, with a desire to live long and feel well. The emphasis will be on what people can do as

individuals, families, communities to protect and improve their health. At the personal and family levels emphasis will be placed on such matter as exercise, deadliness in the home diet and discipline with regard to the use of tobacco and alcohol. At the community level and beyond, emphasize will be on environmental sanitation etc.

Broad areas covered include - Health Education - Principles, Methods and Strategies; Principles of learning and behavioural change; Assessment of learning needs (individual, community); Designing educational materials; Evaluation of health education programme; Health Education in the Control of Communicable and Non-Communicable Diseases; Health promotion.

Reproductive and Family Health

This course will teach the concepts of human needs and development throughout the life cycle though with emphasis on women and children's health issues. These will include; Gender Equity, Equality and Women Empowerment, Safe Motherhood, Family Planning - Information and services, Prevention and management of Infertility and sexual dysfunction in both men and women, Prevention and Management of Complications of abortion, Prevention and Management of reproductive tract infections and sexually transmitted infections including HIV/AIDS.

Broad areas covered include - Introduction to Family Health; Concept, Components and Objectives; Measurements in Family Health; Health Problems and Health Needs of Mothers and Children; Determinants of Health of Mothers and Children; Family Health Practice; birth preparedness; Maternal Health Care Services, Infant Welfare Clinic; Organisation and Evaluation of Family Health Programmes; Immunisation Programmes; Population Dynamics and Family Planning; The "At Risk" Concept in MCH; Safe Motherhood Initiative; Integrated Management of Neonatal and Childhood Illnesses; School Health - Aims and Objectives; The School Health Programme

History of Public Health and Medical Services

This course will teach the history of medicine in antiquity through the middle ages down to the scientific era and the history of medicine in Nigeria. It will also teach the birth and rise of public health preventive medicine social medicine and the dinging concepts in public health and medical revolution.

Broad areas covered include - History of Medicine; History of medicine in Nigeria; Health system - traditional and modern health systems; Formal and lay health care in Nigeria; Alternative medicine; Health professional groups; The Health Team; Definition and Sub- Specialties in Community

Medicine; The Role of the Community Health Physician; The Doctors Role in the society; Behavioural and Non-Behavioural Factors in Health and Disease.

Demography

This course will expose students to the meaning and nature of demography which include sources and types of demographic data; population structure and dynamics; presentation of demographic data and rates. Also, basic measures of fertility, rates of natural increase; population growth and estimates and migration and mortality rates will be taught.

Broad areas covered include - Demography Definition, Uses; Population Composition - Age, Sex, Occupation, Ethnicity etc; Population Dynamics (Fertility, Mortality, Migration, Population Structure, Growth and projection); Sources of Population Data; Sources of Health and Vital Statistics; Cancer Registration; Demographic Transition; Malthusian Theory of Population; Census - National and Local; World Population and Policy; the National Population Policy; Interaction between Medical Action, Population, Health and Population Growth; Measurements of Health and Disease; Different Rates and their Uses; Standardization of Vital Rates.

Medical Sociology

This course will teach the concepts of behavioural sciences, relevance and contributions of Sociology to Medicine, explore illness behaviour and patient-doctor relationships. Also, student will learn patient care management, hospital organizations, and use of health services in Nigeria.

Broad areas covered include - Introduction to Medical Sociology; Definition of Health, Disease, Sickness, Illness; Socialisation; Role Differentiation; Beliefs, Values, Norms, Superstitions, Taboos etc; Human organisations and Systems: Family Systems, Marriage Types and Stability; Type of Societies, Social Classification; Culture and Health-Beneficial, Harmful and Neutral Practices; Religion and Health; SocioEconomic Status and Health; Educational Status and Health; Traditional and Modern Health Systems in Nigeria. Recreation, Sleep; Behavioural concepts in Public Health; Change processes; Health Behaviour and Illness Behaviour; Working Population, Unemployment, Retirement, Ageing; Dependency; Social Security.

Health Systems

Learning outcomes: The purpose of the course is to familiarize the students with the key international and local principles of organizing,

funding and providing health services and public health activities.

This course will teach traditional and modern health systems globally and in Nigeria. It will also investigate issues of globalization and Health, and medical care and health services utilization with particular reference to Nigeria and dwell extensively on health care services with special emphasis on primary health care. The course uses examples from countries with interesting and important features in their health systems such as the United States, United Kingdom, Canada, Australia, Nigeria and Ghana. The principles of implementing health care in real life is explored. It will also map past and current enthusiasm in reforming the national health system and where it all led to; the ultimate goal is to health the student understands their national system and critically determine the contradictions and challenges. The seminars look at essential characteristics of primary health care, specialist level care and public health infrastructure. There would be robust debates and discussion on critical issues surrounding globalization and public health, Broad areas covered include - Health and international health: concepts, history and standing theories.

Globalisation and health; International Health Organisations/Agencies, e.g. WHO, UNICEF, UNFPA, Fill etc; Port Health; International Notification of Diseases; International Health Regulations; Travel medicine; Health in the Millennium Development Goals; Health systems: comparison and performance; Trade and health; The global health workforce: crisis, future and challenges; Definition, History and Elements of Primary Health Care (PHC); Strategies for the Implementation of PHC; Basic Health Services Scheme and PHC Institutions; The Medical Officer of Health; Vaccines, Types; the Cold Chain; The National Programme on Immunisation; Mass Immunisation Programmes; The Bamako Initiative; Referral System in Health Care Delivery; Principles of Primary Health Care (Equitable Distribution, Integration of Services, Appropriate Technology, Community Participation, inter-sectoral Collaboration); Community Diagnosis (The Structure and Functioning of Communities, Methods in Practical Epidemiology, The Conduct of Demographic and Morbidity Surveys in a Defined Community, Methods of Informal Data Collection, Health Care Alternatives at the Community Level); Health Management in PHC (Identifying and Describing the Health Needs and Problems of a Defined Community, Establishing Health Priorities for A Defined Community, Setting Goals, Objectives and Targets for PHC Services for a Defined Community, Formulating A PHC Plan, Drawing Up A PHC Budget; Budgeting and Accounts,

Organisational Structure of PHC, Integration of Services for PHC, Management of Staff, Transport, Drugs, Equipment and Supplies in PHC, Basic Operations Analysis Techniques for Monitoring PHC Staff and Service Performance, Work Sampling, Patient Follow-Up, Task Analysis, Treatment Audit, Assessment of PHC Service Coverage with Particular Reference to Availability, Accessibility and Acceptability, Effectiveness, Efficiency and Equity in PHC Service Delivery); Maternal Health and Family Planning (Organising Antenatal Care for Maximum Coverage of the Community); Health Education (Identification of Learning Needs, Planning Health Education for Individual Groups and Communities, The Principles of Communication, Selection and Production of Appropriate Audio visual Aids); Environmental Sanitation (identification of an Appropriate Water Supply for a Defined Community, Identification of an Appropriate Method of Sanitation for a Defined Community, Promoting Self-Help Projects at the Community Level); Locally Endemic Diseases (The Epidemiology of Locally Endemic Diseases, Appropriate Management and Prevention of Locally Endemic Diseases at the PHC Level); Essential Drugs (The Essential Drugs Approach, The Essential Drugs List for PHC in Nigeria, Estimating the Essential Drug Needs of a Defined Community); Administering an Essential Drugs Policy in PHC Services for a Defined Community; Evaluation of PHC; Research in PHC; PHC Reforms.

Public Health Nutrition

This course will teach the components of food, their functions in the body, utilization and effects on the body. The role of food in health and disease, as well as common nutritional problems and their management will be taught. The course will emphasize nutrition in vulnerable groups like children and pregnant women, the aged, in refugees, as well as in certain diseases like HIV/AIDS, Diabetes mellitus, cancers, hypertension etc.

Broad areas covered include - Nutrition and Health; Classification of Food; Nutritional Values of Common Nigerian Foodstuffs; Culture and Nutrition; Beliefs and Taboos; Infection and Nutrition; Breastfeeding Weaning Practices; Food Policy; The National Breast Feeding Policy; Food Hygiene and Toxicology Nutrition Education; Applied Dietetics I - Diet in the Aetiology and Management of Diseases (Kwashiorkor, Marasmus, Vitamin Deficiencies, Mineral Deficiencies, Obesity, Hypervitaminoses, etc); Applied Dietetics II — Diet in the Aetiology and Management of Diseases (Diabetes, Essential Hypertension, Coronary Heart Disease, Liver

Failure, Goitre, Myxoedema, Cretinism, Dental Caries, Anaemia); Assessment of the Nutritional Status of a Community.

Public Health Laboratory Practice

This course will concentrate on aspects of medical microbiology that are relevant to public health. These include; classification of micro-organisms, host-parasite relationships, factors affecting disease transmission, aspects of parasitology, bacteriology, mycology, virology and the practical use of the microscope.

Mental Public Health

The course will teach the concepts of mental well-being and the role of the public health practitioner in maintaining mental health of the public. Students will learn promotive, preventive, aspects of restorative and rehabilitative mental health.

Oral Health

This course will concentrate on the diagnosis, prevention and control of dental diseases and the promotion of oral health through organized community efforts.

Therapeutics

This will teach the drug prevention, management and control of major public health disease concerns in Nigeria and beyond.

Ethics in Healthcare

This course is to acquaint the students with the ethical knowledge necessary for medical research. It will introduce the students to the basic ethical principles and the key issues in research, tracing the history of biomedical ethics to current ethical issues in medical research.

Broad areas covered include - History and Evolution of Biomedical Ethics; International Code of Biomedical Ethics; professional negligence/Responsibility/Confidentiality/Misconduct/ appearance in court; The Doctor and the Law: Judicial, Coroner's Court, Professional Liabilities of Biomedical Practitioners, Ethical considerations in Medical Advancements (IVF, genetic engineering, abortion), Biomedical jurisprudence, ethical consideration for dead and dying patients, ethics and relationships with colleagues, patients, teachers, the society and the law

Research Project

This is a continuation of the course on ICT and research methodology. The candidate must design and execute an acceptable original project in any area related to health under supervision of an academic member of staff. The project would commence at the second year of the programme

although a topic must be agreed on with the supervisor after the first semester of the first year

EXAMINATIONS

Grading During Course

1. Continuous Assessment (30 %). This can be in various forms such as:
 - a) Attendance at classes
 - b) Seminar presentation
 - c) Assignments and coursework during lectures or postings
 - d) Participation and performance during classwork or community outreach programmes e.g. clerking and presentation
 - e) Written assessments
2. Final Examination at the end of the posting (70 %) Shall be in the form of Essay, OSCE, Practical, and Orals and would be 70%.

Pass Mark

The minimum pass mark in any course shall be 50%.

Grading System

Grading of courses shall be by a combination of percentage marks and letter grades translated into a graduates system of Grade Point Equivalents (GPE). For the purpose of determining student's standing at the end of every semester, the Grade Point Average shall be used. The GPA is computed by dividing the total number of credit points (TCP) by the total number of units (TNU) for all the courses taken in the semester. The credit point for a course is computed by multiplying the number of units for the course by the Grade Point Equivalent of the marks scored in the course. Each course shall be graded out of a maximum of 100 marks and assigned appropriate Grade Point Equivalent as in the table below:

(i) Credit units	(ii) Scores	(iii) Scores	(iv) Grades	(iv) Average
Vary according to contact hours assigned to each course or according to load carried by students	70 and above	Letter Grades A B C F	Points (GP) 5 4 3 0	(GPA) Derived by multiplying i and iv and dividing by Total Credit Unit

ACADEMIC STAFF

S/N	NAME	QUALIFICATIONS	SPECIALIZATION	DESIGNATION
1	Dr. I. Ojule	MBBS, FMCPH	Epidemiology	Senior Lecturer /HOD

Continuation Requirements

- a. A graduate student is expected to pass all taught courses with minimum grade of 'C'
- b. A student who fails a course shall register for it at the next available opportunity only once.
- c. At the end of the first year course work, the student should have a cumulative grade point average of not less than 2.75
- d. A student who does not meet the minimum CGPA at the end of the first year shall be asked to withdraw.
- e. No student shall proceed to the thesis without a cumulative Grade Point Average of 3.00 or above. A student who has exhausted both opportunities for all required courses without attaining a CGPA of 3.00 shall be asked to withdraw.

EXAMINATION POLICY

Cheating in Examination

According to the College's regulation, any graduate student found cheating in any examination shall be expelled from the University.

Examination Repeat Policy

The programme only allows repeat and of examinations as provided t the college's guidelines and only an additional chance of repeating the exam is allowed.

Overstay

Candidates that have stayed over 36 calendar months in the programme according to the University's Senate are deemed to have overstayed and are meant to re-apply and start afresh. This process would involve their getting a new form and new registration number of as new students.

Completion of Programme

A student is said to have completed his/her programme when s/he had defended his/her thesis, carried out minor or major corrections as directed, have the work certified by the appropriate officers and submitted to the department for submission to the College of Graduate Studies.

Policy for Graduation of Graduate Students

All Masters Degree students must publish one (1) Journal article from their work in a reputable journal before their oral examination and attend a minimum of one (1) Conference.

2	Prof. B. Ordinioha	MBBS 1995, FMCPH 2005	Environmental Health	Professor
3	Prof. C. Tobin-West	MD 1983, MPH 1998, Adv Dip. Mgt 1998, FMCPH 2008	Epidemiology, Health Planning/Management	Professor
4	Prof. D. Ogaji	MBBS 1998, MQ1 (Helsinki) 2008, MN1M, FMCPH 2006, FISUQa 2016, PhD 2017	Health system, Health Mgt and Leadership	Professor
5	Prof. K. Douglas	MBBS, FMCPH	Occupational Health	Professor
6	Prof. O. Maduka	MBBS, FMCPH	Epidemiology, Biostatistics	Professor
7	Dr. F. Adeniji	MBCH.B (1997), MSc. Health System, Mgt (2004)	Health Planning & Mgt, Reproductive Health	Senior Lecturer
8	Dr. Ezinne Iwunze	MB.BS, MPH, PhD (UPH), FWACP (WACP)	Environmental Health	Lecturer 1
9	Dr. Ifeoma Ofurum	B.Sc.(UNN), MscPH, PhD (UPH)	Community Health & Public Health	Lecturer 11

FACULTY OF BASIC MEDICAL SCIENCES

DEPARTMENT OF ANATOMY

POST GRADUATE STUDIES IN ANATOMY MASTER OF SCIENCE (M. Sc) DEGREE PROGRAMME IN ANATOMY

Objective:

The programme aims to train Medical and Dental graduates, Physiotherapists and B.Sc (Anatomy) graduates with CGPA not less than 2.70 to teach Human Anatomy and to conduct research in areas relevant to Anatomical Sciences.

Degree Offered:

Master of Science (M.Sc) in Human Anatomy.

Duration of Study:

The period of training shall last for a minimum period of 18 months and maximum of 36 months. The course work shall last for 12 months after which the Research Project and Seminar shall occupy the remaining 6 months. The examination for the course work shall be taken at the end of each semester.

There will be seminar at the end of the Project Work after which those who succeed at the seminar presentation will be required to defend their projects. Those with CGPA of less than 2.70 shall be required to repeat the course work in courses they failed before proceeding with their project work.

Knowledge and Skill to be imparted:

The Graduates of this programme are expected to have acquired the Knowledge to;

- Use scientific equipment to investigate and demonstrate Structure and Organization of cell, tissue and organ system in normal growth and health.
- Be able to process tissues for Histological, Histochemical and Electron Microscopic Studies.
- Be able to process and prepare bones for Osteological Studies
- Be conversant with photomicroscopy and be able to prepare Micrographs unaided.
- Be able to adopt current relevant methodologies to solve scientific problems and make reasonable deductions and adequate inferences from data and evidence available. Be able to relate injuries to Human Anatomy.

1st Semester:

Course Code	Course Title	Credit Unit
ANA 810.1	Biomedical Anthropology	3
ANA 811.1	Reproductive Biology	3
ANA 812.1	Histochemistry	3
ANA 813.1	Neurobiology	3
ANA 814.1	Anatomical Basis of Sports Injuries	3
Total		15

2nd Semester:

Course Code	Course Title	Credit Unit
ANA 810.2	Gross Anatomical Techniques	3
ANA 811.2	Histological, Cytological and Ultra Sound Techniques	3
ANA 812.2	Biostatistics and Bioinformatics	2
ANA 813.2	Genetics and Teratology	3
ANA 814.2	Comparative Anatomy	3
ANA 815.2	Seminar I Project	6
Total		20
Total Credit Units		35

COURSE DESCRIPTION

ANA. 810.1 - Biomedical Anthropology

This course will dwell on comparative analysis in Anatomical, Physiological and genetic characteristics of pre- historic and modern human population as they have interacted through out the entire time span of Human Evolution to influence health and disease.

ANA 811.1 - Reproductive Biology

This course exposes students to the hormonal control of Reproduction, Development of Urogenital system, In-vitro fertilization, Clinical Anatomy of Reproductive System and Embryological Mechanics.

ANA 812.1 - Histochemistry

This course will deal with histochemical techniques for Lipids, Proteins Carbohydrate Enzymes and Phosphates. Macromolecules and metabolites in cells will be demonstrated. The

morphology and chemistry of cells will be appreciated.

ANA 813.1 - Neurobiology

The gross and microscopic anatomy of nervous system will be taught. Clinical anatomy and evolution of the nervous system will be taught. Neuro transmitters in the brain and cell signaling will form a major part of the course.

ANA 814.1 - Anatomical Basis of Sports Injuries

The course will concentrate on the Anatomical basis of sports injuries. Muscular, skeletal and joint injuries will be taught. Differences between male and female injuries, in sports will be highlighted. Running injuries, thermal and cold injuries will be related to human anatomy.

2nd Semester:

ANA 810.2 - Gross Anatomical Techniques

Preparation of anatomical models, bones and preservation of human body will be taught. Students will be taught preparation of museum specimens.

ANA 811.2 - Histological, Cytological and Ultrastructural Techniques

This course will deal with tissue preparation and staining techniques. The general principles of Electron Microscopy and interpretation of micrograph will be taught.

ANA 812.2 - Biostatistics and Bioinformatics

This course will equip students with Biostatistical methods necessary for the Analysis of experimental data.

ANA 813.2 - Genetics and Teratology

This course will expose students to the mechanisms of hereditary, methods of study and practical application of genetics. The involvement of genetics and environmental Factors in Fetal malformations will also be taught.

ANA 814.2 - Comparative Anatomy

The course will compare the Human Anatomy with that of other vertebrates and mammals. Evolutionary changes and adaptation will be discussed. The student will be made to become familiar with the Forms and Functions in the Animal Kingdom.

ANA 815.1 - Project

The project work will be in one of the areas of Physical Anthropology, Histochemistry, Neuroanatomy, Histology, Reproductive Biology, and Gross Anatomy. Students will be expected to complete and submit master's project for oral defense.

DEGREE REQUIREMENT

- a. A candidate must pass in all courses including the project work before graduation.
- b. A student shall be deemed to have withdrawn if he has not completed the programme at the end of 36 months. A Student who fails four or more course shall be asked to withdraw. Those who fail to repeat examinations shall also be asked to withdraw.
- c. To graduate a candidate will also satisfy all the other conditions stipulated in the regulations of the Post-graduate school.

DOCTOR OF PHILOSOPHY (Ph. D) DEGREE PROGRAMME IN ANATOMY

1. INTRODUCTION

The Department of Anatomy in the Faculty of Basic Medical Sciences offers a Doctor of Philosophy (Ph.D) Programme in Anatomy. The course provides intensive training in the following areas of specialization:

- a. Cell and Tissue Science
- b. Clinical Anatomy
- c. Anthropologic and Forensic Anatomy
- d. Radiological Anatomy
- e. Developmental, Reproductive and Molecular Biology
- f. Neuroscience

The Programme is sustained by existing Professors and Senior Lecturers in the Department as well as Visiting Senior Colleagues from Departments of Anatomy from sister Universities who have agreed to assist us in Teaching and in the Supervisor of Ph.D Research. For Multi- Disciplinary Approach in a Collegiate System, Professors from other Departments in the Faculty of Basic Medical Sciences of the University of Port Harcourt are involved in this programme.

2. (A) MISSION AND VISION

The programme is geared towards the development of scientifically oriented manpower needed in the field of Anatomy. This is to help teach and project the subject in the various medical schools across the Country and beyond.

(B) GOALS AND OBJECTIVES

- a. To train High Level Manpower in the Methodology of Research with a view to keeping them abreast with modern advances in Anatomy.
- b. To produce competent Basic and Clinical Anatomist for Teaching in our Medical Schools and Research Institutions.
- c. To encourage independent, logical and rational thinking with the view to contributing additional knowledge and new techniques of investigation.
- d. To produce highly trained Anatomists that can contribute appreciably to solving the medical problems in their environment using the knowledge and skills a

3. ADMISSION REQUIREMENTS

To be eligible for admission into the Ph. D programme in Anatomy, candidates must possess M. Sc Degree in Anatomy with a minimum Cumulative Grade Point Average (CGPA) of 3.50. Interviews are conducted to assess candidates before admission and final selection is based on interview performance.

4. DURATION OF THE COURSE

The duration of study for full time is a minimum of 2 years or 24 months and a maximum of 5 years or 60 months while the minimum duration for part time is 3 years or 36 months and a maximum of 7 years or 84 months.

5. STRUCTURE OF THE PROGRAMME

The programme is by Course Work and Research culminating in a Dissertation. The candidate is required to register and pass 18 Credit Units of prescribed Course work.

To obtain a Ph.D in Anatomy, candidate is expected to present 3 (three) Research Seminars, one of which must be to the School of Graduate Studies.

The Ph.D is finally examined by Oral Defense of the Dissertation. The Departmental Graduate Studies Committee through the Faculty Graduate Studies Committee Board of the School of Graduate Studies appoints a Supervisor and conduct the required examinations and meet other conditions that may be specified for the Award of the degree.

6. DETAILS OF THE PROGRAMME:

1st Semester:

Course Code	Course Title	Credit Unit
ANA 911.1	Current Concepts in Advanced Anatomy	3
ANA 912.1	Research Methods	3
ANA 913.1	Physical and Forensic Anthropology	3
ANA 914.2	Radiological Anatomy	3
ANA 915.2	Clinical Anatomy	3
ANA 916.2	Histochemistry	3
ANA 917.1	Dissertation	6
	Total	15

DESCRIPTION OF COURSES

ANA 911.1 CURRENT CONCEPTS IN ADVANCED ANATOMY (3 Credit units)

This course will involve literature Review on specific current topics in medical genetics, in-vitro fertilization, molecular biology, forensic sciences, medical anthropology and histochemistry.

ANA 912.1: RESEARCH METHODS (3 Credit Units)

This course covers an introduction to basic scientific research, problem formulation and hypothesis testing, research designs; data collection methods and instrumentation, data analysis and uses of statistics in research, ethical considerations in research and report writing.

ANA 913.1: PHYSICAL AND FORENSIC ANTHROPOLOGY (3 Credits Units)

This course will include biology of human variation and climatic adaptation, population genetics, adaptive physical features associated with bipedal locomotion, clinical anthropometry and essential concepts of forensic medicine and their applications.

ANA 914.2: RADIOLOGICAL ANATOMY (3 Credit Units)

This course covers imaging and radiological techniques for anatomical research, general and systemic radiology, contrast studies, scanning techniques-computerized tomography and ultrasound scanning, nuclear magnetic resonance imaging and radio- nuclide technique.

ANA 915.2: CLINICAL ANATOMY (3 Credit Units)

The course content shall include anatomical basis of sports injuries, applied medical, surgical

and dental anatomy, functional anatomy of the limbs, neck and trunk, clinical anatomy of the reproductive system.

ANA 916.2: HISTOCHEMISTRY (3 Credit Units)

This course covers principles of histochemistry, and cytochemistry, histochemical techniques for lipids, proteins, carbohydrates, enzymes and phosphates, concept of the amine precursor uptake and decarboxylase system (APUD) clinical cytochemistry, electron micrography, electrocy to chemistry and diagnostic electron microcopy.

ANA 917.2: DISSERTATION (6 Credit Units)

A candidate shall indicate his/her intended area of Specialization at the time of Registration for the

programme. A specific Topic for the Dissertation shall be proposed and defended by the candidate at a Departmental Seminar within 6 months of Registration of the Title of the Dissertation with the School of Graduate Studies.

AWARD OF DEGREE

For a Candidate to meet the Requirement for the Award of a Ph.D in Anatomy, the Candidate shall submit an acceptable Ph.D Dissertation, attain a minimum of 15 Credit Units at 900 Level Courses, present approved seminars at Departmental, Faculty and School of Graduate Studies Levels and satisfy all other Requirements as stipulated in the Graduate School Prospectus for Postgraduate Students.

ACADEMIC STAFF LIST

S/N o	NAME	RANK	STATU S	QUALIFICATIO N	SPECIALIZATION
1	Osunwoke, E. A.	Senior Lecturer/HoD	FT	B.Sc. (2001) UPH; M.Sc. (2005) U.I; PhD (2011) UPH.	Biomedical Anthropology, Forensic Anatomy and neuroscience
2	Fawehinmi, H. B	Professor	FT	B.Med.Sc. (1989); UPH; MBBS (1992) UPH; M.Sc.(2003) LONDON; MD (2008) UPH; FASN; FRAI	Medical Anthropology, Clinical Anatomy & Neuroscience
3	Oladipo, G. S.	Professor	FT	B.Sc. (1999); ILORIN; M.Sc. (2002) LAGOS; Ph.D (2010) ABSU.	Developmental Anatomy & Anthropometry
4	Paul, C. W.	Professor	FT	B.Sc. (1996) UPH; MBBS (2003) BENIN; M.Sc (2008) UPH; Ph.D (2012) UPH.	Clinical Anatomy & Histology
5	Amadi, O. I.	Professor	Visiting lecturer	B.Med.Sc. (Hons. Anatomy) (1984) UPH; M.Sc. (1992) ; Ph.D (2004) MUST, Uganda;	Neuroscience
6	Okoh, P. D.	Professor	FT	BM, BCH (1983), Jos FMCS (2002), MD (2020) UPH	Clinical Anatomy/Anthropology
7	Olotu, E. J.	Professor	FT	B.Sc. (1997) UNILORIN; M.Sc. (2002) LAGOS; Ph.D (2011) UPH.	Female Reproductive health, Histology & Anthropology
8	Oyakhire, M. O.	Professor	FT	B.Med.Sc. (1987) UPH; MBBS (1991) UPH; M.Sc. (2011) UPH; PGD (2010) NOUN; MPH (2014) BENIN, Ph.D (2014) UPH.	Clinical Anthropometry/Ergonomics
9	Tudor, I. C.	Reader	Visiting Lecturer	B.Med.Sc. UPH; M.Sc.; M.Ed.; Ph.D U.K	Developmental/ Reproductive Anatomy & Medical Education
10	Hart, J. S.	Reader	FT	B.Sc. (2002) UPH ; AMLSCN (2005) UNN; M.Sc.(2008) ABIA; PhD (2018) UPH.	Cell and Tissue Science (Histology and Genetics)
11	Ibeachu, P. C.	Reader	FT	B.Sc. (2004) UPH; M.Sc. (2010) UPH; PhD (2015) UPH.	Developmental Anatomy & Anthropology
12	Orish, C. N.	Senior Lecturer	FT	MBBS (1998) UNIZIK; M.Sc. (2010) UPH; Ph.D (2015) UPH.	Anthropology & Neuroscience

13	Oghenamavwe, L. E.	Senior Lecturer	FT	B.Sc. (2003) UPH; M.Sc. (2008) UPH; Ph.D (2012) UPH	Biomedical Anthropology Forensic Anatomy & Histology
14	Edibamode, E. I.	Senior Lecturer	FT	B.Sc. (1999) UPH; M.Sc. (2009) BENIN; Ph.D (2015) UPH.	Cell and Tissue Science (Histology and Genetics)
15	Gwunireama, I. U	Senior Lecturer	FT	B.Sc. (1999) UPH; M.Sc. (2008) ABIA; Ph.D (2014) UPH.	Anthropology & Gross Anatomy
16	David, L. K.	Senior Lecturer	FT	B.Sc. (2006) UPH; M.Sc. (2011) ABIA; PhD (2016) UPH.	Neuroscience
17	Okoseimiema, S. C.	Senior Lecturer	FT	B.Sc.(2006) UPH; M.Sc.(2012) UPH; PhD (2021)	Neuroscience
18	Allison, T. A	Senior Lecturer	FT	MBBS (2001) BENIN; M.Sc. Anatomy (2015) UPH; M.Sc. Sports Med (2016) UPH	Environmental Histology and Sport Medicine
19	Wogu, E. U.	Lecturer I	FT	B.Sc. (2008) MADONNA; M.Sc. (2012) UPH; PhD (2017) UNICAL.	Neuroscience
20	Yorkum, L. K.	Lecturer I	FT	B.Sc.(2006) UPH; M.Sc.(2011) UPH;	Neuroscience

DEPARTMENT OF HUMAN PHYSIOLOGY

SENATE APPROVED POST GRADUATE (PG) PROGRAMMES

POST GRADUATE DIPLOMA (PGD)

FIRST SEMESTER COURSES

Course Code	Course Title	Credit Unit
PHS 720.1	Cardiovascular and Respiratory Physiology	3
PHS 721.1	Neuro-endocrinology	3
PHS 722.1	Molecular and Cellular Physiology of Ion channels	3
PHS 723.1	Laboratory techniques and Clinical instrumentation	3

SECOND SEMESTER

Course Code	Course Title	Credit Unit
PHS 720.2	Neurophysiology	3
PHS 721.2	Blood, Body fluids and Electrolytes	3
PHS 722.2	Selected Topics in Gastroenterology	3
PHS 723.2	Laboratory Teaching and Instrumentation	3
PHS 724.2	Seminar I	3
PHS 725.2	Seminar II	3

PHS 720.1 Cardiovascular and Respiratory Physiology

Cardiopulmonary functions in the foetus and in Old age, Responses at rest and in moderate-to-severe stress. Physiological basis of Hypertension. Principles of servomechanism as applied to Cardio-Pulmonary Physiology, Aviation, Space and Deep Sea Physiology.

PHS 721.1: Neuro-endocrinology

A review of Physiologic-Anatomy of Hypothalamic -Hypophysial -Pituitary link. Current concepts of channels of communication between Hypothalamic Neuro-secretions. The "Master Gland of the Endocrine System. Pituitary secretion and the current concepts on the Servomechanism between the Hypothalamus, the Pituitary and other Target Organs.

PHS 722.1: Molecular and Cellular Physiology of Ion Channels

The Electrophysiology, Biosignal processing in physiology, Biophysics of Excitable tissues. Introduction to Molecular Biology, ion channels e.g. K^+ , Ca^{2+} , Na^+ etc., in Neurons and Smooth Muscle Cells-relating their structure, distribution,

Pharmacology and functions. Current Techniques in studying ionic channels-Voltage Clamp, Fluorescent Imaging, Electro-physiology as panacea for sustainable technological, medical and scientific development and many more.

PHS 723.1: Laboratory techniques and Clinical Instrumentation.

Applied Human Physiology with regards to knowledge of Basic Analytical Methods in Human Physiology: Flame Photometry, Spectrophotometry, Vitalography, Electrocardiography, Encephalography, Ultrasonography, Radiography, Transducers, and Kymograph. Be able to demonstrate to the students how the knowledge of physiology can effectively be used in a variety of clinical settings to solve diagnostic and therapeutic problems, diabetes, cancer, pathophysiology of lipid, cardiovascular sciences. Understand and deal with all aspects of general and systemic physiology. Conduct relevant clinical/experimental research as would have significant bearing on human health and patient care.

PHS 720.2: Neurophysiology

Synapse Morphology Synaptic Transmission, Processing of Data. Neurotransmitters in the CNS, Motor Division in the CNS. Morphology of the Motor Cortex. Basal Ganglia, Pyramidal and Extra Pyramidal System. Cerebellum, Locomotion, and Maintenance of Posture, Spinal and Body Orientation Reflexes. Brainstem Control, Muscle Spindle, Muscle Tone, Limbic System and Higher Nervous System, Hypothalamus, Physiology of Special Senses, Higher functions of the Nervous System . Pain, Organization of spinal cord for motor function. Maintenance of posture and equilibrium. Nerve and Muscle Physiology, Degeneration and regeneration in nerves, Functional anatomy of skeletal muscle. Neuro-muscular transmission and blockers

PHS 721.2: Blood, Body fluid and Electrolytes

A review of the general properties and functions of Blood. Functions and life cycle of various Blood Cells. Hemostasis, Platelets, Components of hemostasis, Mechanism of coagulation, Coagulation tests, Anticoagulants. Immunity - Innate immunity, Acquired immunity, Allergy, hypersensitivity and Immunodeficiency. Abnormalities of Blood. Brief recapitulation of the functionality of the Kidneys. Renal handling of Erythrocytes. Current concepts on Concentration and Dilution Curve. The Renin-Angiotensin-Aldosterone System.

PHS 722.2 Selected Topics in Gastroenterology

General review of the Gastrointestinal functions. Physiologic Anatomy of a typical secretion of the gastrointestinal tract. Animal Experimentation Techniques for gastric acid analysis and measurement of gastric acidity. Basic principles of gastric-intestinal absorption and methods of its Investigation. Gastrointestinal Disorders.

PHS 723.2 Laboratory Teaching and Instrumentation

Opportunity for Students to review the Physiological Concepts of System. Students taught and understand them thoroughly to enable them demonstrate the concept using available equipment to Medical or Single honour Students, Ethics in science, Bioinformatics, Plagiarism, Copy Rights, Script Writing, Referencing, Basic Statistics in Physiological Sciences.

PHS 724. 2: Seminar I

Students shall be required to present for discussion colloquia on assigned topics about general principle of physiology and its application, mechanic and/or pathophysiology. Students shall be required to present papers which will be an integral part of the course.

PHS 725.2: Seminar II

The seminar shall cover selected topics in physiology. Students shall be required to make presentation on the assigned topics, and finally produce a term paper.

MASTER OF SCIENCE (MSc.)

FIRST SEMESTER

Course Code	Course Title	Credit Unit
SGS 801.1	ICT and Research Methods	3
PHS 820.1	Renal, Body fluid and Blood Physiology	3
PHS 821.1	Gastro-intestinal Physiology, Nutrition and Metabolism	3
PHS 822.1	Neurophysiology	3
PHS 823.1	Cardiovascular and Respiratory Physiology	3
PHS 824.1	General and Molecular Physiology	3

SECOND SEMESTER

Course Code	Course Title	Credit Unit
SGS 801.2	Management & Entrepreneurship	3
PHS 820.2	Endocrine and Reproductive Physiology	3

PHS 821.2	Environmental Physiology	3
PHS 822.2	Research Methods, Advanced Biometry and Instrumentation	3
PHS 823.2	Special Senses	3
PHS 826.2	Biotechnology	3
PHS 825.2	Dissertation	6

SGS 801.1 ICT and Research Methods

Effectively use the library facilities including computer, CD ROM and internet research. Essentials of spreadsheets, internet technology, statistical packages, Precision and Accuracy of Estimates, Principles of Scientific Research. Concepts of hypotheses formulation and testing. Organisation of research. Technical writing/research report writing (resumes, abstracts, and proposals). Oral and written communication skills in physiology. Presentation skill using PowerPoint and Multimedia Projector. Computer Application in Medical Physiology.

PHS 820.1 Renal Physiology and Fluid Balance

Body fluid compartments and their determination. The Special Fluid Systems. Electrolytes and Flame Photometry. Renal Clearance and Glomerular Filtration. The Kidney in acid-Base Balance. Body fluid compartments, Water balance: regulation of fluid balance, Urine formation, Regulation of extracellular sodium and osmolarity, Renal mechanisms for the control of blood volume, blood pressure and ionic composition, Micturition, Diuretics, Renal failure and Kidney function tests, Recent advances in Renal Physiology: Speculation, Discussion, and Conclusion.

PHS 821.1: Gastroenterology and Hepatic Physiology:

Gastrointestinal motility and secretion. Recent Theories in Intestinal Absorption. GIT Endocrinology. Physiological Functions of the Liver and Liver Function test.

PHS 822.1: Neurophysiology

Nerve potentials. Synaptic and Neuromuscular Transmission. Organization of the Autonomic Nervous Systems. Chemical Transmission-peripheral and Central. Localization of Function. The Cerebellum and Posture. The Cerebral Cortex, Reticular Formation. Electro-Encephalogram (EEG).The Hypothalamus and Limbic System. Sleep Mechanisms. Learning and memory. Overview of the Motor System. Imaging techniques of the brain, CT-scan, MRI, Position Emission Tomography (PET), evoked potentials. Special senses-vision, auditory system, vestibular function, olfaction (smell), and taste. Role of calcium ions and receptors.

PHS 823.1: Cardiovascular and Respiratory Physiology.

Haemodynamic. The Cardiac Cycle, Electro-Cardiogram and clinical Electrocardiograph. Blood Flow and Plethysmography. Blood Pressure and Hypertension. Pulmonary Ventilation and Perfusion. Lung Volumes and Lung Function Tests. Respiration and Acid-base Balance. Clinically Applied Respiratory Physiology.

SGS 802.2 Management and Entrepreneurship.

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, and marketing. Managerial problems of solving scientific research conceptual framework including empirical methods, innovative techniques and improvisation. Internet research and search tools including web directories and external linkages. Application of physiological software in bioinformatics and advanced modeling methods

PHS 820.2 Endocrine and Reproductive Physiology.

Hormones and Homeostasis. Organisation and Control of Endocrine Glands. Theories of Mode or action of Hormones. The Hypothesis and its Hormones. The Thyroid Gland. Adrenal Cortex and Medulla. The Pancreatic Hormones. Testicular function. The Ovary and the Hypothalamic-Pituitary-Ovarian-Genital Axis. The pineal Organ. Human Neuroendocrine Diseases. The Prostaglandins.

PHS 821.2 Environmental and Metabolism Physiology.

Physiology of hot environment, Physiology of cold environment, High altitude, Aviation physiology, Space physiology, Deep sea diving and hyperbaric conditions, Climate change and desertification, Environmental Health Impact Assessment, Definition and Rationale Impact Assessment, Components of International Standard Impact Assessment. Current concepts in the Control of Energy Balance. Brief review of Intermediary metabolism. Inter-relationships between metabolism of major food substances and metabolism of specific organs. Brain, Renal, Pulmonary and Cardiac Metabolism. Abnormal Metabolism. Diabetes Mellitus. Some Inborn Errors of Metabolism. Family planning, Malnutrition.

PHS 822.2 Research Methods and Advanced Biometry

The purpose of this course is to familiarize the students with the methods of research, assimilation and dissemination of information as well as Statistical Methods. The course will include

effective use of the Library, Preparation of dissertation or Thesis, Paper for Publication in Journals, Probability Distribution (binomial, Poisson and normal), Sampling Distribution. Statistical Inference, Comparison of Groups, Planning of Experiments and Sampling Regression and Correlation and Analysis of Variance (ANOVA). Statistical Methods in Medical Physiology, Handling of laboratory animals, Ethical clearance in human experimental studies and use of laboratory animals.

PHS 823.2: Special Senses.

Anatomic consideration of Vision, Photochemistry of Vision, Colour Organization and Function of the Visual Pathway. Cortex, Light and Dark Adaptation. Accommodation and control of Vision. Functional Anatomy of the Cochlea and other Auditory Structures. Auditory Pathway. Hearing abnormalities, Chemical Senses, Smell and Taste-Special Agents and Chemicals they trigger. Neurotransmitters in Visual, Auditory and Olfactory Pathways. Topographical representation of the area as in the Sensory Cortices

PHS 826 Biotechnology.

PHS 825.2 Dissertation.

An MSc thesis must make a significant original contribution to, and show a critical appreciation of, existing knowledge in the subject. Research may be undertaken under a supervisor, and which carries 6 credit units. Following satisfactory completion of the supervised research, all MSc candidates must present and defend the thesis in the Department, Faculty, and before the Board of School of Graduate studies to the satisfaction of examiners. Research area include the following fields: Neurophysiology, endocrinology, Respiratory Physiology, Cardiovascular, Blood, Gastrointestinal, Nutrition, Renal, Environmental Physiology, Reproductive Physiology, Pharmacology, Toxicology/ Pharmacokinetics, Muscle Physiology or any related field to Human Physiology, Biotechnology, and Aviation physiology.

DOCTOR OF PHILOSOPHY (PhD)

FIRST SEMESTER

Course code	Course Title	Credit unit
PHS 920.1	Principles and Methods in Physiology	3
PHS 921.1	Physiological Systems	3
PHS 922.1	Molecular Physiology	3
PHS 923.1	Physiology and Environment	3

SECOND SEMESTER

Course code	Course Title	Credit unit
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PHS 920.2	Experimental Approach to Physiology Research	3
PHS 921.2	Experimental Reporting	3
PHS 922.2	Thesis	6

PHS 920.1 Principle & Methods in Physiology
Biochemical Basis of Biologic Research, Scientific Principles in Research, Methodical Approach in Systems Study, Techniques and Instrumentations in Biochemical Research.

PHS 921.1 Physiological Systems
Introductory Approach to Cardiovascular System, Respiratory System, Gastrointestinal System, Hepato-Renal System, Musculoskeletal System, Blood Physiology, Endocrine System, Special Senses, Neurophysiology.

PHS 922.1 Molecular Physiology
Molecular Biology and Genetics, Molecular Approach to Biomedical Research, Modern Techniques and Instrumentations in Molecular Research, Roles of Molecular Research in Physiology, Impedance To Molecular Research In Tropical Africa, Animal Right Groups and Campaign against Biomedical Research.

PHS 923.1 Physiology & Environment

Aviation & space physiology, undersea physiology, physiology of high altitude, exercise physiology, physiology of health, fitness and performance.

PHS 920.2 Experimental Approach to Physiologic Research
Research Communication, Experimental Design and Biostatistics, Ethical Letter Writing and Approval, Animal and Human Models, Research Designs and Conducts, Logical Interpretations of Research Extrapolates, Contribution to Knowledge Approach In Research.

PHS 921.2 Experimental Reporting
Preparation of Scientific Reporting and Papers, Seminar and Scientific Conference Mind-Set, PowerPoint Usage/Slide Preparation Skills, Confidence Building and Audience Carriage Ability, Capacity Building for Research Scientists.

PHS 922.2 Thesis
Areas of Specialization/Research
These Shall Include: Cell and Molecular Physiology, Cardiovascular, Respiratory, Renal, Reproductive, Endocrine, Gastro-Intestinal Physiology, Neurophysiology, Environmental and Metabolism, Exercise Physiology or any Related Field to Human Physiology.

ACADEMIC STAFF

S/N	Name of Staff	Qualification	Rank	Area of Specialization
1.	Prof. A. N Chuemere	B.Sc (London) Ph. D (Wales) FRSB (UK) FPSN	Professor	Blood & Cellular Physiology
2.	Prof. D. V. Dapper	B. Med Sc, 1988; MBBS (UPH), 1991; MSc (Benin), 2002; M.D., 2007.	Professor	Blood and Body Fluid Physiology
3.	Prof. C. P. R. Chike	B. Med Sc, 1987; MBBS, 1991; M. Sc., 2000; MD (UPH), 2007.	Professor	Cardiovascular Physiology
4.	Dr. O. M. Adienbo	MB,BCh (Calabar), 1998; M.Sc., 2010; PhD (UPH), 2014.	Senior Lecturer	Neuro-endocrine and Reproductive Physiology
5.	Dr. S. O. Ojeka	B. Med. Sc.,1990; MBBS, 1996; MSc, 2012; PhD (UPH), 2018	Senior Lecturer	Blood and Endocrine Physiology
6.	Dr. B. C. Chinko	B. Sc., 2005; M. Sc., 2009; Ph.D. (UPH), 2017.	Senior Lecturer	Blood and Renal Physiology
7.	Dr. A. A. Ajah	BSc. (UPH), 2006; MSc. (Ibadan), 2011. M.Phil. 2018 (Ibadan). Ph.D, 2022 (WITF)	Senior Lecturer	Metabolism and Neurophysiology
8.	Mr. V. O. Hart	B. Sc (UPH), 2006; M. Sc (Ibadan), 2010.	Lecturer I	Endocrine and Reproduction Physiology
9.	Mr. P. N. Achinike	B. Sc, 1999; M. Sc (UPH), 2010.	Lecturer I	Respiratory Physiology
10.	Dr. K. M. Odia	B. Sc., 2006; PGD, 2010; M.Sc., 2013, PhD (UPH)	Lecturer I	Cardiovascular and Exercise Physiology
11.	Dr. I. I. Weleh	B.Sc., 2006); PGD, 2012; M.Sc. (2014) Ph.D (2021)(UPH)	Lecturer I	Nutrition and Environmental Physiology
12.	Dr. F. F. Egbono	BSc, M.Sc., PhD (UPH)	Assistant Lecturer	Respiratory Physiology

FACULTY OF ENGINEERING

DEPARTMENT OF CHEMICAL ENGINEERING

POST GRADUATE PROGRAMMES IN CHEMICAL ENGINEERING

1. Introduction

The Chemical Engineering Department of the University of Port Harcourt admitted its first batch of students in the 1982/83 session. The Department has therefore come a long way. Since then over 1500 graduates have been produced two of them with first class honours. Many of the graduates are working with the key industries around Port Harcourt and beyond. We note with pride that many of our graduates have excelled at their places of work, particularly those in the oil sector. The Department, having consolidated the undergraduate programme, now has Master of Engineering and PhD degree programmes. In addition, the Department is running a Postgraduate Diploma Programme for graduates of related disciplines who wish to pursue higher degrees or improve their understanding of Chemical Engineering practice.

Port Harcourt and its immediate environs remain a major strategic industrial centre in the country. It has a large concentration of the nation's chemical industries. Some of such industries include: N.N.P.C. Refinery, Port Harcourt, Eleme Petrochemicals and the Fertilizer Company of Nigeria at Onne. Others include the West African Glass Company, PABOD Breweries. The Rivers State Vegetable Oil Company, Liquefied Natural Gas Company and many companies that provide laboratory and technical services to the oil companies. The cluster of industries therefore, make Port Harcourt a suitable environment to study and practice Chemical Engineering.

2. Objectives of the Department:

Chemical Engineering Practice comprises those activities that apply science and technology to problems related to the economic production of useful materials by processes involving chemical and/or physicochemical phenomena in one or more steps. The objectives of setting up the Department Chemical Engineering in the University of Port Harcourt are therefore as follows:

1. To train manpower for Nigeria's development.
2. To help create the awareness of the importance of self-reliance in our industrial development.

3. To stimulate student's interest in the discipline in particular, and in the quest for knowledge in general.
4. To produce citizens whose backgrounds are sufficiently flexible and broad as to understand the political, economic and social environment and operate effectively in it.

The curriculum is designed in such a way that students have a good understanding of Engineering Science. This, we hope, will enable them to develop the Scientific method of decision making. Students are also encouraged through lectures, seminars, both formal and informal interaction among themselves and with lectures to develop the important habit of critical thinking and analysis and good teamwork. The Department discourages narrow specialization and hence students are trained to understand and use as many skills as possible especially those from other Engineering disciplines. Indeed courses are taught in a manner to excite students into innovative thinking with the aim of preparing them to be employers of labour instead of job seekers, if they chose to after graduation.

A. Post Graduate Diploma in Chemical Engineering (PGD ChE)

1. Objective

Post Graduate Diploma in Chemical Engineering is designed to prepare candidates whose first degree is in other Engineering disciplines for a career in the Chemical Industry or those who wish to specialize in any of the areas offered at the master's degree program. This programme has been designed to satisfy the COREN (Council for the Regulation of Engineering in Nigeria) minimum standard for chemical engineering education.

2. Administration Requirements

The Admission is strictly for those candidates with minimum of Third Class Honours in Chemical Engineering and Second Class Honours (Lower Division) in other engineering areas from recognized universities.

3. Duration

The programme shall last for a minimum of twelve calendar months of full-time study for engineering graduates.

4. The Courses

First Semester

Course Code	Course Title	Unit	
DChE 701.1	Chemical Engineering Process	3	for reacting chemical and electrochemical systems. Surface chemistry.
DChE 703.1	Chemical Engineering Thermodynamics	3	
DChE 705.1	Basic Engineering 1	3	
DChE 707.1	Transport Phenomena 1	3	
DChE 709.1	Separation Process I	3	
	Total	15	
Second Semester			
Course Code	Course Title	Unit	
DChE 702.2	Chemical Engineering Analysis	3	
DChE 704.2	Kinetics, Catalysis and Reactor Design	3	
DChE 706.2	Process Optimization	3	
DChE 708.2	Transport Phenomena II	3	
DChE 710.2	Separation Processes II	3	
DChE 712.2	Process Dynamics and Control	3	
	Total	18	
Long Vacation			
Course Code	Course Title	Unit	
DChE 731.3	Basic Engineering II	3	
DChE 733.3	Chemical Engineering Laboratory	3	
DChE 735.3	Chemical Engineering Design, Project	3	
	Grand Total	43	

5. COURSE OUTLINE

DChE 701.1 Chemical Engineering Analysis

Introduction to chemical engineering. The role of engineers in society. Application of chemical science and engineering to socially and economically significant problems. Material and energy balances on batch, and flow systems in steady or unsteady state. Thermodynamic properties of gases, liquids, solids, and mixtures; and their application to the chemical process industries, sources of data, use of table and graphs: iteration methods: dimensional analysis.

DChE 703.1: Chemical Engineering Thermodynamics

A study of energy, entropy and equilibrium: their interrelations and the engineering relationships to which they give rise. Thermodynamics of energy conversion and fluid flow; Physical and chemical equilibria in multi-component systems. Partial molar Gibbs free energy and the chemical potential. Ideal and non-ideal solution behaviour. Phase separation and equilibrium between phases

DChE 705.1: Basic Engineering I

This course is divided into two sections namely:
Engineering Mathematics: Partial differentiation, directional derivative, gradient solutions of systems of linear equations and numerical techniques.

Strength of Materials/Engineering Mechanics: Basic concepts and: Principles of Mechanics, definition of movements, and couples. Friction problems, determination of structures (frames, machines, shear forces, moment of inertia).

DChE 702.1 Transport Phenomenal

Fluid mechanics. Momentum transfer in fluids in laminar and turbulent flow. Microscope and macroscopic material, momentum and energy balances. Rheology Dimension analysis: flow in conduits, pumps: fluid metering. Heat and mass transfer: heat transfer rate: conduction, convection and radiation mechanism of heat transfer, heat exchanger design. Molecular diffusion. Mass transfer mechanisms, phase mass transfer coefficients, prediction of mass transfer rates.

DChE 709.1 Separation Process I

General view of separation. Motion of particles in fluid. Mixing and agitation; size reduction of solids (communication): atomization, droplets and aerosols. Classification, separation and size measurement, sedimentation, flocculation. Thickener calculations: centrifugation; cyclone separation, flow through' packed bed, fluid-solid, conveying filtration. Centrifugal filtration, fluidization, fluid-solid conveying. Pneumatic/ Hydraulic Transportation. Fluid cleaning, electrostatic precipitator.

DChE 702.2 Chemical Engineering Analysis

Statistical tests of significance, regression. ANOVA and design of experiments. Applied ordinary and partial differential equations to chemical engineering operations and their numerical solution, computer application to chemical engineering problems.

DChE 704.2 Kinetics, Catalysis and Reactor Design

General principles of reaction kinetics, Chemical Kinetics of elementary steps, transition state theory, thermodynamics formulation of rates, rates in solution. Steady-state approximation; catalysis systems, chain reactions, homogeneous and Heterogeneous catalysis; Graphical treatment of complex kinetics. Analysis and design of reactors.

DChE 706.2 Process Optimization

A chemical engineering treatment of the popular forms of the calculus of variations, maximum principles, dynamic programming, optimization of stage systems, optimum seeking methods. Network analysis and queuing theory.

DChE 708.2 Transport Phenomena II

Momentum, energy and mass transfer in solids, in laminar and turbulent fluid and between two phases, theory of molecular, and eddy viscosity, thermal conductivity, air diffusivity, microscopic and macroscopic equations of motion, radiant heat transfer.

DChE 712.2 Separation Process II

Solvent extraction. Distillation of multi-component mixtures. Computational procedures for rectification column. Extractive and azeotropic distillation. Multicomponent absorption and extraction design procedures crystallization.

DChE 712.2 Process Dynamic and Control

Block and signal flow diagrams, proportional integral derivative controllers, frequency response techniques, analytical and graphical stability criteria. Introduction to modern control theory. Analog computation, time domain analysis, control of complex chemical systems, control of sample data system.

DChE 731.2 Basic Engineering II

This course is divided into two sections namely:

Engineering Drawing: Fundamentals of engineering drawing, language of engineering, use of scale, line work, lettering, geometrical constructions, Projection of points, line surface and solids in space, Principles of orthographic projection, true lengths and gradients, free hand sketching of machines.

Workshop Practice: Introductory workshop practice with inherent characteristics of inculcating the spirit of teamwork. Use of measuring devices and bench tools.

DChE 733.3 Chemical Engineering Laboratory

Experiments in mass transfer, simultaneous heat transfer, vapourization and condensation techniques.

DChE 735.3 Chemical Engineering Project

Introduction of process design, site selection, design scope and safety, plant layout, process control and instrumentation, energy and manpower needs, costing economics, construction and start-up and pollution control. The design of an integrated process would involve drawing up a flow sheet, the preparation of heat and mass balances and the detailed design of some plant equipment.

B. MASTER OF ENGINEERING PROGRAMME

1. Objective

The master's degree in chemical engineering is designed to prepare the student for professional work at a more advanced level than the B.Eng. or for further study leading to the Ph.D. degree. This is achieved through the completion of fundamental courses, both in the major field and in related science, and by obtaining a start on independent research work through preparation and defense of a dissertation.

2. Admission Requirement

For admission into the programme, candidates must possess one of the followings:

- A minimum of second class Honours (lower division) Bachelor's Degree in Chemical Engineering
- A post graduate diploma in chemical engineering with a minimum average score of 60% or a CGPA of 3.50 on a 5.0 scale.

3. Duration

The programme shall last for a minimum of twelve calendar months of full time study of twenty-four months of part-time study.

4. Courses

First Semester

Course Code	Course Title	Unit
SGS 801.1	ICT & Research Methods	2
ChE 803.1	Mathematical Techniques in Chemical Engineering	3
ChE 805.1	Advanced Chemical Engineering Thermodynamics	3
ChE 807.1	Advanced Heat and Mass Transfer	3
ChE 809.1	Advanced Reaction Kinetics and Catalysis	3
ChE 811.1	Seminar	3
	Total	17

Second Semester

Course Code	Course Title	Unit
SGS 801.2	Entrepreneurship & Management	2
ChE 804.2	Advanced processes/Project Engineering	3
ChE 806.2	Equilibrium Stage processes	3
ChE 808.2	Advanced Process Dynamics and Control	3
ChE 810.2	M.Eng. Dissertation	6
	Total	17
	Grand Total	18

5. COURSE OUTLINE

ChE 803.1 Mathematical Techniques in Chemical Engineering

Selection, construction, solution and interpretation of mathematical models applicable to the study of chemical engineering problems. Mathematical topics emphasized include divergence, curl, and gradient operators, vector field theory, and the solution of ordinary and partial differential equations by infinite series, separation of variables, Green's functions, regular and singular, perturbations, and boundary-layer techniques.

ChE 805.1 Advanced Chemical Engineering Thermodynamics

Treatment of heat and mass transfer theory and application from the viewpoint of the basic transport equations, transfer in non-turbulent binary and multicomponent systems: transfer coefficients, stage efficiencies, model analogies, interfacial phenomena, multi-phase systems, transfer with chemical reactions, coupled transport processes, calculation and design of industrial heat exchangers.

ChE 809.1 Advanced Applied Reaction Kinetics & Catalysis

- a. Advanced application of engineering and scientific principles to the study of complex chemical reaction systems. Catalytic and non-catalytic reactions in homogeneous and heterogeneous systems, fast reaction techniques, or
- b. Characterization and types of Adsorption and models for adsorption Isotherms and rates and Kinetic models of catalytic reactions, transport processes with fluid-solid heterogeneous reactions, catalyst preparation and characterization and supported metal catalysts and acid and zeolite catalysts & key catalytic processes in the petroleum industry & synthesis gas Reactions & Bimetallic Catalysis.

ChE 809.1 Seminar

Research Methodology, presentation and discussion of current topics in chemical engineering research.

ChE 804.2 Process/Project Engineering

The topics to be treated will vary from year to year but the following will be a guide: introduction to Project management, Project Economics. Cost Engineering, Risk Analysis.

ChE 806.2 Equilibrium Stage Processes

Advanced treatment of the theory and application of equilibrium stages. Binary and multi component distillation: multicomponent absorption: Extraction.

ChE 808.2 Advanced Process Dynamics and Control

Modeling and simulation of dynamic behaviour of chemical processes. Theoretical and practical aspects to development of optimal and various regulatory control schemes for start-up and continuous process operation. Application of filtering techniques for noisy or estimated data. Process automation.

ChE 810.2 M.Eng Dissertation

Research work on a selected topic in the field of chemical engineering to result in an acceptable M. Eng. Dissertation.

C. DOCTOR OF PHILOSOPHY PROGRAMME

1. Programme Objective

The PhD degree in chemical engineering is aimed at providing students an opportunity to acquire good understanding of basic, scientific and managerial principles underlying the student's area of interest in Chemical Engineering and therefore to enable them to improve their capability to carry out innovative research and applied chemical engineering process and equipment design. Their managerial competence and skill in the teaching of chemical engineering is also enhanced.

2. Application and Admission Requirements

Admission into the programme stipulates that a candidate normally possesses a Master of Engineering Degree in Chemical Engineering with a minimum CGPA of 3.50 (on a 5.0 scale) or a minimum score of 60%. The candidate obtains an application form from the School of Graduate Studies, which is filled and returned to the School of Graduate Studies. If found eligible, such candidates are invited to the Department for an interview. Success at this interview qualifies the candidate for provisional admission. Every candidate coming for the interview is expected to bring along the following:

- a) Two letters of reference from persons qualified to comment on his or her academic work (the supervisor at the Master's programme should be one of the referees).
- b) Four copies of his or her proposed research plan in the selected area of specialization.

3. Departmental Requirements

In addition to the University requirements for PhD degree, the following regulations apply to all areas of specialization for the PhD degree in Chemical Engineering:

- a) On provisional admission, every Ph.D student will be assigned to one major supervisor and a co-supervisor and later, a Ph.D Committee made up of the two

- supervisors and two other senior academic staff shall be constituted.
- b) A Ph.D student will be required to take and pass compulsory courses prescribed and in additional pass or audit courses recommended by the supervisors.
- c) **Qualifying Examination**
Prior to being formally admitted to candidacy for the Ph.D. degree, the student must demonstrate his knowledge of engineering fundamentals by passing the Departmental Qualifying Examination, the academic level and subject matter of this examination is to be determined by Departmental Graduate Board.
- d) After a minimum of two semesters after the qualifying examinations, the PhD student, in consultation with the supervisors, shall apply to the Department to make a formal presentation/Oral defense of his or her research proposal. If the presentation is successful, the student becomes a candidate for the PhD degree and is allowed to continue his research work to the end.
- e) On completion of the research work the PhD candidate is required to prepare a dissertation and submit same through the major supervisor to the Department Graduate Committee. Thereafter he/she is expected to successfully pass an oral examination in defense of the dissertation before a panel of examiners set up in accordance with the School of Graduate Studies' Regulations.
- f) The Department shall normally expect the PhD student to participate in tutorials, Departmental Seminars and present seminars to the Departmental Graduate studies committee in every three months of the Research work. He should also produce from the work, at least two conference papers and two journal articles accepted for presentation and publication in reputable academic conference proceedings and journals. These publications are expected when a major finding has been made from the work or an objective of the research has been achieved. The student is discouraged from waiting till the end of the research before publishing his or her findings.

4. Programme Duration

Full time candidates will be required to spend a minimum of 24 calendar months and a maximum

of 48 calendar months, while part-time candidates will be required to spend a minimum of 48 calendar months and a maximum of 72 calendar months to complete the PhD programme.

5. General University Regulation

All the foregoing regulations are subject to the General University regulations covering PhD degree programmes.

6. Prescribed Courses for PhD Programmes

In addition to the M.Eng programme courses detailed earlier, the student shall take major course prescribed in the discipline of specialization for the PhD level work as will be advised by the academic advisers. These are detailed in the following course listings in the tables below:

First Year 1st Semester

Course Code	Course Title	Unit
CHE 901.1	Advanced Mathematical Techniques	3
CHE 903.1	Trends in Chemical Engineering Education	3
CHE 905.1	Design of Experiments in Chemical Engineering	3
CHE 907.1	Modelling of Bioconversion systems	3
Total		12

Second Semester

Course Code	Course Title	Unit
CHE 902.2	Advanced Process Design	3
CHE 904.2	Modern Industrial Processes (preferably delivered by invited lecturers from the process industry)	3
CHE 906.2	Seminar	3
CHE 908.2	Research and Dissertation	12
Total		21

7. Areas of Specialization

1. Reaction Engineering/Kinetics and catalysis
2. Chemical Engineering Thermodynamics
3. Process optimization
4. Transport Phenomena
5. Process Dynamics and Control
6. Pollution Control Engineering
7. Petroleum Refining Engineering
8. Polymer/Material Engineering Biochemical Engineering.

ACADEMIC STAFF LIST

S/N	NAME	QUALIFICATION	RANK	AREA OF SPECIALISATION
1.	Kuye, A.O.	BSc. MSc (Lagos) PhD (Strathclyde) FNChE, MNSE, R.Eng (3290)	Professor	Computer-aided design & Modeling
2.	Iyagba, E.T.	BSc (Ife), MS (Chem Eng) MS (Pet Eng) PhD (Pittsburgh), MNSChE	Professor	Reaction Engineering and Catalysis
3.	Chukwuma, F.O.	BSc, MS, PhD (Tulsa) MNSChE R.Eng (16966)	Professor	Separation Processes and Process Control
4.	Opera, C.C.	BSc, M.Eng (Zaria), Cert. Pet. Eng. (Institute Francais de Petrole), Paris. PhD (Loughborough) MNSChE, MNSE, REng 12898	Professor	Biochemical Engineering & Food Processing
5.	Uyigwe, L.	B.Eng (UPH), M.Eng (Benin) PhD (UPH), R.Eng (15615)	Professor	Polymer Engineering
6.	Onyegbado, C.C.	BSc (Lagos) MSc (California) PhD (Lagos) MNSChE	Senior Lecturer	Reaction Engineering and Catalysis
7.	Evbuomwan, B.O.	B.Eng, M.Eng (Benin) PhD (FUTO), MNSChE, MNSE, R.Eng (13727)	Senior Lecturer	Biochemical Engineering
8.	Oduola, M.K.	M.Sc (Pet Eng), PhD (Lvov, Ukraine) R.Eng (18680)	Senior Lecturer	Reaction Engineering and Catalysis
9.	Otaraku, J.I.	MSc (Volgograd) PhD (Moscow) AIChE	Lecturer I	Reaction and Fine Chemical Engineering
10.	Josiah, P.N.	B.Eng (UPH) MSc (Lagos)	Lecturer I	Computer-aided design & Modeling
11.	Oseghale, C.I.	BSc (EDSU), PGD, M.Eng (UPH) PGD(Mgt), PGD(Edu) (UPH), MNSE (15572) MSPE (335997) R.Eng (13434)	Lecturer I	Biochemical Engineering
12.	Nwambo, Y.P. (Mrs)	B.Tech (RSUST), MSc (UNILAG)	Lecturer I	Biochemical Engineering
13.	Oji, Akuma	B.Eng, M.Eng (UPH)	Lecturer I	Biochemical Engineering & Renewable Energy
14.	Njoku, G.A.O.	BSc, PGD, M.Eng (UPH) MNSChE	Lecturer I	Biochemical Engineering
15.	Edeh, I.	B.Eng (Enugu) M.Eng (UPH)	Lecturer I	Computer-aided design & Modeling

DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING

POST GRADUATE PROGRAMMES

The Department of Civil & Environmental Engineering runs the following degree programmes:

- a) Master of Engineering (M. Eng.) in Civil Engineering
- b) Master of Engineering (M. Eng.) in Environmental Engineering
- c) Doctor of Philosophy (PhD) in Civil Engineering.
- d) Doctor of Philosophy (PhD) in Environmental Engineering

The Civil Engineering Programmes are in the following areas of specialization:

- 1) Soil Mechanics and Geotechnical Engineering;
- 2) Highway and Transportation Engineering;
- 3) Structural Engineering; and
- 4) Water Resources Engineering.

Specialization in these areas is achieved by combining core courses with appropriate interdisciplinary courses and solving a chosen problem.

1. MASTER OF ENGINEERING (M.ENG) DEGREE PROGRAMMES

1.1 Programme Objectives

The aim of the M Eng. (Civil Engineering) and M Eng. (Environmental Engineering) programmes is to prepare students for professional work at a more advanced level than the Bachelor's degree in the various areas of specialization in Civil Engineering practice or in Environmental Engineering; or for further study leading to the Doctor of Philosophy (PhD) Degree in the specialized areas of Civil Engineering or in Environmental Engineering.

1.2 Programme Requirements and Criteria for the Award of the M.Eng. Degree

To realise the above objectives and qualify for the award of the M.Eng. degree, the student must complete and pass all the prescribed courses in the chosen area of specialization, participate in and present research seminars and produce a supervised thesis on an approved research topic. It is also expected that at least one conference paper and one journal article would be produced from the research work.

In addition, the general University requirements for studies leading to the masters' degree and other departmental requirements for the programme must be fulfilled by the candidate.

1.3 Entry Requirements

To be admitted into any of the specialisations in the M.Eng. Degree programmes of the Department a candidate must satisfy the general Graduate School requirement of possessing a minimum of Second Class (Honours) degree in Civil Engineering, obtained from the University of Port Harcourt or any other approved University. However, the Department gives preference to those with a CGPA of 3.5 and above (corresponding to Second Class Honours Upper Division and higher).

1.4 Programme Duration

The programme will normally require a minimum of 12 (twelve) calendar months and a maximum of 24 (twenty-four) calendar months of full-time study to complete. Part-time candidates on the other hand, will be required to spend a minimum of 24 (twenty-four) calendar months and a maximum of 48 (forty-eight) calendar months to complete the programme.

1.5 Course Registration

The lists of required courses for the different areas of specialization available in the programme are given below. Registration of courses must be done in consultation with the candidate's academic adviser who, in turn, must ensure that the candidate meets both the university and departmental requirements for the M. Eng. (Civil Engineering) or M Eng. (Environmental Engineering) degree programme as the case may be.

1.6 Specialisation Codes for M.Eng (Civil Engineering) Programme

CEG 81XX	Geotechnical Engineering
CEG 82XX	Highway and Transportation Engineering
CEG 84XX	Structural Engineering
CEG 85XX	Water Resources Engineering

1.7 Specialisation Code for M.Eng (Environmental Engineering) Programme

EVE 8 1XX	Environmental Engineering
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1.8 Course Listings

The Course Listings consist of: *Compulsory courses* and *Electives*.

Details of the Courses are presented subsequently for the different areas of specialisation.

COURSE LISTINGS: - DETAILS

1.8.1 CEG 81XX: Geotechnical Engineering Specialisation

1st Semester				CEG 824.1	Advanced Pavement Construction and Equipment	3
Course Code	Course Title		Unit	CEG 811.1	Earth Structures and Slopes	3
CEG 810.1	Geotechnical Modelling and Computer Applications		3	SGS 801.1	ICT and Research Methods	2
CEG 811.1	Earth Structures and Slopes		3	Total		17
CEG 812.1	Embankment Dam Engineering and Seepage		3	2nd Semester		
CEG 813.1	Engineering Behaviour and Properties of Soils		3	Course Code	Course Title	Unit
CEG 814.1	Rock and Tropical Soil Engineering		3	CEG 827.2	Pavement Materials & Mix Design	3
SGS 801.1	ICT and Research Methods		2	CEG 819.2	Special Topics in Geotechnical Engineering	3
Total			17	XXX	Elective	3
2nd Semester				SGS 801.2	Entrepreneurship and Management	2
Course Code	Course Title		Unit	CEG 801.2	Graduate Seminar	2
CEG 815.2	Soil Dynamics and Earthquakes Engineering		3	CEG 802.2	Graduate Research and Thesis	6
CEG 819.2	Special Topics in Geotechnical Engineering		3	Total		19
XXX	Elective		3	XXX: Electives		
SGS 801.2	Entrepreneurship and Management		2	Course Code	Course Title	Unit
CEG 801.2	Graduate Seminar		2	CEG 826.2	Highway Economics and Pavement Evaluation	3
CEG 802.2	Graduate Research and Thesis		2	CEG 834.2	Project Appraisal & Management Techniques	3
Total			19	CEG 812.1	Embankment Dam Engineering & Seepage	3
XXX: Elective Courses				CEG 847.2	Expert Systems & Computer Aided Design in Civil Engineering	3
Course Code	Course Title		Unit	CEG 829.2	Special Topics in Highway and Transportation Engineering	3
CEG 816.2	Probabilistic & Reliability Methods in Geotechnical Engineering		3	1.8.3 CEG 84XX: Structural Engineering Specialisation		
CEG 817.2	Theoretical Soil Mechanics		3	1st Semester		
CEG 818.2	Tunnel Engineering		3	Course Code	Course Title	Unit
CEG 847.2	Expert Systems & Computer Aided Design in Civil Engineering		3	CEG 841.1	Advanced Structural Analysis	3
CEG 856.2	Groundwater Hydrology and Exploration		3	CEG 842.1	Advanced Structural Mechanics	3
1.8.2 CEG 82XX: Highway and Transportation Engineering Specialisation				CEG 843.1	Advanced Concrete Design	3
1st Semester				CEG 844.1	Structural Dynamics and Stability	3
Course Code	Course Title		Unit	CEG 811.1	Earth Structures and Slopes	3
CEG 821.1	Transportation Modelling and Planning		3	SGS 801.1	ICT and Research Methods	2
CEG 822.1	Advanced Pavement Design		3	Total		17
CEG 823.1	Road Geometric Design		3	2nd Semester		
				Course Code	Course Title	Unit

CEG 847.2	Structural Reliability and Risk Analysis	3		Total	19
CEG 819.2	Special Topics in Geotechnical Engineering	3		XXX: Elective Courses	
XXX	Elective	3		Course Code	Course Title
SGS 802.2	Entrepreneurship and Management	2		CEG 857.2	Optimization and Simulation in Water Resources Systems
CEG 801.2	Graduate Seminar	2		CEG 858.2	Special Topics in Water Resources Engineering
CEG 802.2	Graduate Research and Thesis	6		CEG 855.2	Irrigation Engineering
	Total	19		CEG 859.2	Design of Drainage Systems
XXX: Elective Courses				1.8.5 EVE 81XX: Environmental Engineering Specialisation	
Course Code	Course Title	Unit		1st Semester	
CEG 846.2	Advanced Steel Design and Analysis	3		Course Code	Course Title
CEG 845.2	Expert Systems and Computer Aided Design in Civil Engineering	3		EVE 810.1	Aspects of Environmental Science and Ecology
CEG 848.2	Advanced Civil Engineering Materials	3		EVE 811.1	Unit Operations in Environmental Engineering
CEG 849.2	Special Topics in Structural Engineering	3		EVE 812.1	Pollution Prevention and Control
CEG 852.1	Finite Element Methods & Computer Applications	3		EVE 832.1	Water Treatment and Supply Engineering
				EVE 813.1	Oil Industry and Pollution
1.8.4 CEG 85XX: Water Resources Engineering				SGS 801.1	ICT and Research Methods
1st Semester				Total	16
Course Code	Course Title	Unit		2nd Semester	
CEG 851.1	Surface water Hydrology & Reservoir Operations	3		Course Code	Course Title
CEG 852.1	Finite Element Methods in Water Resources I	3		EVE 816.2	Environmental Management
EVE 832.1	Water Treatment and Supply Engineering	3		EVE 834.1	Design of Wastewater Treatment Systems
CEG 856.2	Groundwater Hydrology and Exploration	3		XXX.2	Elective
CEG 854.1	Advanced Water Resources Engineering	3		EVE 814.2	Air Quality and Environmental Noise
SGS 801.1	ICT and Research Methods	2		SGS 801.2	Entrepreneurship and Management
	Total	17		EVE 801.2	Graduate Seminar
2nd Semester				EVE 802.2	Graduate Research & Thesis
Course Code	Course Title	Unit		Total	20
CEG 853.2	Advanced Hydraulics	3		XXX: Elective Courses	
EVE 834.2	Design of Wastewater Treatment Systems	3		Course Code	Course Title
XXX	Elective	3		EVE 819.2	Solid and Hazardous Waste Management
SGS 801.2	Entrepreneurship and Management	2		CEG 859.2	Design of Drainage Systems
CEG 801.2	Graduate Seminar	2		EVE 821.2	Water Quality Modelling
CEG 802.2	Graduate Research and Thesis	6			

1.9 COURSE DESCRIPTION

1.9.1 GEOTECHNICAL ENGINEERING COURSES:

CEG 810.1: Geotechnical Modelling and Computer Applications

Introduction to Geotechnical Modelling; Nature of Soil Behaviour; Modelling of soil behaviour: Limit and Critical States; Constitutive Modelling: Elastic, elastic-plastic models; Numerical Modelling: Finite Element modelling, Finite differences; Physical Modelling: Dimensional analysis, Soil - Structure Interaction; Centrifuge Modelling; Theoretical Modelling; Application of Modelling techniques in solving Soil - Structure Interaction Problems.

CEG 811.1 Earth Structures and Slopes

Equilibrium, of Retained Soil: Limiting equilibrium analysis; Earth pressure theories; Lateral earth; Rigid retaining walls; sheet pile walls; anchored bulkheads. Deep excavations in soil: pressure distribution, base instability, bracing and other support methods; Earth anchored excavation; concrete diaphragm walls; Reinforced earth walls; cellular cofferdams; soft ground tunneling; Ground movement accompanying excavations and tunneling operations; Slope stability:- Design and analysis of slopes and embankments, circular and non-circular failure surfaces, concept of safety; Probabilistic slope stability analysis; stress strain and time-dependent behaviour; Identification and control of slope stability problems; Graduate Soil Laboratory.

CEG 812.1: Embankment Dam Engineering and Seepage

Types of Dams; Design consideration; design details; site exploration; behaviour of Rockfills; Stress-strain modeling, Finite element modeling; stresses; Load transfer — Cracking; Pore pressure; observations/monitoring; inspection and maintenance; Foundation and abutment treatment; cut-off; causes of failure; Tailings dam. Permeability; Flow equations; Flow nets; Numerical analysis; Seepage analogies; unknown boundaries; Transfer conditions; Anisotropic seepage; layered systems; piping filters.

CEG 813.1: Engineering Behaviour and Properties of Soil

Continuum Mechanics: principles; parameters and representation of soil properties; spaces; Framework of Critical State Soil Mechanics: Behaviour of simple soils; critical state models; Quantitative models of pore pressure; Strength Behaviour of Dilative Soils; Residual Strength;

Failure theories; strength behaviour of simple contractive soils; stress-strain relationships of soils; Constitutive models; Effective Stress Design methods; SHANSEP. Soil Physics, Chemistry and Mineralogy; Conduction Phenomena: coupled and uncoupled; consolidation, compression, creep, time effects; sensitive soils; sampling and disturbances; Transient and dynamic loading response; Effective of Cycle Loading; Graduate Soil Laboratory.

CEG 814.1: Rock and Tropical Soil Engineering

Introduction; Rock as an engineering material: Geological classification; Engineering classification of intact rock; structural features in Rock masses; Engineering classification of In-situ rock masses; in-situ state of Stress; Stress-Strain-Strength behaviour. Analysis of stress and strain, Elastic relationships (isotropic, anisotropic); Deformability of discontinuities; failure criteria (intact, anisotropic, jointed); Property Evaluation and Measurement: - Laboratory, field; Tropical Soils: Chemical, physical, textural, and engineering properties; Remote sensing and air photo applications to tropical soils engineering properties; geophysical techniques in tropical site characterization; Prediction of engineering performance of tropical soils. Case histories.

CEG 815.1: Soil Dynamic and Earthquake Engineering

Introduction: Dynamic Response Characteristics; Wave Propagation; Dynamic Soil properties; Foundation response to vibrations, Blasting Vibrations; Seismic slope stability analysis; Seismic design of retaining walls; Liquefaction; Seismic response of clays; Risk analysis and stability; offshore dynamics. Engineering earthquakes from engineering point of view; Earthquake mechanism; Basic characteristics of strong ground motion; Response of simple systems to earthquakes; structural design for earthquakes; seismic codes; earthquake resistant design; site effects; soil amplification; seismic risk and seismic design decisions; Soil-structure interaction; nuclear reactor containment structures; earth dam design (seismic); fluids in tanks and reservoirs; Blast loading.

CEG 816.2: Probabilistic and Reliability Methods in Geotechnical Engineering

Basic probability theory and applications; common probability distributions and geotechnical applications; joint distributions; moment approximations; Reliability of soil structures; system reliability and applications; Geotechnical applications of entropy and least biased distribution, the hazard function; Applications of diffusion theory to subsidence, consolidation and stress

distribution (Probability consolidation, probabilistic stress distribution); Markov Process and progressive slope failure; Time series analysis and groundwater fluctuation; Uncertainty and soil parameters; Decision making under uncertainty; site characterization.

CEG 817.2: Theoretical Soil Mechanics

Stress distribution in soil: Concept of stress and strain; Elastic equations; Applications to various loading and boundary conditions in soil. Stability problems in soil: - Failure theories; Development of conventional stability methods; Effects of retaining wall movements; Sokolovski's method of characteristics. Consolidation: - Theoretical development and solution of one- dimensional consolidation; Higher-dimensional consolidation, Seepage: - Theory of groundwater movement; method of fragments.

CEG 818.2: Tunnel Engineering

Tunnel characteristics clearances and; Tunnel survey and preliminary investigation; soft ground tunneling; shield tunneling; Rock tunnels; mixed-face tunneling; Tunnel- boring machines; Material handling and construction plant; shotcrete; cut and cover construction; safety provisions; Drainage system; Tunnel operation and maintenance.

CEG 819.2: Special Topics in Geotechnical Engineering

Review of Site Appraisal and Engineering behaviour of soils; Foundations for Structures — Shallow foundations, Deep foundations: - piles, piers (caissons), bridge supports. Foundations in difficult ground conditions; Deep basements; Geotechnical Structures; Offshore Geotechnical Engineering; Offshore Structures; Soil and ground improvement: — Land reclamation; Earthworks and Soil stabilization; Geotextiles and Geosynthetics; Environmental geotechnical engineering: - ground movements (subsidence); Effects of pollution on the properties and engineering behaviour of soils. Advanced Soil Mechanics laboratory principles and procedures.

SGS 801.1: ICT and Research Methods

ICT skills; writing skills; thesis documentation; proposal writing & tendering skills; and presentation skills.

CEG 801.2: Graduate Seminar

This is a required course for all graduate students. Intensive review of the literature in the student's area of specialization will be required. A series of seminars will be delivered by students on topics of current interest. Guest Lecturers from both the department and outside (including the industry) will be invited to give seminar lectures on chosen topics of current academic and economic interest,

such as those related to the safety and protection of the environment, and to quality management.

CEG 802.2: Graduate Research and Thesis

This is a directed research on problems in the student's area of specialization. Emphasis will be on the use of research methodology for scientific investigation leading to a written thesis.

CEG 845.2: Expert System and Computer-Aided Design in Civil Engineering

Principles of artificial intelligence, including applications in robotics, natural language programmes and advanced computer input-output devices; Analysis of various expert systems; Development of the knowledge base and the role of the knowledge of engineers; Computer systems; High level languages; computer architecture; computer graphics and draughting; Data base aspects of CAD; Interrelationship between CAD and numerical methods: Simulation and optimization.

CEG 851.1: Groundwater Hydrology and Groundwater Exploration

Groundwater as a renewable resource; occurrence, disposal and historic background; types of aquifers; measurement of soil moisture; unsteady flows and measurement of hydraulic conductivity, transitivity and specific yield/storage coefficient; Well hydraulics with considerations to Theis Jacob, Chow and Hantush methods; leaky aquifer, recovery, methods, and Bolton's Flow around fully and partially penetrating wells and well losses; well construction and drilling methods. Groundwater quality analysis, artificial recharge; surface and sub-surface investigation and sea water intrusion.

1.9.2 HIGHWAY & TRANSPORTATION ENGINEERING COURSES:

CEG 821.1 Transportation Modeffing and Planning

Transport and Society; The Urban Transportation problem: its roots, manifestations and implications. The systems approach to transportation. Conventional models of travel demand in transportation studies including disaggregate behavioural models, Trip Generation, Frater and Gravity models of trip distribution; trip-end and trip-interchange modal split; network assignment. Generation of alternatives and their evaluation. Introduction to decision theory. Traffic and parking: Distribution of highway traffic speeds; the negative exponential distribution applied to headways or highways, Capacity at intersections; Design of merging and diverging lanes using department of transport procedure; Simulation of highway headway distributions.

Accident statistics and trends: Road safety education.

CEG 822.1 Advanced Pavement Design

Pavement Analysis, Design and Management Principles. Low Volume Road Design, Computer applications in design and analysis of pavements. Fundamental Principles - Design factors; Types of distress - structural and functional: Stresses in flexible and rigid pavements; Vehicle and Traffic consideration. Climatic and environmental conditions. The Economic Factor, design strategies. Systems analysis. Properties of pavement components and material characterisation; Soil and base stabilisation: bituminous surfaces and material variability.

Flexible Pavement Design - Airport and highway pavements and their differences. Theories of layered Systems. Boussinesq theory, Burmister analysis. Mechanistic-Empirical Design Procedures.

Rigid Pavement Design - Airport and highway pavements; modulus of rupture; design charts; design factors. Junction of flexible and rigid pavements; Joints and reinforcements; Load-Transfer devices. Thickness design, load stresses; subgrades and bases. Design of overlays.

CEG 823.1 Road Geometric Design

Principles of Highway/Route Location; Highway Survey Methods, Photogrammetry; Circular Curves, Spiral Curves, Vertical and horizontal Alignments & super elevations; Cross Section elements, Design Controls and Criteria - Basic design policy; Design principles; Geometric design standards: geometric design data; design vehicle and design speed; Highway capacity; Control of access, Geometric plan elements; Intersections. Grade separation structures, Ramps; Design of interchanges.

Drainage Design: - Basic policy on drainage design, economics of drainage design: Hydrological analysis; Culverts; Storm sewers: Roadside drainage Channels: Drainage of highway pavements; inlet design; subsurface drainage.

Secondary Design Elements - Design criteria; illumination; Signing and pavement markings: Guardrail and vehicular barriers Special structures and installations roadside development. Factors contributing to accidents.

CEG 824.1 Advanced Pavement Construction & Equipment

Earthmoving and heavy construction - Earthmoving materials and operations; Excavating and lifting, shovels, draglines, backhoes, clamshells, cranes. Loading and hauling. Equipment travel time, dozers, loaders, scrapers, trucks and wagons. Compacting and finishing. Rock excavation. Compressed air and water

systems, Paving - Concrete paving; bituminous materials: Bituminous surface treatment, asphalt paving. Job Planning and Management; factors affecting the selection of construction equipment; Engineering fundamentals: Soil stabilization and compaction operation analyses; Economics of owning and operating construction equipment. Single and multiple surface treatments. Belt conveyor systems; Drilling and Blasting of Rocks; the production of crushed stone aggregate. Asphalt in rigid pavement maintenance; Safety precautions.

CEG 819.2 Special Topics in Geotechnical Engineering

Review of Site Appraisal and Engineering behaviour of soils; Foundations for Structures — Shallow foundations, Deep foundations: - piles, piers (caissons), bridge supports. Foundations in difficult ground conditions; Deep basements; Geotechnical Structures; Offshore Geotechnical Engineering; Offshore Structures; Soil and ground improvement: — Land reclamation; Earthworks and Soil stabilization; Geotextiles and Geosynthetics; Environmental geotechnical engineering: - ground movements (subsidence); Effects of pollution on the properties and engineering behaviour of soils. Advanced Soil Mechanics laboratory principles and procedures.

SGS 801.1: ICT and Research Methods

ICT skills; writing skills; thesis documentation; proposal writing & tendering skills; and presentation skills.

CEG 826.2 Highway Economics & Pavement Evaluation

Pavement Distress: - Flexible and rigid pavements; Visual condition surveys; Concepts of condition and evaluation surveys; Present serviceability Index equation methods of measuring condition, skid resistance; Strengthening existing pavements: Principles of maintenance, Methods of performance survey, methods of structural evaluation: Deflection measurements and interpretation of collection data, Conversion factors. Overlay categories; Flexible overlays and over flexible pavements, based on deflection component analysis. Overlay Design of Flexible Pavements; Analysis of stresses in unbounded concrete overlay. Improved rigid pavement joints: Analytic approach to concrete pavement blowups; maintenance of flexible pavements.

The economic factor, design strategies, systems analysis, techniques and limitations: pavement cost; economic analysis; effect of growth and variable costing: estimating costs; sensitivity of the cost factors; illustrative examples of computation; payments by the general public and by property owners or developers; value engineering studies;

optimum stage construction; on-surfaced roads versus surfaces.

CEG 827.2 Pavement Materials and Mix Design

Asphalt Technology: Petroleum asphalt Refining and properties of asphalt cement; Liquid asphalts, air-blown asphalts; Uses of asphalts and effects of temperature and viscosity. Sampling and Temperature-volume relationships measurements and calculations; Aggregate gradation blending calculations, Asphalt concrete mix design; Properties of asphalt mixes: Asphalt mixture calculations.

Manufacture of Hot asphalt plant mixes: Asphalt plant operation and inspection: Roadway surface preparation. Miscellaneous asphalt construction. Special uses of asphalt and additives; Safety precautions.

CEG 829.2: Special Topics in Highways and Transportation Engineering

Highway signals and lighting. Pavement Components and materials characterization. Road Safety. Road work, theory and practice.

CEG 834.2: Project Appraisal & Management Techniques

Economic appraisal methodologies; Benefit/cost analysis; Levels of Management; the organisational chart. Linear and dynamic programming — the Simplex method, the transportation problem, the assignment problem; Network Analysis — the shortest route problem, minimal spanning tree problem. Project planning and control with CPM and PERT. Queuing theory, inventory theory and decision analysis.

CEG 812.2 Embankment Dam Engineering and Seepage

Types of dams; Design consideration; design details; site exploration; behaviour of rockfills; stress-strain modelling, Finite element modelling; stresses; Load transfer — cracking; Pore pressures; observations/monitoring; inspection and maintenance; Foundation and abutment treatment; cut-off; causes of failure; tailings dams, permeability; Flow equations; Flow nets; Numerical analysis; seepage analogies; unknown boundaries; Transfer conditions; Anisotropic seepage; layered systems; piping; fillers.

CEG 845.2 Expert Systems & Computer Aided Design in Civil Engineering

Principles of artificial intelligence, including applications in robotics, natural language programmes and advanced computer input-output devices. Analysis of various expert systems, including tools and generators, classification versus diagnostic type systems. Development of the knowledge base and the role of the knowledge

of engineers. Computer systems, High level languages, computer architecture; computer graphics and draughting, the data base aspects of CAD; the interrelationship between CAD and numerical methods. Simulation and optimisation.

CEG 801.2: Graduate Seminar

This is a required course for all graduate students. Intensive review of the literature in the students area of specialization will be required. A series of seminars will be delivered by students on topics of current interest. Guest Lecturers from both the department and outside (including the industry) will be invited to give seminar lectures on chosen topics of current academic and economic interest, such as those related to the safety and protection of the environment, and to quality management.

CEG 802.2: Graduate Research and Thesis

This is a directed research on problems in the student's area of specialization. Emphasis will be on the use of research methodology for scientific investigation leading to a written thesis.

1.9.3 STRUCTURAL ENGINEERING COURSES

CEG 841.1: Advanced Structural Analysis

Vector and tensor analysis. Vector fields, Integral theories, Cartesian and curvilinear tensors. Tensor calculus. Differential geometry. Solution of non-linear equations and sets of linear equations. Numerical integration. Ordinary and partial differential equations. Finite difference method. Finite elements method. Application of finite element method.

Matrices, Linear algebraic equations, Special matrices determinants, Stiffness matrix method; member stiffness transformation matrices; structure stiffness matrix; flexibility matrix method, virtual work; plane plasticity. Reticulated structures. Triangular and rectangular finite elements. Axi-symmetric and three-dimensional elements.

Development of governing equations for thin rectangular plates; classical solution techniques such as Navin, Lavy and energy methods applied to circular plates on elastic foundations and orthotropic plates, large deflection theory. Variational techniques; the methods of Ritz, Galerkin and Kantorovitch. Box girders, introduction to shell theory, membrane hypothesis, cylindrical shells of revolution, translational shells, shalloor-shell theory; the static-kinetic analogy of Goldenceisers, Lur's and Calladine, the duo-surface theory with numerical applications.

Triangular and rectangular elements, Axi-symmetric and three-dimensional elements, isoparametric elements. Non-linear systems, Boundary element concepts, Finite strip, high

temperature and rate dependent problems. Extensive utilization of FEM package on engineering work station.

CEG 842.1: Advanced Structural Mechanics

Equilibrium and compatibility of forces and deformation. Theory of limiting states of stress. Unsymmetrical bending, torsion, stability. Thin-walled structures, plasticity. Fracture mechanics. Experimental stress analysis, measurement of strain, load, moment.

Theory of elasticity: - The calady stress relationship. Equilibrium of stress at Varnant Torsion. Membrane analogy. Torsion criteria for crack initiation and propagation leading to failure; Giffith theory. Plane strain, fracture, toughness phenomena, stability: - Buckling criteria, Elastic stability of columns and plane frames. Stability function. Plates and shells; Development of the governing equations for thin rectangular plates.

CEG 843.1: Advanced Concrete Design

Brief historical review. Design of sections in combination of axial load and bending. Design for torsion. Design of non-prismatic sections, Columns with bi axial bending. Design of two-way and plate slabs by the yield line method. Point load and line load on slab. Design of deep beam, Analytical treatment of the effects of shrink and creep. Final pre-stressing force. Limit state design of statically indeterminate pre-stressed slabs. Cyclic loading of simple supported beams and portal frames. Fatiguejoints and End-block design.

CEG 845.2: Structural Reliability and RiskAnalysis

Modelling and computer simulations; Optimization. Optimum design accounting for uncertainty and failure consequences. Stochastic dynamic programming. Analysis and design specification of structural performance and safety through probability theory. Description of random occurrence, wind and earthquake loadings and variability in material properties.

CEG 846.2: Advanced Steel Design and Analysis

Torsion behaviour of thin-walled members of open and cross-section. Pure and restrained torsion, shear controls. Inelastic stability concepts in modern; imperfection sensitivity, moment relaxation, inelastic lateral torsion, buckling provisions and the design of bracing. Beam-column behaviour and design under sway.

Composite plates and beams, elastic and plastic design. Composite columns, sheer connections, static and fatigue loading. Portal frames, plastic design and secondary effects. Behaviour and design of eccentrically restrained beam-columns.

Methods of cladding, stress- strain design, cranes, girders, plate girder design.

CEG 847.2: Expert System and Computer-Aided Design in Civil Engineering

Principles of artificial intelligence, including applications in robotics, natural language programmes, and advanced computer input-output devices. Analysis of various expert systems. Development of the knowledge base and the role of the knowledge of engineers.

Computer systems. High level languages, computer architecture; computer graphics and draughting, the data base aspects of CAD; the interrelationship between CAD and numerical methods. Simulation and optimization.

CEG 819.2: Special Topics in Geotechnical Engineering

Review of Site Appraisal and Engineering behaviour of soils; Foundations for Structures — Shallow foundations, Deep foundations: - piles, piers (caissons), bridge supports. Foundations in difficult ground conditions; Deep basements; Geotechnical Structures; Offshore Geotechnical Engineering; Offshore Structures; Soil and ground improvement: — Land reclamation; Earthworks and Soil stabilization; Geotextiles and Geosynthetics; Environmental geotechnical engineering: - ground movements (subsidence); Effects of pollution on the properties and engineering behaviour of soils. Advanced Soil Mechanics laboratory principles and procedures

SGS 801.1: ICT and Research Methods

ICT skills; writing skills; thesis documentation; proposal writing & tendering skills; and presentation skills.

CEG 801.2: Graduate Seminar

This is a required course for all graduate students. Intensive review of the literature in the student's area of specialization will be required. A series of seminars will be delivered by students on topics of current interest. Guest Lecturers from both the department and outside (including the industry) will be invited to give seminar lectures on chosen topics of current academic and economic interest, such as those related to the safety and protection of the environment, and to quality management.

CEG 802.2: Graduate Research and Thesis

This is a directed research on problems in the student's area of specialization. Emphasis will be on the use of research methodology for scientific investigation leading to a v ritten thesis.

1.9.4 WATER RESOURCES ENGINEERING COURSES

CEG 851.1 Surface Water Hydrology & Reservoir Operations

A review of climatological/meteorological parameters, hydrologic cycle, precipitation, distribution, interpretation of data; variations and measurements. Stream flow measurements, stage-discharge relations; rating curves; hydrographs; types, separation and synthesis; flow-duration curve and precipitation-runoff relationship. Evapo-transpiration and surface evaporation in the open water bodies; stream flow routing by hydrological and hydraulic principles. Probability in surface water hydrology as a basis for design; flow and rainfall intensity duration - frequency analysis and design storms. Reservoir operations and management.

CEG 852.1 Finite Element Methods in Water Resources I

Groundwater 2-D flow equation; Use of finite elements and computer programming as aids to flow predictions. Rivers flow models and numerical solution approaches. Water quality governing equations and numerical solution approaches. Sensitivity analysis in model developments and applications.

CEG 853.1: Advanced Hydraulics

Water flow in open channels; Uniform flow and energy principles in open channel flows. Gradually varied flow, classification, computation of water surface profiles- direct integration method, direct step method, the standard step method, Bresses method, practical problems related to land design, backwater and channel delivery computations, theory of canal regimes, transitions, hydraulic jump and its use as energy dissipators.

Rapidly varied unsteady flow, the moving hydraulic jump, positive surges, negative surges, surge through channel transition. Water flow through pipes in pipe networks. Pipelines, pipe branching, pipe networks; siphon and pump in pipelines, design of pipe distribution systems. Hardy-Cross methods, pipe and materials, valves and hydrants, distributing reservoirs, standpipes and elevated tanks, hydraulics of sewers, water pumps; Power and efficiency of water pumps, centrifugal pumps, propeller (axial flow) pumps, jet pumps, selection alteration, pumps in parallel or series, specific speed and similarity. Hydraulic similitude: - Reynolds number law, Froude number law, Open channel models, Hydraulic models distorted river and channel models.

Unsteady flow: Water hammer, the basic differential equation and method of arithmetic integration, surge control, theory of mass oscillation, surge tanks- basic differential equation.

Hydrodynamics: - Euler's equations, Navier-Stokes equations effect of Viscosity, Laplace

equation, waves, deeper water waves, short waves and long tidal waves, hydrodynamics of fluid-particle systems.

Sediment transport in open channels: The bed load, the suspended load, Duboys-type equations, Einsteins bedload equations, the total load, Canals in regime, meandering of rivers, Sediment measuring devices, River and channel models.

CEG 854.2: Advanced Water Resources Engineering

Application of the principles of hydraulics, hydrology, and water control to problems in erosion control, flood control, water power, irrigation, navigation, and river basin planning; design principles of water regulatory structures: Optimization and simulation of water quality Modelling, water well technology; mathematical Modelling of groundwater.

CEG 855.2: Irrigation Engineering

Introduction to irrigation practice in humid and arid regions; crop-water requirement; infiltration and water holding capacities of soil; salinity and water quality; reclamation and management; irrigation water application (surface, sprinklers and sub-irrigation) use and distribution; water management and efficiency. Economic analysis; operation management of irrigation schemes. Sources of drainage problems; Surface drainage systems; Drainage structures, Sub-surface drainage system; Drainage of tidal areas; Soil erosion and soil conservation practices.

CEG 856.2 Groundwater Hydrology & Exploration

Groundwater as a renewable source; occurrence, disposal and historic background. Types of aquifers, measurement of soil moisture, unsteady flows and measurement of hydraulic conductivity, transitivity and specific yield/storage coefficient. Well hydraulics with considerations to Theis Jacob, Chow and Hantush methods, leaky aquifer, recovery methods, and Boulton's. Flow around fully and partially penetrating wells and well losses, well construction and drilling methods. Groundwater quality analysis, artificial recharge; surface and sub-surface investigation and sea water intrusion. Groundwater exploration, drilling methods for shallow and deep wells (Boreholes), casing, well development, operation and maintenance in riverine and upland environments.

CEG 857.2 Optimization & Simulation in Water Resources Systems

Introduction to operations research, linear programming, objective function and constraints, Gauss-Seidel method, water management, benefit-cost analysis, concept of marginal cost in water pollution and pollution control. A review of 2-D

groundwater simulation, effect of natural and artificial recharge. Selection of best project alternative using Sondheim method.

CEG 858.2: Special Topics in Water Resources Engineering

Investigation of dam site, and choice of dam type. Gravity Dam: - Forces acting on dams. Requirements for stability, general procedure for design with examples, internal stresses and stress concentrations in gravity dams. Slab and Buttress Dams: - Concrete dams and dams on permeable foundations. Embankment Dams: - General design procedure, foundations types and treatments, seepage analysis and control, method of stability analysis, slope protection, typical designs of embankment dams, earth dams, rockfill dams, method of construction.

Spillways, gates and outlet works, gate and valves, needle valves, protection against scour below dams, beams and energy dissipater, hydraulic model studies, Fishways at dams.

Reservoir Operation: - Reservoir, physical characteristics, sedimentation, reservoir capacity for a given yield, selection of capacity for a river reservoir, flood mitigation.

Direct supply reservoirs, regulating reservoirs. Pumped storage reservoirs. Conjunctive use schemes, control rules, simulation. Evaluation criteria for seasonal effects and correlations.

CEG 859.2 Design of Drainage Systems

Storm water collection and disposal, municipal drainage, land drainage, highway drainage, culverts designs, conventional and tapered inlet or outlet control with software (HY-8), Design of drainage network via computational algorithm and an approved computer language, user- friendly to solve real time/field problem(s).

1.9.5 ENVIRONMENTAL ENGINEERING COURSES

EVE 810.1: Aspects of Environmental Science and Ecology

Acid-base chemistry and its significance in environmental engineering. Dissolution and precipitation chemistry, and chemical precipitation reactions in water and wastewater treatment. Coordination chemistry, electrochemical reactants, chemical reactants, solution preparation-Normality, molarity, equivalence etc. Introduction to general Microbiology, water and wastewater microbiology. Degradation metabolism of compounds by organisms. Enzyme kinetics. Batch growth kinetics. Recycling of minerals and nutrients. Freshwater ecology, marine ecology, estuarine ecology, stratification of water bodies, terrestrial ecology, eutrophication, natural resources and their management. Functional parts

of ecosystem, energy flows, and nutrient cycles. Instrumentation and practical.

EVE 811.1: Unit Operations in Environmental Engineering

Unit operations of water and wastewater treatment; pretreatment, sedimentation, coagulation/flocculation, filtration, aeration, disinfection, sludge treatment and disposal, advanced wastewater treatment processes.

EVE 812.1: Pollution Prevention and Control

Strategy of pollution control engineering; the engineering design process; environmental systems; toxicity and aquatic water quality criteria; risk assessment; waterborne microbial diseases; faith of pollutants in air, water, soil and groundwater; guidelines for environmental protection.

CEG 810.1: Advanced Engineering Hydrology

Fundamental theories on hydrological cycle (water balance, atmospheric water, subsurface water, surface water), measurements and data collection. Precipitation analysis, evaporation and evapotranspiration processes, hydrograph analysis, rainfall runoff modelling (unit hydrograph), hydrological flow routing, infiltration, ground water movement (Aquifers; types and properties and properties), hydrological statistics and hydrological design. Flow nets; hydraulic wells; pumping test.

CEG 832.1: Water Treatment and Supply Engineering

Water quality, Demand for water; population forecasts. Sources of water; ground and surface water development. Collection and transmission of water. Unit operations and water treatment processes: pre-treatment, coagulation and flocculation, sedimentation and flotation, filtration, ion removal by chemical precipitation, disinfection, ion exchange, adsorption, membrane processes and solids handling. Distribution of water and service reservoirs. Pumping. Distribution systems and system appurtenances. Calculation techniques for distribution system hydraulics. Computer methods. Distribution system solutions. Pipes and materials for pipes.

EVE 813.1: Oil Industry & Pollution

Definitions; measurement of pollution; Oil field activities; Sources and types of pollution; In-situ pollution prevention and control measures; inorganic pollutants; oil and organic pollution; newer forms of pollution; Remediation processes; Regulatory controls.

SGS 801.1: ICT and Research Methods

ICT skills; writing skills; thesis documentation; proposal writing & tendering skills; and presentation skills

EVE 816.2: Environmental Management

Baseline and environmental sensitivity studies, Concepts of environmental impact assessment. EIA assessment procedure — identification, prediction and evaluation, methodologies, statement and report preparation. Applications of mathematical models to environmental impact assessment cases involving soil, water and air quality problems. Preparation of environmental impact statement. Case studies. Environmental Risk assessment. Principles of developing national environmental quality standards and compliance measures. Concept of environmental loading and prevention of significant deterioration in ecological balances. Current national and international standards. Principles of developing risk-based land-use planning. Needs analysis for new industrial facilities. Baseline assessment.

EVE 814.2: Air Quality and Environmental Noise

Atmosphere and air pollution system; Sources and classification of air pollution; Air quality standards and effects of air pollution on man, plants and structures; Global air pollution concerns; Air quality index, measurement of air pollutants and units: Dispersion of air pollutants, atmospheric stability, introduction to air pollution modelling; removal of particulates and flue gases. Noise sources and characteristics, computation with decibels (dB), human response to sound, types of noise, noise criteria and noise measurements, Effects of noise on humans and noise prevention and control, humans and structural vibration measurement and standards.

CEG 834.2: Design of Wastewater Treatment Systems

Principles of wastewater treatment; Preliminary treatment units; Primary treatment units; Overview of reactions, reactors and bio-kinetic coefficients; Introduction to activated sludge treatment; Trickling filter units; Waste Stabilization ponds, Septic tank systems, VIP; Wastewater treatment plant hydraulics, disposal and reuse of wastewaters. Sludge treatment.

CEG 812.2: Design of Drainage Systems

Introduction: hydraulic design, appurtenances, ventilation of sewers, pipe material. Open channel hydraulics: open channel flows, channel properties, uniform flow equations, empirical equations, rational method. Channels with composite sections, channel design flow in partly full pipes. Design of storm sewers: peak runoff estimate, hydraulic design of storm sewers. Design

of Open drains: design approach, conveyance (K), section factor (Z). Design of sanitary sewers: design principle, computation, design of conventional sewer network, design of simplified sewerage system. Loads on buried pipes: strength of rigid pipes, beddings, allowable loads on pipes. Sub-surface drains.

EVE 819.2: Solid and Hazardous Waste Management

Generation of solid wastes. On-site handling, storage and processing. Collection, transfer and transport of solid wastes. Processing techniques and equipment. Recovery of resources, conversion products and energy. Disposal methods for solid wastes and residual matter: Sanitary landfill, incineration, composting and other techniques. Hazardous waste classification, generation rates, regulations on hazardous wastes, waste minimization, recycling and recovery of hazardous wastes, treatment of hazardous wastes using physicochemical processes, biological processes, and thermal methods. Land storage and disposal of hazardous wastes, site remediation and case studies. Design of sanitary landfill.

EVE 821 Water Quality Modeling

Introduction to descriptive modelling approaches for analysing water quality changes in lakes, reservoirs, rivers, and estuaries. Applications include modelling dissolved oxygen, temperature, nutrients, and algal dynamics.

EVE 801.2: Graduate Seminar

This is a required course for all graduate students. Intensive review of the literature in the student's area of specialization will be required. A series of seminars will be delivered by students on topics of current interest. Guest Lecturers from both the department and outside (including the industry) will be invited to give seminar lectures on chosen topics of current academic and economic interest, such as those related to the safety and protection of the environment, and to quality management.

EVE 802.2: Graduate Research and Thesis

This is a directed research on problems in the student's area of specialization. Emphasis will be on the use of research methodology for scientific investigation leading to a written thesis.

2. DOCTOR OF PHILOSOPHY (PhD) DEGREE PROGRAMME IN CIVIL ENGINEERING.

2.1 Programme Objective

The aim of the PhD (Civil Engineering) and PhD (Environmental Engineering) programmes is to provide students an opportunity to acquire indepth understanding of basic engineering and scientific

principles underlying their areas of interest in Civil Engineering or Environmental Engineering; and hence enable them develop the capability to apply these principles creatively through advanced methods of research, analysis and synthesis.

2.2 Admission Requirements

Candidates for admission into the PhD (Civil Engineering) and PhD (Environmental Engineering) programmes must possess the Master of Engineering or Master of Science degree in Civil Engineering or Environmental Engineering from the University of Port Harcourt or any other recognized University with at least an average score of B grade. In addition, every applicant must provide:

- (a) Two letters of reference (at least) from persons qualified to comment on his or her academic work (preferably, the supervisor at the Master's programme should be one of the referees;
- (b) A copy of his or her Masters degree transcript; and
- (c) Four copies of his or her proposed research plan in the chosen area of specialization.

Final selection of candidates will be based on the evaluation of the above documents as well as interview performance.

2.3 Departmental Requirements and Regulations

In addition to the general University requirements for the PhD degree, the following regulations also apply for all areas of specialisation in the PhD (Civil Engineering) degree programme:

- a) On provisional admission every PhD student will be assigned a supervisor and later a PhD committee made up of the Supervisor and four (4) senior academic staff.
- b) A PhD student will be required to take and pass prescribed courses in consultation with members of his/her committee.
- c) The student will take a Qualifying! Comprehensive after a minimum of one semester in the programme. The pass grade in his examination shall be 70% and only success in it will confirm the student's status as a PhD student.
- d) After a minimum of two semesters of work the PhD student, in consultation with the supervisor, shall apply to the Department to make a formal presentation/Oral defence of his or her research proposal. If the presentation is successful, the student becomes a candidate for the PhD degree and is allowed to continue with his research work to the end.

- e) On completion of the research work the PhD candidate is required to prepare a dissertation and submit to the Head of department. Thereafter he/she is expected to successfully pass an oral examination in defence of the dissertation before a panel of examiners set up in accordance with the Graduate School regulations.
- f) The Department shall normally expect the PhD student, as a normal PhD degree requirement, to participate in and present seminars to the Departmental Graduate Studies Committee in the course of the research work. He should also produce, from the work, at least two conference papers and two journal articles accepted for presentation and publication in reputable academic conference proceedings and journals.

2.4 Programme Duration

Full-time candidates will be required to spend a minimum of 36 calendar months and a maximum of 60 calendar months, while part-time candidates will be required to spend a minimum of 60 calendar months and a maximum of 84 calendar months to complete the PhD (Civil Engineering) Programme.

2.5 General University Regulation

All the foregoing regulations are subject to the general University regulations covering PhD degree programmes.

2.6 Specialisation Codes for PhD (Civil Engineering) Programme

CEG 91 XX Geotechnical Engineering
CEG 92XX Highway and Transportation Engineering

CEG 94XX Structural Engineering
CEG 95XX Water Resources Engineering

2.7 Specialisation Code for PhD (Environmental Engineering) Programme

EVE 90XX Environmental Engineering

2.8 Prescribed Courses for PhD Programme

A student shall take major courses prescribed in the discipline of specialisation as will be advised by the academic advisers. These are detailed in the following course listings.

2.8.1 CEG 91XX: Geotechnical Engineering Specialisation

First Year: 1st Semester

Course Code	Course Title	Unit
CEG 910.1	Advanced Modelling and Numerical Techniques in Geomechanics	3

CEG 913.1	Advanced Concepts in Engineering Behaviour of Soils	3
CEG 915.1	Earthquake Engineering and Foundation Vibrations	3
CEG 916.1	Reliability of Geotechnical Systems	3
	Total	12

First Year: 2nd Semester

Course Code	Course Title	Unit
CGS 918.2	Tunnel Engineering	3
CEG 917.1	Advanced Concepts in Theoretical Soil Mechanics	3
CEG 901.2	Seminar	3
CEG 902.2	Research and Dissertation	12
	Total	21

2.8.2 CEG 94XX: Structural Engineering Specialisation

First Year: 1st Semester

Course Code	Course Title	Unit
CEG 940.1	Design of tall buildings	3
CEG 941.1	Bridge Design	3
CEG 945.1	Advanced Methods in Theory of Elasticity	3
CEG 946.1	Advanced Theory of Plates	3
	Total	12

First Year: 2nd Semester

Course Code	Course Title	Unit
CGS 948.2	Stability of Structures	3
CEG 947.1	Theory of Shells	3
CEG 901.2	Seminar	3
CEG 902.2	Research and Dissertation	12
	Total	21

CEG 95xx: Water Resources Engineering Specialisation

First Year: 1st Semester

Course Code	Course Title	Unit
CEG 951.1	Finite Element Methods in Water Resources II	3
CEG 953.1	Advanced Hydraulics II	3
CEG 955.1	Advanced Groundwater Hydrology	3
CEG 956.1	Computer Methods in Water & Waste Water Engrg	3
	Total	12

First Year: 2nd Semester

Course Code	Course Title	Unit
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CEG 952.2	Advanced Surface Water Hydrology	3
CEG 954.2	Coastal Engrg & Shore Protection	3
CEG 910.2	Seminar	3
CEG 902.2	Research & Dissertation	12
	Total	21

EVE 9XX: Environmental Engineering Specialisation

First Year: 1st Semester

Course Code	Course Title	Unit
EVE 903.1	Advanced wastewater treatment	3
EVE 904.1	Advanced water treatment	3
EVE 905.1	Noise pollution Modeling	3
EVE 906.1	Oil and Gas pollution	3
	Total	12

First Year: 2nd Semester

Course Code	Course Title	Unit
EVE 907.2	Meteorology & Air Pollution	3
EVE 909.2	Hazardous & Radioactive Waste Management	3
CEG 901.2	Seminar	3
CEG 902.2	Research & Dissertation	12
	Total	21

3. PhD COURSE DESCRIPTION

3.1 GEOTECHNICAL ENGINEERING COURSES:

CEG 910.1: Advanced Modelling techniques in Geomechanics

Introduction: Geotechnical Modelling of soil behaviour - Limit and Critical States (a Review); Constitutive Modelling: Elastic, elastic-plastic models; Numerical Modelling: Finite Element modelling, Finite differences; Physical Modelling: Dimensional analysis, Soil — Structure Interaction; Centrifuge Modelling; Theoretical Modelling; Application of Modelling techniques in solving Soil — Structure Interaction Problems.

CEG 913.1: Advanced Concepts in Engineering Behaviour of Soils

Parameters and representation of soil properties. Advanced concepts in Critical State Soil Mechanics - Limit and Critical State Models. Strength behaviour of simple contractive soils. Strength behaviour of dilative soils. Behaviour of heavily over-consolidated clays including residual strength. Quantitative models of pore pressure. Volume change and compressibility behaviour:

Consolidation, compression, creep and other time effects. Conduction phenomena-uncoupled and coupled. Sensitive soils. Stress-Deformation of soils. Models for stress-strain and other constitutive laws. Transient and dynamic loading response. Effects of cyclic loading. Failure theories.

CEG 915.1: Earthquake Engineering and Foundation Vibrations

Introduction: Dynamic Response Characteristics; Wave Propagation; Dynamic Soil properties; Foundation response to vibrations, Blasting Vibrations; Seismic slope stability analysis; Seismic design of retaining walls; Liquefaction; Seismic response of clays; Risk analysis and stability; offshore dynamics. Engineering earthquakes from engineering point of view; Earthquake mechanism; Basic characteristics of strong ground motion; Response of simple systems to earthquakes; structural design for earthquakes; seismic codes; earthquake resistant design: site effects; soil amplification; seismic risk and seismic design decisions; Soil-structure interaction; nuclear reactor containment structures; earth dam design (seismic); fluids in tanks and reservoirs; Blast loading.

CEG 916.2: Reliability of Geotechnical Systems

Basic probability theory and applications; common probability distributions and geotechnical applications; joint distributions; moment approximations; Reliability of soil structures; system reliability and applications; Geotechnical applications of entropy and least biased distribution, the hazard function; Applications of diffusion theory to subsidence, consolidation and stress distribution (Probability consolidation, probabilistic stress distribution); Markov Process and progressive slope failure; Time series analysis and groundwater fluctuation; Uncertainty and soil parameters; Decision making under uncertainty; site characterization.

CEG 917.2: Advanced Concepts in Theoretical Soil Mechanics

Stress distribution in soil: Concept of stress and strain; Elastic equations; Applications to various loading and boundary conditions in soil. Stability problems in soil: - Failure theories; Development of conventional stability methods; Effects of retaining wall movements; Sokolovski's method of characteristics. Consolidation: - Theoretical development and solution of one-dimensional consolidation; Higher-dimensional consolidation. Seepage: - Theory of groundwater movement; method of offragments.

CEG 918.2: Tunnel Engineering

Tunnel characteristics clearances and; Tunnel survey and preliminary investigation; soft ground tunneling; shield tunneling; Rock tunnels; mixed-face tunneling; Tunnel-boring machines; Material handling and construction plant: shotcrete; cut and cover construction; safety provisions; Drainage system; Tunnel operation and maintenance.

CEG 901.2: Seminar

This is a required course for all graduate students. Intensive review of the literature in the student's area of specialization will be required. A series of seminars will be delivered by students on topics of current interest. Guest Lecturers from both the department and outside (including the industry) will be invited to give seminar lectures on chosen topics of current academic and economic interest, such as those related to the safety and protection of the environment, and to quality management.

CEG 902.2: Research and Thesis

This is a directed research on problems in the student's area of specialization. Emphasis will be on the use of research methodology for scientific investigation leading to a written thesis.

3.2 STRUCTURAL ENGINEERING COURSES

CEG 940.1 Design of tall buildings

Influence of ground condition on choice of foundations for high rise building. Analysis of tall buildings for dead load, superimposed load, and winds. Design of high-rise steel building by elastic and inelastic methods. Design of high-rise concrete structure by ultimate strength method. Stability Analysis. Design Example.

CEG 941.1 Bridge Design

Bridge deck analysis. Precast bridge deck and composite bridge deck. Stiffened plate and box girders. Bridge abutments. Cable stayed bridges and suspension bridges. Bridge hydraulics. Design Example.

CEG 942.1 Concrete Materials, Properties & Practice

Properties and methods of testing concrete and concrete materials. Specification for aggregates. Statistics and quality control in the field. Concrete mix design. Construction techniques including form work, joints, water-retaining structures, repairs and maintenance. Rheological properties of fresh concrete. Engineering properties of concrete including time-dependent behaviour and climatic effects. Methods of testing.

CEG 943.2 Theory of Plates

Development of governing equations for thin rectangular plates: classical solution techniques

such as Navian, Levy and energy methods applied to circular plates on elastic foundation and orthotropic plates, large deflection theory. Variational techniques; the methods of Ritz, Galerkin and Kantorovitch. Introduction to shell theory, membrane hypothesis, Cylindrical Shells of revolution, translational shells, shallower-shell theory: the static-kinetic analogy of Gol'denceisers. Lur's and calladine, the duo-surface theory with numerical applications. Triangular and rectangular elements. Axi-symmetric and three-dimensional elements, isoparametric elements. Non-linear systems. Boundary element concepts. Finite strip, high temperature and rate dependent problems. Extensive utilization of FEM packages on engineering structures.

CEG 944.2 Experimental Stress Analysis

Experimental methods for measuring surface strains and stresses including mechanical, optical and electrical strain gauges. Moire and grid method, model laws and similitude, model techniques, analogies. General optics, theory of photo-elasticity, applications to two dimensional problems, materials and models.

CEG 945.1 Advanced Methods in Theory of Elasticity

Three-dimensional elasticity problems: problem formulation and solutions.

CEG 946.2 Advanced Theory of Plates

Thick plates, large deflection theory and applications. Anisotropic plate method of initial functions. Spline functions.

CEG 947.2 Theory of Shells

Membrane hypothesis and theory; bending stresses in long shell structures; cylindrical shells, shells of revolution, translational shells and domes. Stability and vibration of shells.

CEG 948.2 Stability of Structures

Buckling of elastic and inelastic columns, plates and frames, torsional and lateral buckling. Various methods of solutions.

3.3 WATER RESOURCES ENGINEERING COURSES

CEG 951.1 Finite Element Methods in Water Resources II

Application of finite element methods in model development, flood routing, groundwater flow and water quality simulation for initial and boundary value conditions. Application of existing commercial software in case studies for surface and sub-surface problems.

CEG 952.2 Advanced Surface Water Hydrology

Erosion, sedimentation, and the River basin; Deterministic hydrologic models. Types of deterministic models, structure of conceptual models, parameters and calibration, probability in hydrology - a basin for planning; stochastic hydrology, flow generation strategy, storage requirement from stochastic data, reservoir reliability and time trend, stochastic analysis of rainfall data. Applications of hydrology, flood regulation, channel improvement for flood mitigation, urban storm drainage.

CEG 953.1 Advanced Hydraulics II

Open channel flow through hydraulic structures, orifices, sluiceways, flow under gates, weirs, spillways, energy dissipators, design of sewers, water distribution for fire-fighting using available software (Epanent); complex structures - model analysis, general design considerations. Flow measurement from creeks, rivers and hydraulic structures.

CEG 954.2 Coastal Engineering and Bank Protection

Waves, motion and forces; spatially variable and unsteady flow; wave run-up and overtopping, wave forces; wind tides, shore-erosion control; bank erosion and deposition and shore protection.

CEG 955.1 Advanced Groundwater Hydrology

Measurement of hydraulic conductivity, transmissivity, specific yield and storage coefficient; Flow system analysis, models and unsaturated flow; surface-sub surface interaction; subsidence and lateral movement of the land surface due to groundwater pumping and groundwater quality and contamination.

CEG 956.1 Computer Methods in Water and Wastewater Engineering

Application of commercial software in water supply distribution network analysis; concept selection in wastewater design via Agglomerative hierarchy clustering; conventional wastewater design using variable parameters, i.e. temperature dependent parameters.

3.4 ENVIRONMENTAL ENGINEERING COURSES

EVE 903.1 Advanced Wastewater Treatment

Reactions and Reactors; Bio-kinetics of Wastewater Treatment and Applications; Nutrients Removal; Oxidation Ditch & Rotating Biological Reactor Design; Anaerobic Wastewater Treatment; Sludge Treatment.

EVE 904.1 Advanced Water Treatment

Review of Water Treatment processes; Water Disinfection; Water Softening; Iron & Manganese Removal; Membrane Filtration; Cooling Tower & Boiler Feedwater Treatment.

EVE 905.1 Noise Metrics and Control

Noise Propagation; Noise and Human Sensitivity; Noise Metrics; Noise Control

EVE 906.2 Oil and Gas Pollution

EVE 907.2 Meteorology & Air Pollution

Introduction to Air Pollution; Basic Meteorology; Atmospheric Dispersion of Pollutants; Cleansing the Atmosphere/Control of Air Pollution; Indoor Air & Hazardous Air Pollutants.

EVE 909.2 Hazardous & Radioactive Waste Management

ACADEMIC STAFF

S/No	Name	Qualification	Designation
1	Sule, Samuel	B.Sc (ABU); M.Eng (UNN)Ph.D (FUTO), R.Engr 27606	Senior Lecturer/HOD
2	Nwaogazie, Ify Lawrence	B.Sc, Civil Eng; M.Sc, Water Res (Kansas); Ph.D (Oklohoma State); FNSE; R. Engr (2455)	Professor
3	Nwofor, Temple Chukwumeka	B.Tech; M.Tech; PhD (RSUST),R.Engr (COREN) 16307	Professor
4	Eme, Dennis Budu	B.Tech; M.Tech (RSUST),Ph.D (UNN); R.Engr (COREN) 14231	Reader
5	Ugbebor, John Nwenaarizi	B.Sc (UNIPORT); M.ENG (UNIPORT); M.Sc (UNIPORT); Ph.D (UNN) (R21634)	Reader
6	Nwaobakata, Chukwuemeka	B.Tech; M.Tech (RSUST); Ph.D (UNN); R.Engr (COREN) 13346	Reader
7	Ugwoha, Ejikeme	B.Tech (RSUST); M.Sc (Newcastle); Ph.D (Nottingham) (R35508)	Reader
8	Momoh, Yusuf	B.Sc (UNIBEN); M.Sc (UNIPORT); PhD (UNIBEN)	Senior Lecturer
9	Udeh, Ngozi Uzor	B.Sc (ESUT); M.Eng (UNIPORT) Ph.D (UNN) (R16307)	Senior Lecturer
10	Awodiji, ChiomaTemitope Gloria	B.Eng, MEng Civil Eng (FUTO), Ph.D (FUTO) (R33348)	Senior Lecturer
11	Nwankwo, Chindo Anulika	B.Sc (EKPOMA); M.Sc (UNILAG); M.Eng (UNIPORT); Ph.D (Leeds) Environmental Engineering	Lecturer I
12	Ikebude, Chiedozie Francis	B.Eng, MEng Civil Eng (UPH), Ph.D (UNN) (R33750)	Lecturer I
13	Amah, Victor Emeka	B.Eng (UNIPORT); M.Eng (UNIPORT); Ph.D (UNN) (R38738)	Lecturer I
14	Raheem, Kazeem Adewunmi	B.Sc; M.Sc (Lagos)	Lecturer I
15	Nnenanya, Faith	B.Eng, Civil Eng (UPH), MSc Soil Mechanics (Imperial College London)	Lecturer II
16	Onu, Chikaodi Awuse	HND; B.Eng; M.Eng; P.hD (NAU) (R36382)	Lecturer II
17	Mohammed, Ganiyu Oluwaseun	B.Eng, Civil Eng (FUTA); M.Eng (UNIPORT) (R17681)	Lecturer II

DEPARTMENT OF ELECTRICAL/ELECTRONIC ENGINEERING

Introduction

The Department of Electrical/Electronic Engineering, University of Port Harcourt offers Post-Graduate programme leading to M.Eng. Degree. The objective of the programme is to give the students advanced courses in Electrical/Electronic Engineering concepts and experience in applying these concepts to actual Engineering problems. The courses are mission-oriented and closely linked with industry with a view to evolving practical solutions to modern day technological problems. A candidate will be required to specialize in one of the following areas: Power Systems and Machines or Electronics and Telecommunications.

Admission Requirements

The admission requirement for the M.Eng degree is a minimum of a Second Class lower degree in Electrical/Electronic Engineering. Requirement for Graduation. To satisfy the requirements for the award of the Masters degree, a student must accumulate a minimum of thirty (30) credit units, which shall include six taught courses and the Dissertation.

A Master student is required to give at least one departmental Seminar on his/her research work during the period of his/her study.

POWER SYSTEMS & MACHINES OPTION

First Semester

Course Code	Course Title	Unit
SGS 801.1	ICT and Research Methods	2
EEE 801.1	Advanced Experimentation and Seminar	3
EEE 802.1	Advanced Engineering Mathematics	3
EEE 804.1	Electrical Machine Theory	3
EEE 806.1	Power System Analysis	3
EEE 807.1	Relays and Power System Protection	3

Second Semester

Course Code	Course Title	Unit
SGS 801.2	Management and Entrepreneurship	2
EEE	(Elective 1)	3
EEE	(Elective 2)	3
EEE	(Elective 3)	3
EEE 829.2	M.Eng Project and Dissertation	6

Elective Courses (3 units each)

Course Code	Course Title	Unit
EEE 805.2	Electrical Machine Design	3
EEE 808.2	Energy Conversion and Utilization	3
EEE 809.2	High Voltage Technology and Electrical Materials	3
EEE 810.2	Optimization and Control of Integrated Power System	3
EEE 813.2	Electric Drives: Dynamics and Control	3
EEE 814.2	Power Electronics	3
EEE 815.2	System Design, Planning and Equipment	3
EEE 816.2	Unified Theory of Machines and Special Machines	3

ELECTRONICS & TELECOMMUNICATION OPTION

First Semester

Course Code	Course Title	Unit
SGS 801.2	Management and Entrepreneurship	2
EEE 801.1	Advanced Experimentation and Seminar	3
EEE 802.1	Advanced Engineering Mathematics/ Computer Science	3
EEE 817.1	Computers & Electronic Equipment Design	3
EEE 818.1	Advanced Electronics and Integrated Circuits	3
EEE 819.1	Analogue Communication Systems	3

Second Semester

Course Code	Course Title	Unit
SGS 801.2	Management and Entrepreneurship	2
EEE	(Elective 1)	3
EEE	(Elective 2)	3
EEE	(Elective 3)	3
EEE 829.2	M.Eng Project and Dissertation	6

Elective Courses (3 units each)

Course Code	Course Title	Unit
EEE 820.2	Antenna	3
EEE 821.2	Digital Communication Systems	3
EEE 823.2	Propagation and Microwave Electronics	3
EEE 825.2	Digital and Logic Systems	3
EEE 826.2	Solid State Engineering	3

steady state and transient operations of a d.c. and a.c. machines. Electro-mechanical dynamics. The two-axis theory of electrical machines and the differential equations forms of electrical machines. Characteristics of synchronous machines, steady transient, power angle excitation, synchronizing torque, and stability relations. The Asynchronous Machines Characteristics methods of analyzing and advanced treatment of circle diagram. Large Three- Phase Transformers and their cooling problems. Machines modeling in power systems.

Course Description

EEE 801.1 Advanced Experimentation and/or Design

Concurrently with the theoretical courses, at least two experiments or aspects of design work of a reasonable degree of difficulty shall be performed (or solved) and the report written up by each candidate. Allocation will normally be by the project supervisor.

EEE 802.1 Mathematics and Computer Science

Basic logical operations, logic elements and memories, numbering systems and codes. Hardware implementation arithmetic and control operations. Central processor structures and features. Machine language, Assemblers, Compilers and Operating Systems, Peripheral Devices and device characteristics. Interrupt and direct core access arrangement: special purpose facilities.

Mnemonic code; assembler language; Higher-level language, Fortran IV

Transform Methods - Laplace and Systems.

Definition and properties of Laplace transformation; transform relations for linear systems; forced and free response; transfer function; poles and zeros; stability; inverse Laplace transformation methods of residues; distribution systems; electrical and mechanical transmission lines; sampled systems, the x transform synchronous sampling theorem.

Statistics

Probability theory; frequency and probability distribution, expectations and moments classical distribution; binomial, poisson, Caussia, exponential central limit theorem and its significance, estimation and hypothesis testing; significance tests, confidence limits; regression and correlation.

EEE 804.1 Electrical Machine Theory

Basic rotating machine theory; energy flow, magnetic field and inductance relationships including electrochemical energy conversion; torque Equation, commutator actions, Flux and distributed winding mmf relations. A study of

EEE 806.1 Power Systems Analysis Review of Circuit Theorems

Power systems network representation. Per-unit systems. Solution of networks by mesh-current, branch-current, and nodal-voltage equations. Formulation of nodal admittance matrix for digital computer solution. Methods of solution using elimination matrix, inversion and iterative techniques. Acceleration and convergence.

Load Flow and Fault Analysis

Load flow analysis of large systems and use of digital computers. Three phase faults in Large Systems Symmetrical components and unbalanced fault analysis.

Power System Stability

Transient stability analysis using step-by-step and numerical integration methods. Comparison of digital computer and network analyzer solutions for power system problems.

EEE 815.1 System Design, Planning and Equipment

Power Systems Planning and Design

World energy resources. Methods of electrical power generation. Load forecasting and source analysis. Principles and practice of H. V. a.c. transmission and distribution. Mathematical methods used in planning of source utilization and transmission network. Generation scheduling.

Power System Equipment

Alternators: factors affecting size and design, special problems of turbo hydro-alternator construction and operation. Transformers; design, construction and operation. Switchgear, principles of circuit breaking, types, layout of sub-stations. Overload lines and cables, fabrication, erection and use.

EEE 816.1. Information Theory, Coding and Noise

Information Theory

The concept of information measure. Information content and information transfer in discrete noiseless and noisy channels. Entry definition, channel matrix and channel capacity. Coding to

match source to channel, entropy of continuous random-variables. Relative Entropy, Capacity of channel distributed by white additive Gaussian noise. Capacity of a band-limited channel.

Coding for Noise Channels

Systematic Block Codes. Hamming Distance; minimum distance groups and rules for optimal, groups. Algebraic code: general generator matrix; message matrix purity check matrix, error syndrome. Cyclic codes: generation of cyclic codes: generation of cyclic codes using shift registers. Decoding for cyclic codes Meggitt Decoder. Furor Trapping Decoding.

Noise

Stochastic Processes Stationary Process (Strict and wide sense). Properties of Gaussian and Poison Processes, Gaussian Noise and impulsive Noise as a Stochastic processes.

EEE 817.1 Computers and Electronic Equipment Design

Analogue Computing

Basic analogue techniques for system simulation; simulation of non-linear systems, time and amplitude- scaling methods, checking procedures control of the analogue computer use of logic and hybrid systems.

Micro-Computer

Nature and functions of microprocessors: architecture of a micro-processor and a microcomputer system instruction sets and assembly languages Gross assemblers and simulators inputs and interrupts, typical applications.

Desin of Electric Equipment

Need for a rational approach to design problems in electronic engineering. Basic elements of design; technical economic, ergonomic and aesthetic. Design by evolution and innovation. Elements of the theory of reliability. Reliability and its economic significance. Relationship between designing, development and production. Maintenance and organization of maintenance service.

EEE 818.1 Advanced Electronic and Integrated Circuits

Electronic Analogue Device

The ideal operational amplifier: physical limitations; considerations of gain, bandwidth, CMRR: a working model: common configurations: inverting, non- inverting, difference modes, other application, voltage and current source, the oscillators, rectifier, buffer, comparator, balanced-unbalanced systems: noise from external fields; choice of configurations: the

instrument amplifier: use of guard system: diode function generator: square low and multiplication: division: transconductance methods: log function generator: multiplication: temperature effects: analysis and design of active filter: circuits: stability of feedback configurations, compensation circuits.

Digital Integrated Circuits

Properties of available commercial devices: evolution of the integrated circuits: transistor-transistor logic in small, medium and large-scale packages. MOS devices; construction and utilization of systems based on digital integrated circuits manipulation of digital signal, conversion of signals from analogue to digital form, digital storage of information.

EEE 819.1 Analogue Communication Systems

Television

TV signals, monochrome vision, photometry, illumination, colour vision and colourimetry TV systems, transmission of monochrome vision and chrominance values.

Telephony

General principles of Telephony and the description of the public telephone systems: relays, construction, types and performance characteristics. Signaling; introduction, principles and types. Switching: manual, and automatic, selector mechanisms, crossbar and electronic exchangers. Traffic and trucking distribution frames.

Satellite Communication

Introduction, Design of Satellite systems, multiple access techniques, modulation techniques, ground station, future trends, and the Nigerian domestic satellite systems.

EEE 820.1 Antenna

Electromagnetic Theory

Review of Maxwell's equations. General theory of wave propagation radiation, scattering and diffraction with appropriate introduction to the mathematical techniques used.

Antennas

Factors determining the design of antennas, calculating radiating apertures, control of beam shapes sidelobes. Complementary antennas. Radiation resistance and input impedance. Power gain, microwave antennas, scanning wide-band antenna. Adaptive antennas. Practical forms of antennas in the band 30KHz - 30GHz.

EEE 805.2 Electrical Machine Design

Principles of electrical machines and design. The output equation, the calculation of machine

parameters, saturation problems in machine design, specific electric and magnetic loading related to cooling of machines specific design problems and computer-aided design of electrical machines. Definition of classification of windings, coil construction and insulation, physical problems connected with single and double layer winding voltage analysis of windings, distribution factor, interspersing, pitch factors and; electrical short pitching, fractional slot winding, slot-star diagrams; MP Analysis of windings; fundamental and harmonics rotating fields; principles and analysis of close-ratio windings, three-phase symmetrization.

EEE 807.2 Relays and Power System Protection

The concept of protective relaying in power systems. Distance relaying. Differential relaying protective systems in generators motors and transformers. Basic principles of relay design, construction, characteristics application and testing.

EEE 808.2 Energy Conversion and Utilization *Terrestrial and Thermodynamic Limitations*

Introduction. Energy crisis, Energy consumption Units and growth rate. Fossil fuel reserves. Terrestrial Limitations, solar radiation, solar energy balance of the earth. Reflectivity and Emissivity constants. Carbon dioxide generation and atmospheric pollution. Thermodynamic limitations; laws of thermodynamics, cycles and their efficiencies and related types of engines.

Electrical Energy Production

Steam and Gas turbines, and combined cycles, magnetohydro dynamic, environmental considerations, fuel cells. Introduction to nuclear fission; excess mass and binding energies, radioactive decay, fusion chain reaction, thermal neutron reactors, fast breeder reactors, radiation; fission waste disposals and other limitations. Fusion: requirements for thermonuclear fusion devices. Laser induced fusion.

Other Energy Sources and Utilization

Solar Energy, Solar potentials, incident radiation, collectors, low and high temperature applications, thermal generation of electricity, cooling, photovoltaic solar cells, photosynthesis. Water, wind and geothermal power, hydropower (more detailed study). Tidal power, power from ocean temperature gradients, wind power, geothermal power. Energy Usage: Energy Conservation, effective utilization, energy economy, input-output analysis, energy per Naira value of goods and services, social implications.

EEE 809.2 High Voltage Technology and Electrical Materials

High Voltage Technology and Testing Methods

H.V. cascade transformers and series resonant testing; d.c. multiplier circuits, impulses generation and analysis; sphere gasps potential dividers and measurements; insulator strings and voltage distribution surges in transformer windings; corona and radio interference.

High Voltage dielectric Phenomena

Calculation of electric fields in solid, liquid and gaseous dielectrics, avalanche and steamer breakdown in gases, dielectric loss, relaxation and breakdown mechanism in solids. Conduction and breakdown in dielectric liquids, vacuum insulation; special problems associated with high voltage apparatus.

Electric Materials

Introduction to conducting magnetic and insulating materials: structure and properties of thin films, electronic transportation properties of solid characteristics of dielectric materials, conducting materials and introduction to superconductivity; theoretical and experimental magnetism, preparation and properties of materials.

EEE 810.2 Optimization and Control of Integrated Power Systems

Requirement of Economic Dispatch, Systems with Transmission Losses, Coordination using the digital computer, Economic operation of Inter-connected systems load-frequency control, combined effect of steam, hydro-and gas-turbine power generating systems. Introduction to the state space, solution of matrix differential equation concepts of controllability. Consideration of the stability on non-linear system modeling techniques.

EEE 813.2 Electric Drives: Dynamics and Control Theory

Review of differential equations and their solutions. Transfer function and frequency response functions. Bode diagrams, Nyquist diagrams and Nyquist stability theorem. Nicholas chart root locus methods. Use of these techniques in the design of electric drive system.

Drive Systems (Steady State and Transient Characteristics)

Fundamentals of Electric Drives, Speed Control of electric drives, Motor power rating, selection and load diagrams. Automatic Electric drive systems; Open-loop and closed-loop automatic drive control systems. Typical controls of electric drives. Transients and dynamics of drive systems.

EEE 814.2 Power Electronics

Properties of thyristors and power transistors. Controlled rectifier line commutated inverter

circuits. A.c to d.c. power conversion using time ratio control. The control of d.c. mechanics. Impulse commutated inverters, waveform synthesis techniques, and control circuits.

EEE 816.2 Unified Theory of Machines and Special Machines

Unified Theory of Machines

Unified theory of machines and representation methods of machine analysis, steady state performance characteristics of a.c. machines, general equations of a.c. machines, the a.c. machines.

Special Machines

Homopolar machines, inductor machines, stepped motors, induction regulators and generators, rectifiers and inverters, introduction to linear motors, PAM motors, and super conducting machinery.

EEE 823.2 Radiowave Propagation and Microwave Circuit

Microwave Circuits

Behaviour of wavelength modes: transmission line analogies discontinuities. Wavelength junctions and the scattering matrix. Properties and design of microwave components, synthesis techniques. Microwave measure.

Radio- Wave Propagation

Propagation of radio waves over the ground; effect of ground constants and surface irregularities. Tropospheric propagation; effect of obstacles and weather. Propagation using scatter techniques. Impact of propagation considering on the planning of communication systems in the band 30KHz - 30GHz.

Microwave Electronics

Microwave tubes, basic introductory concepts, space- charge wave theory and velocity modulation, klystrons and performance characteristics: Parametric amplifiers: p-n diodes and Manley-Rowe relations, characteristics and types of parametric amplifier linearised equations, negative-resistance parametric amplifiers.

EEE 825.2 Digital and Logical Systems

The processing of information in digital form, the analysis and synthesis of logical systems; combinational sequential systems: switching algebra; systematic method amplification switching systems; race hazards, digital arithmetic processes: the addition, subtraction, multiplication and division of digital information, encoding and decoding, error detection and correction.

EEE 826.2 Solid State Engineering

Semi conductin Materials

Significance of semiconducting materials. Intrinsic, impurity, compound semiconductors; conduction mechanism; holes and electrons, drift; diffusion; internal fields and contract potential difference; the p-a junction; depletion layers control of junction properties by impurities, d.c. Characteristics, depletion and diffusion capacitances, transient charges, storage effects; transistors operation and parameters; origins of quantum theory of electron energies, fonn level application of the foregoing theory to metals, insulators and semiconductors; the tunnel effect; meal to semiconductor contact; the Schottsky diode: physical mechanism of field effect transistors: Hall effect.

Fabrication of Semi-Conductor Devices

Diodes: Transistors, C.M.D.S., ITL and ECL integrated circuits. Analog devices; multipliers, operational amplifiers, modulators, Microprocessor chips using Large Scale Integration.

ACADEMIC STAFF

S/N	Name of Staff	Qualification	Areas of Specialization	Rank
1	Uhunmwangho, R.	B.Sc(Lasi), M.Tech & PhD (RSU); <i>MNSE, R.Eng</i>	Electrical Power Systems, Renewable Energy	Professor
2	Kamalu, U. A	B.Eng, M.Eng, Ph.D (FUTO); <i>MIEEEE, MNSE, R.Eng</i>	Electronics and Communications Engineering	Professor
3	Omijeh, B. O.	B.Eng (A.A.U), M.Eng (UNIPORT), Ph.D(A.A.U); <i>MIEEEE, MSSPI.MNSE, R.Eng</i>	Electronics and Telecommunications Engineering	Professor
4	Omorogiuwa, E.	B.Eng, M.Eng, PhD (Uniben); <i>MNSE, R.Eng</i>	Power Systems Engineering	Reader
5	Nwazor, N. O	B.Eng, M.Eng, PhD (NAU, Awka); <i>MNSE, R.ENG</i>	Computer and Control Engineering	Senior Lecturer
6	Dike, J. N	B.Eng(FUTO),M.Eng(UNI PORT); <i>MIEEEE, MNSE, R.Eng</i>	Electronics and Telecommunication Engineering	Senior Lecturer
7	Eteng, A. A.	B.Eng (FUTO), M.Eng (UNIPORT);PhD(UTM); <i>MIEEEE, MNSE, R.Eng</i>	Communications Engineering	Senior Lecturer
8	Orakwue, S. 1.	B.Eng(F.U.A), M.Eng (N.A.U. Awka), PhD (UTM). <i>MIEEEE, MNSE, R.Eng</i>	Electronics and Telecommunication Engineering	Senior Lecturer
9	Asianuba, I. B	B.Tech (RSUST), M.Eng (UNIPORT), PhD (UNN). <i>MNSE, R.ENG</i>	Communications Engineering	Senior Lecturer
10	Omeje, C. O.	B.Eng, M.Eng, PhD (UNN); <i>MNSE, R.Eng</i>	Power Electronics	Senior Lecturer
11	Esobinenwu C. S.	B.Sc.(Ed), B.Tech(RSU), M.Eng (Uniport), PhD	Power Systems Engineering	Senior Lecturer
12	Okeke, R. O	B.Eng (ESUT), M.Eng (UK), PhD; <i>MNSE, R.ENG</i>	Communications Engineering	Senior Lecturer
13	Big-Alabo, A	B.Eng, M.Eng (Uniport), M.Sc. PhD	Renewable Energy	Senior Lecturer
14	Ehikhamenle, M.	B.Eng (A.A.U), M.Eng (UNIBEN), PhD (Umudike); <i>MNSE, R.ENG</i>	Electronic and Telecommunications Engineering	Senior Lecturer
15	Ezeofor, C. J.	B.Eng (ESUT), M.Eng (FUTO), PhD (NAU, Awka)	Computer /Control Engineering	Senior Lecturer
16	Akinwole, B.O.H.	B.Eng, M.Eng (UNIPORT),	Electronic/Telecommunications Engineering	Lecturer I
17	Ekpah, D. A.	B.Eng, M.Eng (UNN), PhD (Uniport)	Communication Engineering, Network Security	Lecturer I

18	Uchendu, I.E.	B.Eng(UNIPORT),M.Eng(Teeside), PhD(Surrey)	Electronics and Communication Engineering	Lecturer I
19	Ogbonna, B. O.	B.Eng, M.Eng (UNIPORT), PhD (RSU)	Power Systems Engineering	Lecturer II
20	Owuda, L. S.	HND, B.Eng, M.Eng, PhD	Power Systems and Electrical Machines	Lecturer II
21	Onu, I. P.	B.Eng, M.Sc. (UNIPORT)	Communications Engineering	Assistant Lecturer

DEPARTMENT OF MECHANICAL ENGINEERING

POSTGRADUATE DEGREE PROGRAMMES

The Department of Mechanical Engineering offers three postgraduate degree programmes leading to the award of Postgraduate Diploma (PGD, Mech. Eng), Master's of Engineering (M. Eng) degree and Doctor of Philosophy (PhD) degree in Mechanical Engineering. Details of these programmes are presented below.

1. Postgraduate Diploma in Mechanical Engineering

1.1 Programme Objective

The postgraduate Diploma programme in mechanical engineering has been designed for degree holders in mechanical engineering who wish to improve the quality of their degree in order to meet the requirements for admission into the Masters of Engineering programme of the Department. It is also designed for degree holders from other engineering fields who wish to change to a career in mechanical engineering, and/or take up the opportunities for a higher degree made available in the Masters of Engineering degree and Doctor of Philosophy degree programmes of the Department. The programme provides adequate grounding for the new comer to enable him bridge over the differences between his former field of engineering and the new one.

1.2 Admission Requirements

Candidates for the Postgraduate Diploma in Mechanical Engineering must possess a Bachelors degree in engineering from a reputable university

with a minimum of third class honours for graduates of mechanical engineering, or a minimum of second class lower division for graduates of other related engineering fields.

1.3 Programme Duration

The programme shall normally last for a minimum of four (4) semesters and a maximum of six (6) semesters of full time study, or a minimum of six (6) semesters and a maximum of eight (8) semesters of part time study.

1.4 Classes of Postgraduate Diploma Award

The Postgraduate Diploma in Mechanical Engineering shall be awarded with distinction, upper credit, lower credit or pass based on the candidate's performance on the course. A distinction shall be awarded if a candidate achieved a cumulative grade point average (CGPA) of 4.50 – 5.00, upper credit for a CGPA of 4.00 – 4.49, lower credit for a CGPA of 3.50-3.99 and a pass for a CGPA of 3.00 – 3.49.

1.5 Criteria for the Award of the Postgraduate Diploma

A candidate for the Postgraduate Diploma degree must:

- (a) Complete and pass all courses recommended by the Department;
- (b) Fulfil the general University requirements for studies leading to the award of a postgraduate diploma; and
- (c) Fulfil all other requirements by the Department in connection with the programme of study.

1.6 COURSE OUTLINE

First Semester

S/No.	Course Code	Course Title	L	T	P	CU
1.	DME 701.1	Engineering Mathematics I (Mathematical Analysis I, Probability and Statistics)	2	2	0	3
2.	DME 703.1	Engineer-in-Society	2	2	0	3
3.	DME 705.1	Basic Software Engineering	1	2	3	3
4.	DME 707.1	Engineering Materials, Selection and Applications	1	2	3	3
5.	DME 709.1	Mechanics of Machines and Mechanisms	1	2	3	3
6.	DME 711.1	Engineering and Machine Drawing	1	0	6	3
			8	10	15	18

Second Semester

S/No.	Course Code	Course Title	L	T	P	CU
1.	DME 702.2	Engineering Mathematics II (Mathematical Analysis II & Numerical Methods)	1	2	3	3
2.	DME 704.2	Mechanical Engineering Design and CAD/CAM	1	2	3	3
3.	DME 706.2	Manufacturing Processes	1	0	3	3
4.	DME 708.2	Strength of Materials, Vibration and Noise	1	2	3	3
5.	DME 710.2	Engineering Thermodynamics	1	2	3	3
6.	DME 712.2	Fluid Mechanics and Turbomachinery	1	2	3	3
			6	10	18	18

Third Semester

S/N	Course Code	Course Title	L	T	P	CU
1.	DME 721.3	Professional Practice and Technoentrepreneurship	2	2	0	3
2.	DME 723.3	Technical Writing and Seminar	1	2	0	3
3.	DME 725.3	Engineering Management and Economics	2	2	0	3
4.	DME 727.3	Principles of Industrial and Production Engineering	1	2	0	3
5.	DME 729.3	Heat and Mass Transfer	1	2	3	3
			7	10	06	15

Fourth Semester

S/N	Course Code	Course Title	L	T	P	CU
1.	DME 700.4	Mechanical Engineering Final Project	0	0	18	6
2.	DME 722.4	Principles of Air-conditioning and Refrigerating Engineering	1	2	0	3
3.	DME 724.4	Principles of Automotive and Power Plant Engineering	1	2	0	3
4.	DME 726.4	Instrumentation and Control Engineering	1	2	3	3
			3	6	21	15

1.7 Course Content**DME 700.4 Mechanical Engineering Final Project (6 Credits)**

An individually supervised research/design project on any mechanical engineering topic of current local, national and/or professional interest chosen by the student-lecturer team; the final-year project must contain quantitative analysis and simulation using computer, and the project report presented in the approved Faculty format. *Pre-requisite:* Good academic standing.

DME 701.1 Engineering Mathematics I (Mathematical Analysis I, Probability and Statistics) (3 Credits)

Review of plane analytical geometry; determinants and systems of linear algebraic equations, solid analytic geometry; matrices, eigenvalues and eigenvectors; engineering applications of algebra and analytic geometry; derivatives, differentials and differential calculus, Taylor's series, and function extrema; vectors: linear spaces, vector function of a scalar argument; partial derivatives and differentials of first and higher orders.

Theory of probability: independence of events, Bernoulli trials; discrete and continuous random variables, mass, distribution, and generating functions, failure density, hazard function, some important distributions; stochastic process, Bernoulli, Poisson, and renewal processes, availability analysis, random incidence; introduction to discrete and continuous Markov chains; statistical inference, parameter estimation, hypothesis testing; regression, correlation, analysis of variance, time series analysis, and application to engineering problems; engineering

applications of the topics considered must be emphasised.

DME 702.2 Engineering Mathematics II (Mathematical Analysis II & Numerical Methods) (3 Credits)

Vector field: vector lines, gradient, divergence, circulation, rotation, Green's, Stokes' and divergence theorems; differential operators in curvilinear orthogonal coordinate system. Series: number, functional, power and trigonometric series; orthogonality and orthogonal functions; Fourier series in normal and complex forms; Parseval relation; Hilbert space; Laplace and Fourier transforms; Special functions; ordinary differential equations (ODEs): first-order equations; geometric interpretation; integrable equations; exponential solution; exact differential equation; singular points and solutions; integration by differentiation; higher-order equations and systems of differential equations; linear equations of the general form: homogenous and non-homogenous equations; boundary-value problems; linear equations with constant coefficients, Euler's equations, operator method of solution; systems of linear equations, applications for Lyapunov stability test; examples of modelling engineering problems by ODEs; introduction to partial differential equations, classes, and solution by the separation of variables.

Review of the number systems and error analysis; Numerical schemes, error analysis, computer pseudocode algorithms and programs for the solution of the following problems: interpolation by polynomial; nonlinear equations; systems of linear equations, determinants and matrix eigenvalue problems; approximations: data fitting, orthogonal polynomials, least-squares, splines and

fast Fourier transforms; differentiation and integration; difference equations; Introduction to the finite-difference method for partial differential equations; Numerical solutions to the problems considered are generated in MS Excel, Visual Basic, MatLab and/or C⁺⁺.

DME 703.1 Engineer-in-Society (1 Credits)

History of engineering and engineering technology, development of engineering in Nigeria; modern engineering professional practice, team work in engineering, engineering education, branches and functions of engineering, role of engineering in nation building; engineering methods, creativity, and innovation; engineering societies; engineering ethics and code of conduct; safety in engineering; engineering problem solving; computers in engineering analysis, graphics, systems and processes; application of mathematics, physics, chemistry, biology and social sciences in engineering; engineering and the environment; entrepreneurship in engineering, engineering infrastructure and national development.

DME 704.2 Mechanical Component Design and CAD/CAM (3 Credits)

The design process; reliability and economics in design for production; strength, wear and material consideration; review of the basic types of force systems and stresses encountered in design; design of keys and pins, bolted, riveted, welded, brazed and bonded joints; design of springs and cast structures; review of interchangeability problems; use of codes, standards, charts, tables, empirical data, and computer data bases in mechanical design; design of thin pressure vessels, tanks, and thick walled vessels; shafting and the design of shafts and axles, pulleys and belt drives; design of gears, bearings and bearing selection; introduction to CAD/CAM and computer integrated manufacturing (CIM); geometric modelling; automated drafting and manufacturing systems; work piece handling; programmable controllers and their programming; numerical control and robotics, individual tutorial assignments and group design projects of local industrial interest are envisaged.

Laboratory: Laboratory sessions are individual/group projects on design of major machine elements using computer and manual drafting facilities; practice using Pro/Engineer for computer-aided drafting and CNC part programming to manufacture selected jobs using computer; completed design projects are properly presented and assessed in a seminar.

DME 705.1 Basic Software Engineering (3 Credits)

Computers and computer technology: hardware and software; computer applications; software packages of engineering interest; computer programming languages: syntax and semantics, assembly and high-level languages, procedural and object-oriented languages; design of computer algorithms: flow chart and pseudocode algorithms; pseudocode features, repetition, data specification, condition and logical operators; top-down design and bottom-up design; stepwise refinements; modularity; recursion; parallelism; complexity and correctness of algorithms; testing and debugging techniques; documentation and standards; the fundamental pseudocode algorithms, including sorting and searching; computer data processing and application packages; programing in Visual Basic, Pascal and the latest version of FORTRAN. Introduction to C programming, C⁺⁺ and Java, structured program development in C, program control and functions; arrays, pointers, characters and strings, formatted input/output; structures, unions, bit manipulations and enumerations; files and streams, data structures, dynamic memory allocation; Java object-based programming , Introduction to the software development process, The Unified Modelling Language (UML) in software design; the user-case diagram; development of Window-Based applications and Web-Based application.

Laboratory: Hands-on practice in Windows environment on the use of word processing, spreadsheet, graphic, presentation and data-base software packages; implementation of computer programs written in Visual Basic, Pascal, latest FORTRAN version, and other procedural languages of engineering interest; MATLAB and Pro/Engineer software packages; Individual/group project on software design and implementation using C⁺⁺ and Java.

DME 706.2 Manufacturing Processes (3 Credits)

Review of the basic manufacturing processes: solid state, plastic, material removal and forming; mechanics of metal cutting and machining; tools, speeds and feeds in machining, cutting tool geometry, tool signature; drilling and reaming; multipoint cutting tools; grinding wheels; tool failure and tool wear mechanisms; cutting fluids; machinability; drilling, planing and milling machines-block diagrams; surface finish of machine parts; production, turning and milling operations and machines; gear cutting, broaching, sawing; production grinding, tool and cutter grinding, surface and abrasive belt grinding; precision and surface finishing, lapping, honing, polishing and buffing; chipless material removal processes; introduction to foundry technology;

computer algorithms and programs for the design and control of manufacturing processes.

DME 707.1 Engineering Materials, Selection and Applications (3 Credit)

Atomic and crystal structure; crystal imperfections and impurities in solids; fundamentals of crystallography; atomic vibrations and diffusion; mechanical properties - engineering and true stress - strain curves, ultimate strength, ductility, impact strength, hardness; electrical, optical and magnetic properties of materials; phase diagrams of alloys; creep, fatigue; heat treatment processes; stability of materials in the service environment - corrosive media, sub-zero and elevated temperatures, corrosion and oxidation; corrosion prevention, measurement and monitoring; basic criteria for the selection of materials for engineering applications; engineering properties of wood, concrete, ceramics, polymers, and non-ferrous metals and alloys, and composites

Laboratory: Laboratory sessions are based on materials covered in the course.

DME 708.2 Strength of Materials, Vibration and Noise (3 Credits)

Force equilibrium - free body diagrams; centroids and second moment of area; stress and strain; stress-strain diagram; axially loaded members; composite bars; temperature stresses; relation between elastic constants; thin cylindrical, spherical and conical pressure vessels, cylindrical shells with rings, torsion of circular shafts and power transmission of shafts; axial force, shear force and bending moment diagrams; pure bending of beams, bending stresses in composite beams, shearing stresses in beams, complex stresses; principal stresses; bending of beams with unsymmetrical sections, skew bending, bending of curved bars, thin plates, beams on elastic foundations; torsion of thin walled sections; statically indeterminate systems and stability analysis; introduction to plastic behaviour of materials, elastic, perfectly plastic and strain hardening materials, linear viscoelastic materials, theories of failure; problems in stress analysis; thin shells of revolution, pressure vessels, stresses due to shrinkage fit, concentrated forces, contact stresses. Detailed treatment of the one-degree-of-freedom systems in mechanical vibrations; multi-degrees-of-freedom systems by receptance and impedance methods; selected topics, including rigid body vibrations on elastic soils and perturbation methods of non-linear vibrations; vibration and noise control; computer-aided vibration and noise analysis and control; individual tutorial assignments and group term projects of local industrial interest are envisaged.

Laboratory: Laboratory sessions are based on materials covered in the course.

DME 709.1 Mechanics of Machines and Mechanisms (3 Credits)

The concepts of mechanisms, linkages, kinematic pairs, kinematic chains and kinematic inversion; types of mechanisms, slider crank mechanism; kinematic and kinetic analysis; coupler curves, velocity and acceleration, static and dynamic forces; kinematic synthesis, computer techniques; cam design; theory of involute gearing; simple, compound and epicyclic gear trains; dynamics of rotating and reciprocating machines; static and dynamic balancing of machines; balancing of rotating masses, governors; tribology: friction, wear and lubrication; applications in kinematics, selection of power screws, belt and rope drives, chains, brakes and clutches; hydrodynamic and hydrostatic lubrication; journal bearings, Reynolds equation, graphical solutions, oil and gas bearings; hydrodynamic drives; torque converters; introduction to vibration and noise; tropicalisation of mechanical components and systems; computational procedures and software packages for the analysis of mechanics of machines and mechanisms problems. Individual tutorial assignments and group term projects of local industrial interest are envisaged.

Laboratory: Laboratory sessions are based on materials covered in the course.

DME 710.2 Engineering Thermodynamics (3 Credits)

Basic concepts, definitions, thermodynamic properties; the thermodynamic system units; equations of state for perfect and real gases, and gas mixtures; thermodynamic work and heat; the First law of thermodynamics; energy equations; basic thermodynamic processes and cycles for ideal gas, pure substance and mixtures; power and reversed cycles, gas and vapour cycles, turbines and jet engines, nozzles and diffusers; reactive systems, thermodynamics of combustion; thermodynamic relations, Helmholtz and Gibbs functions; the Second law of thermodynamics, introduction to irreversible processes, exergy and exergoeconomic analysis.

Laboratory: Laboratory sessions are based on materials covered in the course

DME 711.1 Engineering and Machine Drawing (3 Credits)

Review of drawing instruments and their proper use, size of paper and drawing layout, dimensioning, line work and lettering; geometrical constructions and engineering graphics; development of geometrical figures and intersection of solids and curves; orthographic projections in first and third angles; isometric projection, sections and sectioning, auxiliary views and staggered sectioning; freehand sketching; conventional practice with simple

examples, including threads and threaded fasteners, cam profiles and assembly drawings from detailed components; fits, limits and tolerances; BS standards; the use of parametric drafting technology: AutoCAD, Mechanical Desktop, Autodesk Inventor and Pro/Engineer, for mechanical engineering component and assembly drawing, threads and fasteners, cam profiles and gears, detail and assembly drawings, section views, and dimensioning and tolerancing; 3D object creation using animation software, composing video segments and using audio tracks in animation; hand-on sessions, individual assignments, and group term projects are crucial aspects of this course.

DME 712.2 Fluid Mechanics and Turbomachinery (3 Credits)

Fluid properties, fluid statics, principles of fluid flow and applications, flow measurements; continuity, energy and momentum equations and their applications; ideal flow, vorticity, potential and stream functions, irrotational flows, flow fields; viscous flow, Prandtl mixing length; fluid resistance: laminar and turbulent, flow through pipe systems and the Moody chart; boundary layer theory, drag on immersed bodies; lift aerofoil theory; compressible flow, 1-D isentropic flow, venturies and orifices, De-Laval nozzle, shock waves, Fanno and Rayleigh flows, isothermal flow; unified principles underlying the design of pumps, turbines, compressors and fans; similarity and scaling laws; cavitation; aerodynamic analysis and design of axial flow and radial flow compressors, steam and gas turbines; unified principles underlying the design of pumps, turbines, compressors and fans; similarity and scaling laws; cavitation; aerodynamic analysis and design of axial flow and radial flow compressors, steam and gas turbines; meridional flow analysis for general equilibrium; centrifugal compressor modelling; unsteady flow; rotating stall and surge; turbomachinery selection; computer-aided fluid flow analysis and turbomachinery design and selection.

Laboratory: Laboratory sessions involve experimentation/testing of fluid flow machines and networks.

DME 721.3 Engineering Professional Practice and Technoentrepreneurship (3 Credits)

Engineering Professional Practice, Ethics and Law: Registration of engineers, the engineer's functions, responsibilities and liabilities; the Council for the Regulation of Engineering in Nigeria (COREN), the Nigerian Society of Engineers (NSE) and professional practice in Nigeria; engineering professional ethics and code of conduct; engineering projects; research and development; design, manufacturing, construction,

and sales and marketing functions; engineering decisions; engineering communication; introduction to the Nigerian legal system, classification and sources of law, the Nigerian courts; the law of contracts and agency; engineering contracts; intellectual property; industrial legislations: safety, health and workers' welfare; industrial relations.

Technoentrepreneurship: Review of the basic entrepreneurship concepts, organising innovative teams, and enterprise formation, operation, and closure; technoentrepreneurship, technology-based innovations; technology sales and management; identifying and quantifying market opportunities for technology-based products/services; conceptualising, planning and starting a new technology-based enterprise; small- and medium-scale engineering enterprises (SMEEs): opportunity and risk assessment; product development and testing; manufacturing/construction, quality and safety assurance, technomarketing, e-commerce; supply chain coordination; facility maintenance; maintaining corporate health; statutory regulations and government policies; cyber law; identifying potential SMEE products and services of local and national interest; managing a technology-induced changing business environment.

DME 722.4 Principles of Air-conditioning and Refrigerating Engineering (2 Credits)

Introduction to heating, cooling, ventilating, refrigerating and air-conditioning engineering, history, application areas; psychrometry, instruments and measurements, energy resources, computer applications; environmental quality, gaseous and particulate air contaminants, sound and vibration control; materials and processes, refrigerants, brines, lubrication, water treatment; load calculations and energy requirements, load data and procedure, ventilation requirements and infiltration, energy calculations, indoor environmental modelling; ventilation and air distribution, fans, duct design, room air distribution, air pollution control, air-to-air energy recovery, fire and smoke control, industrial ventilation; heating and cooling systems, renewable energy utilisation, thermal storage, fuels and combustion; air-conditioning and refrigerating system components, systems and applications, compressors, absorption machines, heat exchangers, humidifiers, pumps, piping, ducting, motors and controls; large building, industrial, transportation, heat-pump, laboratory, and clean-space air-conditioning systems, custom-made, ice-making, cryogenic, transport, and food and beverage refrigerating systems; energy storage; economics of air-conditioning and refrigerating plants; computer-assisted air-

conditioning and refrigerating engineering analysis and design; industrial visits to key industrial ventilating, air-conditioning, and refrigerating facilities in the country are required; individual tutorial assignments and group term projects of local and/or national interest are envisaged.

DME 723.3 Technical Writing and Seminar (3 Credits)

Introduction to technical writing and presentation, scope and history; starting and writing a technical writing project, progress report, proposals, final-year project report, thesis, dissertation, and scientific papers (journal and conference papers); ethics of scientific publishing; formatting and writing the report: title, authors' names and addresses, abstract, introduction, literature review, main body, results and discussion, conclusions and recommendations; acknowledgements, references, and appendices; preparing and placing tables, figures, graphs, photos, equations, etc.; referencing systems: in-text citation and the list of references; writing a textbook, a book chapter, opinions, for the public; technical correspondence: letters of inquiry and replies, letters of application and memoranda; copyrights and permissions; oral and visual presentations; computer-aided technical writing and presentation; use of word processing, spreadsheet and data-base software packages. Students are required to present individual or group seminar on topics related to their final project, DME 700.4

DME 724.4 Principles of Automotive and Power Plant Engineering (2 Credits)

Review of thermodynamic cycles of internal and external combustion engines; theoretical and actual cycles; spark ignition and compression ignition engines; cycles of supercharged and turbocharged engines; operating principles of two stroke and four stroke engines; principles of carburettor and diesel fuel injection systems; combustion in internal combustion engines; microprocessors in automotive engines; the world and Nigeria's energy supplies and demands; methods of electrical power generation; steam-turbine power generation cycles, steam generators and turbines, condensers, feedwater pumps and auxiliaries; gas-turbine power generation cycles, turbocompressors, gas turbines, combustors and auxiliary equipment; cogeneration and combined power generation; nuclear power generation; hydropower generation; energy storage; economics of power generation; computer-aided automotive and powerplant engineering analysis and design; industrial visits to at least one each of the hydro-, steam- and gas-turbine or combined power stations in the country are required; individual tutorial

assignments and group term projects of local and/or national interest are envisaged.

DME 725.3 Engineering Management and Economics (3 Credits)

Scope of engineering investment decisions; compounding, discounting, and economic equivalence; cash flow analysis and inflation; choosing between alternatives: methods for evaluating investments; depreciation, taxes, and cost of capital; comparing alternative investments; replacement analysis; budget and budget control, evaluation of public projects; decision and cost analysis; lease-or-buy decisions; economic feasibility study of engineering projects. Organisational structure, goals and functions; project planning and control; cost engineering; capital and operating cost estimating, contingencies and allowances; production forecasts, phases and constraints, decline functions; productivity improvement; purchasing and materials management; maintenance management.

DME 726.4 Instrumentation and Control Engineering (3 Credits)

General characteristics of measuring systems; error analysis; mechanical instrumentation: interferometry; dimensional and angular measurement; measurement of strain, time, speed, acceleration, frequency, force, power, pressure, fluid flow and temperature; intelligent instrumentation: sensing elements, transducers and interfaces; analogue-digital data sampling and conversion; semiconductor devices; oscillators; amplifiers; filters and rectification process; logic gates and switching devices; microprocessors and control; introduction to mechatronic engineering principles; basic concepts of control engineering, history, feedback control, control system design; mathematical models of systems, differential equations and linear approximation of physical systems, Laplace transform, transfer functions, block diagrams and signal flow models, MATLAB simulation tool; servomechanisms, components, transfer functions and analysis; control systems; state variable models, state differential equations, signal-flow state models, transfer functions, time response and the state transition matrix, discrete time response; feedback control system characteristics, open- and closed-loop control systems, transient response control, disturbance signals, steady-state error; performance of feedback control systems; stability of linear feedback control systems; the root locus methods, parameter design, sensitivity, PID controllers; frequency response methods, frequency response plots, Bode diagram; stability in the frequency domain, the Nyquist criterion, system bandwidth, PID controllers in the frequency domain; design of feedback control

systems using Bode diagram and root locus; design of state variable feedback systems; Robust control systems; digital control systems, applications, the z-transform, closed-loop feedback sampled-data systems, implementation of digital controllers; individual tutorial assignments and group term projects of local industrial interest are envisaged.

Laboratory: Laboratory sessions are based on materials covered in the course.

DME 727.3 Principles of Industrial and Production Engineering (3 Credits)

Introduction to industrial and production engineering, evolution and applications; plant location and layout, facility design and organisation of industry; productivity analysis, production fundamentals and manufacturing economics; quality control systems, inventory control, cost control; operations planning and control; financial compensation and wage administration; product design and CAD/CAM, robotics and automation; ergonomics; resource management; process planning and concurrent engineering, production planning and control systems, lean production and agile manufacturing; application of operations research techniques to industrial, and production engineering problems; computer methods and software packages for industrial and production engineering analysis; individual tutorial assignments and group term projects of local industrial interest are envisaged.

DME 729.3 Heat and Mass Transfer (3 Credits)

Heat Transfer: Basic concepts, heat transfer modes and rate processes. Fourier's law of heat conduction; Newton's law of cooling; Stephan-Boltzmann law of thermal radiation; stationary heat conduction in simple geometries and composite bodies; correlational equations for forced and free convective heat transfer for internal and external flows, boiling and condensation; heat transfer by combined modes; insulation and intensification of heat transfer; electrical and triple analogies; thermal radiation between blackbodies and between grey bodies; configuration factor algebra; radiation shields; radiation from gases and vapours; solar radiation; differential equations of heat conduction, steady and unsteady state heat conduction in 2- and 3-dimensional geometries; heat transfer in extended surfaces; differential equations of convective heat transfer, dimensional analysis and similitude, analytical and numerical solutions for selected cases; mass diffusion; convective mass transfer; analogy between momentum, heat and mass transfer; heat exchangers, flow arrangements, effectiveness-number-of-transfer units; thermal, hydrodynamic and mechanical design of heat and mass exchangers; design for manufacturing; computational methods; computer algorithms,

programs and software packages for Heat and Mass Transfer analysis. Individual tutorial assignments and group projects of local industrial interest are envisaged.

Laboratory: Laboratory sessions are based on materials covered in the course

2. Master of Engineering Degree in Mechanical Engineering

The Department of Mechanical Engineering offers postgraduate programme of study leading to the Master's of Engineering (M. Eng) degree in Mechanical Engineering in the following five (5) options:

- (i) Energy and Thermofluid Engineering (ETE);
- (ii) Industrial and Systems Engineering (ISE);
- (iii) Applied Mechanics and Design Engineering (AMD);
- (iv) Mechatronic Engineering (MTE); and
- (v) Production and Maintenance Engineering (PME).

2.1 Programme Objectives

The objectives of the M.Eng degree programme in Mechanical Engineering are to produce high level specialised engineers with the capability to: play leadership role in the nation's energy and industrial sectors; provide consultancy services and guidance for prospective entrepreneurs, government functionaries and politicians in their quest for feasible engineering systems for the country; establish and/or man small- and medium-scale industrial systems in Nigeria; engage in research and development activities; provide academic services for the nation's higher institutions of learning; and pursue an academic programme leading to a doctorate degree in mechanical engineering.

2.2 Admission Requirements

Candidates for the M. Eng. in Mechanical Engineering must possess a good bachelor's degree (B. Eng) or an acceptable postgraduate diploma (PGD) in mechanical engineering with a minimum CGPA of 3.0 (or 3.5 for PGD holders). Bachelor's degree holders from other related fields of engineering with a minimum of second class upper division may also be considered, but they must be prepared to remedy their deficiencies by taking the recommended Department's undergraduate and/or postgraduate diploma courses in addition.

2.3 Programme Duration

The programme shall normally last for a minimum of three (3) semesters and a maximum of six (6) semesters of full-time study, or a minimum of four (4) semesters and a maximum of eight (8) semesters of part-time study.

2.4 Criteria for the Award of the M. Eng. Degree

In addition to the general University requirements for programmes leading to a Master's degree, the candidate must fulfil the following Departmental requirements:

- (i) Choose and specialise in one of the available options.
- (ii) Complete thirty-six (36) semester credits, six of which must be devoted to the *M. Eng.* thesis, which starts immediately after the second semester and presentation of seminar.
- (iii) Present a seminar, at least one conference presentation and a journal article, and a thesis on issues of current national, professional and academic interest, and in which adequate knowledge of the underlying principles of the taught courses is demonstrated.

2.5 Course Outlines

The course outlines for the five options in the M. Eng. degree programme in Mechanical Engineering are as follows:

2.5.1 Energy and Thermofluid Engineering (ETE) Option

First Semester

Course Code	Course Title	Credit Unit
MEG 801.1	Advanced Engineering Mathematics	3
MEG 803.1	Advanced Engineering Management	3
MEG 811.1	Advanced Thermodynamics	3
MEG 813.1	Advanced Fluid Mechanics / Turbomachinery	3
SGS 801.1	Information and Communication Technology and Research Methods	2
		14

Second Semester

Course Code	Course Title	Credit Unit
MEG 802.2	Advanced Research and Development Techniques and Graduate Seminar	2
MEG 810.2	Advanced Heat and Mass Transfer Analysis	3
MEG 812.2	Advanced Power Plant Engineering Analysis	3
SGS 801.2	Management and Entrepreneurship	2
		10

Third Semester

Course Code	Course Title	Credit Unit
MEG 800.3	MEng. Thesis	6
MEG 815.3	Renewable Energy Engineering Technology	3
MEG 8xx.3	ETE Elective	3
		12

2.5.1.1 Energy and Thermofluid Engineering (ETE) Technical Electives

Course Code	Course Title	Credit Unit
MEG 820.3	Optimal Design of Energy and Thermofluid Systems	3
MEG 821.3	Computational Fluid Dynamics	3
MEG 822.3	Thermoeconomics of Energy Conversion	3
MEG 823.3	Advanced Refrigerating Engineering Analysis	3
MEG 824.3	Advanced Air-conditioning Engineering Analysis	3
MEG 825.3	Advanced Automotive Engineering Analysis	3
MEG 826.3	Experimental Fluid Mechanics	3
MEG 827.3	Advanced Drying Engineering Analysis	3
MEG 828.3	Advanced Combustion Mechanics	3
MEG 829.3	Fuel Cell Engineering Technology	3

2.5.2 Industrial and Systems Engineering (ISE) Option

First Semester

Course Code	Course Title	Credit Unit
MEG 801.1	Advanced Engineering Mathematics	3
MEG 803.1	Advanced Engineering Management	3
MEG 805.1	Advanced CAD/CAM	3
MEG 831.1	Advanced Industrial Engineering Analysis	3
SGS 801.1	Information and Communication Technology and Research Methods	2
		14

Second Semester

Course Code	Course Title	Credit Unit
MEG 802.2	Advanced Research and Development Techniques and Graduate Seminar	2
MEG 830.2	Industrial Operation Management and Resource Simulation	3
MEG 832.2	Advanced Systems Engineering Analysis	3
SGS 801.2	Management and Entrepreneurship	2
		10

Third Semester

Course Code	Course Title	Credit Unit
MEG 800.3	MEng. Thesis	6
MEG 833.3	Applied Productivity Analysis	3
MEG 8yy.3	ISE Elective I	3
		12

2.5.2.1 Industrial and Systems Engineering (ISE) Technical Electives

Course Code	Course Title	Credit Unit
MEG 834.3	Green Engineering and Energy Efficiency	3
MEG 835.3	Advanced Materials and Materials Selection	3
MEG 836.3	Industrial Robots and Automation	3
MEG 837.3	Advanced Operations Research and Information Management	3
MEG 838.3	Advanced Engineering Project Management	3
MEG 863.3	Maintenance Engineering and Management	3
MEG 865.3	Global Manufacturing	3
MEG 868.3	Supply Chain Management	3
MEG 871.3	Principles of Mechatronic Engineering	3

2.5.3 Applied Mechanics and Design (AMD) Option

First Semester

Course Code	Course Title	Credit Unit
MEG 801.1	Advanced Engineering Mathematics / Computational Methods	3
MEG 803.1	Advanced Engineering Management	3

MEG 841.1	Dynamics of Solids and Structures	3
MEG 843.1	Tribology	3
SGS 801.1	Information and Communication Technology and Research Methods	2
		14

Second Semester

Course Code	Course Title	Credit Unit
MEG 802.2	Advanced Research and Development Techniques and Graduate Seminar	2 3
MEG 840.2	Advanced Vibration and Noise	3
MEG 842.2	Advanced Theory of Elasticity and Plasticity	3
SGS 801.2	Management and Entrepreneurship	2
		10

Third Semester

Course Code	Course Title	Credit Unit
MEG 800.3	M.Eng. Thesis	6
MEG 844.3	Failure of Materials, Components and Structures	3
MEG 8xx.3	MTSE Elective	3
		12

2.5.3.1 Applied Mechanics and Design (AMD) Technical Electives

Course Code	Course Title	Credit Unit
MEG 845.3	Advanced Computational Solid Mechanics	3
MEG 846.3	Mechanisms Synthesis	3
MEG 847.3	Surface Engineering	3
MEG 848.3	Analysis and Design Optimisation of Laminated Composites	3
MEG 849.3	Pressure Vessels	3
MEG 855.3	Control Systems with Embedded Implementation	3

2.5.4 Mechatronic Engineering (MTE) Option

First Semester

Course Code	Course Title	Credit Unit
MEG 801.1	Advanced Engineering Mathematics / Computational Methods	3

MEG 803.1	Advanced Engineering Management	3		the Department is not admitting any student into the programme for now.
MEG 805.1	Advanced CAD/CAM	3		2.5.5 Production and Maintenance Engineering (PME) Option
MEG 851.1	Mechatronic Components and Devices	3		
SGS 801.1	Information and Communication Technology and Research Methods	2		First Semester
		14		Course Code
				Course Title
				Credit Unit
			MEG 801.1	Advanced Engineering Mathematics / Computational Methods
			MEG 803.1	Advanced Engineering Management
			MEG 805.1	Advanced CAD/CAM
			MEG 861.1	Advanced Production Systems & Computer Integrated Manufacturing
			SGS 801.1	Information and Communication Technology and Research Methods
				14
Second Semester				
Course Code	Course Title	Credit Unit		Second Semester
			Course Code	Course Title
				Credit Unit
MEG 802.2	Advanced Research and Development Techniques and Graduate Seminar	2		
MEG 850.2	Mechatronic Instrumentation	3		
MEG 852.2	Control Sensors and Actuators	3		
SGS 801.2	Management and Entrepreneurship	2		
		10		
Third Semester				
Course Code	Course Title	Credit Unit		
			MEG 802.2	Advanced Research and Development Techniques and Graduate Seminar
MEG 800.3	M.Eng. Thesis	6		
MEG 853.3	Mechatronic System Design	3	MEG 860.2	Production and Operations Planning & Control
MEG 8yy.3	MTE elective	3	MEG 862.2	Reliability Centred Maintenance Management
		12	SGS 802.2	Entrepreneurship for Engineers
2.5.4.1 Mechatronic Engineering (MTE) Technical Electives				10
Course Code	Course Title	Credit Unit		
			Third Semester	
			Course Code	Course Title
				Credit Unit
MEG 855.3	Control Systems with Embedded Implementation	3		
MEG 856.3	Microprocessors and Embedded Systems		MEG 800.3	M.Eng. Thesis
MEG 857.3	Design of Intelligent Machines and Systems	3	MEG 863.3	Maintenance Engineering and Management
MEG 858.3	Intelligent Control and Robotic Systems	3	MEG 8yy.3	PME Elective
MEG 859.3	Advances in Mechatronic Engineering	3		12
MEG 863.3	Maintenance Engineering and Management	3		
MEG 872.3	Pattern Recognition and Machine Learning	3		
			2.5.5.1 Production and Maintenance Engineering (PME) Technical Elective	
			Course Code	Course Title
				Credit Unit
			MEG 832.2	Advanced Operations Research and Information Management
			MEG 833.3	Advanced Engineering Project Management
				3

* Although, the M.ENG programme in Mechatronic Engineering is well developed, but

MEG 837.3	Advanced Materials and Materials Selection	3
MEG 841.3	Dynamics of Solids and Structures	3
MEG 843.3	Advanced Computational Solid Mechanics	3
MEG 865.3	Global Manufacturing	3
MEG 866.3	Quality Management and Reliability Assurance	3
MEG 867.3	Sensors, Instrumentation and Control	3
MEG 868.3	Supply Chain Management	3
MEG 869.3	Advanced Tool and Die Engineering Analysis	3

SGS 801.2 Entrepreneurship and Management (3 Credits)

Historical background, definition and practice of entrepreneurship; The engineer entrepreneur: industrial evolution, invention commercialization, technoentrepreneurship; technology transition and entry strategies; human resources management; supply chain management; government policies for development of entrepreneurship in Nigeria.

MEG 800.3 M. Eng. Thesis (6 Credits)

Supervised research on a problem of current national, professional and academic interest chosen from the student's area of specialisation. The research should represent a significant level of the student's independent work and be such as to culminate his/her efforts in applying the principles covered in the graduate programme. Written thesis and oral examination are required.

2.5.6 General Technical Electives *

Course Code	Course Title	Credit Unit
MEG 881.3	Advanced Theory of Elasticity and Plasticity	3
MEG 882.3	System Modelling and Control	3
MEG 883.3	Subsea Engineering	3
MEG 884.3	Advanced Safety, Risk, and Reliability Engineering	3
MEG 885.3	Engineering Design Optimisation	3
MEG 886.3	Optimal Design of Engineering Components and Systems	3

* Students in any of the options can choose the technical elective course from the General Technical Electives.

2.6 Course Content

The detailed description of the courses offered in the M. Eng degree programme of the Department is presented as follows:

SGS 801.1 Information and Communication Technology and Research Methods (3 Credits)

Basic concepts of information and communication technology (ICT); computer hardware and software; applications of ICT in engineering professional practice, education, and scientific research; internet applications. Research methodology versus research methods; sampling and statistical inference; testing of hypothesis; regression analysis; factor analysis; discriminant analysis; interpretation and publication of research findings.

MEG 801.1 Advanced Engineering Mathematics/Computational Methods (3 Credits)

Advanced analysis and engineering applications of the following mathematical concepts, methods and tools: scalar and vector fields; sets and fuzzy sets; linear and tensor algebra; infinite series; calculus of variations; systems of ordinary differential equations, partial differential equations and integral equations, approximate analytical solution methods; review and advanced topics in applied probability and statistics, distributions. Advanced numerical schemes, approximation of functions by orthogonal polynomials and splines; curve fitting; ordinary and partial differential equations, CFD; the Monte Carlo methods; optimisation problems, mathematical programming, genetic algorithms, artificial neural networks, etc.; computer digital solution and simulation of problems of interest programmed in high level languages such as visual basic, Pascal, PL/I, Ada or C++, and in the MATLAB and Spread Sheet (Microsoft Excel) environments

MEG 802.2 Advanced Research and Development Techniques and Graduate Seminar (3 Credits)

Review of the history and basic concepts of scientific research, research and development, formulating research/thesis topics and writing research proposals; literature review, sources of research information, searching and researching on the world wide web (www); measurement of engineering system properties, computer-aided data acquisition and manipulation; field experimentation, experimental design; prototyping; intellectual property, patent rights, statistical data acquisition and analysis, interpretation and communication of experimental

and simulation results (research findings), report writing; oral presentation using MS PowerPoint.

This course is also designed to allow thesis topics to be discussed by both staff and students, in the process, the students learn how to initiate, design, communicate and implement engineering proposals, projects and theses, including publication of research findings in learned journals and conference proceedings; students are required to present individual seminars on topics related to their master's dissertations.

MEG 803.1 Advanced Engineering Management (3 Credits)

Management in engineering; organizing and planning the engineering function; engineering project planning; engineering and marketing interface; technology based engineering management; mathematical and computer techniques for management decision making, scheduling, and forecasting; stochastic modelling and simulation; recent advances in advanced engineering management; case studies chosen from the Nigerian small- and medium-scale technology-based organisations.

MEG 805.1 Advanced CAD/CAM (3 Credits)

Review of computer hardware and software; automated drafting and manufacturing systems; linking design and manufacturing functions by computer; geometric modelling; programming programmable controllers; numerical control (NC) and robotics; motion control; linear and circular interpolation; programming numerical controlled machines; NC and computer numerical control (CNC) programming languages and software; computer integrated manufacturing (CIM) and flexible manufacturing systems (FMS); recent advances in CAD/CAM technology; computer-aided drafting, CAD/CAM practice using Pro/E; case studies to ascertain the state of CAD/CAM in Nigerian industries and to implement CAD/CAM systems for selected industries.

MEG 810.2 Advanced Heat and Mass Transfer Analysis (3 Credits)

Unified system of equations of heat and mass diffusion and convection; approximate analytical solution methods; numerical solution methods; diffusion in composite and in anisotropic media; phase change and nonlinear heat and mass transfer problems; convective heat and mass transfer by similitude, order analysis, criterion equations and correlations, the triple analogy, analytical boundary layer analysis; heat and mass transfer in media with chemical reactions; thermal radiative heat transfer in absorbing and emitting media; radiation from gases and vapours; solar and flame radiation; heat and mass exchangers; case studies

on some advanced heat and mass transfer problems from some key industries in the locality.

MEG 811.1 Advanced Thermodynamics (3 Credits)

Review of the First and Second laws of thermodynamics; combined First and Second law analysis elements of statistical thermodynamics; single-and multi-phase systems, chemically reactive systems; power generation; thermodynamics of irreversible processes; phenomenological laws; Onsager theorems; application to single-and multi-component systems with and without chemical reactions; computational techniques for evaluation of thermodynamic properties of real systems; computer-aided energy auditing of energy and thermofluid systems; case studies on energy audit for some key Nigerian industries such as the fertiliser industry, refinery, and power plants.

MEG 812.2 Advanced Turbomachinery and Computational Fluid Dynamics (3 Credits)

Turbomachinery analysis and design concepts; similarity and scaling laws; cavitation; flow theory applied to fluid-flow machines; fan and blower analysis and design; analysis and design of radial flow compressors, steam, gas and hydraulic turbines, nozzles, centrifugal compressors, and positive displacement fluid-flow machines; cascading of turbomachinery; turbomachinery modelling and testing; design optimisation; turbomachinery selection; selected topics from computational fluid dynamics (CFD) based on the finite difference, finite element, boundary element, and pressure-velocity coupling schemes for the Navier-Stokes equations, computer-aided turbomachinery analysis: use of available CFD softwares.

MEG 813.1 Advanced Fluid Mechanics (3 Credits)

Properties of fluids; Newtonian and non-Newtonian fluids; tensor analysis of stress and strain in a static fluid; control volume and system analysis; Reynolds transport theorem, conservation laws; the Second law of thermodynamics; applications; the general Navier-Stokes equations; approximate solution; compressible fluid flow; boundary layer isothermal turbulent flow; free turbulence; plane and axisymmetric turbulent jets; diffusion processes in inhomogeneous fluids; dynamics of particles in fluids, Cunningham's correction factors; aerodynamics of jets, suction and exhaust spectra; aerosol mechanics; reactive gas dynamics; flow in porous media; two-phase flow; computer algorithms and implementation; case studies on analysis of fluid flow processes for specific

applications in the Nigerian energy and Thermofluid industry.

MEG 814.2 Advanced Power Plant Engineering Analyses

Review of power plant engineering principles; World, national, state, local and community energy demands and strategies; energy economics; power plant thermodynamics including exergy analysis; design analysis of fossil-fuelled power plants, steam and gas turbine plants, hydropower plants, nuclear power plants; renewable energy technology, energy storage; power generation, transmission and distribution; environmental impact of power plant systems, power plant feasibility studies, selection and location; computer-aided power plant engineering analysis; developments in the Nigerian power plant industry, and the way forward; case studies on analysis of existing power plants, design, selection and location of new power plants in Nigeria.

MEG 815.3 Renewable Energy Engineering Technology (3 Credits)

Renewable energy: sources, applications and sustainability; environmental, technical and social considerations; application potentials in Nigeria; thermodynamic analysis, momentum, thermal and mechanical design considerations for: solar thermal and photovoltaic energy and power plants, small hydropower plants; wind power plants; ocean wave-, ocean tidal-, ocean thermal- and geothermal-power plants; outside design conditions; photosynthetic process; biomass and biofuels; energy storage systems; conversion and transmission; computational methods and software packages for renewable energy engineering technology system analysis, design and selection; advances in renewable energy technology.

MEG 817.3 Advanced Automotive Engineering Analysis (3 Credits)

Review of: internal combustion principles; spark ignition and compression ignition engines; two and four stroke engines; petrol and diesel engines; tractor, industrial, marine, jet and turbo, free piston, Wankel, Stirling and stratified engines; and fuels and oils; combustion mechanics and thermodynamics; the automobile: component analysis and system synthesis; vehicle dynamics; automotive systems analysis and design; computer-aided automotive systems analysis and design; selection, operation, and maintenance; case studies on analysis, design and selection of suitable automotive systems for the Nigerian environment.

MEG 820.3 Optimal Design of Energy and Thermofluid Systems (3 Credits)

Energy and thermofluid systems: fluid flow systems; conventional and nonconventional, fossil and renewable energy power plants; refrigerating systems; air-conditioning systems; plants for the chemical and food processing industries; heat and mass transfer systems; design methodology for energy and thermofluid systems; feasibility study; preliminary design; detailed design; economic, social and environmental considerations; optimisation methods, modelling energy and thermofluid systems; dynamic behaviour of energy and thermofluid systems; probabilistic approaches to design; component and system tropicalization; computer-aided energy and thermofluid systems design.

MEG 821.3 Applied Energy Economics (3 Credits)

Introduction to energy economics, energy and multidimensional interactions; economics of energy demand, energy efficiency improvements; economics of energy supply, economic analysis of energy investments, energy projects, cost-benefit comparison, uncertainty and risk in projects; economics of fossil fuel supply; economics of electricity supply; economics of non-electricity energy supply such as for industrial processes; energy markets; economics of gas transportation; integrated economic analysis of energy systems; management of environmental issues arising from energy utilization; the economics of climate change; regulation and governance of the energy sector.

MEG 822.3 Thermoeconomics of Energy Conversion (3 Credits)

Interaction of energy and materials requirements, thermodynamics, costing and optimization; thermodynamic analysis, the exergy method; costing analysis, the objective function, the operating resources of an energy device and system of devices, cost indices, combined Second law and costing analyses – thermoeconomic analysis; system optimization, the two-way decomposition strategy, discipline and device levels; device design models, communication between thermodynamics and design; load-variation-induced off-design performance, prediction, control and optimization; software resources; recent advances in thermoeconomics of energy conversion.

MEG 823.3 Advanced Refrigerating Engineering Analysis (3 Credits)

Thermodynamic and exergoeconomic analysis of vapour compression, gas cycle, vapour absorption, and ejector-compression refrigerating plants for low temperature, very low temperature and cryogenic applications; design, performance analysis and selection of refrigerants, refrigerant

compressors refrigerant condensers, expansion devices, evaporators and other auxiliaries, refrigeration control systems; refrigerating plants for agricultural produce/food preservation, refrigerated transport, and industrial applications; computer applications in refrigerating engineering analysis; case studies on refrigerating systems for selected microenvironments of interest.

MEG 824.3 Advanced Air-conditioning Engineering Analysis (3 Credits)

Psychrometry, solar energy and thermal analysis of buildings and structures; air-conditioning systems (ACSs), summer and winter process and load analysis; pipe and duct system design; analysis and design of: central and unitary comfort air-conditioning systems; industrial air-conditioning systems; industrial ventilation; solar cooling and heating systems; noise and automatic control in ACSs; advances in air-conditioning engineering science and technology; computer-aided ACS analysis, design and control; case studies on air-conditioning systems for selected microenvironments of interest.

MEG 825.3 Experimental Fluid Mechanics (3 Credits)

Modelling test facilities; wind tunnel force measurement; theory of conventional and modern manometry; classical velocimetry; hotwire anemometry; theory and application of laser Doppler velocimetry; particle image velocimetry; flow visualization techniques; thermometry.

MEG 826.3 Advanced Industrial Ventilation and Pollution Control Engineering Analysis (3 Credits)

Engineering infrastructure and the environment; environmental pollution, pollution control legislation and measures; ventilation requirements; industrial ventilation systems analysis and design; design of subsurface industrial ventilation and pollution control systems (IVPCS) ; analysis and design of waste water treatment plants, solid-waste disposal plants, water pollution control systems, and noise pollution control systems; computer-aided monitoring, assessment and control of pollution, and IVPCS analysis and design; case studies on design of IVPCS for selected Nigerian industries.

MEG 827.3 Advanced Drying Engineering Analysis (3 Credits)

Review of the basic concepts of drying engineering and technology; psychrometric processes in drying; moisture transfer mechanism; kinetics of convective drying; thermodynamic drying cycles, kinetic analysis of dryers; design analysis of selected dryers; transport phenomena in capillary porous bodies; analytical heat and mass transfer, diffusion

through porous materials; computational methods and software packages for the numerical solution to the drying engineering analysis problems; recent advances in drying and drying technology.

MEG 828.3 Advanced Combustion Mechanics (3 Credits)

Fundamentals and modelling of reactive systems, gas dynamics and combustion using analytical and numerical methods; conservation equation of reacting flows; multispecies transport, chemical thermodynamics and chemical kinematics; non-equilibrium flow, detonation and reacting boundary layers; ignition, flammability, and extinction; premixed and diffusion flames; combustion instabilities; supersonic combustion; turbulent combustion; liquid and solid burning; fire, safety, and environmental impact of pollutant emissions; applications to energy and Thermofluid systems; computer-aided analysis; advanced topics and recent advances in combustion mechanics.

MEG 829.3 Fuel Cell Engineering Technology (3 Credits)

Gas turbines and fuel cells technology; diffusion and migration in solids; ionic, electronic and mixed conductivity in fuel cell materials; thermal barrier coatings; energy system architecture and electrochemical energy conversion; fuel cell thermodynamics and electrochemistry; proton exchange membrane fuel cells and solid oxide fuel cells; hydrogen production, storage and distribution.

MEG 830.2 Industrial Operation Management and Resource Simulation (3 Credits)

Industrial organizations, operational issues, productivity and competitiveness; design and management of products, processes, services and supply chains; analysis of acquisition, process development, and resource utilisation; analysis of operational issues such as plant location, supply chain management, distribution logistic, customer service process, production scheduling and control, inventory management, materials handling, equipment maintenance policies; improvement of organisational overall performance and competitiveness through the use of discrete simulation modelling and other computer software packages.

MEG 831.1 Advanced Industrial Engineering Analysis (3 Credits)

The industrial engineering function; advanced techniques for the analysis of or dealing with: facilities location and layout, material handling, distribution and routing, work design and organizational performance; operations planning and control; quality control; financial compensation; CAD/CAM; robotics; factory

automation; ergonomics; resource management; financial management and engineering economy; materials management; personnel management; application of operations research tools to industrial engineering analysis; other advanced topics and recent advances in industrial engineering analysis; case studies on industrial engineering problems in industries situated in the locality.

MEG 832.2 Advanced Operations Research and Information Management (3 Credits)

Operations research models and decision making, applications; formulation of linear optimization models, algebraic and geometric interpretations, the simplex method of solution, sensitivity and duality; transportation problem, assignment and transshipment models, network models, dynamic optimization models, inventory scheduling; optimization methods for an unbounded horizon; integer programming and combinatorial models; optimization with nonlinear objective function; advanced technique in nonlinear optimization; stochastic programming models, probabilistic dynamic programming models, dynamic programming in Markov chains; probabilistic inventory models, waiting line models; simulation modelling; computer simulation of management systems; information management, bar codes and other automated data collection methods, management of data, information network applications, interfacing technical systems with business systems, artificial intelligence and knowledge management systems; other advanced topics of interest, and recent advances in operations research and information management; computer software packages and computational schemes for modelling and simulation of operations research and information management problems.

MEG 833.3 Advanced Engineering Project Management (3 Credits)

Project-driven and non-project-driven organizations, classifications of projects; project management growth, product versus project management, project life cycles, project management methodologies; organizational structures, traditional, line-staff, and pure-product organizations, matrix organization form, strategic business unit management, transitional management; organising and staffing the project office and project team; management functions; project performance measurement, financial compensation and rewards, project management in small- and medium-scale business organizations, mega projects, breakthrough projects, innovative projects, agile project management; the variables for project success; working with executives and project sponsors, handling disagreements,

stakeholder relations management; planning, validating assumptions and objectives, project planning, project specifications, milestone schedules, work breakdown structure, master production scheduling, etc.; network scheduling techniques, graphical evaluation and review technique, dependencies, slack time, network replanning, estimating activity time, and total project time, total PERT/CPM planning, crash times, PERT/CPM problem areas, alternative PERT/CPM models, precedence networks, project management software, critical chain; project graphics; pricing and estimating; cost control, the earned value measurement system, cost control problems, project management information systems, enterprise resource planning, project metrics, business intelligence, infographics; trade-off analysis; risk management, risk identification, qualitative and quantitative risk analysis, risk and concurrent engineering; learning curves, contract management; quality management; the project office, networking project offices, the project management information system, dissemination of information, mentoring, development of standards and templates, project portfolio management; crisis project management; complex, and troubled project management; special and advanced topics, and recent advances in engineering project management.

MEG 834.2 Advanced Systems Engineering Analysis (3 Credits)

Review of systems concepts and evolution, conceptual, preliminary, and detailed design and development; system testing and evaluation; alternatives and models in decision making; models for environmental, social, and economic evaluations; optimization in design and operations; probabilistic and statistical methods of system analysis; queuing theory and analysis; control concepts and techniques; design for operational feasibility, reliability, maintainability, manability, supportability, and environmental, social, and economic feasibility; systems engineering management; system design application; communication, repairable equipment population and energy systems design; system tropicalisation; computer applications in systems engineering analysis; other advanced topics and recent advances in systems engineering analysis; case studies.

MEG 835.3 Applied Productivity Analysis (3 Credits)

Concepts of productivity, industrial productivity, and productivity enhancement techniques; ergonomics; motion and time study; productivity enhancement of man, and man-machine systems; human information processing and control;

workplace design; physiological fatigue measurement; work-unit and work activity analysis; work sampling; motion economy; time study and work measurement; job evaluation and wage administration; measurement of industrial productivity; design criteria for enhanced system productivity; computer-aided productivity analysis; case studies on productivity measurement and analysis of some key industries (private and public sector) in Nigeria.

MEG 836.3 Green Engineering and Energy Efficiency (3 Credits)

Green engineering and sustainable development within engineering industries and the built environment; energy, energy chains and energy conversion efficiencies; industrial, transportation and interior climate control energy systems, energy consumption assessment, optimisation technologies; environmental impact of energy systems; energy system sustainability; performance assessment of engineering components, systems, and processes; analytical methods for the minimisation of industrial waste, scrap, and pollution through design and manufacture of environmentally benign products; environment-friendly materials and technologies for various engineering industries, and environmental operations; environmentally related resource requirements for the manufacture and operation of engineered products; assessment of potentials for alternative energy applications in engineering systems; recycling technologies, and redesign and design of recyclable products with minimal waste; specification and development of energy efficient, sustainable and environmentally conscious products; product life-cycle assessment with sustainability incorporated at the conceptual design stage; recent advances in green engineering and energy efficiency of industrial and the built environment; computer-aided analysis; case studies of industrial, transportation and architectural systems within the locality.

MEG 837.3 Advanced Materials and Materials Selection (3 Credits)

Review of engineering materials, their properties and selection; identification of the relationships between structures and mechanical properties of engineering materials, metals, ceramics, polymers, and composites; types of material failure, fast fatigue, fatigue, creep, and corrosion and oxidation; design with materials, modulus-limited design, yield-limited design, fatigue design, and creep-limited design; materials selection, selection criteria; experimental, analytical, and computational techniques in materials and materials selection; recent advances in materials and materials selection; case studies.

MEG 838.3 Industrial Robots and Automation (3 Credits)

Designing for automation; product life cycle; quality and automation; machine reliability; hard and flexible automation. Sensors, analysers, actuators; drives; mechanization of part handling; automatic production and assembly numerical control and CAD/CAM; industrial robots, dynamics of the mechanical parts of a robot, robot arm, mobile robots workspace exploration, robot control architecture, robot communication with external world; programming methods; VAL; AML/2; and ARMBASIC; machine vision systems; implementation; industrial logic control systems; logic diagramming, and programmable logic controllers; on-line computer control; microprocessors; computer integrated manufacturing (CIM): functions, units and design; flexible manufacturing systems (FMS); group technology; hybrid systems; integrating vendors; automation of warehouses, factories, offices and homes; ethics: unemployment theory X and theory Y; labour's attitudes; automation integrity; Murphy's law, legal hazards; case studies on the level of industrial automation in Nigerian, selection of automation-ripe industries, and design of automated facilities for them.

MEG 840.2 Advanced Vibrations and Noise (3 Credits)

Review of vibration of systems having one degree of freedom; vibration of multi-degree-of-freedom systems by receptance and impedance methods; vibration of systems with distributed mass and elasticity; nonlinear vibration; random vibration; autocorrelation; response to impulse; displacement due to random force; effects of mechanical vibration: fatigue, equipment malfunctioning and noise; vibration of aircraft, suspension bridges, pipes, and panels; vibration monitoring and control; free field sound propagation; sound level; mechanical sources of noise; sound conduit, emission, and absorption; effects of noise; environmental and legal implications of noise; noise monitoring and control techniques; mathematical models and computational techniques for vibration and noise analysis; other advanced topics and recent advances in vibrations and noise analysis and control; case studies on vibration and noise control in refrigerators, air-conditioners, vehicles, turbomachinery, pipelines, and electric generators, and in other systems that are a major source of noise pollution in Nigeria.

MEG 841.1 Dynamics of Solids and Structures (3 Credits)

Impact of rigid bodies, Hertzian impact; Hopkinson pressure bar and momentum trap; stress wave induced spalling, scabbing and fracture; Newtonian and variational principles;

generalized coordinates and degrees of freedom; constraints and virtual work; small oscillations and normal modes; impulsive motion and gyroscopic systems; dynamics of plates and shells; advanced topics and recent advances in dynamics of solids and structures; computational methods for the analysis of topics treated; case studies chosen from the Nigerian Oil industry.

MEG 842.2 Advanced Theory of Elasticity and Plasticity (3 Credits)

Review of three dimensional analysis of Hookian stress and strain in Cartesian and curvilinear coordinates, and application to axisymmetric problems; equations of equilibrium and compatibility; stress function; application to engineering problems – beams, rings, and concentrated loads; theory of plates and shells; application to metal working processes and pressure vessels; fracture mechanics; fatigue, creep, stress rupture and brittle fracture; contact stresses; modelling and computer stimulation techniques; other advanced topics and recent advances in the theory and application of elasticity and plasticity; case studies chosen from locally processed elastic and plastic materials.

MEG 843.1 Tribology (3 Credits)

Tribology and tribological problems; surface topography and smooth/rough surfaces in contact; solid friction. lubricants and lubrication, Reynolds equations and lubrication regimes; wear, sliding wear; wear by hard particles, wear and design; surface engineering tribology, materials for and selection of bearings and gears; failure analysis and control; lubricants: types, composition, properties, testing and specifications, condition monitoring, health, safety, and environment; engine tribology: lubrication of components, tribological testing, advanced materials; computer-aided tribological systems design and analysis; advances in engineering tribology; case studies taken from the automotive, marine, oil and gas, and power generation sectors on wear-induced failures of mechanical components and systems of national economic interest.

MEG 844.3 Failure of Materials, Components and Structures (3 Credits)

The concepts of excessive and composite classes; micro-mechanisms of failure in materials; fracture and fracture mechanics, toughening mechanisms in ceramics and composites, probabilistic failure assessment; fatigue, total life and damage tolerant approaches, persistent band formation, stages I and II crack growth, closure mechanisms, long and short crack behaviour, fatigue in ceramics, composites and hybrid laminates; performance of components and structures subjected to mechanical stresses; the influence of design and

manufacturing processes on service performance of components and structures, and the associated defects and residual stresses, fatigue performance of welded and mechanically fastened joints; environmental effects on components and structures: corrosion, stress corrosion cracking, and hydrogen-induced failures; high-temperature and high-humidity induced failures: high-temperature fatigue, creep, oxidation, high-temperature corrosion, etc.; failure modes prevention methods, tropicalisation, correct alloy selection, composites, stainless steels, surface coatings, etc.; recent advances in failure of materials, components and structures; computer and computational methods for the analysis of failure of materials, components and structures.

MEG 845.3 Advanced Computational Solid Mechanics (3 Credits)

Review of numerical methods in the solution of solid mechanics and materials problems; geometrical representation of solids, automatic meshing, approximation theory, interpolation error estimation, optimal and adaptive meshing; variational principles in linear elasticity; finite element analysis: use of the minimum potential energy principle to approximate the solution of elasticity problems, Rayleigh-Ritz method in statics; the general finite element formulation, derivation of the element matrices, assembly, application of boundary conditions, solution procedures, the use of finite element codes, pre- and post-processing, the use of commercial software packages; finite element formulation for 1D elastic continua – rods, shafts, strings; constant strain triangle elements for plane stress and plane strain, axi-symmetric elements; 2D quadrilateral elements; isoparametric finite element formulation; element selection; error estimation, convergence, singularities, adaptive strategies, constrained problems, mixed methods, stability and convergence, variational problems in nonlinear elasticity; bifurcation analysis; adaptive strategies in nonlinear elasticity; constrained finite deformation problems, contact and friction; coupled problems, impact and friction, subcycling; space-time methods; inelastic solids; applications to finite deformation visco-plasticity, and viscoelasticity.

MEG 846.3 Mechanisms Synthesis (3 Credits)

Coupler curves; permutation theory; movability criteria; Chebyshev and Euler theorems; number synthesis; finite displacement theory; centre and circular point curves; Burmester points; graphical methods of synthesis; mechanism synthesis based on inversion, angular cognates, path cognates, and curvature transform; multiple separated position theory; optimisation techniques; handling

problems; design methods and economics; computer-aided mechanisms synthesis; case studies on synthesis of mechanisms for small- and medium-scale Nigerian agricultural product processing machines

MEG 847.3 Surface Engineering (3 Credits)

The surface engineered materials and the service environment; tribologically induced stress, Hertz, dynamic Hertz, residual stresses, etc.; stress field and wear interactions; measurement of surface and coating properties; wear mechanisms, lubricated wear, wear-corrosion and erosion; surface engineering processes, erosion resistant coatings deposited by chemical vapour deposition, physical vapour deposition, high oxy-fuel, and weld overlay; plating and nano-composite coatings and surfaces; corrosion resistant surfaces and high temperatures; surface modification: induction hardening, ion-implantation, carburising, carbonitriding, nitriding and nitro-carborising; sustainability through correct surface technology; engineering assessment of failure problems and the associated micromechanical failure modes; economics of surface selection; applications in the automotive, power generation, marine, oil and gas industries; introduction to microstructural and surface characterisation of materials and components: surface profilometry, transmission electron microscopy, scanning electron microscopy, optical microscopy, diffraction techniques, and energy dispersive spectroscopy.

MEG 848.3 Analysis and Design Optimization of Laminated Composites (3 Credits)

Applications of laminated composites; fibres and resin materials, types and properties; laminae and laminates: micromechanical models, modelling of laminae, classical lamination theory; analysis of composite structures: beam, plate and shell modelling; thermal effects; finite element analysis; fracture and failure; sensitivity analysis and optimization techniques for problems such as the thermally-induced residual stresses due to the manufacturing process, integrated stiffeners, vibration and buckling; optimization of laminates using both ply-angles and lamination parameters as design variables; 3D effects and general design principles.

MEG 849.3 Pressure Vessels (3 Credits)

Axisymmetric loading of shells of revolution; general equations for elastic shells, edge solutions for spherical shell; plastic analysis of plates and shells; shakedown principles; thermal stresses; creep behaviour; design methodology; fatigue analysis; design of pressure vessels; mechanical design of heat and mass exchangers; computational methods for pressure vessel analysis and design; case studies on design of

domestic gas refilling pressure vessels, and other autoclaves for the locally based chemical and food processing industries.

MEG 850.2 Mechatronic Instrumentation (3 Credits)

Sensors and transducers; measurement systems, sensors, transducers and measurement, classification by function, performance and output; developments in transducer technology, solid state, optical, piezoelectric and ultrasonic transducers; signal processing and information management; the design of a measurement system; resistive, capacitive, inductive and resonant transducers; optical measurement systems, radiant energy sources, photodetectors, vision and laser systems, laser scanning, fibre and non-fibre optical transducers; solid state sensors and transducers, magnetic, temperature, mechanical and chemical measurements; piezoelectric and ultrasonic sensors and transducers, devices and systems; interference and noise in measurement, signal processing.

MEG 851.1 Mechatronic Components and Devices (3 Credits)

Motion control devices, drives and actuators, electrohydraulic and electropneumatic control devices, control of electric devices, converters, choppers, inverters and cycloconverters; linear systems, pneumatic ram-rod and rodless types, pneumatic diaphragms, etc., rotational drives, pneumatic, hydraulic and electrical motors; motion converters, fixed ratio motion converters, gears, harmonic and belt drives, toothed belt drives, chains and sprockets, friction wire wrap drives, rack and pinion, screw nut devices, converters with invariant motion profile, cams, indexing mechanisms, linkages, springs and dampers, variators, remotely controlled couplings; Linear circuits, equivalent electrical circuit, methods, impedance, semiconductor electronic devices, operational amplifiers, digital electronic devices, digital and analogue input and output, digital-to-analogue and analogue-to-digital converters, computer interface with I/O devices, D/A and A/D converters; advanced topics in electronic components for mechatronic systems.

MEG 852.2 Control Sensors and Actuators (3 Credits)

Sensors and signal conditioning methods; performance specification of components, component matching, error analysis; operating principles, analysis, modelling, design considerations of control sensors; actuation systems: pneumatic and hydraulic actuation systems, directional control valves, pressure control valves, servo and proportional control valves, process control valves, rotary actuators;

mechanical actuation systems, types of motion, kinematic, chains, cams, gears, ratchet and pawl, belt and chain drives, bearings; electrical actuation systems, mechanical switches, solid-state switches, solenoids, DC and AC motors, stepper motors, motor selection; mechanisms for motion transmission, rotary-to-rotary, rotary-to-translational, and cyclic motion transmission mechanisms, shaft misalignments and flexible couplings, actuator sizing, homogeneous transformation matrices.

MEG 853. 3 Control Systems with Embedded Implementation (3 Credits)

System modelling, mathematical models, mechanical, electrical, pneumatic, hydraulic, and thermal systems building blocks; system models, engineering systems, rotational-translational, electromechanical, hydraulic-mechanical systems, linearity; dynamic responses of systems, modelling, first- and second-order systems, performance measures, system identification; system transfer function, systems in series, systems with feedback loops, effect of pole location on transient response; frequency response, sinusoidal input, phasors, Bode plots, performance specifications, stability, closed-loop controllers, continuous and discrete control processes, two-step and proportional modes, derivative and integral controls, PID controllers, digital controllers, control system performance, controller tuning, velocity control, adaptive control; methods of representing and processing; sets and crisp logic; fuzzy logic control, hierarchical fuzzy control; programmable logic controllers, hardware components of PLCs, programming of PLCs, PLC control system applications; programmable motion control systems, design methodology for PMC systems, motion controller hardware and software, single-axis motions, coordinated motion control methods; industrial applications; this course also allows students to design and implement embedded control systems using CAD tools and embedded microcontroller-based systems including real-time industrial computers.

MEG 855.3 Mechatronic System Design (3 Credits)

Mechanical systems and design, traditional versus mechatronic design approaches, the design process; mechanisms and structures, load conditions, design, flexibility, environmental isolation, systems, modelling and simulation; man-machine interface, industrial design and ergonomics, information transfer: from machine to man and from man to machine; system safety considerations; advanced topics in mechatronic system design; case studies.

MEG 856.2 Microprocessors and Embedded Systems (3 Credits)

Microprocessors in mechatronic systems, embedded real-time microprocessor systems; control, the microprocessor systems, system components, system bus, the memory map, the microprocessor bus operation; the CPU; semiconductor memory, input and output, and peripheral circuits, devices, coprocessors microcontrollers and digital signal processors; semicustom devices, programmable logic and device technology, semiconductor technologies; the development of microprocessor systems, the system specification, the development environment, the development cycle, assemblers, linkers; assembly language, instruction sets, programs, subroutines, look-up tables and embedded systems; high level languages and compilers, the real-time multitasking executive; C language, program structure, branches and loops, arrays, pointers, program development; input/output systems, interfacing, input/output addressing, interface requirements; programmable logic controllers, structure, input/output processing, ladder programming, instruction lists, latching and internal relays, sequencing, timers and counters, shift registers, master and jump controls, data handling, analogue input/output; communication systems, digital communications, centralized, hierarchical and distributed control, networks, protocols, open system interconnection communication model, serial and parallel communication interfaces, wireless protocols; fault finding, fault detection techniques, watchdog timer, parity and error coding checks, common hardware faults, microprocessor systems, evaluation and simulation, PLC systems; control and communication system hierarchies, local area networks, communication system hierarchy for industrial automation application.

MEG 857.3 Design of Intelligent Machines and Systems (3 Credits)

Machines, technology, engineering design, concurrent engineering and mechatronic engineering; intelligent systems, intelligent machines, artificial intelligence and expert systems, architectures, safety, operating models; the mechatronic design process, engineering design models, mechatronic design framework, principles and approaches to designing mechatronic hardware; requirements interpretation for mechatronic systems, customer requirements and product life cycle; artificial intelligence, AI programming versus conventional programming, knowledge acquisition and representation, searching for solutions; neural networks and fuzzy systems, the Adeline, the Perception, Kohonen networks, adaptive resonant theorem networks, Hopfield networks, implementation of artificial

neural networks, fuzzy systems, set operations, fuzzy reasoning and control, developing a fuzzy system, fuzzy neural systems; software, development process models, methods, requirements, design, object-oriented methods, testing; user interfaces, the design of the human-machine interface, tele-operation; factory automation, computer integrated systems, robots and machine vision, office automation, home automation; technology assessment; recent advances in mechatronic engineering system design; system safety considerations.

MEG 858.3 Intelligent Control and Robotic Systems (3 Credits)

Review of traditional control techniques and comparison with intelligent control; methods of representing and processing knowledge; conventional sets and crisp logic; fuzzy logic control; hierarchical fuzzy control; control system tuning; industrial applications; intelligent robotic systems: system components and organisation, modelling and advanced control techniques, vision, tactile, laser and proximity sensing, task planning, part planning, planning with uncertainty, robot learning, online application, collision avoidance, object interception, robotic assembly; case studies, and seminar presentation are envisaged.

MEG 859.3 Advances in Mechatronic Engineering (3 Credits)

This course discusses the recent and future theoretical and technological developments in mechatronic engineering with particular emphasis on automotive systems, home systems, telecare and telehealth, automation and robotic systems, mechatronic design and manufacturing; topical case studies help to emphasize and illustrate the applications, and implications of mechatronic systems development and deployment in a developing and well-populated economy.

MEG 860.2 Production and Operations Planning and Control (3 Credits)

The operations function; production systems concept; product and resource planning, and process design; facility location; forecasting; aggregate, production and resource capacity planning, master scheduling and capacity planning; facility layout; work design and measurement; inventory management; materials and capacity requirements planning; operations activity control; purchasing; distribution; quality assurance and control; service systems and personnel scheduling; system reliability and the maintenance function; application of operations research methods in mathematical modelling of

production and operation planning and control problems; computer-aided production and operation planning and control; recent advances in production and operation planning and control; case studies on feasibility studies, resource planning, and facility design for local small- and medium-scale industries.

MEG 861.1 Advanced Production Systems and Computer Integrated Manufacturing (3 Credits)

Review of the concepts of production systems and computer integrated manufacturing, production system facilities, manufacturing support systems, automation and manual labour in production systems, manufacturing operations, automation and control technologies, industrial control systems, sensors, actuators, etc.; numerical control (NC), computer numerical control (CNC), direct numerical control (DNC), NC part programming, engineering analysis of NC positioning systems, APT programming; industrial robotic engineering, anatomy and attributes, control systems, end effectors, sensors, analysis, programming, and applications; discrete control using programmable logic controllers and PCs; materials handling and identification technologies, material transport systems, storage systems, and automatic data capture; manufacturing systems, single station manufacturing cells, group technology and cellular manufacturing, flexible manufacturing systems (FMS), manual assembly lines, transfer lines, and automated assembly systems; quality control systems; manufacturing support systems, product design and CAD/CAM in the production system, process planning and concurrent engineering, production planning and control systems, lean production and agile manufacturing; more advanced topics and recent advances in production systems and computer integrated manufacturing; case studies.

MEG 862.2 Reliability-Centred Maintenance Management (3 Credits)

Reliability, productivity, safety, and environmental integrity of physical assets; reliability block diagrams, reliability while being active and standby; reliability-centred maintenance – basic guidelines; case study of implementing reliability-centred maintenance techniques; analytical tools: failure mode and effect analysis, root cause failure analysis, criticality matrix; hazard analysis, and fault-tree analysis; event tree analysis, prediction model for reliability; software implementation for reliability-centred maintenance; assets and spare parts management functions, financial, human, and physical assets management, comparative analysis, conventional systems of ordering spare

parts and materials; economic order quantity, procurement management; safety engineering and fault tree analysis, hazard analysis, codes and standards in occupational safety, fire extinguishers and their applications, automobile maintenance, electrical and chemical hazards, and their prevention, hazards due to ergonomics, responsibilities of safety supervisors, sneak circuit analysis, failure mechanisms; total productive maintenance, elimination of the “six big wastes”, world class maintenance organisation, lean maintenance, mentoring and training by example, metrics for maintenance of culture change; business-centred maintenance; maintenance planning and scheduling, shutdown planning and execution, monitoring and sequencing of activities, effectiveness of proactive shutdown; computer applications in maintenance management, computerised maintenance systems and their integration with the overall network, software failures and software security; statistical distributions in preventive maintenance; maintenance integration, system effectiveness and cost, availability and availability measurement, profitability-driven reliability, measuring and evaluation of the effectiveness of computerised maintenance systems; computerised reliability-centred maintenance information management systems; recent advances in reliability-centred maintenance management; case studies relevant to the topics covered.

MEG 863.3 Maintenance Engineering and Management (3 Credits)

Maintenance systems, repair and maintenance, maintenance as a business proposition, the business unit concept, automation, maintenance cost reduction, maintenance philosophy; maintenance systems: planned, preventive, predictive, and proactive maintenance; maintenance policies and procedures; concept of supervision; maintainability - measure; failure rate curves, typical bathtub type of failure pattern, inherent and operational availability, procedure for sampling and testing; test plan for determination of mean time to repair (MTTR) or maintainability, computerised evaluation of MTTRs and other related parameters; design for maintainability; condition-based maintenance: condition monitoring, vibration analysis, ultrasonic evaluation, motor condition monitor, thermography, methods of analysis of oil and lubricants, degradation of grease, case study of engine oils, transmission oil and drive train oils, gas-leakage detectors, alignment shafts, non-destructive testing techniques, retirement for cause; computerised maintenance management systems; recent advances in maintenance engineering and management; case studies of

interest to the industries and transportation systems in the locality.

MEG 865.3 Global Manufacturing (3 Credits)

Enterprise systems for supporting product manufacturing, development, life-cycle; marketing, services, and supply chain, and their interface; e-manufacturing and operations; digital enterprise technology; virtual organisations and integration; selection and use of digital enterprise technology and e-manufacturing tools; global manufacturing implementation issues and methodology; global manufacturing and marketing; global manufacturing and the evolution of technology; global manufacturing, the developed and developing economies, the sub-Saharan African region and the rest of the world; global manufacturing and global services; recent advances in global manufacturing technology, standards and practice.

MEG 866.3 Quality Management and Reliability Assurance (3 Credits)

Quality management and reliability assurance concepts; inspection and quality control; control charts; acceptance sampling; quality control and reliability data collection and analysis; system reliability modelling, simulation and prediction; maintainability and availability; replacement policies; life testing; failure analysis; reliability and quality, human factor, environment, and safety; maintenance engineering; terotechnology; value engineering; quality and reliability assurance; management and economics; probabilistic mathematical modelling and computer simulation of quality control and reliability problems; total quality management; computer-aided quality management and reliability assurance; case studies on quality and reliability problems in key Nigerian industries.

MEG 867.3 Sensors, Instrumentation and Control (3 Credits)

Sensors and transducers; measurement systems, sensors, transducers and measurement, classification by function; signal processing and information management; the design of a measurement system; resistive, capacitive, inductive and resonant transducers; optical measurement systems, etc.; magnetic, temperature, mechanical and chemical measurements; piezoelectric and ultrasonic sensors and transducers, devices and systems; interference and noise in measurement; signal conditioning methods; error analysis; design considerations of control sensors; actuation systems; mechanical actuation systems, types of motion; electrical actuation systems; mechanisms for motion transmission; advanced instrumentation and

sensing methods, and computer interfacing for data processing, monitoring and control of engineering processes; case studies.

MEG 868.3 Supply Chain Management (3 Credits)

Definitions, evolution, and supply chain management (SCM) and logistics; trends in global supply chain management; incentives and the strategic management of suppliers; time compression in supply chain; agile supply chains; logistics customer service through marketing and services strategies; people powering contemporary supply chains; creating shareholder value through SCM; outsourcing; risk in SCM; information systems and information technologies for SCM; supply chain sustainability; performance measurement; mathematical modelling (optimization) of supply chain operations in manufacturing, process and service sectors; recent advances in SCM and global logistics.

MEG 869.3 Advanced Tool and Die Engineering Analysis (3 Credits)

Design methodology and analysis for jigs, fixtures and dies; locating and positioning theory; mechanics of metal clamping, cutting, bending, forming, drawing, stamping and compressing; design of drilling jigs, milling, turning, grinding, inspection and assembly fixtures; design of press tools for blanking, piercing, bending and drawing operations; die design for forging, stamping, and compressing, miscellaneous dies; tooling for numerical control machines; tool and die materials; tool and die making economics; computer-aided tool and die engineering; other advanced topics and recent advances in tool and die engineering analysis; case studies on die design for forming metal and plastic shapes of significant local and/or national value.

MEG 871.3 Principles of Mechatronic Engineering (3 Credits)

Introduction to mechatronics, measurement systems, resistive, capacitive, inductive and resonant transducers, optical measurement systems, solid state sensors and transducers; piezoelectric and ultrasonic sensors and transducers; interference and noise in measurement; signal processing; microprocessing in mechatronic systems; the microprocessor system, semi-custom devices, programmable logic and device technology; fussy logic; communications; drives and actuators; control devices; linear systems; rotational drives; motion converters; mechanical systems and design; mechanisms; structures; modelling and analysis of dynamic systems; man-machine interface; applications of mechatronic engineering; factory automation, computer integrated systems, robots and machine vision, office automation, home

automation; technology assessment; special topics and recent advances in mechatronic engineering; case studies to ascertain the feasibility of mechatronic systems in Nigerian industries, and to design and implement simple mechatronic systems for selected local manufacturing plants.

MEG 872.3 Pattern Recognition and Machine Learning (3 Credits)

Review of probability theory, model selection, the curse of dimensionality, decision theory, and information theory; probability distributions, binary variables, multinomial variables, the Gaussian distribution, the exponential family, nonparametric methods; linear models for regression, linear basis function models, the basis-variance decomposition, Bayesian linear regression, the evidence approximation; linear models for classification, discriminant functions, probabilistic generative and discriminative models, the Laplace approximation, the Bayesian logistic regression; neural networks, feed forward network functions, network training, error back propagation, the Hessian matrix, regularization in neural networks, mixture density networks, Bayesian neural networks; kernel methods, sparse kernel machines; graphical models; mixture models and EM; approximate inference, variational inference, variational linear regression, variational logistic regression, expectation propagation; sampling methods, basic sampling algorithms, Markov chain Monte Carlo, Gibbs sampling, etc., estimating the partition function; continuous latent variables, principal component analysis, probabilistic and kernel CPAs, nonlinear latent variable models; sequential data, Markov and hidden Markov models, linear dynamical systems; combining models, Bayesian model averaging, committees, boosting, tree-based models, conditional mixture models; special topics and recent advances in pattern recognition and machine learning; case studies.

MEG 882.3 System Modelling and Control (3 Credits)

Mathematical modelling of system components; system simulation; state-space representation and analysis; nonlinear analysis; control system components, sensors, controllers, actuators, input elements, and signal conditioning for mechanical, thermofluid, and electrical systems; analogue, digital and hybrid computers in control systems; statistical methods for system identification; feedback systems, accuracy and stability; the Root locus method; the sampled-data process; multivariable control system design; advances in system modelling and control; computer-aided system modelling and control using MatLab; case studies on control systems for the Nigerian Oil and power industries.

MEG 883.3 Subsea Engineering (3 Credits)

Review of key subsea engineering concepts and problem dimensions; environmental considerations, materials and corrosion; offshore inspection, safety, risk and reliability; subsea oil and gas exploration and exploitation; offshore pipeline design, installation and maintenance; analysis of offshore material and structural failures; offshore renewable energy technology; subsea automation; computational methods, and computer-assisted subsea engineering analysis and design; advanced topics and recent advances in subsea engineering; case studies based on the Nigerian offshore engineering facilities.

MEG 884.3 Advanced Safety, Risk and Reliability Engineering (3 Credits)

Review of the principles of risk identification, assessment and control; workplace safety; materials handling, mechanical plants and equipment, confined spaces, fire and explosion, noise, whole body vibration, electrical safety, and workplace design; concepts of reliability, availability and maintainability; failure rates and modes, and reliability data; reliability block diagram analysis of series and parallel systems; reliability-centred maintenance and inspection; Markov modelling of system failures; probabilistic safety analysis; concepts of structural safety and risk; probabilistic modelling of strength and loads; the first-order second moment method and the first order reliability method; Monte-Carlo simulation and variance reduction techniques; causes of structural deterioration such as corrosion, fatigue and fracture, and risk-based inspection strategies using Bayesian methods; fire safety, explosions and process safety; human factor methods; environmental impact assessment: legislations, screening and scoping, baseline studies, analysis and prediction of impact, consultation, review and monitoring; computer-based modelling and simulation in safety, risk and reliability engineering; other advanced topics and recent advances in safety, risk and reliability engineering; case studies of local industrial interest.

MEG 885.3 Engineering Design Optimisation (3 Credits)

Optimum design concepts and problem formulation; the general mathematical model for optimum design; unconstrained and constrained problems; global optimality; sensitivity analysis; numerical methods for optimal design problems: linear, geometric, dynamic, and nonlinear programming; probabilistic methods; iterative design optimisation; artificial neural networks and genetic algorithms; computer-aided design optimisation; case studies on design optimisation of mechanical systems of interest.

MEG 886.3 Optimal Design of Engineering Components and Systems (3 Credits)

The design process; sources of information; choice of manufacturing processes; manufacturing economics; structures and stresses; design for strength, creep, and fatigue; choice of safety factor; tolerancing, interchangeability and tropicalisation; failure analysis; design of gears and gear trains, jigs and fixtures, tools and machine tools, hydraulic and pneumatic elements and machines; conceptual approach to mechanical engineering system design, design of selected systems; design optimisation techniques, optimal design problem formulation, solution methods, optimality conditions, numerical and computer methods for optimal design problems, optimal design with MS Excel solver and MATLAB; other advanced and modern topics on optimal design of engineering components, devices and systems; applications; case studies on optimal design of machine components and assemblies whose high failure rate is due to the Nigerian climatic conditions

3. Doctor of Philosophy (PhD) Degree in Mechanical Engineering

The Department of Mechanical Engineering offers a postgraduate programme of study leading to the Doctor of Philosophy (PhD) degree in Mechanical Engineering in the specialised areas of Applied Mechanics and Design (AMD), Energy and Thermofluid Engineering (ETE), Industrial and Systems Engineering (ISE), and Production and Maintenance Engineering (PME).

3.1 Programme Objective

The Doctor of Philosophy (PhD) programme in Mechanical Engineering has been designed to produce men and women of proven capability, well grounded in the engineering science and technology of their areas of specialisation, and possessing the analytical, experimental and computational skills that ensure executive confidence in professional practice. The products of the PhD programme should be able to take up their positions in academics, research and development institutes and in industry, actively participating in knowledge dissemination, research and development, and policy decision making.

3.2 Admission Requirements

To be admitted into the PhD Degree Programme in Mechanical Engineering, each aspiring student must fulfil the following requirements:

- (i) Satisfy the general University requirements for admission into the programme;
- (ii) Possess a Master's degree in Mechanical Engineering with a minimum CGPA of 3.5 (on a

- 5.0 scale) or a minimum percentage score of 60% obtained from a recognised university; and
- (iii) Be successful (score at least 60%) in a proposal presentation/admission screening interview to be organised by the Department. The successful candidates will be assigned project supervisors (a main supervisor and a sub-supervisor) immediately after the proposal presentation.

3.3 Programme Duration

The programme shall normally last for a minimum of six (6) semesters and a maximum of twelve (12) semesters of full time study, or a minimum of eight (8) semesters and a maximum of sixteen (16) semesters of part-time study.

3.4 Criteria and Procedure for the Award of the PhD Degree

The PhD programme in Mechanical Engineering consists of course work and Thesis, and the degree is awarded primarily on the basis of research conducted by the student, after he or she has fulfilled the general University requirements for programmes leading to the PhD degree, including the following specific conditions:

- (i) On admission into the programme, the student will take two taught courses (one general course which applies to all the areas of specialization and a second course which is purely for the student's area of specialization) and take a comprehensive examination in each of the courses. Each of the courses has 3 credit units. The pass grade in the examination, as in every other examination in the programme, shall be C (50% minimum). The examinations in these two courses must be taken within the first six months of the programme.
- (ii) Three months after the course works and the examinations, the student will present Chapters one and two (Introduction and Literature Review) of his or her thesis. This is the first presentation and is termed **SEMINAR I**. This presentation will come not later than the first nine months of the student in the programme. If the presentation is not successful, the student will be required to redo the presentation after three months from the date of the first presentation. If the presentation is successful or has little issues, the student will be asked to address the issues and go on with the programme. If the student is not successful in the second attempt in Seminar I, he / she stands disqualified and will be out of the programme.
- (iii) Between 18 and 21 months in the programme, the student will be required to

present **SEMINAR II** which will cover Chapter 3 (Materials and Methods) in addition to Chapters one and two which should be improved versions of what is contained in **SEMINAR I**. The PhD student can also present preliminary or selected or few results if possible. If the presentation is successful, the candidate can go ahead with his or her research to conclusion and thesis write-up. If the presentation is not successful, the student will be required to redo the presentation after three months from the date of the first presentation. If the student is not successful in the second attempt in Seminar II, like in Seminar I, the student stands disqualified and will be out of the programme.

- (iv) Between 27 and 30 months of the programme, the student will be required to present **SEMINAR III** which covers the entire work done by the student and hence the presentation will cover the entire Thesis. This should be presented when the student has completed his or her research. This is equivalent to **Internal Departmental Defence** by the student. The successful student will be required to make corrections and prepare for Faculty defence not later than two months after the Departmental Internal Defence.
- (v) After the Faculty defence which should come not later than 32 months of the programme, the student will be required to present his or her work in the School of Graduate Studies, and thereafter do external examination (final oral defence) of his or her work 36 months into the programme. The student has a maximum of ten semesters or 60 months in the programme. Students who delayed in any of the stages should ensure he or she does the final oral defence before 60 months into the programme. The timelines specified in (i) to (v) are applicable to full time study. For students in part time study, the final external examination is expected to come within 8 semesters or 48 months of the programme on the earliest and not later than 16 Semesters or 96 months into the programme.
- (vi) The student will produce at least two journal articles (accepted for publication) in a reputable journal and attend and present his/her work in at least one conference.
- (vii) The PhD degree is awarded upon satisfactory performance in the final oral examination (scoring a minimum of C grade) and fulfilment of all Departmental and University requirements.

3.5 Course Outline

For the purposes of the Doctor of Philosophy Degree, courses are offered at a higher level than the requirements for M.Eng degree in each of the following four major areas of Mechanical Engineering: Applied Mechanics and Design (AMD), Energy and Thermofluid Engineering (ETE), Industrial and Systems Engineering (ISE), and Production and Maintenance Engineering (PME). The first two seminars are graded and have credit units of 3 each. The course outlines are presented below.

3.5.1 General Courses

Course Code	Course Title	Credit Unit
MEG 900.6	Mechanical Engineering PhD Thesis	12
MEG 901.1	Advanced Engineering Mathematics and Philosophy of Mechanical Engineering	3
MEG 911.2	Seminar I	3
MEG 912.2	Seminar II	3
		21

3.5.2 Courses in Areas of Specialization

Course Code	Course Title	Credit Units	Option
MEG 902.1	Energy Conversion and Advanced Thermofluids Engineering Analysis	3	ETE
MEG 903.1	Advanced System Analysis, Logistics and Industrial Operations Research	3	ISE
MEG 904.1	Tribological Engineering and Advanced Mechanical Design Systems	3	AMD
MEG 905.1	Terotechnology, Advanced Production Systems and Computer Integrated Manufacturing	3	PME

3.6 Course Content

MEG 900.6 Mechanical Engineering PhD Thesis (12 Credits)

The successfully completed dissertation, having passed the School of Graduate Studies Seminar, shall be presented by the Mechanical Engineering PhD candidate at an oral defence before a board of examiners, which includes an External Examiner, constituted according to the regulations of the

School of Graduate Studies, University of Port Harcourt.

MEG 911.1 Seminar I (3 Credits)

This comes in the form of a presentation which covers Chapters one and two of the student's thesis, hence, a preliminary report of the student's research. Introduction and detailed Literature Review of the area of study of the student will be covered.

MEG 912.2 Seminar II (3 Credits)

Like seminar I, this also comes in the form of a presentation which covers Chapter 3 (Materials and Methods) in addition to Chapters one and two. Chapters one and two here should be improved versions of what is contained in Seminar I. Preliminary results from the research, if any, should be included in this presentation.

MEG 901.1 Advanced Engineering Mathematics and Philosophy of Mechanical Engineering

Specific course content: Analysis and engineering applications mathematical concepts: scalar and vector fields, analytic functions; operational calculus; linear and tensor algebra and fields; calculus of variations; systems of ordinary differential equations, partial differential and integral equations and their solution methods; advanced numerical schemes, pseudocode algorithms, error and stability analysis; finite-difference, boundary element, and finite element methods.

Assessing the explanatory relevance of ascription of technical functions; mechanistic explanation of mechanical engineering science; assessing the roles of design representation: counterfactual understanding and technical advantage predictions; testing of mechanical engineering design methods: explanation, reverse engineering and constitutive relevance.

MEG 902.1 Energy Conversion and Advanced Thermofluids Engineering Analysis

Energy forms, supply and demand, conversion, utilization and management, and environmental impact; energy resources; energy chains, power plants; thermodynamic analysis; applications of renewable energy resources; energy management, planning and investment issues; economics of energy-environment interactions and climate change; regulation and governance of the energy sector.

Application of the First and Second laws of thermodynamics; combined First and Second law analysis, thermodynamics of irreversible processes and application to single-and multi-component

systems with and without chemical reactions; Combustion Chemistry of a Simple Fuel, Fossil Fuel Characteristics, Combustion Reactions and Analysis, Combustion analysis using JANAF Tables, Combustion instabilities and application to internal combustion engines design and analysis. Basic Concepts and Fundamentals of fluid flow; Conservation equations; Exact solutions of Navier-Stokes Equations, Potential Flows, Laminar Boundary Layers, Elements of Stability Theory, Turbulent Flow, Compressible Flows, Introduction to Computational Fluid Dynamics (CFD); Unified system of equations of heat and mass diffusion and convection; thermal radiation and applications; heat and mass exchangers.

MEG 903.1 Advanced System Analysis, Logistics and Industrial Operations Research

Review of systems concepts and evolution, conceptual, preliminary, and detailed design and development; system testing and evaluation; alternatives and models in decision making; models for environmental, social, and economic evaluations; optimization in design and operations; probabilistic and statistical methods of system analysis; queuing theory and analysis; control concepts and techniques; design for operational feasibility, reliability, maintainability, supportability, and environmental, social, and economic feasibility; logistics management; trends in global supply chain management; incentives and the strategic management of suppliers; time compression in supply chain; agile supply chains; logistics customer service through marketing and services strategies; people powering contemporary supply chains.

Industrial organizations, productivity and competitiveness; design and management of products, analysis of acquisition, process development, and resource utilization; analysis of operational issues; improvement of organizational overall performance and competitiveness through the use of discrete simulation modelling and other computer software packages. Operations research models and decision making, applications; transportation problem, network models, dynamic optimization models, inventory scheduling.

MEG 904.1 Tribological Engineering and Advanced Mechanical Design Systems

Tribology and tribological problems; Contact mechanics, Friction theories, Wear theories, Lubrication and lubricants, Surface Engineering and applications.

Review of linear vibration of rigid bodies, Single- and multi-degree of freedom systems, Vibration measurement and isolation; Vibration of continuous systems: Classical theories of beams, plates and shells, Shear deformation theories of beams, plates and shells; Nonlinear vibration analysis: Sources of nonlinearity in vibrating systems; Modelling and solution techniques for nonlinear vibrations; Impact dynamics: Impact of rigid bodies – one-, two- and three-dimensional impacts, Impact of flexible structures by rigid projectiles

MEG 905.1 Terotechnology, Advanced Production Systems & Computer Integrated Manufacturing

Maintenance systems, repair and maintenance, maintenance as a business proposition, the business unit concept, automation, maintenance cost reduction, maintenance philosophy; maintenance systems; concept of supervision; maintainability; failure rate curves, inherent and operational availability, procedure for sampling and testing; test plan for determination of mean time to repair (MTTR) or maintainability, computerized evaluation of MTTRs and other related parameters; design for maintainability; condition-based maintenance; non-destructive testing techniques, retirement for cause; computerized maintenance management systems; recent advances in maintenance engineering and management; case studies of interest to the industries and transportation systems in the locality.

Review of the concepts of production systems and computer integrated manufacturing, production system facilities, manufacturing support systems, automation and manual labour in production systems, manufacturing operations, automation and control technologies; numerical control (NC), computer numerical control (CNC), direct numerical control (DNC), NC part programming, engineering analysis of NC positioning systems, APT programming; industrial robotic engineering, anatomy and attributes, control systems, programmable logic controllers; materials handling and identification technologies, material transport systems, storage systems, and automatic data capture; manufacturing systems, single station manufacturing cells, group technology and cellular manufacturing, flexible manufacturing systems (FMS), manual assembly lines, transfer lines, and automated assembly systems; quality control systems; manufacturing support systems, product design and CAD/CAM in the production system.

SELECTED STAFF LIST FOR THE PhD PROGRAMME IN MECHANICAL ENGINEERING

S/N	NAME	DESIGNATION	SPECIALISATION
1.	Prof. H. U. Nwosu	Professor	Applied Mechanics and Production Engineering
2.	Dr. T. A. Briggs	Professor	Industrial and Production Engineering
3.	Dr. C. V. Ossia	Professor	Applied Mechanics and Tribology
4.	Dr. M. U. Shadrack	Reader	Energy and Thermofluid Engineering
5.	Dr. E. O. Diemuodeke	Reader	Energy and Thermofluid Engineering
6.	Dr. A. Big-Alabo	Reader	Applied Mechanics and Tribology
7.	Dr. J. C. Ofodu	Senior Lecturer	Energy and Thermofluid Engineering
8.	Dr. M. M. Ojapah	Senior Lecturer	Energy and Thermofluid Engineering
	Dr. E. G. Saturday	Senior Lecturer	Energy and Thermofluid Engineering
	Celestine Ebieta	Senior Lecturer	Energy and Thermofluid Engineering
9.	Daniel Aikhuele	Senior Lecturer	Production and Manufacturing Engineering
10.	Chidozie Ezekwem	Senior Lecturer	Energy and Thermofluid Engineering

DEPARTMENT OF PETROLEUM & GAS ENGINEERING

A.2. Brief History of the Programme

The Federal Government of Nigeria founded the University of Port Harcourt in 1975 as a college of the University of Lagos. The college gained the University status in 1977. The academic units of the University are organized into faculties and Departments. One of such academic units is the Faculty of Engineering. The faculty started in 1979 with two programmes, viz: Electrical and Petroleum Engineering. Other programmes which were added later included Chemical Engineering in 1982, Civil Engineering in 1983, Mechanical Engineering in 1988, Gas Engineering and Environmental Engineering in 2000. In 1999 the Electrical Engineering programme was upgraded to Electrical/Electronic Engineering programme, while the now upgraded Petroleum and Gas Engineering Department teaches and conducts research in Petroleum and Gas Engineering.

Petroleum and Gas Engineering is the practical application of the basic sciences of physics, chemistry, mathematics and geology, and all the Engineering sciences to the development, recovery and processing of oil and gas. Engineering problems must be solved with due consideration to economic factors, and the petroleum and gas engineer must be thoroughly familiar with the basic economic relationships which involve investment, operating expenses, taxation and profitability analysis. If you are interested in becoming involved in solving today's energy problems, then consider a career in Petroleum and Gas Engineering where initiatives and engineering skills of the highest order are essential, but equally important is the ability of the petroleum and gas engineer to work harmoniously with his or her associates. In oil and gas development, the petroleum and gas engineer supervises the drilling of wells and their completion, if oil or gas is discovered. In the recovery of crude oil and natural gas, the petroleum and gas engineers aim at:

- 1) Controlling and efficiently using the natural energy in an underground reservoir
- 2) Providing additional energy by injecting fluids into the reservoir;
- 3) Increasing the flow capacity of the reservoir or the petroleum in it through sound engineering techniques;
- 4) Reducing the cost of oil and gas recovery, production and transportation; and

- 5) Minimizing waste and protecting the environment

Compared with other branches of engineering, Petroleum and gas Engineering is a relatively new professional field. However, because of the rapidly increasing demand for oil and gas and the advances in petroleum technology, it has attained an important position. The unique problems of the oil and gas industry have stimulated the demand for men and women trained in such specialties as reservoir engineering, production engineering, drilling engineering, natural gas engineering, and petroleum economics. Since the petroleum industry is expanding rapidly in many parts of the world, ample opportunities for travel and advancement of positions of high salaries and marked responsibilities are to be found in the profession.

Over the years, students' population has increased steadily; many of which have graduated with very impressive degree classes, including the distinction category. Many of these graduates are working with some of the key industries around Port Harcourt and beyond. We note with pride that many of our graduates have excelled at their places of work, particularly those in the oil sector.

A.3. Philosophy, aims and objectives of the programme

Philosophy

The philosophy of the programme is to produce competent Petroleum and Gas Engineers as well as qualified teaching and technical staff, needed to meet the manpower requirements in the global oil and gas sector.

Aims and Objectives

The aims and objectives are:

- (i) To provide the much-needed manpower required to drive the oil and gas sector development in the country and beyond.
- (ii) To produce competent petroleum and gas engineering graduates that should be confident enough to establish a small engineering business if ready-made jobs are not available.
- (iii) To offer internationally competitive and locally responsive postgraduate training.

Student Outcomes (SOs)

Graduates of the Petroleum Engineering programme from the University of Port Harcourt must demonstrate:

- An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.
- An ability to apply both analysis and synthesis in the engineering design process, resulting in designs that meet desired needs.
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- An ability to communicate effectively with a range of audiences.
- An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- An ability to recognize the ongoing need for additional knowledge and locate, evaluate, integrate, and apply this knowledge appropriately.
- An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

To ensure that SOs are met, the graduate board established processes to monitor students that are able to attain the programme's SOs at an acceptable level. These processes include:

- All students pass all required courses in the programme
- All students undertake compulsory design projects
- All students be involved in at least 3 seminar presentations before graduation
- All students be involved in an entrepreneurial project before graduation

Program Educational Objectives (PEOs)

Graduates of Petroleum & Gas Engineering should:

- Be employable and able to practice petroleum engineering as qualified engineers, who are ready to solve industry problems to enhance hydrocarbon exploration and exploitation as well as

provide requisite skills to boost service operations in the oil and gas industry.

- Be able to pursue lifelong learning and demonstrate successful career growth in petroleum engineering through post graduate education and active participation in professional activities.
- Become entrepreneurs, who are critical and independent thinkers, exhibiting good leadership skills and playing vital roles that contribute to the welfare of society and the environment.

B. CURRICULUM

1. Post Graduate Diploma in Petroleum Engineering

2. Course Structure and Course Schedule

The Department runs a one-year Post-graduate Diploma programme leading to the award of a Post Graduate Diploma Degree in Petroleum and Gas Engineering (**PGDPE**). Generally, the programme is divided into two broad areas: Basic Engineering and Chemical Engineering Courses; and Core Petroleum Engineering Courses

- **Basic-Engineering and Chemical Engineering Courses:** This covers courses in Basic Engineering such as Strength of Materials, Engineering Mathematics, Drawing and Workshop Practice. Those from Chemical Engineering are Chemical Engineering Thermodynamics and Transport Phenomena I & II.
- **Core Engineering Courses:** This covers courses taken in Petroleum Engineering designed to ground them in basic Petroleum Engineering

4 Post Graduate Diploma Programme

FIRST SEMESTER

Course Code	Course Title	Credit Units
DPE 710.1	Drilling Engineering	3
DPE 720.1	Petroleum Production Engineering	3
DPE 730.1	Reservoir Analysis I	3
DCHE 703.1	Chemical Engineering	
DENG 705.1	Thermodynamics Basic Engineering I	3
DCHE 707.1	Transport Phenomena I	3

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SECOND SEMESTER

Course Code	Course Title	Credit Units
DPE 740.2	Applied Petroleum Geology	3
DPE 750.2	Well Completion and Worker	3
DPE 750.2	Reservoir Analysis II	3
DPE 770.2	Natural Gas Engineering	3
DPE 780.2	Petroleum Economics and Property Evaluation	3
DCHE 708.3	Transport Phenomena II	3
		18

diagrams. Pure bending of beams, bending stresses in composite beams, shearing stresses in beams, complex stresses; principal stresses.

DENG 731.3 Basic Engineering II

This course is divided into two sections namely:

- Engineering Drawing:** fundamentals of engineering drawing, language of engineering, use of scale, line work, lettering, geometrical constructions. Projection of points, line surface and solids in true lengths and gradients. Free hand sketching of machines.
- Workshop Practice:** Introductory workshop practice with inherent characteristics of inculcating in the students the spirit of team work and use of measuring devices and bench tools.

LONG VACATION

Course Code	Course Title	Credit Units
DPE 785.3	Petroleum Engineering Laboratory	3
DPE 790.3	Petroleum Engineering Design	3
DENG 731.3	Project Basic Engineering II	3
TOTAL		45

5.2 PETROLEUM ENGINEERING COURSES

DPE 710.1 Drilling Engineering

This course covers drilling engineering: Specifically, the following topics are covered. Comprehensive picture of modern drilling operations, practices, equipment, both onshore and offshore. Well drilling methods, rheology of Newtonian and non-Newtonian fluids, chemical properties and carrying capacity of drilling fluids, rotary abnormal pressures: pressure loss calculations in rotary drilling, surge and swab pressures and hole problems encountered in drilling operations. Coiled Tubing Drilling, Slim hole and Monobore, Aerated fluid Drilling.

DPE 720.1 Petroleum Production Engineering

Analysis, specification and characteristics of production systems. Well analysis; inflow performance relationships. Study of flow in pipes; sucker rod pumping; gas lift; submersible pumping; hydraulic pumping production logging, offshore technology formation Damage Assessment; Production Optimization. Analysis and evaluation of surface production processing, fluid separation, storage, measurement, treatment, custody transfer, transmission, disposal corrosion, other operations.

DPE 730.1 Reservoir Analysis I

This course covers rock and fluid properties, reservoir engineering and water and gas flooding aspects of enhanced oil recovery. Participants are exposed to the petro-physics of reservoir rocks. Discussion of porosity, permeability, saturations, electrical conductivity, capillary pressure, and relative permeability.

5. COURSE DESCRIPTIONS

5.1 Engineering Courses (ENG)

DENG 705.1 Basic Engineering I

This course is divided into two sections namely:

- Engineering Mathematics:** partial differentiation, directional derivative, gradient differential, infinite series, matrix algebra, solutions of systems of linear equations and numerical techniques.
- Strength of Materials:** Force equilibrium-free body diagrams, centroids and second moment of area. Concept of stress and strain; stress-strain diagram. Axially loaded members, composite bar; temperature stresses; relation between elastic constants. Thin cylindrical spherical and conical pressure vessels, cylindrical shells with rings, torsion of circular shafts and power transmission of shafts. Axial force, shear force and bending moment

Reservoir fluid properties and behavior under high pressure and relatively high temperature. Gas laws, pressure-volume-temperature (PVT) characteristics of binary and complex hydrocarbon systems; equation of state. The K-value concept and its use in stage separation. The use of fluid properties in reservoir engineering. Description and classification of natural underground oil and gas reservoir. Fluid flow in porous media. Reservoir drive mechanisms. Engineering calculations of fluid content of reservoirs and produced recoveries of oil; natural gas geothermal, and water reservoirs; material balance, steady and unsteady state flow equations. Water flooding and gas injection aspects of enhanced oil recovery.

DPE 740.2 Applied Petroleum Geology

This covers introductory geology, petroleum geology and formation evaluation: specifically, the following areas are emphasized: Geology map interpretation. Simple geologic structures. Orogenic movements, volcanism and mountain building. Introduction to paleontology and stratigraphy, historical geology. Introduction to petrology of Nigeria. Economic minerals of Nigeria. Applied aspects of geology. Physical and chemical characteristics of petroleum; reservoir geology. Chemistry and origin of formation water. Origin, migration and accumulation of petroleum. Structural, stratigraphic and combined traps. Basin analysis and the Nigeria Delta petroleum prospect. Other Nigerian petroleum deposits. Global distribution of petroleum in time and space. The energy problem. Subsurface methods in petroleum exploration and exploitation. Well-logging methods and interpretations. Open-hole and cased-hole logs, their mechanics and manipulations. Courses will be accompanied by labs and/or field trips.

DPE 750.2 Well Completions and Workover

Participants are exposed to the following areas: casing design and selection, tubing design and selection, primary and secondary cementing methods, perforation, stimulation, acidizing, hydraulic fracturing, formation testing, sand control and workovers.

DPE 760.2 Reservoir Analysis II

Mathematics: basis of pressure transient test. Theory and practice of pressure testing techniques for oil and gas wells. Pressure build-up, pressure draw-down; pressure fall-off, interference, multi-rate, injectivity and pulse testing. Determination of average reservoir pressure, reservoir heterogeneities and rock properties.

DPE 770.2 Natural Gas Engineering

This course covers Natural Gas Engineering and Processing. Specifically, the following topics are emphasized:

Production and transportation of gas; metering; compression; well performance; estimation of reserves; utilization and conservation. Field handling of natural gas.

Sour gas problems. Study of gas condensate field; underground storage.

Application of the concepts of thermodynamics, transport phenomena, and phase behaviour in processing and conditioning, of natural gas and its liquids, absorption, adsorption and fractionation processing; gasoline plant design; Liquefied Petroleum Gas (LPG); Liquefied Natural Gas (LNG). Other sources of gas.

DPE 780.2 Petroleum Economics and Property Evaluation

Profitability analysis in oil and gas investments; interpretation of technique and economic data; evaluation of risk and uncertainty in oil and gas exploitation. Decision tree analysis; Monte Carlo Simulation; preference theory; pricing and bidding strategies; optimum development of oil and gas fields.

DPE 785.3 Petroleum Engineering Laboratory

Experiments in rock and fluid properties; drilling fluids; cementing and well completion fluids flow measurements and instrumentation.

DPE 790.3 Petroleum Engineering Design Project

The projects will cover field and/or laboratory studies. Every student is required to submit a project report on the solution of an integrated petroleum engineering problem.

CHEMICAL ENGINEERING COURSES (CHE)

DCHE 703.1 Chemical Engineering Thermodynamics

A study of energy, entropy and equilibrium; either interrelations or the engineering relationships to which they give rise. Thermodynamics of energy conversion and fluid flow. Physical and chemical equilibria in multi-component systems partial molar Gibbs free energy and the chemical potential ideal and non-ideal solution behaviour. Phase

separation and equilibrium between phases for reacting chemical and electrochemical systems. Surface chemistry.

DCHE 707.1 Transport Phenomena I

Fluid mechanics. Momentum transfer in fluids in laminar and turbulent flow. Microscopic and macroscopic material, momentum and energy balances. Rheology. Dimensional analysis: flow in conduits, pump: fluid metering, heat and mass transfer: heat transfer rate: conducting, convection and radiation mechanisms of heat transfer: heat exchange design. Molecular diffusion. Mass transfer mechanisms, phase mass transfer coefficients, prediction of mass transfer rates.

DCHE 708.2 Transport Phenomena II

Momentum, energy and mass transfer in solids, in laminar and turbulent fluid in and between two phases; theory of molecular, and eddy viscosity, thermal conductivity and diffusivity, microscopic and macroscopic equations of motion, radiant heat transfer.

C.1. Curriculum

C.2. Master in Engineering Degree

The required post-graduate courses, depending on the area of specialization, are listed below. This is in compliance with the Benchmark Minimum Academic Standards (BMAS) requirement. Students on full-time are expected to complete the course work in one session while part-time students or students without a background in petroleum engineering, may complete the course work in two sessions.

Courses for Students with Petroleum Engineering Background

M. ENG. Petroleum Engineering (Reservoir Engineering)

FIRST SEMESTER

Course Code	Course Title	Credit Units
PNG 800.1	Mathematical Techniques in Petroleum Engineering	3
PNG 801.1	Advanced Reservoir Engineering	3
PNG 805.1	Advanced Evaluation of Oil and Gas Properties	3
PNG 814.1	Improved Recovery Method	3

SGS 801.1	ICT and Research Method	3
		14

SECOND SEMESTER

Course Code	Course Title	Credit Units
PNG 806.2	Well Testing Analysis	3
PNG 807.2	Numerical Reservoir Simulation	3
PNG 820.2	Graduate Seminar in Petroleum Engineering	3
PNG 830.2	M.Eng. Dissertation	6
SGS 802.2	Management & Entrepreneurship	2
		17

Elective Courses

Course Code	Course Title	Credit Units
PNG 801.1	Advanced Reservoir Analysis	3
PNG 802.1	Advanced Gas Engineering	3
PNG 803.1	Multiphase Flow in Pipes	3
PNG 806.2	Well Test Analysis	3
PNG 813.2	Artificial Lift Methods	3

M.ENG Petroleum Engineering (Production Engineering)

FIRST SEMESTER

Course Code	Course Title	Credit Units
PNG 800.1	Mathematical Techniques in Petroleum Engineering	3
PNG 803.1	Multiphase Flow in Pipes	3
PNG 805.1	Advanced Evaluation of Oil and Gas Properties	3
PNG XXX	Petroleum Engineering Electives	3
SGS 801.1	ICT and Research Method	2
		14

SECOND SEMESTER

Course Code	Course Title	Credit Units
PNG 804.2	Advanced Formation Evaluations	3
PNG 813.2	Artificial Lift Methods	3
PNG 820.2	Graduate Seminar in Petroleum Engineering	3
PNG 830.2	M.Eng. Dissertation	6

PNG 802.2	Management & Entrepreneurship	2		PNG 802.1	Advanced Gas Engineering	3
		17		PNG 803.1	Multiphase Flow in Pipes	3
Elective Courses				PNG 804.2	Advanced Formation Evaluation	3
Course Code	Course Title	Credit Units		PNG 810.2	Coal Conversion Processes	3
PNG 801.1	Advanced Reservoir Analysis	3		PNG 815.2	Thermal Recovery Method	3
PNG 802.1	Advanced Gas Engineering	3		M.ENG Petroleum Engineering (Gas Engineering)		
PNG 808.1	Drilling Optimization	3		FIRST SEMESTER		
PNG 806.1	Well Test Analysis	3		Course Code	Course Title	Credit Units
PNG 816.2	Rock Mechanics	3		PNG 800.1	Mathematical Techniques in Petroleum Engineering	3
M.ENG Petroleum Engineering (Petroleum Economics)				PNG 802.1	Advanced Gas Engineering	3
FIRST SEMESTER				PNG 805.1	Advanced Evaluation of Oil and Gas Properties	3
Course Code	Course Title	Credit Units		PNG XXX	Petroleum Engineering Elective	3
ECN 500.1	Micro Economics	2		SGS 801.1	ICT and Research Method	2
PNG 800.1	Mathematical Techniques in Petroleum Engineering	3				14
PNG 805.1	Advanced Evaluation of Oil and Gas Properties	3		SECOND SEMESTER		
PNG 809.1	Alternative Hydrocarbon Sources (Oil, Shale Coal, Tar Sands)	3		Course Code	Course Title	Credit Units
PNG XXX	Petroleum Engineering Elective	3		PNG 810.2	Coal conversion Process Evaluation	3
SGS 801.1	ICT and Research Method	2		PNG 812.2	LNG Processing	3
		16		PNG 820.2	Graduate Seminar in Petroleum Engineering	3
SECOND SEMESTER				PNG 830.2	M.Eng. Dissertation	3
Course Code	Course Title	Credit Units		SGS 802.2	Management & Entrepreneurship	3
FIN 501.2	Micro Economics	2				17
MGT 860.2	Production management (Formally MGT 660.2)	3		Elective Courses		
PNG 811.2	Risk Analysis in Petroleum Ventures	3		Course Code	Course Title	Credit Units
PNG 820.2	Graduate Seminar in Petroleum Economics	3		PNG 801.1	Advanced Reservoir Analysis	3
PNG 830.2	M.Eng. Dissertation	6		PNG 803.1	Multiphase Flow in Pipes	3
SGS 801.2	Management & Entrepreneurship	2		PNG 809.1	Alternative Hydrocarbon Sources (Oil, Shale Coal, Tar Sands)	3
		18		PNG 806.2	Well Test Analysis	3
Elective courses				PNG 807.2	Numerical Reservoir Simulation	3
Course Code	Course Title	Credit Units				

PNG 307.2	Fundamentals of Reservoir Engineering	3	17
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M.ENG Petroleum Engineering (Drilling Engineering)

FIRST SEMESTER

Course Code	Course Title	Credit Units
PNG 800.1	Mathematical Techniques in Petroleum Engineering	3
PNG 805.1	Advanced Evaluation of Oil and Gas Properties	3
PNG 808.1	Drilling Optimization	3
PNG XXX	Petroleum Engineering Elective	3
SGS 801.1	ICT and Research Method	2

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SECOND SEMESTER

Course Code	Course Title	Credit Units
PNG 804.2	Advanced Formation Evaluation	3
PNG 816.2	Rock Mechanics	3
PNG 820.2	Graduate Seminar in Petroleum Engineering	3
PNG 830.2	M.Eng. Dissertation	6
SGS 802.2	Management & Entrepreneurship	2

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Courses for Students without Petroleum Engineering Background Specialization in Gas Engineering

FIRST SEMESTER

Course Code	Course Title	Credit Units
PNG 800.1	Mathematical Techniques in Petroleum Engineering	3
PNG 803.1	Multiphase Flow in Pipes	3
PNG 302.1	Rock and Fluid Properties	3
PNG 403.1	Natural Gas Engineering	3
PNG 501.1	Well Test	3
SGS 801.1	ICT and Research Method	2

SECOND SEMESTER

Course Code	Course Title	Credit Units
PNG 810.2	Coal Conversion Process	3
PNG 812.2	LNG Processing	3
PNG 807.2	Numerical Reservoir Simulation	3
PNG 307.2	Fundamentals of Reservoir Engineering	3
PNG 820.2	Graduate Seminar in Petroleum Engineering	3
SGS 802.2	Management & Entrepreneurship	2

17

Specialization in Drilling Engineering

SECOND SEMESTER

Course Code	Course Title	Credit Units
PNG 800.1	Mathematical Techniques in Petroleum Engineering	3
PNG 803.1	Multiphase Flow in Pipes	3
PNG 302.1	Rock and Fluid Properties	3
PNG 402.1	Formation Evaluation I	3
PNG 401.1	Drilling Engineering	3
PNG 404.1	Well Completion and Work over	3
SGS 801.1	ICT and Research Method	2

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SECOND SEMESTER

Course Code	Course Title	Credit Units
PNG 804.2	Advanced Formation Evaluation	3
PNG 306.2	Drilling Engineering I	3
PNG 304.2	Drilling Fluid Technology	3
PNG 816.2	Rock Mechanics	3
PNG 820.2	Graduate Seminar in Petroleum Engineering	3
SGS 802.2	Management & Entrepreneurship	2

16

Specialization in Production Engineering

FIRST SEMESTER

Course Code	Course Title	Credit Units
PNG 800.1	Mathematical Techniques in Petroleum Engineering	3
PNG 803.1	Multiphase Flow in Pipes	3
PNG 404.1	Well Completion and Workover	3
PNG 502.1	Petroleum Production Engineering II	3
PNG 402.1	Formation Evaluation I	3
SGS 801.1	ICT and Research Method	2
		16

SECOND SEMESTER

Course Code	Course Title	Credit Units
PNG 804.2	Advanced Formation Evaluation	3
PNG 813.2	Artificial Lift Methods	3
PNG 308.2	Petroleum Production I	3
PNG 306.2	Drilling Engineering I	3
PNG 820.2	Graduate Seminar in Petroleum Engineering	3
SGS 802.2	Management & Entrepreneurship	2
		17

Specialization in Petroleum Economics

FIRST SEMESTER

Course Code	Course Title	Credit Units
PNG 800.1	Mathematical Techniques in Petroleum Engineering	2
ECN 500.1	Micro Economics	3
PNG 302.1	Rock and Fluid Properties	3
PNG 402.1	Formation Evaluation I	3
PNG 404.1	Well Completion and Workover	3
SGS 801.1	ICT and Research Method	2
		15

SECOND SEMESTER

Course Code	Course Title	Credit Units
ECN 501.2	Micro Economics	2
MGT 860.2	Production Management (Formally MGT 660.2)	3
PNG 811.2	Risk Analysis in Petroleum Ventures	3
PNG 306.2	Drilling Engineering I	3

PNG 503.1	Enhanced Recovery Methods	3
PNG 820.2	Graduate Seminar in Petroleum Engineering	3
SGS 802.2	Management & Entrepreneurship	2
		18

COURSE DESCRIPTIONS

SGS 802.2 Management and Entrepreneurship (2 Credits)

Advances and development of entrepreneurship, the entrepreneurship qualities and Characteristics, the opportunities; Starting and developing new business ventures, legal ownership; feasibility Studies; role of small and medium scale enterprise (SME) in the economy, role of government in entrepreneurship, business location and layout, accounting for SME, financing SME, managing of factors of SME, Marketing in SME, risk management of SME, Success and failure factors of SME prospects and challenges of entrepreneurship and entrepreneurship ethical behavior in small business.

PNG 801.1: Advance Reservoir Engineering (3 Credits)

Geological concepts in reservoir Engineering; Recovery methods and definitions of reservoirs. Determination of Hydrocarbon in-Place Oil Recovery: Volumetric methods; Material balance and applications; water influx models and calculations; uncertainties in reserve calculations. Fluid flow concepts; flow potential; Description and classification of natural underground oil and gas reservoirs. Fluid flow in porous media. Reservoir drive mechanisms. Engineering calculations of fluid content of reservoirs and predicted recoveries of oil, natural gas geothermal, and water reservoirs, material balances, steady and unsteady flow equation. Water flooding and gas injection aspects of enhanced oil recovery. Mathematical basis for pressure transient tests. Theory and Practice of pressure tests, techniques for oil and gas well. Pressure build-up, Pressure drawdown; pressure fall-off, interference, multi-rate, injectivity and pulse testing. Determination of average reservoir pressure, reservoir heterogeneities and rock properties, Test design, etc

PNG 808.2: Drilling Optimization (3 Credits)

Introduction to drilling optimization, well planning and cost estimation. Drilling team, drilling rigs, rig power system, hoisting system, circulation system, the rotary system, the well control system, well-monitoring system, special marine equipment, drilling cost analysis, Bit types available. Casing design and selection, tubing design and selection, primary and secondary cementing methods, sand control, perforation, formation testing and initial well completion Rock failure mechanisms. Hydrostatic Pressure, pore pressure and fracture gradient calculations, pressure control and blow out prevention.

Equipment, Indicators and methods of kick controls. Cementing; Properties, Equipment, Hole conditions volume calculations and Rate of circulation, squeeze cementing and testing of cement, coiled tubing drilling, slim hole drilling, directional and horizontal drilling techniques and equipment, developments in drilling fluids technology, wellbore stability and concepts. Fishing: Tools and methods, drilling services and contract specifications. Offshore drilling technology, advances in drilling engineering measurement while drilling (MWD) Bit selection and evaluation. Factors affecting tooth wear, bearings wear, terminating a bit run. Factors affecting penetration rate, bit operation, drilling fluids and drilling hydraulics, well head equipment. Authorization for expenditure (AFE).

PNG 804.2: Advance Formation Evaluation (3 Credits)

Concepts of formation evaluation and comparison of the various methods well logging, coring, well testing etc. Well logging: classification and principles. Electric, acoustic and radioactive properties of reservoir rocks. Reserve estimation based on well logs. SP curve, conventional resistivity logs (normal and lateral devices), focusing-electrode logs (laterolog and spherically focused logs), induction logs, micro-resistivity logs (microlog, microlaterology, proximity log, microSFL), radio-activity logs (gamma ray, neutron, formation density and thermal time decay) sonic log, electromagnetic propagation tool and the Repeat formation tester. Review/overview of basic well logging. Well log interpretation methods. Log normalization, cross-plots, computer process interpretation overlays and office processed logs. MWD system. Applications and problems of log interpretation. Production logging; CBL flow meter, temperature logs and other special purpose logs. Recent advances in logging and log analysis such as fluid

contacts, water or gas entry points, thief zone, faults identification, permeability anisotropy. Production logging measurements. Logging while Drilling. Computer aided well log interpretations.

PNG 802.1: Advance Gas Engineering (3 Credits)

Properties of natural gas, Thermodynamics of Gas Production and Transportation; Compression of natural Gas: Gas Metering; Transportation in Pipes; Well Performance evaluation; Estimation of Gas Reserves: Field handling of Natural Gas; Sour Gas Problems; Gas Condensate Fields and Storage.

PNG 806.2: Well Testing Analysis (3 Credits)

Mathematical basis for pressure transient tests. Theory and Practice of pressure tests, techniques for oil and gas well. Pressure build-up, Pressure drawdown; pressure fall-off, interference, multi-rate, injectivity and pulse testing. Determination of average reservoir pressure, reservoir heterogeneities and rock properties. Test design. Purpose of BHP surveys, types of BHP surveys, ideal conditions for running tests, BHP survey equipment, correct procedures for conducting tests, gauge quality check procedure. Theory of well testing-phases and flow geometries flow equations and solutions, analysis models, skin concept; analysis of BHP tests Drawdown, buildup, interface etc. Field practices and other factors that affect tests, examples of bad and good tests.

PNG 800.1: Mathematical Techniques in Petroleum Engineering (3 Credits)

Special functions, gamma, Beta, Bessel, Legendre and hypergeometric functions. Euler's equations, geometrical and physical interpretation of solutions. Operators and operator method of solving equations, system of linear equations. Operational calculus, Laplace transform, theory and application to initial value problems. Axiomatic definitions of probability. Basic rules of probability. Bayes formula. Permutations and combinations. Tabular and graphical representation of samples. Measures of central tendency and dispersion. Random variables. Probability distributions, rectangular, hypergeometric, binomial, poisson and normal distribution and Mathematical expectation. Mean and variance of a distribution, Bivariate distributions, Joint, marginal and conditional distributions covariance; correlation coefficients. Regression and correlations. Method of least squares, Regression curves. Random sampling,

Sampling distributions, Expected value, and Standard error. The control limit theorem. Student's t , X^2 and F -distributions. Confidence intervals for mean, proportion, difference of means, difference of proportion and ratio of variances. Elements of tests of hypothesis: critical regions, significance level, type I and type II errors. Derivation of fluid flow equations in the reservoir using the law of conservation of mass, transport equation, equation of state and the equilibrium equation. Derivations should consider both single and multiphase flow in Cartesian and radial systems with emphasis on the dimensions, the classification of boundary conditions and the use of initial conditions. Solution methods for first and higher order differential equations, the application of Fourier equation, Laplace transform, Bessel function, Gamma function and the Green function in petroleum engineering.

PNG 812.2: LNG Processing (3 Credits)

Properties and characteristics of natural gas; Natural gas processing, Gas conditioning: sweetening and dehydration. Heat and mass transfer; Liquefaction of natural gas. Types of liquefaction facilities; propane cooled, turbo expander, mixed refrigerant, Joule Thompson effect, Low temperature separation (LTS) and Mechanical refrigeration. Re-gasification terminals; LNG storage: peak shaving and base load facilities. Ocean transport, Boil off gas management; safety of LNG

PNG 814.1: Improved Recovery Method (3 Credits)

Review of current recovery methods; imbibitions and drainage; Wettability concepts; recovery mechanism; Multiphase flow concepts; immiscible displacement concepts; miscible displacement concepts; sweep efficiency; water flood performance prediction; Miscible flooding; Chemical flooding; Thermal recovery concepts.

PNG 820.2: Graduate Seminar in Petroleum Engineering (3 Credits)

Designed to expose students to research methodology in Petroleum Engineering, advances in petroleum engineering, techniques, and formats for technical paper and report writing and strategies of representation to technical audience. Students shall look at overview of research logic, technical progress introduction to research purposes, writing of proposals and research funding, research literatures and material gathering types of research projects, data processing and analysis, presentation of results, economics,

Limitations, observations, conclusion and recommendations, case studies, paper review, advances in petroleum engineering research.

PNG 807.2: Numerical Reservoir Simulation (3 Credits)

Concept of reservoir simulation, Single Fluid Flow Equation; Multiphase Flow Equation; Finite-Difference Approximations; Consistency, convergence and stability; Grid Systems and Boundary Conditions; Solution Methods; Discussion of black-oil simulator; Practical considerations in reservoir simulation; simulation study with black-oil simulation. Practical reservoir simulation studies with software.

PNG 805.1: Advance Evaluation of Oil and Gas Properties (3 Credits)

Profitably analysis in oil and gas investments, inter-relation of technical and economic data, time value of money compound interest and annuity calculations depreciation methods, capital budgeting projects evaluations. Decline curves analysis, risk uncertainly in oil and gas exploration, decision tree analysis. Monte Carlo simulation, preference theory, pricing and bidding strategies, optimum field development, Nigerian petroleum profit tax law.

PNG 809.1: Alternative Hydrocarbon Sources (3 Credits)

World energy sources, natural sources, uses and properties of fossils and other energy sources. Alternative hydrocarbons resources in Nigeria. Exploration and mining of such resources. Existing and proposed industrial processes for conversion of such resources into Engineering materials and energy. Technologies for the use of coal, shale, tar sands and biomass. Economic assessment of hydrocarbon resources. Environmental advantages/disadvantages of alternative hydrocarbons.

PNG 816.2: Rock Mechanics (3 Credits)

Concepts of rock mechanics, crater formation: plastic and pseudo-plastic characteristic of rocks. Load rate mechanism static and impact leading; tooth penetration as a function of differential and overburden pressures. Effects of differential pressure on drilling rate, Rock properties and earth stresses.

PNG 810.2: Coal Conversion Processes (3 Credits)

Origin and Occurrence of coal; Characteristics and types of Coal; Grade of Coal; Proximate and

Ultimate Analysis; Mining of Coal; insitu-methods, excavation and processing; syngas production and purification. Coal liquefaction and gasification processes. Fisher Tropsch synthesis. Processing and purification of products of coal. Ammonical liquor, coal tar, coke. Etc. Environmental issues in coal production and processing.

PNG 811.1: Risk Analysis in Petroleum Ventures (3 Credits)

This course will cover evaluation of risk and uncertainty in oil and gas exploitation. Decision tree analysis; Utility theory, Probability, Expected Monetary Value (EMV), Expected Utility value maps, Monte Carlo simulation; preference theory; pricing and bidding strategies; optimum development of oil and gas fields.

PNG 803.1: Multiphase flow in Pipes (3 Credits)

Principles of two-phase flow; the general energy equation; evaluation of friction losses. Single-phase flow variables used in two-phase flow; flow patterns. Horizontal pressure loss prediction methods. Prediction of horizontal flow patterns. Flow through restrictions.

PNG 830.2: M.Eng Dissertation (6 Credits)

The master’s project undertaken by each student is equivalent to about three months fulltime work. An individual project is selected from a list of project at the end of the first year. Students may suggest their own project.

Courses for Students with Gas Engineering Background

M. ENG. Fuel and Energy Engineering

FIRST SEMESTER

Course Code	Course Title	Credit Units
FEN 800.1	Mathematical Techniques in Petroleum Engineering	3
FEN 860.1	Energy Conservation and Management	3
FEN 810.1	Heat Transfer, Combustion and Aerodynamics	3
FEN 830.1	Power Generation and Pollution Control	3
SGS 801.1	ICT and Research Method	2
		14

SECOND SEMESTER

Course Code	Course Title	Credit Units
FEN 870.2	Catalysis and Fuel Synthesis	3
FEN 875.2	Energy Seminar	3
FEN 840.2	Combustion Technology and Thermostatic	3
PNG 830.2	M.Eng. Dissertation	6
SGS 802.2	Management & Entrepreneurship	2
		16

COURSE DESCRIPTIONS

M. ENG. Fuel and Energy Engineering.

FEN 600.1: Mathematical Techniques in Energy Engineering (3 Credit Units)

Interpolation: Theory and application, Piecewise polynomial Interpolation, Curve fitting and statistical application, Numerical differential and integration, Derivation of fluid flow, flow equation, Solutions of fluid flow equations; Numerical methods and green’s function etc., Superposition theory and application.

FEN 610.1: Heat Transfer, Combustion and Aerodynamics (3 Credit Units)

Conduction, convection, heat exchangers, boiling and condensation, radiative heat transfer in enclosures, heat transfer in furnaces, solar energy. Basic combustion: stoichiometry, burning velocity and limits of flammability, flame stability, gas burners, liquid and solid fuel combustion, boilers. Navier stokes equation, energy and species balance equations for combusting flows, turbulence, CFD, free and enclosed jets, swirling jets, flame, stabilization, stirred reactors, jet propulsion.

FEN 630.1: Power Generation and Pollution Control (3 Credit Units)

Basic thermodynamics, steam power cycles, gas turbine cycles and combined cycles, cooling towers and condensers, ideal engine cycles, refrigeration and heat pumps, wind and tidal power. Atmospheric pollution and legislation, measurement, techniques, dispersion in the atmosphere; formation and control of particulates and emissions from combustion, transport, fuel processing, waste disposal and incineration.

FEN 660.2: Energy Conservation and Management (3 Credit Units)

Energy Conservation And Management In Developing Countries, Energy Audits, Energy Analysis, Energy Use And Losses In Building, Boilers And Combustion, Industry Energy Conservation, Heat Pumps, Total Energy Systems, Furnace Performance, Energy Storage And Fuel Cells.

FEN 670.2: Catalysis and Fuel Synthesis (3 Credit Units)

Nature of catalysts, the types of catalysts used in different processes, Mechanism of catalytic action, General functionalities of types of catalysts, Catalytic reforming, Zeolite catalyst, the conversion of method and other oxygen containing compounds to hydrocarbons over ZGM-5 catalyst, Fluid catalytic cracking unit, Catalysis and energy economics.

FEN 675.2: Energy Seminar (3 Credit Units)

Each student is required to present a short paper on an energy topic of his or her choosing. This may be based on industrial experience or on the project.

FEN 640.2: Combustion Technology and Thermostatic Control (3 Credit Units)

Gaseous fuel combustion, flame temperature, calculations, diffusion and premixed flame calculations, laminar flame stability. Liquid and

solid fuel combustion, atomization and spray combustion, fluidized bed combustion of coal and char particles. Thermostatic control of combustion system, transfer functions, process dynamics, system response, controls system stability, frequency response analysis.

SGS 802.2 Management and Entrepreneurship (2 Credits)

Advances and development of entrepreneurship, the entrepreneurship qualities and Characteristics, the opportunities; Starting and developing new business ventures, legal ownership; feasibility Studies; role of small and medium scale enterprise (SME) in the economy, role of government in entrepreneurship, business location and layout, accounting for SME, financing SME, managing of factors of SME, Marketing in SME, risk management of SME, Success and failure factors of SME prospects and challenges of entrepreneurship and entrepreneurship ethical behavior in small business.

FEN 630.2: M. Eng Dissertation (6 Credit Units)

The master's project undertaken by each student is equivalent to about three months fulltime work. An individual project is selected from a list of project at the end of the first year. Students may suggest their own project.

ACADEMIC STAFF LIST

S/N	NAME(S)	QUALIFICATION	FIELD OF SPECIALIZATION	DESIGNATION
1	J.A. Ajienka	B.Sc (Ibadan), M.Eng, Ph.D. (UPH), R.Eng (5285)	Petroleum Production Engineering/ Multiphase Flow in Pipes	Professor
2	D. Appah	M.Sc Mining, Eng., Dip. Edu. (Baku) Ph.D (UPH), MNSE, R.Eng (7961)	Production Engineering, Formation Evaluation	Professor
3	O. F. Joel	B.Tech, Chem/Petro-Chem. Engg. (UST), M.Sc Eng Mgt. (Uniben), Ph.D Chem/Petro-Chem Engg. (UST), R.Eng(9471)	Drilling & Environmental Engineering	Professor
4	S. S. Ikiensikimama	B.Eng., M.Eng. (Chem), M.Eng (Pet), (UPH), Ph.D. Chem. (Unilag), R.Eng (10595)	Reservoir Engineering, Petroleum Economics, Petroleum Refining	Professor
5	B. S. Kinigoma	B.Sc (RSUST), M.Eng., (UPH) Ph.D (Uniport) R.Eng 33572	Energy and Environmental Engineering	Professor
6	A. B. Oriji	B.Eng, M.Eng, Ph. D. Pet Engg (UPH) R.Eng (21538)	Drilling Engineering/ Drilling Fluid	Professor
7	A. Joseph	B.Eng Pet. (UPH), M.Eng Gas (UPH), M.Sc. OGEM; PhD (Aberdeen, UK) R. Eng (46049)	Production Engineering, Gas Engineering, Petroleum Economics	Senior Lecturer
8	U. Osokogwu	B.Eng, M.Eng. Pet.Engrg (UPH), PhD (Cranfield, UK) R Eng.(47310)	Energy, Production Engineering/ Multiphase Flow in Pipes	Senior Lecturer/ (Ag. HOD)
9	E. Okafor	B.Eng Chem. (ESUT), M.Sc Mech. & Process Eng. Germany), Ph. D. Pet. Engg. (London), R.Eng 38210	Gas Engineering	Senior Lecturer
10	J. V. Aimikhe	B. Eng Pet. Engg, (Benin), M.Eng. Pet Engg (UPH). PhD Gas Engg (UPH), R.28853	Gas Engineering	Senior Lecturer
11	T. O. Odutola	B.Tech Chem.(LAUTECH)M. Sc. Pet. Engg. (AUST) PhD Pet. Engg. (UPH), R. Eng 30662	Production Engineering	Senior Lecturer
12	I. I. Mbachu	B.Eng. Polymer Eng. (FUTO), M.Eng. Pet. Engg, PhD Pet. Engg. (UPH), R. Eng 49559	Reservoir Engineering	Senior Lecturer
13	E.E. Okoro	B.Eng Chem (NAU), M.Eng. PhD Pet. Engg. (UPH) R.Eng 32925	Drilling Engineering/ Geomechanics	Senior Lecturer
14	L. Ikeh	B.Eng, M.Eng (UPH), M.Sc., PhD (UK). R. Eng 57955	Gas & Pipeline Engineering	Lecturer I

15	I. O. Ogali	B.Eng Elect/Elect (UPH), MSc, Pet (AUST), PhD, Pet (UPH) R.33687	Reservoir Engineering	Lecturer I
16	J. L. Ichenwo	B.Eng, M. Eng. Pet. Engg, (UPH), (UPH), PhD (RSU)	Drilling Engineering	Lecturer I
17	E. Ndubuisi	B.Eng, M.Eng, PhD Pet. Eng. (UPH) R. R. Eng 40855.	Drilling Engineering	Lecturer I
18	U. Akwa-Abasi	B.Eng Gas Eng. (UPH), MSc Subsea Eng. (UK)	Production Engineering	Lecturer I
19	O. C. Ekeh	B.Eng, M.Eng. Pet.Engg.	Reservoir Engineering	Lecturer II
20	P. O. Wachuku	B.Eng., M. Eng. Pet. Engg. PhD (UPH)	Reservoir Engineering	Lecturer II
21	G.O. Ani	B.Eng, Gas Engr., M.Eng Pet Econs. (UPH)	Gas Engineering	Lecturer II

ENGINEERING MANAGEMENT PROGRAMMES (MEM)

INTRODUCTION

The Graduate Programmes in Engineering Management aims to develop highly skilled professionals in the field of engineering management for the public, private and international organizations, as well as for teaching and research in Tertiary Institutions and global competitiveness.

To help in these and other conditions, industrial administrators are turning to be engineering managers. The education of the engineering manager would be anchored in the faculty of engineering but includes an appropriate blend of management, human behavior, and social sciences. The student is thus well prepared for corporate positions that require knowledge of organizations and people as well as technology. The student is usually capable of operating effectively in such areas as production, operations, plant engineering, industrial marketing, and sales engineering.

OBJECTIVES

The Graduate programmes in Engineering Management (MEM) is designed to provide knowledge of the process of management as it applies to technically-based enterprises and to provide additional skills in basic engineering and related disciplines. The programmes have been developed to meet the needs of graduates of engineering and related science disciplines who find themselves performing or preparing for managerial functions without the benefit of advanced technical management education. Additionally, the programme has been designed to equip those who may want to pursue an advanced research degree in Engineering Management.

POST GRADUATE DIPLOMA (PGD) IN ENGINEERING MANAGEMENT

ADMISSION REQUIREMENTS

1. For admission into the Post Graduate Diploma of Engineering Management programme, the candidate must normally possess a Bachelor's degree with a minimum of Third class (honors) degree or Upper credit in Higher National Diploma (HND) in engineering or related fields from schools recognized by the senate of the University of Port Harcourt.
2. Additionally, the candidate is expected to have an NYSC discharge certificate or have a valid exemption certificate. Full-time and part-time modes of study are available.

DURATION OF STUDY

The programme shall last for a minimum of twelve (12) calendar months and a maximum of twenty-four(24) months for the full-time study while the part-time will last for a minimum of twenty-four calendar months and a maximum of forty-eight months.

MODE OF STUDY AND EXAMINATION

The mode of study shall be modular and students are expected to pass all taught courses which comprise all the modules listed in the course description section.

AWARD OF DEGREE

Successful students at the end of the programme shall receive a PGD in Engineering Management from the University of Port Harcourt.

COURSE CONTENT IN MODULE DESCRIPTION

Course Code	Course Title	Unit
ENG 701	Technical Report writing and Presentation	2
ENG 702	Fundamentals of Engineering Management	3
ENG 703	Introduction to Project Management for Engineers	3
ENG 704	Design Engineering Management	3
ENG705	Introduction to Quality Management	3
ENG 706	Operational Excellence and Lean Six Sigma	3
ENG 707	Production and Operations Management	3
ENG 708	Operations Research	3
ENG 709	Fundamentals of Business for Engineers	2
ENG 710	Introduction to Engineering Economics	3
ENG 711	Accounting Systems and Marketing Management	3
ENG 712	Engineering management project	6
	Total	40

COURSE DESCRIPTION

ENG 701 Technical Report writing and Presentation

Introduction to technical writing, Definition of technical writing and report; Technical correspondence; Technical illustrations; Progress report; Tendering and Bill of Quantities; Proposal writing and gap analysis

ENG 702 Fundamentals of Engineering Management

Fundamentals of engineering management. Managerial accounting: cost-volume-profit analysis, costing systems and standard costs, activity-based costing, relevant costing. Organizational behavior: motivation, stress management, effective leadership, communication, work teams. Quantitative decision making in engineering: scoring models, AHP, decision trees, mini-max regret, and other strategies.

ENG 703 – Introduction to Project Management for Engineers

This course introduces the engineer to the basics of project management.

Outline: Basics of project integration, project scope, cost management, time management, engineering quality, human resources, project communications, risk management, and procurement management. Introduction to Risk Management, particularly in the area of safety-critical engineering projects.

ENG 704 - Design Engineering Management

The objective of this course is to understand the key aspects of managing design within a corporate context effectively and systematically.

Outline: key challenges in the management of the design of innovative engineering devices, processes, technologies, and services; the importance of the interaction between design, business, and management items in design organizations and how to make the existence of the innovative design activity visible in the corporate structure using strategic planning; Case studies

ENG705 - Quality Management

Quality engineering and management evolution, definitions, concepts, and principles. Topics include philosophy of quality, quality engineering and management tools, design of experiments, statistical process control, and engineering statistics. Managing quality processes and quality-based projects.

ENG 706 Operational Excellence and Lean Six Sigma

Lean Six Sigma Green Belt tools and techniques, operational efficiency, waste and variability reduction, continuous improvement, the pursuit of perfection. DMAIC (define, measure, analyze, improve and control), process mapping, data collection and analysis, root cause problem solving, the cost of quality, mistake proofing, change management

ENG707 - Production and Operations Management

This course covers the primary tools and methods used in the management of production and

operations of engineering systems. Product demand forecasting: moving averages, exponential smoothing, inventory management, economic order quantity, (s,S) policy, (r,Q) policy, newsvendor models, dynamic programming models, production planning, linear and integer programming models and solutions, lean manufacturing principles, and operations and job scheduling

ENG 708 - Operations Research

This course surveys analytical methods in operations research for modeling complex decision-making problems in the modern global economy, with emphasis on applications from data analytics, supply chain management, energy markets, or other relevant domains. The course introduces deterministic and stochastic operations research model formulation, solutions, and applications.

Outline: Introduction to linear, non-linear, and integer programming, dynamic programming, spreadsheet modeling, network models, queueing, simulation, decision analysis, Markov models, forecasting, and software tools for operations research.

ENG 709 - Fundamentals of Business for Engineers

This course provides managers with an overview of the economic environment within which businesses must operate. Students will also learn how Engineering organizations interpret and engage with their stakeholders and environments, develop unique capabilities, implement strategic change and set up and maintain strategic alliances to achieve competitive advantage. The outline includes Key concepts and ideas from microeconomics, macroeconomics, and international economics; economic forces that affect the operation of business entities; the impact of change in the economic environment on the strategic direction of the firm; Strategy, strategic theory, and the strategy process for Engineers; Strategic analysis tools and concepts; Strategy formulation including business-level strategies; Stakeholders and governance; Resources and capabilities; Cooperative strategies in the Engineering sector: mergers, acquisitions, partnerships, and alliances; Implementation of strategic change in Engineering. Credit hours: 3

ENG 710 Introduction to Engineering Economics. 3 Credits.

Introduction to cost estimation, accounting, and financial metrics. Valuation techniques, time value of money, and cash flow analysis. Economic

analysis of engineering alternatives including depreciation effects, income taxes, inflation, engineering management capital budgeting of projects, portfolio, and public sector projects. Prerequisite: Junior standing.

ENG 711 Accounting Systems and Marketing Management in Engineering Organizations

This course provides an overview of financial and managerial accounting; the concepts and tools of managerial accounting; alternative costing methods and illustrates how the resulting cost information can be used for decision making and examines the role of the internal accounting system in evaluating managerial performance and in coordinating the activities within a firm. The Marketing Management course is designed to offer a broad overview of the fundamental areas in the marketing process. The topics covered in the course include marketing planning; segmentation and positioning; and devising strategies for new products, appropriate pricing, marketing communications, and distribution. Digital Marketing- Fundamentals of using the Internet for marketing tasks. Strategic Implications of the Internet for Marketing. Marketing models for Electronic Commerce. Customer retention, customization, value-based pricing, branding, advertising in the context of Electronic Commerce. WWW and the pricing, promotion, and distribution of goods.

ENG 712 Engineering Management Project

An Essay on management-related problems in Engineering organizations and suggested solutions through supervised case studies or research.

MASTER’S DEGREE IN ENGINEERING MANAGEMENT PROGRAMME

ADMISSION REQUIREMENTS

For admission into the Master of Engineering Management programme, Candidates must possess either a Bachelor's Degree with a minimum of Second Class Honors Lower Division in the relevant Disciplines or a PGD in the relevant areas with a CGPA of 3.0 on a 5 point scale.

Additionally, the candidate is expected to have an NYSC discharge certificate or have a valid exemption certificate. Full-time and part-time modes of study are available.

DURATION OF STUDY

The duration of the programme shall be a minimum of twelve (12) calendar months and a maximum of twenty-four (24) months for the full-time mode of study or minimum of twenty-four (24) calendar months and maximum of forty-eight (48) months for the part-time mode of study.

MODE OF STUDY AND EXAMINATION

The mode of study shall be modular and students are expected to pass all the courses.

AWARD OF DEGREE

Successful students at the end of the programme shall receive an M.Sc. in Engineering Management Degree.

AREAS OF SPECIALIZATION

The dissertation will be based on the following areas of specialization.

- a. Chemical Engineering
- b. Civil Engineering
- c. Electrical/Electronic Engineering
- d. Environmental Engineering
- e. Mechanical Engineering
- f. Petroleum/Gas Engineering

COURSE CONTENT IN MODULE DESCRIPTION

MODULES	Title	Unit
SGS 801.1	ICT and Research Methods	2
SGS 801.2	Management and Entrepreneurship	2
MOE 802	Operations and Maintenance Management	3
MOE 803	Supply Chain Management	3
IET 801	Project Management	3
IET 804	Risk Management	3
ENG 801	Technical Report Writing & Presentation	3
ENG 802	Engineering Statistics and Experimental Data Analysis	3
ENG 803	Advanced Engineering Economics and Costing	3
ENG 804	Products Liability and Engineering Law	3
ENG 805	Quality Control and Reliability	3
ENG 810	MSc Research Dissertation	6
ELECTIVE 1		3
ELECTIVE 2		3
	Total	42

ELECTIVE COURSES

The student is expected to offer a module in each of the elective groups according to the student’s area of specialization.

ELECTIVE I

CHE 851	Advanced Principles I	Chemical Engineering
CEG 851	Advanced Principles I	Civil Engineering
EEE 851	Advanced Principles I	Electrical Engineering
MEG 851	Advanced Principles I	Mechanical Engineering
PNG 851	Advanced Principles I	Petroleum Engineering

ELECTIVE II

CHE 852	Advanced Principles II	Chemical Engineering
CEG 822	Advanced Principles II	Civil Engineering
EEE 852	Advanced Principles II	Electrical Engineering
MEG 851	Advanced Principles II	Mechanical Engineering
PNG 852	Advanced Principles II	Petroleum Engineering

COURSE DESCRIPTION

SGS 801.1: ICT and Research Methodology

This course covers essential areas of general Introduction to ICT (focus on emerging trends in ICT), Hardware/software fundamentals, internet / online tools (focus on search engines), productivity tools (Google suite), word processing (MS word), data processing (MS Excel), data analysis (MS Excel, SPSS), Introduction to computer programming (Excel VBA/ macros), presentation tools (MS power point), graphics (focus on infographics), group work, presentation. It also covers what is research, research process and characteristics, types of research, formulating a research problem, research design, principles of scientific research, concept of hypothesis, research techniques, formulation and testing, organization of research and report writing, literature review, document management- content and layout in report writing, understanding data and data types, referencing and bibliography.

SGS 801.2: Management and Entrepreneurship

This course covers business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving

MOE 802: Operations and Maintenance Management

The focus is efficient and effective management of the efforts and activities of people, capital, equipment, and resources in the process of converting raw materials into finished goods and services. The module is designed to develop the thinking underpinning the transformation

processes in an organization towards maximizing throughput and minimizing cost. This course outline is as follows;

- i. Introduction to Operations and Maintenance;- Maintenance as a business process and added value process. Trends in maintenance management Definitions and terminology. Types of maintenance, choice of maintenance strategy and methods, NORSOK Standards, legislative requirements, and governmental regulations. Establishment of goals, requirements, and risk acceptance criteria for Health, safety, and environment. Myths about maintenance.
- ii. Principal Concepts, Tools and Techniques;- Engineering analysis, equipment, technical and functional hierarchy, Failure Mode Effects and Criticality Analysis (FMECA), Fault Tree Analysis (FTA), Event Tree Analysis (ETA). Design out/ design for maintenance considering reliability, availability, maintainability, operations, and maintenance support, Life cycle cost analysis, Spare parts inventory and logistics, Data and information management, Defining best practices, Excellence, and Culture- Defining terms related to maintenance, reliability, and operations (MRO), Elements of asset (equipment) performance, Identifying stakeholders to journey to excellence.
- iii. Maintenance Strategies and Practices;- Preventive maintenance (PM), Predictive/ condition-based maintenance (PBM/CBM), Run-to-failure (RTF), Planning and scheduling, Material stores management, optimizing maintenance based on reliability centered maintenance.
- iv. Maintenance Management and Development of Maintenance Programs;- Standards and Standardization impacting maintenance and equipment care, energy, environment, risk, asset, etc. Reliability centered maintenance (RCM), Risk-based maintenance (RBM) and Risk-based inspections (RBI), Maintenance objectives and strategies, Maintenance management and work processes, challenges in implementing best practices.

MOE 803: Supply Chain Management

Goods and services are to be delivered to the final consumer; therefore effective management of the supply chain must be ensured. The module outlines the supply chain management and covers the following topics;

- i. Introduction to supply chain management;- Importance of supply chain management, matching supply chains with products, supply chain value adds, ways to view supply chain management, integrated supply chain management, process, innovation, theory of

- constraints, supply chain information technology.
- ii. Customer Service and Channels;- Customer service, customer satisfaction, channels of distribution. Business models and sourcing-Anticipatory to response-based business models, purchasing Vs procurement, procurement strategies, building deep supplier relationships.
 - iii. Manufacturing and Integrated Planning;- Manufacturing strategy, flexibility, total integrated planning, sales, and operational planning, forecasting and Woodmere case-forecasting, collaborative planning, forecasting and replenishment, Woodmere introduction, and Woodmere solution.]
 - iv. Advanced planning and scheduling (APS);- APS concepts and framework, APs demonstration, APS challenges and benefits, APS demand and supply planning, APS using software and planning charts, APS six components.\
 - v. Supply Chain Globalization;- Supply chain globalization- Rationale and key, strategies, requirements and challenges, operational differences, potential hidden costs, total cost strategy.

IET 801: Project Management

Based on the PMBOK guide, the course is designed to provide a sound introduction to the basics of project management, including project planning and risk management. It further focuses on the following:

- i. Project Management Overview: Identify project management processes, professional and social responsibilities, interpersonal skills required for project management.
- ii. Project Management Methodology
- iii. Project Management Toolset
- iv. Project Management Documentation
- v. System Development Life Cycle
- vi. Initiating a project: Examine the project management content, examine project selection, prepare a project statement of work, and create a project charter, Identify project stakeholders.
- vii. The Planning Phase: Identify elements of the project management plan, Document stakeholder requirements, create a scope statement, and develop a work breakdown structure.
- viii. Developing Project Schedules: Create an activity list, create a project schedule network diagram, Estimate activity resources, Estimate duration for project activities, develop a project schedule, identify the critical path, Optimize the

- project schedule, Establish a schedule baseline.
- ix. The analysis phase
- x. The design phase
- xi. Evaluation phase
- xii. Changing information systems
- xiii. Project management assessment

IET: 804 Risk Management

Modern organizations are increasingly exposed to risk due to vagaries of the natural environment, complex technologies, diverse socio-political environments, sophisticated resource structures, and complicated economic processes and interactions. Such risks need to be managed responsibly by any business enterprise.

The model will cover the following;

1. Principles of Risk and Risk Management: introduction to the principles and concepts of risk and risk management, Identifying the risk associated with the goals and objectives of an organization, history of risk management, development, and impact of international standards.
2. The practice of Risk Management; explores the impact of the global business environment on risk, examines issues relevant to specific sectors and geographical areas, and the needs and demands of various stakeholder groups, including regulatory authorities.
3. Risk Assessment; To quantify and prioritize the risk, nature of risk-losses and opportunities, sources and types of risk information that help identify, record, and communicate risk effectively, examine the different techniques for identifying risks, and explore common methods for analyzing risks and uncertainties.
4. Risk Treatment; To develop appropriate responses to the prioritized risk. Role of risk treatment within the wider enterprise, risk management framework, different approaches to effectively respond to opportunities and treat threats, evolving risk management fundamental tools, monitoring the impact of risk on the organization.
5. Risk, Governance and Culture; Examines issues of corporate governance, risk oversight, internal control, and assurance in a global marketplace. Role of the board and key stakeholders in ensuring that risk is integrated with strategy. Critical elements of organizational behaviors including culture, corporate social responsibility, and business ethics.
6. Crises, Resilience, and Future Risks; A demonstration exercise to develop a framework to help organizations strengthen their resilience at strategic, tactical, and

operational levels to face current and future risks. Using case studies from different business sectors and geographical regions to analyze how crises are managed.

ENG 801: Technical Report Writing & Presentation

What are technical writing and technical report? In report writing, who is a layman technician, expert, or executive? Technical correspondence; Technical illustrations; Progress Reports, Proposal writing, Tendering & Bill of Quantities, Thesis documentation, and Gap Analysis. A series of seminars will be delivered by students on topics of current interest including student's projects.

ENG 802: Engineering Statistics and Experimental Data Analysis

- Part-1: Parametric Statistics:
 - Descriptive statistics-mean, standard deviation & skewness;
 - Regression-simple, multiple & partial;
 - Auto- and Cross-correlation & correlograms;
 - Comparative analysis and Test of Significance - t-test, z-test,
 - Chi-squared test & F-test;
 - Trend analysis-moving average, simple and weighted;
- Part-2: Non-parametric statistics:
 - i. Normality test, Spearman's method; Kendall's Coefficient of Concordance;
- Mann-Whitney u – Test; Kruskal-Wallis's 1-way Analysis of variance (ANOVA); Friedman's 2-way ANOVA; Dunn-Conover-Iman Multiple pairwise comparison Nemenyi test; Principal Component Analysis (PCA) & Regression (PCR); Agglomerative Hierarchical Clustering (AHC) & Application of XLSTAT

ENG 803: Advanced Engineering Economics and Costing

Application of the concepts of efficiency to engineering decision-making. More extensive work on the evaluation of capital projects. Examples will include make or buy decisions and replacement equipment decisions. Decision under conditions of risk and uncertainty. Optimization, empirical and statistical methods applied to technical problems.

Rationale: All engineering and management decisions have economic consequences, such as profitability and risk. This course is aimed at providing the necessary background and techniques for the economic evaluation of decision alternatives. Topics such as time value of money, depreciation, and taxation, cost estimation and cost control, risk and uncertainty in decision-making, and replacement analysis are included. Basic Concepts in Engineering Economics. Economic

Evaluation of Alternatives. Replacement Analysis. Accounting Concepts. Depreciation and Taxation. Product Costing and Cost Estimation. Risk and Uncertainty. Deterministic Capital Budgeting Models.

Cost Accounting: Job-Order Costing / Project Costing; Capital Planning and Budgeting

ENG 804: Products Liability and Engineering Law

Products Liability laws define the responsibility of engineers and manufacturers towards the way their products affect public safety.

Study of basic concepts of reliability as they apply to the efficient operation of industrial systems. Quality control, product failure, user rights, contract of sale, warranties, litigations, and glass action. Appraisal of environmental health hazards determination and monitoring techniques.

ENG 805: Quality Control and Reliability

Rationale: To present quality as a strategic business weapon, and to detail the ways and means of achieving it in an organization. The managerial aspects and statistical procedures of quality control are treated in depth. Catalog Description: Quality System, Quality Management System, Planning and Operations for Quality, Statistical Methods for Quality Control.

Statistical Quality Control and Applications
Modern Approaches to Quality Control / Quality Assurance

Shewhart Control Charts: Control Chart for Attributes: Specifications and Tolerances

Acceptance Sampling: Lot by lot acceptance; and the Operating Characteristics (OC) curve; Producer's risk and consumer's risk in acceptance sampling.

Economic Aspects of Quality Control Decisions
Reliability in Design and Production: Definition of Reliability; The Reliability Function; Graphical Representations of Reliability and Mortality curves

ENG 810: M.Sc. Dissertation

An essay on managerial problems and suggested solutions for local industrial enterprises through supervised case studies or research.

ELECTIVE COURSES

This comprises two elective M.Sc. courses taken from the student's parent department.

CHE 851 ADVANCED CHEMICAL ENGINEERING PRINCIPLES II

This course is designed to give an overview of chemical engineering and familiarity with the principles of chemical engineering especially to those not from the chemical engineering stream. Selected topics in chemical engineering and technology with a unified approach will be dealt

with. Role of computers in the chemical industry. Emphasis will be given to design decisions.

CHE 852 ADVANCED CHEMICAL ENGINEERING PRINCIPLES II

This course is designed to deal with salient features of project engineering. Industrial Production and Quality control with particular reference to chemical and allied industries. Topics include alternate sources of energy safety and disposal.

CEG 851 ADVANCED CIVIL ENGINEERING PRINCIPLES I

Hydrology in Engineering Practices: Stream flow duration curve, precipitation-runoff relationship flood routing by hydrological and hydraulic principle. Probability in surface water hydrology as a basis for design. Soil mineralogy, properties and engineering behavior of soils. Shear strength principles of effective stress. Consolidation and settlement/permeability and seepage analysis. Beam deflections Energy, method, trusses, virtual work, unit Dummy methods and Castigliano's Theorems. Stratically indeterminate structures. Influences line for stratically indeterminate structures. Probabilistic method in civil engineering

EEE 851 ADVANCED ELECTRICAL ENGINEERING PRINCIPLES I

Nigerian energy resources and demand. Modelling of power system components, Operational features of different types of power plants. Principles of power systems protection Generation expansion studies Electronic system design, processing of signals by means of analog and digital circuits and systems.

EEE 852 ADVANCED ELECTRICAL ENGINEERING PRINCIPLES II

Introduction to the modern control of physical systems. Examples of engineering systems involving control of force and motion and industrial processes. Introduction to non-linearities encountered in physical systems. Introduction to microprocessor systems. The design of microcomputer system. Application areas and typical design areas. Microcomputer software packages. Computer-aided design of control systems.

MEG 851 ADVANCED MECHANICAL ENGINEERING PRINCIPLES I

Industrial air conditioning: the psychrometry of air conditioning processes; Comfort and inside design conditions; cooler coils and air washers; the need for ventilation and the application of the decay equation to changes of enthalpy; Air filtration techniques.

Tribology in industry:-Tribological properties of solid materials; self-lubricating materials and types of solid lubricants, lubricant properties and testing; Hydrostatic lubrication, hydrodynamic lubrication and elastohydrodynamic lubrication. Aspects of fluid-flow measurements; Properties of non-Newtonian industrial fluids, Hydro-kinetic machines and positive displacement machines; Maintenance of industrial machines.

MEG 852 ADVANCED MECHANICAL ENGINEERING PRINCIPLES II

Analysis of Management policy on equipment replacement; application of the MAPI formula on equipment replacement. The concepts and managerial aspects of production and operations design of products and services; capacity planning; demand forecasting for operations; inventory replenishment and material requirements; rules for reducing material handling costs. Material handling organization; service systems; maintaining system reliability; personnel scheduling for service systems; Areas of waste in material handling and transportation. Handling and treatment of industrial waste

PNG 851 ADVANCED PERTROLEUM ENGINEERING PRINCIPLES I

Importance of rock and fluid properties to petroleum reservoir revaluation. Calculations of reservoir behavior and flow of oils, gas and water for different reservoir drive mechanisms. Application of well test and pressure transient analysis for reservoir description. Well-logging methods and interpretations. Applications of economic principles in petroleum property valuation.

PNG 852 ADVANCED PETROLEUM ENGINEERING PRINCIPLES II

Explanation and application of established and current procedures for selecting bits, and mud properties and for optimizing hydraulics, bit weights and rotary speeds. Well completion methods and practices. Design and selection of well production system. Analysis and evaluation of surface production system.

DOCTOR OF PHILOSOPHY (Ph.D.) DEGREE PROGRAMME IN ENGINEERING MANAGEMENT

ADMISSION REQUIREMENTS

1. For admission into the Doctoral Degree programme in Engineering Management, the candidate must normally possess a minimum of 3.5 CGPA in Master's in Engineering Management Degree.

2. Candidates possessing a minimum of 3.5 CGPA in Master's degree in any engineering discipline with certification in Project management or equivalent management experience in Engineering field can also be granted admission

Additionally, the candidate is expected to have an NYSC discharge certificate or have a valid exemption certificate. Full-time and part-time modes of study are available.

DURATION OF STUDY

The duration of the programme shall be a minimum of thirty-six (36) calendar months for the full-time mode of study and a maximum of sixty (60) calendar months or minimum of forty-eight calendar months and maximum of eighty-four (84) months for the part-time mode of study.

MODE OF STUDY AND EXAMINATION

The mode of study shall be modular and students are expected to pass all taught courses. This comprises the modules listed in the course description section.

AWARD OF DEGREE

Successful students at the end of the programme shall receive a Ph.D. in Engineering Management from the University of Port Harcourt.

GRADING SYSTEM

All examinations are graded out of 70% while continuous assessment same as homework (including term paper) is out of 30%. The defense whether internal or external (with External Examiner) will involve a number of lecturers for scoring. The oral examination attracts a letter Grade. The distribution of letter grades is as follows:

	Scores	Letter Grade
i)	70 – 100	A
ii)	60 – 69	B
iii)	50 – 59	C
iv)	0 – 49	F

The pass mark (or grade) for all examination is 50%.

AREAS OF SPECIALIZATION

The dissertation will be based on the following areas of specialization.

- i. Chemical Engineering
- ii. Civil Engineering
- iii. Electrical/Electronic Engineering
- iv. Environmental Engineering
- v. Mechanical Engineering
- vi. Petroleum/Gas Engineering

COURSE CONTENT IN MODULE DESCRIPTION

ENG 901	Technical Seminar and Report Writing – 3
ENG 902	Advanced Optimization - 3
ENG 903	Management of Major Engineering Projects - 3
ENG 904	Emerging/Disruptive Technologies and Decision making for Engineers - 3
ENG 905	Human Resources and Organizational Performance in Engineering - 3
ENG 906	Energy Systems Management- 3
ENG 907	Graduate Seminar in Engineering Management - 3
ENG 908	Ph.D. Thesis - 12
	Total - 33

COURSE DESCRIPTION

ENG 901 Technical Seminar and Report Writing

Technical writing and technical report. Layman technician, expert, and executive. Technical correspondence; Principles of scientific research. Introduction: Definition of research, characteristics of research, types of research, research process, research as a way of thinking, application of research. Technical illustrations; Progress Reports. The Research Proposal. The Introduction. The Problem. The Objective of the Study. The Hypothesis to be tested. The Study Design. The Setting. Measurement Procedures. Sampling. Analysis of Data. Structure of the Report. Problems and Limitations. Work Schedule. Formulating a Research Problem: Reviewing the literature. Formulating a Research Problem. Identifying Variables. Constructing Hypothesis. Conceptualizing a Research Design: The Research Design. Selecting a Study Design. Constructing an Instrument for data collection and Sampling; Selecting a Method for Data Collection. Use of computer programme and software and Basics of PowerPoint presentation. Intellectual Property Issues: Protecting the intangible, Patents Infringement, Changes to watch for, Patent searches over the Internet), Copyrights Changes to watch for, Software piracy, Plagiarism), Trade secrets (What is eligible to be a trade secret?, Using a trade secret, Infringement), Reverse engineering, Tendering & Bill of Quantities, Thesis documentation and Gap Analysis.

ENG 902 Advanced Optimization

The objective of this course is to understand the principles of optimization and its application to engineering problems. Topics covered include the steepest descent and Newton methods for unconstrained optimization; golden section, quadratic, cubic, and inexact line searches;

conjugate and quasi-Newton methods; the Fletcher-Reeves algorithm; fundamentals of constrained optimization theory; simplex methods for linear programming; modern interior-point methods; active-set methods and primal-dual interior-point methods for quadratic and convex programming; semi-definite programming algorithms; sequential quadratic programming; and interior-point methods for non-convex optimization. In addition, implementation issues and current software packages/algorithms for optimization will be covered. Global optimization, including genetic algorithms and simulated annealing, will be introduced.

ENG 903 Management of Major Engineering Projects

Major Engineering projects are complex interdisciplinary projects cutting across different sectors involving huge financial investments and are of high strategic importance to their stakeholders and have a long-lasting impact on the economy, the environment, and society. They are often (but not always) associated with budget escalation and delay and questionable cost/benefit analysis.

Outline: Engineering project management Revision - definition of project, programme, and portfolio; Optimizing efficiency and value in Engineering projects; Introduction to major Engineering projects (and programmes) and their performance; Scope definition, including requirements translation & target operating model; Stakeholders and stakeholder relationships in major Engineering projects; Techniques to build a robust and realistic business case; Project management success (iron triangle) vs Project success (cost/benefit analysis for the different stakeholders); Strategic risk management in major Engineering projects; Time value of money and economic indicators for major Engineering projects; Financing and contractual arrangements for Engineering managers; Project governance and project leadership; Improving infrastructure delivery: project initiation routemap

ENG 904 Emerging/Disruptive Technologies and Decision making for Engineers

The first part of this course which is on Emerging and Disruptive Technologies will the students to manage the adoption of new technologies within their organization.

Outline: Emerging technologies from a representative range of Science and Engineering disciplines, such as: Spintronics, quantum technologies, 2D materials, nanotechnology, Industry 4.0, 5G, graphene and nanotechnology, augmented/virtual reality, sustainable energy systems, autonomous vehicles, space systems, medical engineering & surgical robotics, e-

commerce, cyber-physical systems, additive and hybrid manufacture, artificial intelligence, cloud robotics, big data, complex systems, technologies for sustainable development; Business strategies and tools for adopting new technologies; Intellectual property in science and engineering; Managing organizations in the midst of rapid technological change; Methods for responding to external disruptive change; New business models and funding schemes; crowdsourcing and crowdfunding; Ethics, sustainability and societal factors; Case studies from a representative range of Engineering sectors will be used, where appropriate, to illustrate these principles.

The second part of this course is on Decision making which is a key management function that will help the student understand the thinking processes that underlie their own and others' judgment and decision making in individual and group decision-making situations.

Outline: Introduction to organizational decision making, judgments, forecasts and probabilities; System thinking, prospect theory, heuristics, and biases; Ways of improving judgments; Decision framing and structured decision-making tools; Engineering Decision Making in the context of quality, cost and speed and the balancing of opportunities and risks; Data-Driven Decision Making and the Use of Technology in Decision making; Group decision making and Negotiations

ENG 905 Human Resources and Organizational Performance in Engineering

This course is designed to help engineers develop skills in peoples' management and have a good understanding of the factors that influence human behavior and performance in various organizational settings.

Outline: The significance of behavior in organizational life; Established and contrasted approaches to organizational behavior and management; Strategic and operational HRM. Impacts of HRM on organizational performance; Individual personality and characteristics; Perception and communication; Recruitment, employment law, and industrial relations; Recognition and reward, learning and development; Teamwork, group dynamics, stakeholders and leadership in Engineering organizations; Ethical approaches to managing and leading people in organizations; Work design, organizational structures and changing organizational forms in a range of Engineering sectors; Organizational norms and values. Culture and change management; Power and control. Equality and diversity.

ENG 906 Energy Systems Management

Effective management of energy systems by monitoring, controlling, and optimizing their performance. Concepts and techniques of energy

management and conservation. Energy auditing; improving energy utilization in space conditioning; insulation; hot water and compressed air systems; steam distribution systems; energy-saving opportunities in fired heaters, boilers, refrigeration and cooling systems; continual improvement and awareness of energy efficiency throughout an organization; cogeneration; trend analysis and annual consumption forecasts to effectively manage energy systems; waste-heat recovery and synthesis of heat and power networks; heat exchanger network optimization.

ENG 907: Graduate Seminar in Engineering Management

This is a required course for all graduate students. Intensive review of the literature in the management of technology and technically-based enterprises. A series of seminars will be delivered by students on topics of current interest including students' research work.

ENG 908 Ph.D. Thesis

A report on managerial problems and suggested solutions for local industrial enterprises through supervised case studies or high-level research.

LIST OF ACADEMIC STAFF AND AREAS OF SPECIALISATION

S/No	NAMES	QUALIFICATION	FIELD OF SPECIALISATION	DESIGNATION
1	Nwaogazie, Ify L.	B.Sc Civil Eng., M.Sc. Water Resources Ph.D.,	Hydrology Water Resources & Mathematical Modeling	Professor
2	Kuye, A.O.	B.Sc., M.Sc., Ph.D.,	Computer-Aided Design	Professor
3	Appah, D.	M.Sc. Mining Eng. Dip. EDuc, Ph.D.,	Production Engineering/ Formation Evaluation	Professor
4	Ogbonna, F. Joel	B.Sc., M.Sc., Ph.D.	Petroleum Engineering	Professor
5	Nwosu, H.U.	B.Sc., M.Sc., Ph.D., MBA,	Production Engineering/ Applied Mechanics	Professor
6	Etebu, D.M.O.	B.Sc., M.Sc. Chem. M.Eng. Mech. Ph.D	Industrial Engineering	Professor
7	Ikiensikmama, S.	B.Sc., M.Sc., Ph.D.	Petroleum Engineering	Professor
8	Uhunmwangho, R.	B.Sc., M.Tech., Ph.D.,	Power Systems & Electrical Machines	Professor
9	Kamalu, U.A.	B.Sc., M.Sc., Ph.D.	Electronic / Computer Engineering	Professor
10	Omijeh, B.O.	B.Eng, MSc, Ph.D	Electronic & Communication Engineering	Professor
11	Umoh, G.I.	M.Sc., Ph.D., PGD, Dip. IDP	Operation Management, Quantitative Analysis, Operations research	Professor
12	Ogbuji, C.	B.Sc., MBA, M.Sc., Ph.D.	Marketing Management	Professor
13	Uyigwe, L.	B.Sc, M.Sc., Ph.D.	Polymer Engineering	Professor
14	Kinigoma, B.S.	B.Sc., M.Eng. & Ph.D.	Energy and Environmental Engineering	Professor
15	Ndu E.C.	B.Sc., M.Sc., Ph.D	Operations Management	Reader
16	Omorogiuwa, E.	B.Eng, MSc, Ph.D	Power Systems & Electrical Machines	Reader
17	Ossia, C.V.	B.Eng, MSc, Ph.D	Applied Mechanics and Tribology	Professor
18	Big-Alabo, A.	B.Eng, MSc, Ph.D	Mechanical Engineering	Senior Lecturer
19	Ude, N.	B.Eng, MSc, Ph.D	Environmental Engineering	Senior Lecturer
20	Saturday, E	B.Eng, MSc, Ph.D	Mechanical Engineering	Senior Lecturer
21	Nwofor, T.	B.Eng, MSc, Ph.D	Civil and Environmental Engineering	Senior Lecturer
22	Achadu, M.A.	B.Eng, MSc, Ph.D	Chemical Engineering	Senior Lecturer
23	Nwazor, N.O.	B.Eng, M.Eng, Ph.D	Computer and Control Systems Engineering	Senior Lecturer
24	Orakwue, S.I.	B.Eng, M.Eng, Ph.D	Electronic & Telecommunication Engineering	Senior Lecturer
25	Eteng, A.	B.Sc. M.Sc., Ph.D.	Electronics/ Telecommunication Engineering	Senior Lecturer
26	Jonah, C.T.	B.Sc., M.Sc., Ph.D	Human Resources Management	Lecturer 1

ENVIRONMENTAL ENGINEERING AND MANAGEMENT (MEET)

PROGRAMME DESCRIPTION AND REQUIREMENTS

Introduction/Preamble

Today's society is besieged with numerous environmental challenges that pose risk to health, life and property. The recent and up-surging interest in climate change has made the need to address environmental challenges a front burner issue. Therefore, there is need to train manpower that can rise up to environmental challenges with solutions that can address the problems. Environmental Engineering and Management programmes have been designed to provide engineers and scientist with advanced environmental engineering knowledge and skills required to tackle real environmental problems.

Philosophy

The philosophy of the Graduate Programmes in Environmental Engineering and Management are to provide advanced professional training for upgrading knowledge and skills of degree holders employed in the industry, the Public Service or those on self-employment

Vision

The vision of the programmes in Environmental Engineering and Management are to become the foremost Centre of Excellence in Environmental Engineering and Management in Nigeria and Africa at large.

Mission

The mission of the programme is to meet the needs of the industry through a commitment to excellence in training, applied research and capacity building.

Rationale/Justification

These programmes are designed to provide opportunity to professionals from other related disciplines who may wish to have training in Environmental Engineering and Management.

Programme Aim/Objectives

The aim of the programmes in Environmental Engineering and Engineering Management is to provide students an opportunity to acquire an in-depth of current issues/problems in Environmental Engineering and Management.

The objectives of setting up the Graduate programmes in Environmental Engineering and Management are as follows:

1. To equip fresh graduates and graduates with professional experience who would like develop their problems solving abilities to tackle real environmental issues.

2. To equip graduates of engineering and science background with advanced knowledge and skill set in Environmental Engineering to enable them proffer solutions to real environmental problems..
3. To prepare those who are interested in academics for a Master's and Ph.D. Degrees in Environmental Engineering and Management.

MASTER'S DEGREE IN ENVIRONMENTAL ENGINEERING AND MANAGEMENT

Admission Requirements

Candidates for the Master's Degree in Environmental Engineering and Management must have:

- (i) A minimum Second Class Honours, lower division, from a recognized university or a PGD in Engineering or related disciplines in the sciences with a CGPA of 3.0 on a 5.0 scale.
- (ii) A first degree in Engineering or related disciplines in the Sciences, e.g Microbiology, Chemistry, etc and
- (iii) An NYSC discharge or exemption certificate. Candidate can apply for either full-time or part-time mode of study.

Programme Requirements

In addition to the general University requirements for Master's degrees, the candidate must fulfill the following requirements:

- i. Be registered in the School of Graduate Studies for equivalent of twelve (12) calendar months for full-time mode of study
- ii. Complete a total of thirty (49) credit units. At least 6 credits must be on a dissertation devoted to solving Environmental problem.
- iii. Complete seven (16) core Engineering and Management courses and a graduate seminar course with at least a 'C' grade.

Areas of specialization

The Master's dissertation will be based on the following areas of specialization.

- a. Environmental Engineering (for students with Engineering background)
- b. Environmental Engineering Technology (for students with Science background)

Award of Degree

Two degrees shall be awarded by the University of Port Harcourt to successful students at the end of the programme, namely:

- a. M.Eng in Environmental Engineering for students with Engineering background and

- b. M.Sc in Environmental Engineering Technology for students with Science background.

EVE 809	Industrial Attachment	3
EVE 810	Graduate Seminar	3
EVE 811	Applied Statistics and Analysis	3
EVE 820	Dissertation	6

Structure of Programme

The programme shall be administered in a modular manner and shall operate under Institute of Engineering, Technology and Innovation Management (METI). Examinations shall be administered at the end of each module and students are expected to offer and pass all the courses.

Programme Duration

The duration of the programme shall be a minimum of 12 calendar months and a maximum of 24 calendar months of intensive full-time study and a minimum of 24 calendar months and a maximum of 48 calendar months for part-time option.

Graduation Requirements

The student is expected to pass all the prescribed courses and defend the research project.

Modular Courses and Codes

COURSE CODE	MODULE TITLE	CREDIT UNITS
SGS 801.1	ICT and Research Methods	2
MOE 802	Operations and Maintenance Management	3
MOE 805	Logistic Engineering	3
EVE 801	Introduction to Environmental Engineering	3
EVE 802	Waste water Engineering and Design	3
EVE 803	Solid and Hazardous Waste Management and Control	3
EVE 804	Air Quality Modeling and Climate Change	3
EVE 805	Water and Land Pollution: Treatment and Control	3
SGS 801.2	Management and Entrepreneurship	2
EVE 806	Environmental Pollution, Noise and Vibration	3
EVE 807	Environmental Pollution Modeling & Management	3
EVE 808	Group project	3

COURSE DESCRIPTION

SGS 801.1 ICT and Research Methods (2 Units)

This course covers essential areas of general Introduction to ICT (focus on emerging trends in ICT), Hardware/software fundamentals, internet/online tools (focus on search engine), productivity tools (Google suite), word processing (MS word), data processing (MS Excel), data analysis (MS Excel/SPSS), introduction to computer programming (Excel VBA/macros), presentation tools (MS power point), graphics (focus on infographics), group work, presentation. It also covers what is research, research process and characteristics, types of research, formulating a research problem, research design, principles of scientific research, concept of hypothesis, research techniques, formulation and testing, organization of search and report writing, literature review, document management – content and layout in report writing, understanding data and data types, referencing and bibliography.

MOE 802 Operations and Maintenance Management (3 Units)

The focus is efficient and effective management of the efforts and activities of people, capital, equipment and resources in the process of converting raw materials into finished goods and services. The module is designed to develop the thinking underpinning the transformation processes in an organization towards maximizing throughput and minimizing cost. This course outline is as follows;

- i. Introduction to Operations and Maintenance; Maintenance as a business process and added value process. Trends in maintenance management, definitions and terminology, types of maintenance, choice of maintenance strategy and methods, NORSOK Standards, legislative requirements and governmental regulations, establishment of goals, requirements, and risk acceptance criteria with respect to Health, Safety and Environment, Myths about maintenance.
- ii. Principal Concepts, Tools and Techniques: Engineering analysis, equipment, technical and functional hierarchy, Failure Mode Effects and Criticality Analysis (FMECA), Fault Tree Analysis (FTA), Event Tree Analysis (ETA). Design out/ design for maintenance considering reliability, availability, maintainability, operations and

- maintenance support, Life cycle cost analysis, Spare parts inventory and logistics, Data and information management, defining best practices, Excellence and Culture-Defining terms related to maintenance, reliability, and operations (MRO), Elements of asset (equipment) performance, identifying stakeholders to journey to excellence.
- iii. Maintenance Strategies and Practices: Preventive maintenance (PM), Predictive/condition-based maintenance (PBM/CBM), Run-to-failure (RTF), Planning and scheduling, Material stores management, optimizing maintenance based on reliability centered maintenance.
 - iv. Maintenance Management and Development of Maintenance Programs: Standards and Standardization impacting maintenance and equipment care, energy, environment, risk, asset, etc. Reliability centered maintenance (RCM), Risk based maintenance (RBM) and Risk based inspections (RBI), Maintenance objectives and strategies, Maintenance management and work processes, challenges in implementing best practices.

MOE 805 Logistic Engineering (3 Units)

This course is designed to equip professionals, Engineers, Technical personnel and managers of manufacturing and defense related industries with the essential logistics concept, Methodologies, processes and tools needed to understand and apply logistics engineering knowledge required to support and strategically review any type of material system acquired and operated by the company. The course will outline the importance of system approach design of logistics that include design development, operating and decommissioning phases of the system, and focus on affordable logistics support and on total cost of ownership in its life cycle. It is also structured to develop the processes required to give a fundamental overview of logistic Engineering, Management, Techniques and Methods in an acquirer and supplier context with particular emphasis on the lifecycle through life approach to support solution development, optimization and implementation. The course content is as follows.

- i. Logistics support Analysis (LSA): Supportability Engineering, task analysis concept, Logistics Support Analysis Record (LSAR), support Scenario modeling.
- ii. Availability, Reliability and maintainability (AR&M); Apply AR&M through the lifecycle, safety and cost.
- iii. Introduction to Integrated Logistic Support (ILS): Integrated Logistic Support trade off studies, whole of life costing, life cycle cost(LCC)/ Level of repair analysis (LORA),

- Reliability centered maintenance (RCM), integrated logistic support management- plan implementation and deliver an ILS program, contracting.
- iv. Applying ILS: Understanding the need, influencing design, Develop support solution delivery, Operation and Sustainment.
 - v. Value based management: Introduction to logistic data, Logistics support analysis. Data repository, standards, provisioning modeling, obsolescence management and SW support. Determine range and scale of acquisition, initial and replenishment. Contractor logistics support, plan and formulate and recommend a CLS program.

EVE 801 Introduction to Environmental Engineering (3 Units)

Basic Chemistry- Element and compounds molecules, ions, radicals' chemical bonds, Acids, Bases and salts, chemical reactions, buffer and pH colloid chemistry, saturated and unsaturated organic halides; Sanitary microbiology/biochemistry; Microbiology of waste water treatment; Enzymes, DNA, chemical toxicology; Ecology: Ecosystem, types, component, biogeochemical cycles, aquatic ecology, etc. Environmental performance indicators; Biodiversity conversation; Principles of environmental chemistry; Contamination and types of environmental pollution and pollutants; Global warming and climate change; Environmental quality monitoring and assessment; Environmental and sustainable developments.

EVE 802 Waste water Engineering and Design (3 Units)

Waste-water treatment and plant design; operation and unit processes; optimal design of sewer network; FEPA effluent treatment option and kinetics; Waste stabilization ponds, septic tank system and VIP; Primary treatment units, reactions and reactors, basic bio-kinetic and trickling filters; Activated sludge process, anaerobic wastewater treatment principle, sludge treatment/disposal.

EVE 803 Solid and Hazardous Waste Management and Control (3 Units)

Solid waste sources and characteristics; Landfill and modern composition, disposal, processing and recycling; Hazardous waste characteristic classification, treating procedure; Incineration for thermal energy generation; Ground water contamination, control, and contingency planning; Hazardous waste generation, transportation and treatment. Storage and disposal facilities; Route optimization in solid waste collection and disposal; Anaerobe digestion and generation of gases

(methane); Containers labeling, collection, hazardous waste manifest.

EVE 804 Air quality Modeling and Climate change (3 Units)

Sources and formation of Air pollutants; Meteorology, dispersion and Air pollution, plume rise calculations. Chimney height and global greenhouse effects; Types of emission Control of emissions, incineration, and particulate release to the atmosphere; Application of mathematical models for air pollution predictions; Air quality standards and environmental impact of polluted air; Introduction to climate change science and impacts, climate change risk and management, climate change mitigation, climate change adaptation.

EVE 805 Water and Land Pollution: Treatment and Control (3 Units)

Oil pollution and characteristics; Water pollution: water quality index, water quality assessment, water treatment by reverse osmosis and conventional methods, effect of pollution on streams; Concepts of dilution, absorption, adsorption and dispersion of pollutants in surface and ground water systems; Hydraulically interconnected streams/ rivers and ground water systems as aid to contaminants transport; Remediation techniques on polluted land; Effect of pollution on land, vegetation and humans; Water quality parameters, water quality maps for rivers, ground water and top soils.

SGS 801.2 Management and Entrepreneurship (2 Units)

This course covers business Environment, general Management, financial Management, entrepreneurship Development, feasibility Studies, marketing and managerial problem solving.

EVE 806 Environmental noise and vibration (3 Units)

Sound properties- Analysis of sound wave and computation of decibels; Noise measurement and effects of noise pollution; Noise types. FEPA and 150 guidelines;

Annoyance calculations, introduction to vibrations, vibration standards, control noise and vibration; Mechanism of hearing and impairment; Highway traffic noise modeling.

EVE 807 Environmental Pollution Modeling and Management (3 Units)

Pollution monitoring, modeling and prediction; Review of field surveys for data collection; Data Analysis, model calibrations, verification and prediction; Case study on noise pollution in Nigeria, air pollution studies, and water pollution studies; Pollution legislation and economic

evaluation; Environmental assessments and audits; Economic evaluation of polluted environment, Costs and benefits, risks and uncertainty, contingency planning.

EVE 808 Group Project (3 Units)

This is required for students in this programme. The students will be shared into groups and each group shall undertake a project in their areas of interest. This will prepare the students for their independent project/dissertation.

EVE 809 Industrial Attachment (3 Units)

This is the practical exposure of the students through direct participation in the work of an industry to real life working condition. During the training, the students get familiar with engineering works, organization, physical layout, and the flow of information, materials and operations.

EVE 810 Graduate Seminar (3 Units)

Intensive review of the literature in the student's area of interest will be required. A series of seminar presentation will be delivered by students on current issues in environmental engineering and management. Lecturers from within the University and the industry will be invited to give seminar lectures on chosen topics of current academic and economic interest such as those related to Environmental Engineering and Management.

EVE 811 Applied Statistics and Data Analysis (3 Units)

Part-1: Parametric Statistics; Descriptive statistics-mean, standard deviation and skewness; Regression-simple, multiple and partial; Auto- and Cross-correlation;

Comparative analysis and Test of Significance-t-test, z-test, chi squared test and F-test; Trend analysis-moving average, simple and weighted;

Part-2: Non-parametric statistics:

- i. Normality test, Spearman's method; Kendall's Coefficient of Concordance;
- ii. Mann-Whitney u- Test; Kruskal-Wallis's 1-way Analysis of variance (ANOVA);
- iii. Friedman's 2-way ANOVA; Dunn-Conover-Iman Multiple pairwise comparison Nemenyi test;

Principal Component Analysis (PCA) and Regression (PCR); Agglomerative Hierarchical Clustering (AHC) and Application of XLSTAT

EVE 820 Dissertation (6 Units)

Research work on a selected topic in the field of environmental engineering and management to result in a acceptable M.Eng dissertation in Environmental Engineering and M.Sc in Environmental Engineering Technology.

DOCTOR OF PHILOSOPHY IN ENVIRONMENTAL ENGINEERING AND MANAGEMENT

Admission Requirements

Candidates are eligible to apply for a PhD in Environmental Engineering and Engineering Management programme provided they have:

- i. Satisfied the general university requirements for admission into PhD programmes.
- ii. A minimum CGPA of 3.5 at Masters on a 5-point scale.
- iii. A first degree in Engineering or related disciplines in the Sciences, e.g. Microbiology, Chemistry, etc
- iv. Must be successful in a proposal presentation/admission interview in the department.

Programme Requirements

In addition to the general University requirements for Doctoral Degree, the candidate must fulfill the following requirements:

- a. Be registered in the School of Graduate Studies for equivalent of thirty six (36) calendar months for full-time mode of study
- b. Complete a total of forty six (44) credit units. At least 12 credits must be on a thesis devoted to solving Environmental problems.
- c. Complete eleven (11) core Environmental Engineering and Management courses and a graduate seminar course with at least a 'C' grade.

Areas of Specialization

The PhD thesis will be based on the following areas of specialization.

- a. Environmental Engineering (for students with Engineering background)
- b. Environmental Engineering Technology (for students with Science background)

Award of Degree

Two degrees are awarded, namely:

- a. PhD in Environmental Engineering for students with Engineering background and
- b. PhD in Environmental Engineering Technology for students with Science background.

Structure of Programme

The programme shall be administered in a modular manner and examinations shall be administered at the end of each module and students are expected to offer and pass all the courses.

Programme Duration

The duration of the programme shall be a minimum of thirty six (36) calendar months and a maximum of sixty (60) calendar months of intensive full-time study and a minimum of forty

eight (48) calendar months and a maximum of eighty four (84) calendar months for part-time option.

Graduation Requirements

The student is expected to pass all the prescribed courses and defend the research project.

Modular Courses and Codes

MODULE CODE	MODULE TITLE	CREDIT UNITS
MOE 902	Advanced Operations and Maintenance Management	2
MOE 905	Advanced Logistic Engineering	3
EVE 901	Advanced Environmental Microbiology and Chemistry	3
EVE 902	Advanced Air Quality Modeling and Climate Change	3
EVE 903	Advanced Statistical Methods and Computer Applications	3
EVE 904	Advanced Environmental Engineering Practice	3
EVE 905	Advanced Studies in Solid Waste Management	3
EVE 906	Advanced Water, Air, Land Pollution and Abatement	3
EVE 907	Advanced Air and Noise Pollution Control	3
ETM 908	Advanced Environmental Modeling and Simulation Techniques	3
ETM 909	Advanced Studies in Remediation and Environmental Assessment Techniques	3
EVE 910	Seminar	6
EVE 920	Thesis	6

COURSE DESCRIPTION

MOE 902 Advanced Operations and Maintenance Management (3 Units)

The focus is efficient and effective management of the efforts and activities of people, capital, equipment and resources in the process of converting raw materials into finished goods and services. The module is designed to develop the thinking underpinning the transformation processes in an organization towards maximizing

throughput and minimizing cost. This course contents are as follows:

- i. Introduction to Operations and Maintenance; Maintenance as a business process and added value process. Trends in maintenance management, definitions and terminology, types of maintenance, choice of maintenance strategy and methods, NORSOK Standards, legislative requirements and governmental regulations, establishment of goals, requirements, and risk acceptance criteria with respect to Health, Safety and Environment, Myths about maintenance.
- ii. Principal Concepts, Tools and Techniques: Engineering analysis, equipment, technical and functional hierarchy, Failure Mode Effects and Criticality Analysis (FMECA), Fault Tree Analysis (FTA), Event Tree Analysis (ETA). Design out/ design for maintenance considering reliability, availability, maintainability, operations and maintenance support, Life cycle cost analysis, Spare parts inventory and logistics, Data and information management, defining best practices, Excellence and Culture- Defining terms related to maintenance, reliability, and operations (MRO), Elements of asset (equipment) performance, identifying stakeholders to journey to excellence.
- iii. Maintenance Strategies and Practices: Preventive maintenance (PM), Predictive/condition-based maintenance (PBM/CBM), Run-to-failure (RTF), Planning and scheduling, Material stores management, optimizing maintenance based on reliability centered maintenance.
- iv. Maintenance Management and Development of Maintenance Programs: Standards and Standardization impacting maintenance and equipment care, energy, environment, risk, asset etc. Reliability centered maintenance (RCM), Risk based maintenance (RBM) and Risk based inspections (RBI), Maintenance objectives and strategies, Maintenance management and work processes, challenges in implementing best practices.

MOE 905 Logistic Engineering (3 Units)

This course is designed to equip professionals, Engineers, Technical personnel and managers of manufacturing and defense related industries with the essential logistics concept, methodologies, processes and tools needed to understand and

apply logistics engineering knowledge to acquire support and strategically review any type of material system acquired and operated by the company. The course will outline the importance of system approach design of logistics that include design development, operating and decommissioning phases of the system, and focus on affordable logistics support and on total cost of ownership in its life cycle. It is also structured to develop the processes required to give a fundamental overview of logistic Engineering, Management, Techniques and Methods in an acquirer and supplier context with particular emphasis on the lifecycle/ through life approach to support solution development, optimization and implementation. This course contents are as follows:

- i. Logistics support Analysis (LSA): Supportability Engineering, task analysis concept, Logistics Support Analysis Record (LSAR), support Scenario modeling.
- ii. Availability, Reliability and maintainability (AR and M); Apply AR and M through the lifecycle, safety and cost.
- iii. Introduction to Integrated Logistic Support (ILS): Integrated Logistic Support trade off studies, whole of life costing, life cycle cost(LCC)/ Level of repair analysis (LORA), Reliability centered maintenance (RCM), integrated logistic support management- plan implementation and deliver an ILS program, contracting.
- iv. Applying ILS: Understanding the need, influencing design, Develop support solution delivery, Operation and Sustainment.
- v. Value based management: Introduction to logistic data, Logistics support analysis. Data repository, standards, provisioning modeling, obsolescence management and SW support. Determine range and scale of acquisition, initial and replenishment. Contractor logistics support, plan and formulate and recommend a CLS program

EVE 901 Advanced Environmental Microbiology and Chemistry (3 Units)

Environmental biology and microbiology; Environmental performance indicators; Biodiversity conservation; Principles of environmental chemistry; Contamination and types of environmental pollution and pollutants; Global warming and climate change; Environmental quality monitoring and assessment; Environmental and sustainable developments.

EVE 902 Advanced Air Quality Modeling and Climate Change (3 Units)

Sources and formation of Air pollutants; Meteorology, dispersion and Air pollution, plume rise calculations; Chimney height and global greenhouse effects; Types of emission

Control of emissions, incineration, and particulate release to the atmosphere; Application of mathematical models for air pollution predictions; Air quality standards and environmental impact of polluted air; Introduction to climate change science and impacts, climate change risk and management, climate change mitigation, climate change adaptation.

EVE 903 Advanced Statistical Methods and Computer Applications (3 Units)

Part-1: Parametric Statistics; Descriptive statistics-mean, standard deviation and skewness; Regression-simple, multiple and partial; Auto- and Cross-correlation;

Comparative analysis and Test of Significance-t-test, z-test, chi squared test and F-test; Trend analysis-moving average, simple and weighted; Part-2: Non-parametric statistics:

- i. Normality test, Spearman's method; Kendall's Coefficient of Concordance
- ii. Mann-Whitney u – Test; Kruskal-Wallis's 1-way Analysis of variance (ANOVA)
- iii. Friedman's 2-way ANOVA; Dunn-Conover-Iman Multiple pairwise comparison Nemenyi test;

Principal Component Analysis (PCA) and Regression (PCR); Agglomerative Hierarchical Clustering (AHC) and Application of XLSTAT.

EVE 905 Advanced Environmental Engineering Practice (3 Units)

Environmental Law and Act of Parliament (Regulations, Guidance and Manual); Waste treatment Plant Operation; Health and Safety of Environment; Relationship between Industry and Environment; Design and Simulation of Process Equipment for Environment; Policy and Implementation.

EVE 905 Advanced Studies in Solid Waste Management (3 Units)

This course will introduce to students the basic concerns of waste management for both solid and hazardous waste streams. The course contents are as follows:

Waste-water treatment and plant design; Unit operation and unit processes; optimal design of sewer network; FEPA effluent treatment option and kinetics; Waste stabilization ponds, septic tank system and VIP; Primary treatment units, reactions and reactors, basic bio-kinetic and trickling filters; Activated sludge process, anaerobic wastewater treatment principle, sludge treatment/disposal.

EVE 906 Advanced Water, Air, Land Pollution and Abatement (3 Units)

This course explains basic environmental pollution prevention and control methods and environmental management techniques. The course contents are as follows:

Oil pollution and characteristics; Water pollution: water quality index, water quality assessment, water treatment by reverse osmosis and conventional methods, effect of pollution on streams; Concepts of dilution, absorption, adsorption and dispersion of pollutants in surface and ground water systems; Hydraulically interconnected streams/rivers and ground water systems as aid to contaminants transport; Remediation techniques on polluted land; Effect of pollution on land, vegetation and humans; Water quality parameters, water quality maps for rivers, ground water and top soils.

EVE 907 Advanced Air and Noise Pollution Control (3 Units)

Sound properties; Analysis of sound wave and computation of decibels; Noise measurement and effects of noise pollution; Noise types. FEPA and 150 guidelines; Annoyance calculations, introduction to vibrations, vibration standards, control noise and vibration; Mechanism of hearing and impairment; Highway traffic noise modeling.

ETM 908 Advanced Environmental Modeling and Simulation Techniques (3 Units)

Pollution monitoring, modeling and prediction; Review of field surveys for data collection; Data Analysis, model calibrations, verification and prediction; Case study on noise pollution in Nigeria, air pollution studies, and water pollution studies; Pollution legislation and economic evaluation; Environmental assessments and audits; Economic evaluation of polluted environment, costs and benefits, risks and uncertainty, contingency planning.

ETM 909 Advanced Studies in Remediation and Environmental Assessment Techniques (3 Units)

This course is designed to equip students, professionals, Engineers, Technical personnel and managers of manufacturing industries with basic understanding and skills to carry out environmental assessment and audit. This course outline is as follows:

Principles of environmental field studies and environmental assessment methodologies; Strategic environmental assessment and Life Cycle analysis; Site selection, sample collection, sample treatment, sample handling and sample integrity; Environmental Impact Assessment, Process and practice in Nigeria; Environmental Audits, Post Impact Assessment and Impact Mitigation Monitoring; Methods of investigating and assessment of contaminated soil and water;

Remedial Techniques for contaminated soil and water; Best principles of environmental chemistry, microbiology and laboratory analysis.

EVE 910 Seminar (6 Units)

The seminar will provide an opportunity for the in-depth study of current issues in Environmental Engineering and Management. Each student will be expected to present a paper that will be discussed on selected current issues related to Environmental Engineering and Management.

Guest lecturers from both the department and the industry will be invited to give seminar lectures on current issues in Environmental Engineering and Management.

EVE 920 Thesis (6 Units)

This is a directed research on current problems in environmental engineering and management. Research methodology will be used for scientific investigation which will lead to a written thesis.

ACADEMIC STAFF LIST

S/No	Name	Qualification	Field of Specialization	Designation
1	Nwaogazie Ify, L.	B.Sc., M.Sc. (Kansas), PhD (Oklahoma State), FNSE, R.Eng (2455)	Hydrology, Water Resources and Mathematical Modeling	Professor
2	Ogbonna, Joel	B.Tech. (UST), M. Sc. (Uniben), PhD (UST), R.Eng.	Drilling and Environmental Engineering	Professor
3	Nwosu, H.U.	B.Sc. M.Sc, PhD (Texas), M. BA (Oklahoma), MNSE, R.Eng (98,52)	Applied Mechanics and Production Engineering	Professor
4	Uyigüe, L.	B.Eng. (UPH), M. Eng (Benin), PhD, R.Eng (15616)	Polymer Engineering	Reader
5	Otaraku, J.I.	M.Sc (Volgograd), PhD (Moscow), AIChE	Reaction and Fine Chemical Engineering	Reader
6	Ugbebo, J	M.Eng, PhD (UPH), MNSE, R.Eng ()	Environmental Engineering	Reader
7	Ossia, C.V.	B.Tech. (RSUST), M.Tech., PhD (Korea), R.Eng (10375)	Mechanics and Tribology	Reader
8	Momoh, Yussuf	B.Sc., M.Sc, PhD (Benin)	Environmental Engineering	Senior Lecturer
9	Sule, S.	B.Eng. (ABU), M. Eng. (UNN), PhD (FUTO), R.Eng (R 27,606)	Structural Engineering	Senior Lecturer
10	Big-Alabo, A	B.Eng. (UPH), M. Sc. Mech and Mgt Eng (Glasgow), PhD (Glasgow), R.Eng	Applied Mechanics/Dynamics	Senior Lecturer
11	Demuodeke, E.O.	B.Eng. , M.Eng (UPH), PhD (UK), R.Eng (22274)	Energy and Thermofluids	Senior Lecturer
12	Achadu, M.A.	B.Eng. (MINNA), M. Eng. (UPH), PhD (Benin), R.Eng	Chemical Engineering	Senior Lecturer

FACULTY OF MANAGEMENT SCIENCES

POST-GRADUATE DIPLOMA PROGRAMME (PGDP)

1. Introduction

The basic purpose of the post-graduate diploma programme (PGDP) is to prepare qualified men and women whose previous training are deficient in business courses, for entry into the Faculty's Master of Business Administration MBA

programme. It provides the basic courses in Economics, general business administration, finance, marketing and accounting which may enable graduates of the programme to gain entry into the already existing regular MBA programme of the Faculty or into another MBA programme in other higher institutions. Successful completion of the programme with (3.5) CGPA qualifies a candidate to apply for the admission into any of the specialized area of the Faculty's MBA programme in; Management, Finance, Marketing and Accounting.

2. Duration of the PGD

The post-graduate diploma degree programme is designed to be completed in one-year 12 calendar months and maximum of 24 calendar months of full-time studies. The year is made up of two semesters and classes may be offered on regular and part-time basis. Part-time students may complete the programme in three semesters in 12 calendar months.

3. Admission Requirements

The PGD programme is designed to prepare candidates for admission into Faculty's regular full time and part-time MBA programmes and as a terminal post-graduate diploma degree. All candidates for the PGD programme are required to satisfy the following conditions before they are admitted into the programme.

(a) Previous Training

Candidates for the PGD programme must be holders of the following qualifications:

- (1) B.Sc. honours degree of the University of Port Harcourt or any other University recognized by the Senate in the Engineering, Physical and Health Sciences or Humanities.
- (2) Finals of ICAN, ACA, ACCA, and other acceptable professional bodies.

(b) All other conditions that apply to other PGD in the University of Port Harcourt will apply.

4. POST GRADUATE DIPLOMA PROGRAMME COURSES

The following courses must be passed by all PGD students before they can obtain the degree.

First Semester

Course Code	Course Title	Credit
FMS 700	Business and Environment	3
FMS 791	Quantitative Methods of Business	3
FMS 792	Business Statistics	3

EMS 793	Business Economics	3
FMS 794	Financial Accounting	3
Total		15

Second Semester

Course Code	Course Title	Credit
EMS 795	Intermediate Marketing	3
FMS 796	Management Theory	3
EMS 797	Financial Management	3
EMS 798	Business Policy	3
FMS 799	Elective	3
Total		15
Grand Total Credits		30

5. ELECTIVE

The elective course is designed to allow some flexibility into the PGD. The student is given a chance to take a second course in his chosen area of business.

- (1) Accounting PGD students may take as elective: Cost and Management Accounting.
- (2) Finance Students may take Investment Analysis
- (3) Marketing students may take Consumer Behaviour.
- (4) Management students may take Comparative management.

PART-TIME PGD COURSES

First Semester

Course Code	Course Title	Credit
FMS 790	Business and Environment	3
FMS 791	Quantitative Methods for Business	3
FMS 792	Business Statistics	3
Total		9

Second Semester

Course Code	Course Title	Credit
EMS 793	Business Economics	3
FMS 794	Financial Accounting	3
FMS 795	Intermediate Marketing	3
Total		9

Third Semester

Course Code	Course Title	Credit
FMS 796	Management Theory	3
EMS 797	Financial Management	3
EMS 798	Business Policy	3
FMS 799	Elective	3
Total		9

6. Course Description

FMS 790: Businesses and Environment

The aim of this course is to provide an overview of the business world. Topics include the nature and scope of business, business systems and environment, economic and social objectives of business organization, functional areas of business, public enterprises and problems of Nigerian business enterprises.

FMS 791: Quantitative Methods for Business

This course will provide students with the set of mathematical models which are directly applicable to situations in business and government. The topics will include discrete and trade of analysis, forecasting, decision theory, network analysis, inventory concepts, queuing models etc.

FMS 792: Business Statistics

The course provides the application of statistical methods to business. Topics covered will include: frequency distribution measures of central tendency, variation, probabilities, interference non-parametric methods, correlation etc.

FMS 793: Business Economics

This course examines the basic concepts, techniques and practical applications of micro and macroeconomics. Topics covered will include Basic Concepts of economics, subject-matter, economic systems, problems, and activities as they apply to Business decision, functional relationships, demand & supply and elasticities; money in the economic process and financial environment of business; theory of the firm, consumer resource allocations, cost, working of the economic system, government monetary and fiscal measures, inflation, national income, unemployment growth. International economic transactions of business and business investment decisions.

FMS 794: Financial Accounting

This course will provide basic concepts about financial accounting. Topics covered will include nature of financial reporting, income statement, balance sheet, accounting records, measurement of income, costs and price level changes, asset evaluation and accounting information systems.

FMS 795: Intermediate Marketing

This course will provide basic concepts in the exchange process, Ac working of the markets, marketing mix decision-product, price, physical distributions, other topics include service marketing and international marketing programmes.

FMS 796: Management Theory

This course will examine the concepts and the structure of organizations, principles and practice of management organization theories, process of decision making management functions, resource management and work place communication systems.

FMS 797: Financial Management

The course outlines the concepts of financial management and decisions and responsibilities of financial managers, tools of financial planning and financial analysis, working capital management; capital structure; business financing valuation and dividend policies; capital budgeting, cost of capital, capital asset pricing model and corporate policy; mergers & acquisitions business failure and corporate bankruptcy, etc.

FMS 798: Business Policy

This course will provide an integrative view of business operations and decision making. Interconnected business accounting, marketing, management and financial problems using both theory and case methods will be examined and policy solutions sought complex business problems will be identified, solved and control measure set in motion.

FMS 799: Elective

The course is designed to give the student the opportunity to take a second course in his specific area of study in Business discipline. The elective courses are identified in section 5 above.

7. Administration of PGD Programme

The PGD programme of the Faculty of Management Sciences is administered on a full-time and part-time basis. To be eligible for the award of the PGD of the University of Port Harcourt, the candidate must satisfy the following conditions.

1. The candidate must be registered in the programme for twelve calendar months of study.
2. The candidate must complete 30 semester credits of course work with a 'C' average and three of those credits must be from the elective course determined by the student's department in the Faculty of Management Sciences.
3. The candidate must demonstrate a good general knowledge of basic business principles, and good communication ability.
4. There is no provision for a probation, deferment etc, for the programme. Also no course offered in the PGD programme shall be used as part of credit load courses in the MBA programme.

THE MASTERS IN BUSINESS ADMINISTRATION (MBA)

Introduction

The MBA is the Masters in Business Administration Degree programme of the Faculty of Management Sciences of the University of Port Harcourt. The programme was established by the University Senate since 1980 in the Graduate School of the faculty of Management Sciences.

The MBA programme is designed to prepare men and women for academic positions in higher institutions in the country. It will also prepare graduate for various positions in management and other administrative positions in business, government and other organizations.

2. Purpose

The basic purpose of the MBA programme is to prepare qualified men and women for the MBA degree in the various areas of business administration namely:

- 1) Accounting
- 2) Management
- 3) Marketing
- 4) Finance

The programme seeks to develop effective managerial skills among candidates with which to recognize, analyse and solve organizational problems, utilizing, modern concepts and methods for running complex organizations. The programme consists of selected courses from all the disciplines in business administration and are co-ordinated in a way that they may be directed towards the preparation for further graduate work in business administration.

3. Admission Requirements

The MBA programme is open to any person who satisfies the following conditions.

- 1) Satisfactory evidence of educational attainment and scholarship as indicated by
 - a) B.Sc. IS Class honours in Business Administration or
 - b) B.Sc. 2 Class upper division in Business Administration or acceptable 2 class CGPA
 - c) A 3.5 points pass in the Faculty of Management Post Graduate Diploma Programme.
- 2) Strong evidence of intellectual ability and maturity as shown by three letters of recommendations and other related documents.

3. The MBA Curricula

The programme is divided into two sections. The first section contains a set of core courses, which all MBA students must take in their first year of study.

The second sections of courses are the specialized departmental courses requirements. There are at least five departmental courses plus an MBA project-seminar in the candidates' area of specialization.

4.1 MBA CORE COURSES (FULL-TIME)

First Semester

Course Code	Course Title	Credit
FIN 800	Managerial Economics	3
ACT 801	Managerial Accounting	3
MGT 802	Information Systems	3
MGT 803	Advanced Statistics and Methods	3
MGT 804	Business Law	3
SGS 801.1	ICT & Research Method	2
Total		17

Second Semester

Course Code	Course Title	Credit
MGT 805	Advanced Management Theory	3
MGT 806	Marketing Management	3
FIN 807	Advanced Corporate Finance	3
MGT 808	Business Policy	3
MGT 809	Research Methodology	3
SGS 802.2	Entrepreneurship & Management	2
Total		17

4.2 CORE COURSE DESCRIPTIONS

FIN 800 Managerial Economics

This reviews basic micro and macro economic theories like theory of the firm, resource allocations, pricing and cost structures, the working of the economy, national income, real, monetary, and labour market equilibria and managerial imperatives. Money Supply & demand dynamics and business decisions, monetary and fiscal policy and role of Government. Courses includes economic optimization, market supply and demand functions, price elasticity of demand and estimation, production cost analysis, economics of scale and capital budgeting. Application of these economic concepts and models to business decisions.

ACT 801: Managerial Accounting

The course applies accounting information as a management tool. Topics include cost accounting related to decision making, cost accumulation principles, analysis and control systems, internal cost transfers, pricing models and measurement problems in evaluating performance.

MGT 802: Information Systems

The course is an appreciation of computerized data processing of Business activities. Topics covered include: systems analysis, fact finding techniques, fact recording data analysis, dialogue design, Input/Output design analysis and data control.

MGT 803: Advanced Statistics! Quantitative Methods

This is the application of mathematical models to business activities. Inferential statistical application to business decision making. Topics covered include:

Decision making theory, linear programming, inferential statistics sampling, estimation, hypothesis testing, etc. also non-parametric distribution. Spearman rank correlation, the Runs tests, the Mann-Whitney U- test, etc. regression and correlation analysis, Times Series Analysis, Index numbers, etc. will also be covered.

MGT 804: Business Law

The course reviews Nigerian business Laws including laws of contract, forms of contract and terms of contract, law of agency formation and termination. Negotiable instruments. Bills of exchange, promissory notes, sale of goods, hire purchase and insurance.

MGT 805: Advanced Management Theory

The course evaluates the basic theories and practice of management. Topics covered include- theories on organizational framework, the development of the body of management thought, the contribution of various schools of thought in management, group dynamics and the process of decision making, managerial functions, communication system and development of management skills in contemporary management practice.

MKT 806: Marketing Management and Policy

This course is the study of managerial aspects of marketing. Topics covered include - marketing concepts, marketing management process, the behaviour of markets, demand measurement, forecasting, and marketing mix decisions and policy implications.

FIN 807: Advanced Corporate Finance

This course explores the frontiers of financial management of business corporations with emphasis on the applications of financial models in corporate decision-making and policy. The coverage includes concepts and tools of corporate financial decisions, financial planning and policy, valuation models, working capital models, capital structure models, capital budgeting models, special problems of capital budgeting; asset pricing models, dividend policy, business

combination models, cost of capital models, corporate bankruptcy problems, derivatives and financial engineering and financial environmental dynamics.

MGT 808: Business Policy

This course covers current managerial decision process in organizations. Topics include business opportunities, mission and development of corporate strategy, organization competence, resource allocation and integrated business effectiveness using product, price, management process and policy controls.

MGT 809: Research Methodology

The course is to acquaint students with basic principles of research design, methods of data collection and analyses, analytic communication skills, hypothesis testing, sampling procedures and parametric procedures.

11. SPECIALIZED/DEPARTMENTAL MBA COURSES

The following courses are selected for each of the business disciplines Accounting, Marketing, Management and Finance in order to complete the departmental requirements for the MBA. The courses are:

(A) ACCOUNTING

Course Code	Course Title	Credit
ACT 802	Advanced Cost Accounting	3
ACT 802	Company Law	3
ACT 804	Auditing	3
ACT 805	Taxation	3
ACT 806	Seminars in Accounting	3
ACT 809	MBA Project	6
	Total	21

(B) FINANCE

Course Code	Course Title	Credit
FIN 832	Investment and Portfolio Management	3
FIN 833	Banking Theory and Management	3
FIN 834	Public Finance	3
FIN 835	Insurance Management	3
FIN 836	Seminar in Finance	3
FIN 839	MBA Project	6
	Total	21

(C) MANAGEMENT

Course Code	Course Title	Credit
MGT 812	Production Management	3
MGT 813	Advanced Organisation Behaviour	3

MGT 814	Human Resources Management	3
MGT 815	Organisation Development	3
MGT 816	Seminar in Management	3
MGT 810	MBA Project	6
	Total	21

(D) MARKETING

Course Code	Course Title	Credit
MKT 822	International Marketing	3
MKT 823	Promotions and Sales Management	3
MKT 824	Marketing Research	3
MKT 825	Advanced Marketing Strategy	3
MKT 826	Seminar in Marketing	3
MKT 829	MBA Project	6
	Total	21

(D) PART-TIME MBA

First Semester (Year 1)

Course Code	Course Title	Credit
FIN 800	Managerial Economics	3
ACT 801	Managerial Accounting	3
MGT 802	Information System	3
	Total	9

Second Semester (Year 1)

Course Code	Course Title	Credit
MGT 803	Advanced Statistic and Methods	3
MGT 804	Business Law	3
MGT 805	Advanced Management Theory	3
	Total	9

First Semester (Year 2)

Course Code	Course Title	Credit
MKT 806	Marketing Management	3
FIN 867	Advanced Corporate Finance	3
MGT 808	Business Policy	3
	Total	9

Second Semester (Year 2)

Course Code	Course Title	Credit
MGT 809	Research Methodology	3
MGT 812	Production Management	3
MGT 813	Advanced Organizational Behaviour for Management Students	3
ACT 802	Advanced Cost Accounting	3

ACT 803	Company Law	3
MGT 809	Research Methodology for Accounting Students	3
	Total	9

MGT 809 RESEARCH METHODOLOGY

MKT 822	International Marketing	3
MKT 823	Promotions and Sales Management for Marketing Students	3
	Total	6

MGT 809 RESEARCH METHODOLOGY

FIN 833	Banking Theory and Management	3
FIN 834	Public Finance for Finance Students	3
	Total	6

First Semester (Year 3) Management

Course Code	Course Title	Credit
MGT 814	Human Resources Management	3
MGT 815	Organization Development	3
MGT 816	Seminar in Management	3
	Total	9

ACCOUNTING

Course Code	Course Title	Credit
ACT 804	Auditing	3
ACT 805	Taxation	3
ACT 806	Seminar in Accounting	3
	Total	9

MARKETING

Course Code	Course Title	Credit
MKT 824	Marketing Research	3
MKT 825	Advanced Marketing Strategy	3
MKT 826	Seminar in Marketing	3
	Total	9

FINANCE

Course Code	Course Title	Credit
FIN 834	Public Finance	3
FIN 835	Insurance Management	3
FIN 836	Seminar in Finance	3
	Total	9

2nd Semester (Year 3)

MBA Project

DEPARTMENT OF ACCOUNTING

INTRODUCTION

The Postgraduate Programme in the Faculty of Management Sciences at the University of Port Harcourt have been designed to help people cope with a rapidly changing modern society. The management arts and sciences will assume increased importance as the years pass. This rapid rate of change will complicate man's social and organizational problems and require students of Management Science to adapt their knowledge and skills to organizational problems which do not yet exist.

To meet these challenges, the department of Accounting has introduced post graduate programmes (MBA, PGD, MSC and PhD) in which students learn a framework of theoretical concepts and develop a set of basic analytic tools which enable them to identify the issues. Thus, the uniqueness of these programmes is its emphasis on quantitative and analytical skills for creative decision making in the relevant spheres of industry, administration academic/research.

History of Post Graduate Programme in Department of Accounting

Post graduate studies in Accounting started under the erstwhile graduate school of Business Administration which commence in 1980 with Professor Lucius as the first Dean. The Graduate School of Business Administration Offered four (4) major MBA Programmes – Accounting, Finance, Management and Marketing in 1984, the Graduate School of Business Administration metamorphosed into the Faculty of Management Sciences to enable it commence under graduate programmes in the four stress areas.

The above move was principally informed by the fact that undergraduate studies in the above discipline were not offered in then graduate school of Business Administration and also, to align with the University-wide Faculty Structure. Adoption of the faculty structure paved way for introduction of more post graduate programmes in the department as follows;

PGD Accounting	1998/99
MSC Accounting	2009/10
PhD Accounting	2006/07
DBA Accounting	2014/15

Vision of the Department of Accounting, University of Port Harcourt:

The vision of the department is to become a top rated department among Nigeria and other Universities actively involved in educating

students, training and research activities thereby, serving as a reference point for other Universities and higher institutions of learning.

Mission of the Department of Accounting,

University of Port Harcourt:

The mission of the department is to provide knowledge to our students and potential members of the public in an organized and most articulate manner, which will accelerate the dissemination of the knowledge of finance discipline and contribute to the growth of the private and public sectors of the Nigerian economy.

Shared Values of the Department:

The shared values of the department can be expressed in terms of the following – Quality Teaching, Efficiency, Research, Training and Publications.

Philosophy of the MSC Accounting Programme:

The philosophy of the MSC accounting Programme is to broaden and deepen the intellectual exposure of students in the major areas of Accounting and particularly, develop their capability to undertake in-dept graduate research in Accounting.

The Aims/Objectives of MSC Accounting Programme

The objectives of the MSC Accounting Programme are to:

- Develop requisite intellectual and conceptual foundation in students that will permit meaningful participation in the discussion or resolution of problems that confront Accounting and Reporting practices.
- Equip students with the requisite analytical and quantitative skills for undertaking meaningful research that will encourage maximum contribution of the Accounting profession to national, social and international development of economics.
- Develop the skills of logical reasoning and critical analysis so as to improve students' capacity to formulate sound financial and reporting policies and strategies.

Structure of the PG.D Accounting Programme:

The structure of courses offered for the PGD Programme is shown below;

Course structure of PGD Accounting Programme the PGD Accounting Programme requires a minimum of 30 credit Units made up as follows.

Unit

(a) Ten (10) Core courses of 2 Credit unit each	20
(b) Three courses from Area of Concentration 2 Credit Each	6
(c) Research Project	4
Grant Total	30

PGD Accounting Programme Course List

Full Time

1st Semester, Year 1

Course Code	Course Title	Credit Unit
ACT 701	Business and Environment	2
ACT 702	Quantitative Methods of Business	2
ACT 703	Principles of Taxation	2
ACT 704	Principles of Microeconomics	2
ACT 705	Financial Accounting	2
ACT 706	Introduction to cost and Management Accounting	2
ACT 707	Accounting Research methodology	2
ACT 708	Principles of Management	2
	Subtotal	16

2nd Semester, Year 1

Course Code	Course Title	Credit Unit
ACT 708	Auditing Principles and Practice	2
ACT 709	Principles of Finance	2
ACT 710	Public Finance	2
ACT 711	Public Sector Accounting	2
ACT 712	Computer Application M Accounting	2
ACT 714	Research Project	2
	Gr and Total	14

PART TIME

First Semester Year 1

Course Code	Course Title	Credit Unit
ACT 701	Principles of Accounting	2
ACT 703	Principles of Taxation	2
ACT 702	Quantitative Techniques	2
ACT 704	Principles of Microeconomics	2
	Total	8

Second Semester Year 1

Course Code	Course Title	Credit Unit
ACT 713	Principles of Macroeconomics	2
ACT706	Introduction to cost and Management Accounting	2
ACT 707	Accounting Research Methodology	2
ACT 708	Principles of Management	2
	Total	8

First Semester Year 2

Course Code	Course Title	Credit Unit
ACT 708	Auditing Principles and Practice	2
ACT 709	Principles of Finance	2
ACT 710	Public Finance	2
ACT 711	Public Sector Accounting	2
	Total	8

Second Semester Year 2

Course Code	Course Title	Credit Unit
ACT 712	Computer Application in Accounting	2
ACT 714	Research project	6
	Total	8
	Grand Total	32

Admission Requirements

Postgraduate Diploma Programmes in Accounting

Provided the matriculation requirements are satisfied;

- Five credit passes including English Language and Mathematics at the ordinary Level ('O' level).
- Relevant Bachelor's Degrees not lower than third Class Division from recognized Universities.
- Bachelors Degrees with at least second class lower Division in area not related to Administration may be considered.
- Higher National Diploma at upper credit level.
- Relevant professional qualifications.

PGD (Accounting) Description of Courses/Contents/Specification

ACT 701: Principles of Accounting

Accounting and Auditing the basic principles and concepts of accounting in the private

business enterprises: book keeping process. Elementary theory of accounts: basic practices of financial, cost and management, basic theory of auditing, internal and external.

ACT 703: Principles of Taxation

Basic concepts in taxation: elements of tax, formal and effective incidence of tax, tax shifting, direct and indirect taxes, tax shifting welfare effect of taxation, criteria to be observed in choosing an equitable tax. Distribution of the burden of taxation.

ACT 707: Accounting Research methodology

The course is designed to improve the ability of students to carry out empirical research and to evaluate published research. Topics covered include the nature of scientific research, theory building, and concept definition, formulating hypotheses, validity and reliability, measurement and scaling methods, concepts, and problems in data collection and sampling, criteria for causal inferences, studies and control groups, considerable time will be devoted to report writing including editing, foot noting, etc.

ACT 704: Principles of Microeconomics

Economics system and organization, demand and supply, individual consumer behavior, the utility and indifference curve approaches. Market classifications, the principles of production, the firm and perfect competition, pure monopoly, monopolistic and oligopolistic competitions, pricing and employment of resources.

ACT 711: Public Sector Accounting

Introduction to public sector Accounting – distinction between public private sectors, basic accounting for not-for Profit (NFP), classification of NFP, basic characteristics of governmental accounting. Structures of governmental accounting in Nigeria. The treasury audit department, consolidated revenue fund, capital and development fund, fund accounting system and standardized uniforms for transactions. Decision making and planning and control of public fund – application of costing methods, budgeting procedures, the use of audit department accounting for local government, educational and health institutions. Planning, Programming and Budgeting System (PPBS). Recent developments and issues, the public sector – implication of Nigeria’s membership in ECOWAS, effect of restructuring public sector etc.

ACT 713: Principles of Macroeconomics

The emphasis in this course is on the macro, or aggregative aspect the economy. Topics include National Income Account; the Determination of the Level of Aggregate Output, Employment and Prices; the Monetary System: Monetary and Fiscal Policies; Economic Growth; and International monetary Economics.

ACT 706: Introduction to Cost and Management Accounting

Nature, scope and functions of cost and management accounting. The principle underlying the preparation and presentation of cost accounts for various types of businesses. The elements of costs. Cost accounting for materials, labour, overheads and equipment. The different meanings of costs, viz: historical, marginal, average, etc. Costing methods: job and process cost accounting, elements of marginal costing and budgetary control, double entry accounts for cost control.

ACT 709: Principles of Finance

An introduction of flow of funds analysis and the concept of cash flow as applied to the firm.

ACT 708: Auditing Principles and Practice

The nature and purpose of an Audit. The role of internal and external audits, reporting responsibilities, appointment dismissal and resignation of auditors. The concept of “true and fair view, independence of auditors”. Relationship of auditors to directors, shareholders and other financial statements users. Auditing planning – initial review of accounting system, evaluation of internal control systems and procedures – couching of accounts, verification of assets, sampling technique, flow charting, stock taking procedures, letter representation. The audit Report – statutory requirements for audit report (Companies Act, 1990). Types of audit reports. Professional requirements, duties and power under statute and case law independence and ethnical consideration.

ACT 712: Computer Applications in Business

Introduction to basic programming, Data types, Constant and Variables, Statement types, Assignment statements, Input – Output statements, Control statements.

ACT 710: Public Finance

Federalism and public finance, direct and indirect taxation in Nigeria, operation of federal and state finance fiscal system, public debt policy, role of public corporations and marketing boards, role of central bank, commercial and development banks; The budgeting cycle and public expenditure control, budgeting process.

ACT 708: Principles of Management

Principles of organization; classical organization theory human relations school, informal organization; bureaucracy, politics and administration relations; personnel administration, administrative decision -making, control and accountability; organization of job design analysis and staffing.

ACT 714: Research Project

STRUCTURE OF THE MSC COURSE:

The M.Sc programme requires a minimum of 36 credit units made up as follows;

- a Eleven core course of 2 units each = 24
- b Three courses from concentration area of 2 units each =6
- c Thesis =6
- TOTAL =36**

The detailed structure of courses offered for the M.Sc Accounting Programme are presented below:

M.SC ACCOUNTING PROGRAMME FOR FULL-TIME

FIRST SEMESTER YEAR 1

Course Code	Description	Credit Unit
ACT 801	Management accounting theory	2
ACT 807	Financial accounting theory	2
ACT 806	Public sector accounting	2
ACT 813	Economic theory	2
ACT 812	Accounting research	2
ACT 8 11	Corporate finance	2
ACT 802	Accounting information system	2

SECOND SEMESTER YEAR 1

Course Code	Description	Credit Unit
ACT 814	ICT application in accounting research	2
ACT 808	Forensic accounting	2
ACT 815	Oil & gas accounting	2
ACT 809	Accounting standards	2
ACT 803	International accounting	2
ACT 804	Auditing theory	2
ACT 805	Taxation theory and practice	2

YEAR 2

Course Code	Description	Credit Unit
ACT 810	M.Sc Seminar	2
ACT 816	Dissertation	6
TOTAL		36

Note: 1) S/no 1-7 &12-16 are NUC Benchmark courses including core & electives = 36

M.SC PART-TIME

FIRST SEMESTER YEAR 1

Course Code	Description	Credit Unit
ACT 801	Management Accounting Theory	2
ACT 807	Financial Accounting Theory	2
ACT 806	Public Sector Accounting	2

SECOND SEMESTER YEAR 1

Course Code	Description	Credit Unit
ACT 813	Economic Theory	2
ACT 811	Corporate Finance	2
ACT 802	Accounting Information System	2

FIRST SEMESTER YEAR 2

Course Code	Description	Credit Unit
ACT 814	ICT Application In Accounting Research	2
ACT 812	Accounting Research	2
ACT 808	Forensic Accounting	2

SECOND SEMESTER YEAR 2

Course Code	Description	Credit Unit
ACT 815	Oil & Gas Accounting	2
ACT 809	Accounting Standards	2
ACT 803	International Accounting	2

FIRST SEMESTER YEAR 3

Course Code	Description	Credit Unit
ACT 804	Auditing Theory	2
ACT 805	Taxation Theory And Practice.	2
ACT 810	M.Sc Seminar	2

SECOND SEMESTER YEAR 3

Course Code	Description	Credit Unit
ACT 816	M.Sc Dissertation	6
Grand Total Credit Units		36

WORK LOAD FOR M.SC (ACCOUNTING) PROGRAMME

- a) No course shall carry less than 2 credit units
- b) A masters Degree Programme shall have 9 minimum of 36 credit units of workload broken into 30 credit

units of course work and 6 credit units for dissertation.

Admission Requirements:

MSC Accounting Candidates are admitted based on their prior relevant qualifications and experience. MSC candidates are required to have a minimum CGPA of 3.0 on a 5-point scale for B.Sc degree holders in Accounting or equivalent and a minimum CGPA of 3.5 on a 5-point scale for PGD holders in Accounting. In addition a candidate must satisfy the University Matriculation requirement.

MSC ACCOUNTING COURSE DESCRIPTIONS/ CONTENTS/ SPECIFICATIONS:

COURSE DESCRIPTION

ACT 807 Financial Accounting Theory

A review of basic accounting procedures, including the rationale of financial accounting and the economic foundations of accounting generally Elements of the history of accounting working papers and the interpretations of financial statements, including the analysis of working capital and statements of the sources and application of funds and cash flows Generally accepted accounting principles and not income concepts, including the valuation of stock and work-in-progress. The theory and techniques relating to balance sheet categories including cash, debtors, stock, investments, tangible and intangible fixed assets, liabilities and reserves, elements of the impact of price-level changes on financial statements.

ACT 812 Accounting Research

Introduction- The domain of scientific research. Research design and strategy sampling. Activities of research department – model construction. Data-Collecting strategies. The questionnaire. The interview motivation research. Measurement and analysis of data. Report writing. Research in Nigeria. Ethics in management. Business and social responsibility. Research presentations. Quest lecturers.

ACT 811 Corporate Finance

Theory and measurement of business income, finance and growth-investment selection, business valuation, financial planning and budgeting capital structuresources, gearing, cost, financial criteria; new issue market and role of institutions; principles and law; international comparisons.

ACT 804 Auditing Theory

Advanced principles in external and internal auditing, practices and techniques; principles and practices of internal control: the auditor's report audit programme, auditing standards, professional ethics.

ACT 801 Management Accounting Theory

Nature, scopes and purpose of costing. Theory of costing, elements of costing, materials, labour and over-head (in outline only); cost allocation, apportionment; methods of costing. Marginal costing, costing ascertainment cost/profit/volume analysis break even analysis standard costing, profit contribution, mix and yield variances; interpretation of variances and their relationships.

ACT 803 International Accounting

The course is designed for students interested in accounting and financial control of international operations. It involves preparation, transition and analysis of financial statements for companies that have braches of foreign multinational companies.

CGS 814 ICT Application in Accounting Research

Computer, history, system theory, system design and analysis data network, file structure and file organization. Principles of data design. Data manipulation and administration. Methods of data collection and coding and output. Principle of programme stored instructions and languages, model and structured programmes. Memory and backing store, input and output devices, data communication.

ACT 806 Public Sector Accounting

Basic accounting for non-profit organization, basic characteristics of government accounting, structure of governmental accounting in Nigeria; the treasury; audit department; consolidated revenue fund, capital and development fund; planning, programming and budgeting system (PPBS).

ACT 805 Taxation Theory and Practice

The principles, practice and theory of the Nigerian system of income tax, surtax, corporation tax and capital gains tax. Computation and assessments in relation to individuals, partnerships and limited companies. Procedures and practice relative to claims and appeals. Nigerian taxation in relation to foreign taxation.

ACT 802 Accounting Information System

This course is designed to expose students to the practical application of computers to management information processing. The course provides the followed in the utilization of electronic data processing (EDP) system in producing financial and management information, in feasibility studies, system analysis, system design and system implementation for computerized accounting system. Among other things, the course will examine the following issues: Elements of computing mechanical and electronic, types of computers and their applications, computer programming using either COBOL, or FORTRAN, data processing manual and mechanized system, system analysis and design, evaluation and administration of MIS with emphases on computer based systems, meaning of information technology and its application in business finance and management.

ACT 813 Economic Theory

ACT 815 Oil and Gas Accounting

This course aim at introducing the students to the up and down streams of oil activities in Nigeria. Royalties, petroleum task and financial control activities in the oil and gas industry.

ACT 808 Forensic Accounting

This course introduces the students to the investigative aspects of accounting.

ACT 809 Accounting Standards

The aim of this course is to inculcate in the students the understanding the major accounting standards bodies of the world including their history, methods and the standards they set. The Nigerian Accounting Standards Board (NASB) and the Statements of Accounting Standards (SASs), the Financial Accounting Standards Board (FASB-USA) and the Financial Accounting Standards (FASs), the Accounting Standard Board (ASBUK) and the Statements of Standard Accounting Practice (SSAPs); and the International Accounting Standards Board (ISAB) and International Financial Reporting Standards.

ACT 816 M.SC THESIS/DISSERTATION

STRUCTURE OF THE MBA (ACCOUNTING) PROGRAMME

The structure of courses offered for the MBA (Accounting) Programme.

FULL TIME

FIRST SEMESTER, YEAR ONE

Course Code	Description	Credit Unit
ACT 812	Accounting Research	3
ACT 817	Quantitative methods for management	3
ACT 811	Corporate Finance	3
ACT 804	ICT Application in Accounting Research	2
ACT 818	Operations Management	3
ACT 807	Advance Accounting Theory	2
Total		17

SECOND SEMESTER, YEAR ONE

Course Code	Course Title	Credit Units
ACT 819	Marketing Management and Strategy	3
ACT 820	Introduction to Accounting	3
ACT 821	Organizational Behaviour	3
ACT 822	Business and Company Law	3
ACT 823	Environment and Business	2
ACT 824	Taxation and Public Finance	3
Total		17

FIRST SEMESTER, YEAR TWO

Course Code	Course Title	Credit Units
ACT 825	Introduction to General Management	3
ACT 826	Managerial Economics	3
ACT 827	Entrepreneurship	3
ACT 828	Public Sector Accounting	3
ACT 804	Advance Auditing and Investigations	3
ACT 810	MBA Seminar	
TOTAL		15

SECOND SEMESTER, YEAR TWO

Course Code	Course Title	Credit Units
ACT 829	Accounting Policy and Corporate Strategy	3
A CT 830	Advanced Cost and Management Accounting	3

ACT 831	MBA Accounting Language Programme	3
ACT 832	International Accounting	3
ACT 833	Human Resource accounting	2
ACT 834	MBA Dissertation/Project	6
TOTAL	Total	20
		72

PART TIME

FIRST SEMESTER, YEAR ONE

Course Code	Course Title	Credit Units
ACT 812	Accounting Research Methodology	3
ACT 817	Quantitative methods for management	3
ACT 811	Corporate Finance	3
ACT 814	ICT Application in Accounting	2
	Total	11

SECOND SEMESTER, YEAR ONE

Course Code	Course Title	Credit Units
ACT 818	Operations Management	3
A CT 807	Advance Accounting Theory	3
ACT 819	Marketing Management Strategy	3
ACT 820	Introduction to Accounting	3
ACT 821	Organizational Behaviour	3
	Total	15

FIRST SEMESTER, YEAR TWO

Course Code	Course Title	Credit Units
ACT 822	Business and Company Law	3
ACT 823	Environment of Business	2
ACT 824	Taxation and Public Finance	3
ACT 825	Introduction to General Management	3
ACT 826	Managerial Economics	3
TOTAL		14

SECOND SEMESTER, YEAR TWO

Course Code	Course Title	Credit Units
ACT 827	Entrepreneurship	3
ACT 828	Public Sector Accounting	3
ACT 804	Advance auditing and Investigations	3

ACT 810	MBA Seminar	3
	Total Credit Units	12

FIRST SEMESTER, YEAR THREE

Course Code	Course Title	Credit Units
ACT 829	Accounting Policy and Corporate Strategy	3
ACT 830	Advanced Cost and Management Accounting	3
ACT 831	MBA Accounting Language Programme	3
ACT 832	International Accounting	3
TOTAL		12

SECOND SEMESTER, YEAR THREE

Course Code	Course Title	Credit Units
ACT 833	Human Resource accounting	2
ACT 834	MBA Dissertation	6
	Total Credit Units	8
GRAND TOTAL		72

MBA (Accounting) Description of Courses/Contents/Specification

ACT 817: Quantitative Methods for Management

Basic elements of decision making under conditions of uncertainty, set theory; probability theory; classical statistics and statistical decision theory; Linear programming, Primal and dual simplex algorithm, Transportation and network analysis, Concept of queuing theory, games, Statistical Inference and Hypothesis testing, Time series.

ACT 811: Corporate Finance

The principles and procedures underlying financial statement s; financial transactions; alternative accounting statements; tools or analysis of ratios and other quantitative measures; accounting information useful for managerial action; application of information in decision situations. Project Appraisal analysis of investment projects, the impact of risk, tax and inflation, the term structure of interest rates, the cost of capital and target rates of return; capital markets – its efficiency, the role of intermediaries, sources of finance, the borrowing decision and company valuation and optimal portfolio allocation; Capital structure – optical capital structure of firms, mergers and acquisitions and the market for corporate control market efficiency, the

principle of capital structure, gearing and the basics of hedging and international finance.

ACT 818: Operations Management

Issues in operations strategy, process analysis and the use of data and managerial opinion in making effective propositions to address the questions in the cases. Major economic decision, problems of production and operations management; aggregate production and work – force scheduling; multi - plant allocation of product; large scale project control (CPM) and PERT): Production and inventory control; demand forecasting; quality control; and short run job – shop scheduling; the interaction of production problems with those of other functional areas, queuing theory, dynamic programming, multiple regression and correlation.

ACT 819: Marketing Management & Strategy

Perspectives and problems of marketing management in a multi-product firm; the concept and application of strategic planning to business units and functional areas of marketing utilization of current marketing strategy models as aids in strategy formulation, decision processes for product planning, pricing, promotion, distribution and competitive strategy.

ACT 821: Organisational Behaviour

Exposure to essential theories and concepts for Anglicizing managerial decision making; Planning, organizing, directing and coordination, Problems affecting the character and success of the enterprise; the design and implementation of corporate strategy.

ACT 829: Accounting Policy and Corporate Strategy

Conceptual frameworks and models for the analysis of competitive situation and strategic dilemmas; Insight into strategic management; Analyses of external competitive environment, industry structure, value chain dynamics, etc.

ACT 826: Managerial Economics

Application of principles from various fields in economics and business to management decision making; Price mechanism, allocation of resources, profit drivers of the firm revenue and cost drivers, interaction among the market players, firms strategy, understanding market forces, the meaning of competition, pricing and profits, market power – good or evil, playing games I – Competition versus Cooperation, playing games II – Entry and Exit, Firms versus Markets; Make or Buy, auctions and market design, economics of information.

ACT 820: Introduction to Financial Accounting
Accounting Concepts, Construction of

Financial statements – balance sheet, Income Statements, Cash-flow statements, Analysis and Interpretations of financial statements, Element of costing and auditing.

ACT 822: Business and Company Law

Familiarize candidates with the legal aspect of business. Law of contracts, Agency, Hire purchase, carriage of goods, and related laws are examined. The company Act and company and miscellaneous matters decree are examined in depth.

ACT 823: Environment of Business

The basic objective of the course is to examine the legal, legal, social, political and economic framework which business organization must operate in the Nigerian environment. Because of the pervasive influence of globalization and reduction of distances between nations, there value systems, language etc. International business environments will be explored.

ACT 833: Human Resource Accounting

an overview of strategies and management practices in manpower planning techniques; staffing, human resource training and development; performance and systems design; compensation designs and reward management, career planning and employee welfare; Line and staff functions as well as the relationship between personnel department and other departments. Review of current principles and practices of human resources management in the Nigerian and global context.

ACT 812: Accounting Research Methodology

- Introduction to Research Methodology
- Research in Social Sciences
- Research in Physical and Natural Sciences
- Problems of Research in Developing Countries
- Common errors in research
- Research in practice:
 - (a) Problem identification
 - (b) Literature review
 - (c) Materials and methods (methodology)
 - (d) Results (Data Analysis)
 - (e) Discussions
 - (f) Summary, conclusions and recommendations
- Report Writing

ACT 807: Advanced Accounting and Theory

Analyze the Accounting discipline and its purpose; needs of users of accounting information; accounting theory and concepts of income measurement; disclosure requirements for profit and loss statement and balance sheet; amalgamations and reconstruction, consolidated accounts; branch and departmental accounts, current cost

accounting, inflation account; fixed asset valuation; human asset valuation; social responsible accounting.

ACT 804: Advanced Auditing and Investigations

Evolution of auditing, procedures with particular reference to internal control systems, internal audit functions; sampling and statistical techniques; auditing standards and guidelines including exposure drafts; post audit review; audit accounts of solicitors, charitable and other non- trading organizations.

ACT 830: Advanced Cost Management Accounting

Framework of modern management accounting; cost analysis and cost concepts; overheads; product costing and cost concept absorption and marginal costing, attributable cost, relevant cost, buy to make decisions, management audit, transfer pricing critical evaluation of variance analyses profit and cash planning, performance evaluation; motivation and human aspects of accounting.

ACT 824: Taxation and Public Finance

Tax theory, Income tax for individuals, partnership and corporation tax, tax planning and control; sales and company tax, value added tax. The Nigerian tax law. Tax planning in a multinational context. An examination of government operations and its role in economic activity and distribution. Theory of public goods and its optimal distribution.

ACT 827: ICT Application in Accounting

Computer, history, system theory, system design and analysis data network, file structure and file organization. Principles of data design. Data manipulation and administration. Methods of data collection and coding and output. Principle of programme stored instructions and languages, methods and structured programme. Memory and backing store, input and output devices, data communication.

ACT 828: Public Sector Accounting

Basic accounting for non-profit organization; basic characteristics of government accounting; structure of governmental accounting in Nigeria ; the treasury; audit department; consolidated revenue fund, capital and development fund; planning, programming and budgeting system (PPBS).

ACT 832: International Accounting

The course is designed for students interested in accounting and financial control of international operations. It involves preparation, transition and analysis of financial statements for companies that have branches of foreign multinational companies.

ACT 810: Graduate Seminar

Structure of the PhD (Accounting) Programme

The structure of courses offered for the PhD (Accounting) programme is shown below:

PhD ACCOUNTING (FULL TIME)

S/No	COURSE CODE	COURSE DESCRIPTION	CREDIT UNIT	TOTAL COURSES
1st Semester Year 1				
1.	ACT 901	History/Philosophy of Accounting Thought	3	9
2.	ACT 902	Contemporary/issues in Accounting	3	
3.	ACT 903	Advanced Accounting Research	3	
2nd Semester Year 1				
4.	ACT 904	Management Accounting	3	9
5.	ACT 905	Advanced Auditing Theory	3	
6.	ACT 906	Advanced Financial Accounting Theory	3	
1st Semester Year 2				
7.	ACT 908	Environmental Accounting	3	9
8.	ACT 909	Public Sector Accounting	3	
9.	ACT 910	Ph.D Seminar	3	
2nd Semester Year 2				
10.	ACT 911	Advanced Forensic Accounting	3	6
11.	ACT 912	Advanced Tax Strategy	3	
Year 3				
12.	ACT 913	Ph.D Thesis	12	15
13.	ACT 914	Graduate School Seminar	3	
Grand Total				48

PART TIME

S/No	COURSE CODE	CORE COURSES COURSE DESCRIPTION	CREDIT UNIT	TOTAL COURSES
Year 1				
1.	ACT 901	History of Accounting Thought	3	6
2.	ACT 906	Advanced Financial Accounting Theory	3	
Year 2				
3.	ACT 903	Advanced Management Accounting Theory	3	9
4.	ACT 904	Accounting Research Methodology	3	
5.	ACT 911	Advanced Forensic Accounting	3	
Year 3				
6.	ACT 905	Advanced Auditing Theory	3	9
7.	ACT 902	Contemporary Issues in Accounting	3	
8.	ACT 912	Advanced Tax Strategy	3	
Year 4				
9.	ACT 909	Public Sector Accounting	3	9
10.	ACT 908	Environmental Accounting	3	
11.	ACT 907	PhD Seminar	3	
Year 5				
12.	ACT 910	PhD Thesis	12	15
	ACT 914	Graduate School Seminar	3	
Grand Total				48

Admission Requirements:

Candidates for the Ph.D. Programme shall have a Masters degree and should normally have had a minimum CGPA of 3.50 on a 3.50 scale or its equivalent grade. For candidates who obtained their Masters exclusively by research assessment, admission will be based on the quality of their theses. Final selection of candidates will be based on PhD admission interview performance. Also, provided that the University Matriculation requirements are satisfied, Relevant masters degree Matriculation requirements are satisfied, Relevant Masters degree with at least an average of B grade (60%) which includes course work and thesis from a recognized university.

Ph.D (Accounting) Programme course Descriptions/ Contents/ Specifications

ACT 901: History/Philosophy of Accounting Thought

The nature and scope of accounting and its evolution; the accounting function and its relationship with the information systems of organizations. Accounting procedures and systems. Source documents, books of original entry and books of accounts. Double entry book keeping systems, the trial balance, accruals, prepayments and adjustments. Provisions and reserves, classification of expenditure between capital and revenue, methods of recording accounting data -manual and mechanical; manufacturing, trader. Accounting treatment of control accounts and bank reconciliation.

ACT 902: Contemporary Issues in Accounting
Discussion and articulation of recent developments in the accounting literature.

ACT 903: Advanced Management Accounting Theory

This course aims at introducing students to the advanced theories and practice of management accounting in the decision making process.

ACT 906: Advanced Financial Accounting Theory

Further work on advanced company accounts including the accounts of banks and insurance companies, and the Nigerian Insurance Acts. Valuation of goodwill and company shares. Divisible profits and company individuals. Royalty and hire -purchase accounts. Consolidated and other group accounts. Governmental, municipal and public utility accounting, with special reference to Nigerian Organisations. Seminars on accounting systems, including business, governmental municipal and public utility accounting systems.

ACT 908: Environmental Accounting

This course has the aim of inculcating in the students the idea of cost and control processes of the effects of productive activities on the environment.

ACT 909: Public Sector Accounting

Basic accounting for non-profit organization; basic characteristics of government accounting; structure of governmental accounting in Nigeria; the treasury; audit department; structure of governmental accounting in Nigeria; the treasury; audit department; consolidated revenue fund, capital and development fund; planning, programming and budgeting system (PPBS).

ACT 905: Advanced Auditing Theory

Evolution of auditing, procedures with particular reference to internal control systems, internal audit functions; sampling and statistical techniques; auditing standards and guidelines including exposure drafts; post audit review; audit of accounts of solicitors, charitable and other non-trading organizations.

ACT 904: Advanced Accounting Research Methodology

Introduction to Accounting Research Methodology, Research in Social Sciences, Research in Physical and Natural Sciences, Problems of Research in Developing countries, Common errors in research.

ACT 907: PhD Seminar

Each seminar relates to an examination of current issues in the area of specialization in consultation with supervisor. Results of such examinations shall be at the recommendation of the supervisor and the approval of the departmental post graduate sub-committee.

ACT 911: Advanced Forensic Accounting Theory and Practice

This course reviews the role of the forensic accountant, in investigations and audits. Topics covered are the legal environment audit and investigation, dispute resolution and litigation services, information security, financial statement analysis, and tax fraud. Students will merge from the course with an understanding of the roles of forensic accountants and familiarity with their tools and practices.

ACT 912: Advanced Tax Strategy

Contemporary issues of research in taxation. Tax laws and Fiscal Policies and their impact on the economy and society. Overview of Tax Environment, Structure and Administration in Nigeria: issues and challenges arising from Personal Income Tax Laws, Company Income Tax Act, Petroleum Profit Tax Act, Industrial Development (Income Tax Relief) Act, Value Added Tax Laws, Capital Gain Tax Laws, Capital Transfer Tax. Double Taxation Relief and other unfolding events and typical issues such as Tax Review and Reforms.

ACT 910: PhD Thesis

DOCTOR OF BUSINESS ADMINISTRATION (DBA) PROGRAMME IN ACCOUNTING

COURSE STRUCTURE

The DBA in Accounting) Finance and Banking, Management and Marketing programmes require a minimum of 48 credit units made up as follows;

i.	5 General Course	-	15 Units
ii.	6 core courses (3 credit units each)	-	18 Units
iii.	Dissertation	-	12 Units
iv.	DBA Seminar in Accounting	-	3 Units
	Total	-	48 Units

DBA ACCOUNTING (FULL TIME)

1st Semester Year One

ACT 904	Advanced Accounting Research Method
ACT 922	Advanced Management Accounting
MKT 922	Strategic Marketing Management

2nd Semester Year One

FIN 922	Corporate Financial Management Policy
MGT 922	Business Policy and Strategy
FMS 900	Managerial Economics

1st Semester Year Two

FMS 901	Entrepreneurship Development/Management
ACT 901	History and Philosophy of Accounting
ACT 908	Social and Environmental Reporting

2nd Semester Year Two

ACT 906	Advanced Financial Accounting
ACT 926	Advanced Tax Strategies and Fiscal Policies
ACT 927	Advanced Forensic Accounting (Theory and Practice)

1st Semester Year Three

ACT 928	Advanced Auditing/Assurance Services
ACT 929	Advanced Public Sector Accounting

2nd Semester Year Three

- ACT 930 Departmental Seminar in Accounting
ACT 931 DBA Dissertation/Defence

DBA ACCOUNTING (PART TIME)

1st Semester Year One

- ACT 904 Advanced Accounting Research Method
ACT 922 Advanced Management Accounting

2nd Semester Year One

- MKT 922 Strategic Marketing Management
FIN 922 Corporate Financial Management Policy

1st Semester Year Two

- MGT 922 Business Policy and Strategy
FMS 900 Managerial Economics

2nd Semester Year Two

- FMS 901 Entrepreneurship Development/Management
ACT 901 History and Philosophy of Accounting

1st Semester Year Three

- ACT 908 Social and Environmental Reporting
ACT 906 Advanced Financial Accounting

2nd Semester Year Three

- ACT 926 Advanced Tax Strategies and Fiscal Policies
ACT 927 Advanced Forensic Accounting (Theory and Practice)

1st Semester Year Four

- ACT 928 Advanced Auditing/Assurance Services
ACT 929 Advanced Public Sector Accounting

2nd Semester Year Four

- ACT 930 Departmental Seminar in Accounting
ACT 931 DBA Dissertation/Defence

COURSE DESCRIPTION

ACT 901: Philosophy of Accounting

The nature and meaning of accounting, the various postulates and concepts that underpin development of accounting thought. The ontology and epistemology that tries to justify conservative accounting.

ACT 908: Social and Environmental Accounting

Social and Environmental effects of organization's economic actions to particular interest groups within society. Purpose of social accounting. Corporate accountability and management control purpose. Self-reporting and third party audits, Cost structure and environmental performance reporting. Environmental Management Accounting and internal reporting practices.

ACT 904: Advanced Accounting Research Methods

Fundamental of experimental and non-experimental accounting research and their applications to the study of accounting problems. Issues will also cover construct, internal and external validities, survey and single-case research designs in accounting.

ACT 906: Advanced Financial Accounting

This course covers more advanced treatment of fundamentals of financial accounting, with preparation of financial statements of corporate organisations in conformity of IFRS and IAS. It reviews dissolutions of partnership accounts and amalgamation, advanced incomplete records, advanced treatment of accounts non trading concern, published financial statements, purchase and sale of business accounts, royalty accounts, contract accounts and other specialised accounts.

ACT 903: Advanced Management Accounting

The aim of this course is to up-grade the analytical skills of the students and to identify research issues in management accounting, budgeting theory, learning curves, forecasting, variance analysis, profit analysis and cost allocation techniques, the agency-theoretic approach in management accounting.

ACT 912: Advanced Tax Strategies and Fiscal Policies

Contemporary issues of research in taxation. Tax laws and Fiscal Policies and their impact on the economy and society. Overview of Tax Environment, Structure and Administration in Nigeria: issues and challenges arising from Personal Income Tax Laws, Company Income Tax Act, Petroleum Profit Tax Act, Industrial Development (Income Tax Relief) Act, Value Added Tax Laws, Capital Gain Tax Laws, Capital Transfer Tax. Double Taxation Relief and other unfolding events and typical issues such as Tax Review and Reforms.

ACT 911: Advanced Forensic Accounting Theory and Practice

This course reviews the role of the forensic accountant, in investigations and audits. Topics covered are the legal environment audit and investigation, dispute resolution and litigation services, information security, financial statement analysis, and tax fraud. Students will merge from the course with an understanding of the roles of forensic accountants and familiarity with their tools and practices.

ACT 905: Advanced Auditing/Assurance Services

Information - theoretic approach to auditing, statistical aspects of auditing and fraud, the generation and formulation of audit hypothesis, and heuristic and biases in audit judgments. Forensic audit techniques and the role of the forensic auditor as an expert witness. Financial Performance Reporting under International Financial Reporting Standards (IFRS), guidance on IFRS, corporate governance, audit and professional Financial Reporting Standards (IFRS); guidance on IFRS, corporate governance, audit and professional responsibility reporting; Reporting on impairment of nonfinancial asset, employee, benefits, and going concern. Implications of applying IAS 23 (REVISED) "Borrowing costs". Guidance on impairments for financial assets. Ethics as an integral part of accounting profession

ACT 909: Advanced Public Sector Accounting

This course provides the tools necessary for understanding the principles of fiscal accountability. It will also equip the student with the knowledge of IPSAS (International Public Sector Accounting Standards) with the aim to improve the quality of general purpose financial reporting by public sector entities, leading to better informed assessments of resource allocation decisions made by government, thereby increasing transparency and accountability as well as quality service delivery.

M.Sc. IN TAXATION

Philosophy

M.Sc. in Taxation has been designed to give the best possible preparation for a long and successful global career in taxation. This unique programme will provide a high level academic understanding of contemporary development in Nigeria and international taxation policy and practice.

Alongside traditional accounting subjects the programme cover all aspects of taxation including policy development and implementation and practical operation of tax system in Nigeria.

Objectives

- i. To advance knowledge of the theories and practice of taxation
- ii. To provide students with a thorough understanding of policy issues relating to taxation as well as the technical aspects of the subject.
- iii. To improve competency of tax professional to sustainably manage the ever changing tax world.

Admission Requirements

- i. Candidates seeking admission into M.Sc. (Taxation) programme shall possess a minimum of Second Class Lower Division in Accounting and Economics, or any other relevant degree in Management and Social Sciences Degree from a recognized University may be admitted provided the University Admission Requirements are satisfied.
- ii. HND holders with professional qualification such as ACTI, ACA, CNA, ACIB, ACCA, etc.
- iii. Holders of LLB in law and professional qualifications of chartered institute of taxation of Nigeria (CITN).

Course Structure

The M.Sc. programme requires a minimum of 36 credit units made up as follows:

- | | |
|------------------------------------------|-----------------|
| • Core courses | 26 units |
| • Two courses from area of concentration | 4 units |
| • Dissertation | <u>6 units</u> |
| • Total | <u>36 units</u> |

Duration of Programme

- (a) Full Time: A minimum of twelve(12) calendar months and a maximum of twenty four(24) calendar months
- (b) Part Time: A minimum of twenty four (24) months and a maximum of thirty six (36) months

Course Outline (BMAS)

Tax Practices and Administration
Advanced Statistics
Research Method
Public Sector Accounting I
Public Sector Accounting II
Public Finance/Public Sector Economics
Tax Audit and Investigation
International Comparative Studies of Taxation
Financial Accounting Theory
Tax Laws and Cases
Taxation/Accounting Seminar

Thesis	ACT 823.1	Tax Laws and Cases	2
		Total	14

A Core Courses

	Units
1 Tax Practices and Administration	2
2 ICT and Research Methodology	2
3 Public Sector Accounting I	2
4 Corporate Finance	2
5 Business Policy and Strategy	2
6 Accounting Research	2
7 Tax Law and Cases	2
8 Financial Accounting Theory	2
9 International Comparative Studies of Taxation	2
10 Tax Audit and Investigation	2
11 Marketing Management	2
12 Accounting Seminar	2
13 Management and Entrepreneurship	2
	26

SECOND SEMESTER

Course Code	Course Title	Units
ACT 807.2	Financial Accounting Theory	2
ACT 821.2	International Comparative Studies of Taxation	2
ACT 825.2	Tax Audit and Investigation	2
MKT 801.2	Marketing Management	2
ACT 810.2	Accounting Seminar	2
SGS 801.2	Management and Entrepreneurship	2
ACT 816.2	Dissertation	6
	Total	18

B. Two Courses from area of Concentration (4 units) or Elective Courses

	Units
1 Oil, Gas and Solid Minerals Taxation	2
2 Public Sector Accounting II	2
Revenue Laws, Income Taxation and Indirect Taxation	2
	6

Specialty Courses in M.Sc. Taxation (Two Courses to be Chosen)

Course Code	Course Title	Units
ACT 820	Public Sector Accounting II	2
ACT 827	Oil, Gas and Solid Minerals Taxation	2
ACT 828	Revenue Laws, Income Taxation and Indirect Taxation	2
		4

C. Dissertation 6 units

Grand Total 36

Course Listing (FULL TIME)

FIRST SEMESTER

A Core Courses

Course Code	Course Title	Units
ACT 822.1	Tax Practices and Administration	2
SGS 801.1	ICT and Research Methodology	2
ACT 806.1	Public Sector Accounting I	2
FIN 811.1	Corporate Finance	2
MGT 811.1	Business Policy and Strategy	2
ACT 812.1	Accounting Research	2

M.SC. TAXATION (PART TIME PROGRAMME)

Part time shall run for 4 semesters (2 semesters for 1 year)

**YEAR 1
1ST SEMESTER**

Course Code	Course Title	Units
ACT 822.1	Tax Practices and Administration	2
SGS 801.1	ICT and Research Methodology	2
ACT 806.1	Public Sector Accounting I	2
ACT 812.1	Accounting Research	2
		8

2ND SEMESTER

Course Code	Course Title	Units
MGT 811.2	Business Policy and Strategy	2
SGS 801.2	Management and Entrepreneurship	2
ACT 823.2	Tax Laws and Cases	2
	Total Units	14

NOTE: Lectures shall be on Saturdays only

M.Sc. Taxation Course Descriptions

ACT 806 Public Sector Accounting I

This course covers topics such as: above and below the line items, financial transactions recording in public sector, public accountability and preparation of financial statements, roles of Accountant General, Auditor-General and Public Accounts Committee/National Assembly in the process of public accountability and roles of IPSAC and INTOLSAI.

YEAR 2

1ST SEMESTER

Course Code	Course Title	Units
ACT 807.2	Financial Accounting Theory	2
ACT 821.1	International Comparative Studies of Taxation	2
ACT 825.1	Tax Audit and Investigation	2
FIN 811.1	Corporate Finance	2
	Total Units	8

ACT 807 Financial Accounting Theory

A critical study of the general body of concepts and theory which underlie the measurements, preparation, presentation and interpretation of financial accounting statements with particular emphasis on their (structural) coherence, their interpretational (semantics) validity and their behavioural implications. Topics include approaches to the formulation of theory in accounting, nature of the objectives in financial accounting, history and development of accounting, some problems in the measurement of business income, value and capital, the need for accounting standards and so on. Contemporary proposals for expanding the scope of corporate reports (e.g. human resource accounting, accounting for cost of capital, cash flow accounting, segmental reporting, publication of forecasts, corporation social accounting, environmental accounting and so on) will also be discussed.

2ND SEMESTER

Course Code	Course Title	Units
MKT 801.2	Marketing Management	2
ACT 810.2	Accounting Seminar	2
ACT 816.2	Dissertation	6
	Total Units	18

ACT 810 MSC Accounting Seminars

The candidates are expected to produce three seminar papers in taxation.

TWO COURSES FROM AREA OF CONCENTRATION (ELECTIVE COURSES)

Course Code	Course Title	Units
ACT 820	Public Sector Accounting II	2
ACT 827	Oil, Gas and Solid Minerals Taxation	2
ACT 828.2	Revenue Law, Income Taxation and Indirect Taxation	2
	Grand Total	4
		36

ACT 811 Corporate Finance

This course will cover topics such as: overview of welfare economics; market failure and the rationale for government intervention; public expenditure theory (resource allocation mechanism, public choice theory, theories of public expenditure growth, public expenditure policy in Africa, public enterprise pricing); cost benefit analysis; investment rules and government failures; theory of taxation (overview of a good tax system, the incentive effects of taxation, theory of optimal taxation); tax policy (tax design and structure, tax administration, tax reforms); inter-governmental fiscal relationships (principles of

inter-governmental relations. Assignment of functions: Expenditure and tax assignments. Revenue sharing mechanisms/inter-governmental grants and transfers: the African experience), public debt (Domestic and external debt: causes, management and financing. Overview of external debt in Africa and HIPC initiatives).

ACT 816 Accounting Research

Designed to equip students with the techniques for identifying research problems, planning, executing and evaluating research problems. Topics covered include the nature of scientific research, a review of research process, theory building, advanced study of experimental designs, and analysis; concept of definition, formulating hypothesis, validity and reliability; measurement and scaling methods; concepts and problems in data collection and sampling, criteria for causal inference, studies and control groups, report writing including editing, footnoting etc; statistical inference and regression analysis; analysis of variance, non-parametric techniques.

ACT 820 Public Sector Accounting II

A study of the special problems which arise in the planning and control of financial resources in public sector organisations, government companies, boards and corporations (utilities). Issues examined include, the role of public enterprise procedures for making investments and pricing decisions, and the constraints of these decisions; government budgeting and accounting systems; relationship between public enterprise and government; and the factors which tend to impede performance in this sector. The rationale, problems and prospects of privatization and commercialization of government business will also be considered. International comparisons will be drawn where relevant.

ACT 821 International Comparative Studies of Taxation

This course seeks to deepen students understanding of the more complex problems in international comparative studies of taxation. Topic include: comparison of tax laws of difference economies; double taxation agreement (DTA): taxing rights under DTA; OCED model tax convention; UN model tax convention; International traffic, taxation of e-commerce; tax haven; regional cooperation in tax matters; and mutual assistance in collection of tax.

ACT 822 Tax Practices and Administration

This course seeks to deepen students understanding of the more complex problems of tax practices and administration. Topics should

include: tax planning, problems of enforcement of tax laws and remedies, tax payers census and ascertainment of tax bases. Appeal procedures in details, assessment, collection and recovery procedures. Various tax theories should be covered. Professional ethics and managing a tax practice.

ACT 823 Tax Laws and Cases

This course seeks to deepen students understanding of the more complex problems of tax law and cases. Topics should include: national, state and local government laws such PITA, CITA, PPTA, CGT, VAT, Educational Tax and so on. Decided cases should be examined by the students.

ACT 825 Tax Audit and Investigation

This course seeks to deepen students understanding of the more complex problems of tax audit and investigation. Topics should include: tax auditing principles; planning tax audit and investigation; controlling and recording an audit, interview techniques; audit evidence techniques and procedures; statutory powers of the tax auditors; and tax audit report writing.

ACT 827 Oil and Gas, Solid Minerals Taxation

Upstream oil and gas industry: Participation of foreign controlled companies, the Nigerian content and indigenous companies concept of subsidiary, affiliates and permanent establishment/fixed bases of operations. All aspects of petroleum profit tax, CAP P13 LFN 2004 in respect of upstream operations. Fiscal Regime: JVC, PSC, Service contract, marginal fields, hybrids, MOU, Fiscal arrangements: rent, royalty, taxes, profits and compensation. Regulatory agencies in the oil and gas industries companies income tax: Incentives available to companies engaged in the initialization of associated gas downstream operations. Taxation of mineral sector mining royalty instruments fiscal regimes and types of taxes indirect tax instruments non-tax instruments.

ACT 828 Revenue Law, Income Taxation, Indirect Taxation

Definition, classification and sources of law: Nigerian legal system sources of government revenue federation account, consolidated revenue fund, revenue mobilization, allocation and fiscal commission Act. General principles of Taxation: Definition objective and functions, classification of taxes, division of taxing powers, CIT, ACT, FIRS, SBIR, Local Government Revenue committee, JTB, tax appeal tribunal, PPTA PITA, VAT ACT etc. Taxation of Income/Profit: Taxable income, investment income and others income exempted from tax allowable expenses QCE, Capital allowances, Loss relief, adjustment of

income for tax purposes CGT, VAT, withholding tax. Computation of Tax liability of individuals earned income unearned income, benefits in kind. Income tax aspects of trusteeship education tax customs and excise valuation, tariff classifications, exports outside ECOWAS, licenses, tariff quotas duty reliefs, free zones, excise duties.

MKT 801 Marketing Management

Covers managerial aspects of marketing: Marketing concept, marketing management process and practices, behavior of markets, demand measurement/forecasting, marketing mix decisions and strategies and policy implications etc. also covers marketing and social responsibility and other broad policy issues in marketing.

MGT 811 Business Policy and Strategy

This course deals with conceptual frameworks and models for the analysis of competitive situation and strategic dilemmas; insight into strategic management; analyses of external competitive environment, industry structure, value chain dynamics, etc. Topics covered include business opportunities, mission statements and the

development of corporate strategy, building the organization competence, resource allocation, mergers and acquisition strategies, integration strategies, building organizational competitive strategies for their effectiveness through product pricing techniques, management process and policy control. This course also discusses analysis of industry structures and dynamics, e-business, process reengineering and corporate turnaround. Case writing and analysis are fundamental to this course.

SGS 801.1 ICT and Research Methodology

This course should cover essentials of spreadsheets, Internet technology, statistical packages, precision and Accuracy of estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing, Organization of Research and Report writing.

SGS 801.2 Management and Entrepreneurship

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and management problem solving.

DEPARTMENT OF ACCOUNTING STAFF LIST

S/N	Name	Qualifications	Area of Specialisation	Designation
1.	Ofurum Cliford .O.	B.Sc, (UNIBEN) PGD, (UNN) MBA, (UNN) M.Sc, (FUTO) PhD, (FUTO) ACA, ACTI	Management and Cost Accounting	Professor
2.	Ogbonna Gabriel .N.	B.Sc, (UNIPOINT) MBA, (UNIPOINT) FCA, M.Sc, (FUTO) PhD, (UNIPOINT) ACTI	Financial Reporting and Accounting Information System	Professor
3.	Micah Leyira Christian	B.Sc, (UST) MBA,(UST) PhD, (UNIPOINT) CPA, CNA, ACTI, FCFIA	Public Sector and Management Accounting	Professor
4.	Akani Fyneface Nmecha	B.Sc, (UNIPOINT) MBA, (UST) PhD, (UNIPOINT) CNA	Auditing and Bankruptcy	Professor
5.	Ironkwe Uwaoma I.	B.Sc, (UNIFE) MBA,(UNIPOINT) LLB, B.L, (RSUST) FCNA, FCTI, PhD, FCFIA	Executorship and Bankruptcy, Auditing	Professor
6.	Egbe Solomon	B.Sc, (UNIPOINT) PGD, (UNIPOINT) MBA, (UNIPOINT) PhD (UNIPOINT)	Corporate Reporting and Management Accounting	Reader
7.	Ebere Chukwuma Christopher	B.Sc, PGD, MBA, M.Sc, (UNIPOINT) PhD, (UNIPOINT) M.Ed, CNA	International Accounting, Accounting Research and Taxation	Reader
8.	Nwaiwu Johnson Kem	B.Sc, MBA, (UST) PhD, (UNIPOINT) CNA, ACTI, FCFIA	Taxation and Accounting Research	Reader
9.	Wobo Henry .O.	B.Sc, (UNIPOINT) M.Sc,(UNIPOINT) PhD, (UNIPOINT) ACA, ACTI	Management and Cost Accounting	Senior Lecturer
10.	Asian Asian Umobong	B.Sc, (UST) MBA, (UST) M.Sc, (ABSU) PhD, (ABSU) FCA, ACTI	Tax and Financial Reporting	Senior Lecturer
11.	Joseph Benvolio	B.Sc. (UNIPOINT) M.Sc (UNIPOINT) Ph.D (UNIPOINT)	Public Sector Accounting, Cost and Management Accounting	Lecturer I
12.	Odoemelum .N.	B.Sc, (UNIPOINT) M.Sc, (UNIPOINT) PhD (UNN)	Financial Accounting and Corporate Reporting	Lecturer I
13.	Ojukwu Chioma .O.	B.Sc,(UNIPOINT) M.Sc, (UNIPOINT) PhD, (UNIPOINT) FCA, ACTI,	Taxation, Auditing, Financial Accounting	Lecturer I
14.	Ohimaimen John	B.Sc, (UNIPOINT) MBA, (UNIPOINT) M.Sc, (UNIPOINT) PhD (UNIPOINT)	Financial and Cost Accounting	Lecturer II
15.	Fred Vincent Fred-Horsefall	B.Sc. (RSU), PGD (NOUN), MBA, M.Sc. (UNIPOINT), Ph.D (RSU)	Cost and Management Accounting	Lecturer II
16.	Inuadume Daniel Syder	B.Sc, MBA, M.Sc., Ph.D (UNIPOINT), ACA	Financial Accounting, Sustainability Accounting Information, Tax and Management Reporting	Lecturer II

17.	Miebaka Big-Alabo	B.Sc., M.Sc., Ph.D (UNIPORT), ACA, ACTI	Financial Accounting, International Financial Reporting Standards, Tax and Management Accounting	Lecturer II
18.	Eke, Chidi	B.Sc., M.Sc., Ph.D (UNIPORT)	Financial Accounting	Lecturer II
19.	Chibuike Camillus Ugo	B.Sc., M.Sc. (UNIPORT), Ph.D (IAUE), CAN, ACTI	Financial Accounting, Auditing and Investigation	Lecturer II

DEPARTMENT OF MANAGEMENT

Offers Graduate Degree in the Following Programmes:

- i. Postgraduate Diploma (PGD) in Management Programme - Full-Time & Part-Time week ends
 - ii. Master of Business Administration (MBA) in Management Programme - Full-Time & Part-Time/week ends
 - iii. Master of Science (M.Sc) Management Programmes - Full-Time & Part-Time/week ends
 - iv. Doctor of Business Administration (DBA) Management Programmes- Full-Time & Part-Time/week ends
 - v. Doctor of Philosophy (Ph.D) Management Programmes - Full-Time & Part-Time/week ends
- b) The master of philosophy (M.Phil/MP hi?) degree in relevant discipline/area related to management
 - c) The final selection of candidates for the DBA programme shall be based on the candidate's performance at an interview to be conducted by the Faculty Graduate Committee.

v. Doctor of Philosophy (Ph.D.) Degree

- a) Admission into the Ph.D degree programme is open to candidates who possess a master of science (M.Se) degree in Human Resources Management, Industrial Relations and Personnel Management, Business Administration, Management, Entrepreneurship, operations research or any other relevant discipline/area from a recognized University with at least an average of B grade (60%) which includes coursework and research thesis from a recognized university
- b) The master of philosophy (M.Phil/MPhi/) degree in relevant discipline/area related to management
- c) The final selection of candidates for the Ph.D programme shall be based on the candidate's performance at an interview to be conducted by the Faculty Graduate Committee.

ADMISSION REQUIREMENTS

i. Postgraduate Diploma (PGD) Management

- a) Bachelor's Degrees in any discipline can be admitted into the PGD programme (Third class)
- b) Higher National Diploma. (Upper credit)
- c) Relevant professional qualifications

ii. Master of Business Administration (MBA) Management

- a) Degree in relevant area from a recognized University with minimum of second class lower Division.
- b) A postgraduate diploma in relevant area from a recognized university.

iii. Master of Science (M.Sc) Management

- a) Admission into the M.Sc. degree programme is open to candidates who possess a Bachelor's degree in Human Resources management, Industrial Relations and Personnel Management, Business Administration, Management or any other relevant discipline/ area from a recognized University with minimum of second class lower division.
- b) A postgraduate diploma in relevant area from a recognized university.

iv. Doctor of Business Administration (DBA)

- a) Master of Science (M.Sc) or Master of Business Administration (MBA) in accounting, finance and banking, management and marketing or in an acceptable and closely related area/discipline.with an overall CGPA of 3.5 on a 5.0 point scale or 3M on a 4.0 point scale in their master's programme

In addition to requirements in item i- v listed above, other qualifications that are considered relevant by the Senate of University of Port-Harcourt from time to time may also be acceptable for admission and provided the university matriculation requirements are satisfied.

Note that all candidates must have five credit passes including English, Mathematics and Economics at the 'O' Level, as basic requirement.

DURATION OF PROGRAMME

i) Postgraduate Diploma Programme (PGD)

- a) Full-time Diploma; Minimum of two (2) semesters and a maximum of four (4) semesters.
- b) Part-time Diploma; Minimum of four (4) semesters and a maximum of six (6) semesters

ii) Master of Business Administration (MBA) Programme

- a) The Full-time MBA programme should run for a minimum of four semesters and a maximum of six semesters.

- b) The Part-time should run for a minimum of six semesters and a maximum of eight semesters.

iii. Master of Science (M.Sc) Programmes

- a) Full-time: A Minimum of four (4) semesters and a maximum of six (6) semesters
 b) Part-time: A minimum of six (6) semesters and a maximum of eight (8) semesters

iv. Doctor of Business Administration (DBA) Programmes

- a) Full-time candidates shall be required to spend a minimum of three (3) years and a maximum of five (5) years from the date of first registration. Part-time candidates will be required to spend a minimum of five (5) years and a maximum of seven (7) years.
 b) At the end of the maximum period, depending on the progress report on the candidate, the candidate may have his period of study extended for a defined period or advised to withdraw. A minimum of 12 months (full time) and 18 months (part time) shall be strictly dedicated to course work.

v. Doctor of Philosophy (Ph.D.) Programmes

- a) Full-time: A Minimum of six (6) semesters, a maximum of ten (10) semesters.
 b) Part-time: A minimum of Ten (10) semesters and a maximum of twelve (12) semesters.

A. POSTGRADUATE DIPLOMA (PGD) IN MANAGEMENT PROGRAMME

Philosophy of the postgraduate diploma (PGD) programme

The philosophy of the postgraduate diploma (PGD) programme in management is to provide basic and remedial training in management for the purpose of preparing students for higher studies as well as for managerial positions in the private and public sectors of the economy.

Objectives of the PGD (Management) Programme

The objectives of the postgraduate diploma (PGD) programme in management is to prepare candidates for admission into the Faculty of Management Sciences' regular full-time and part-time programmes at masters level such as MBA and M.Sc., programmes or as a terminal post-graduate diploma qualification. The programme also seeks to develop the competency of students in understanding the basic principles and concepts

of management, encouraging practical utilization of the basic knowledge gained to solve managerial problems and issues of decision-making in both private and public sector organizations.

Structure of the Post Graduate Diploma (PGD) Programme

First Semester

Core Courses	Course Description	Credit Units
MGT 700.1	Principles of Management	2
ACT 700.1	Principles of Accounting	2
POL 701.1	Introduction to Public Administration	2
MKT 700.1	Fundamentals of Marketing	2
FIN 710.1	Principles of Finance	2
FIN 701.1	Principles of Micro Economic	2
MGT 701.1	Research Methodology	2
MGT 704.2	Human Resource Management	2
MGT 703.1	Business Mathematics	2
Total		18

Second Semester

Core Courses	Course Description	Credit Units
FIN. 701.2	Principles of Macroeconomics	2
MGT. 702.2	Comparative Management	2
MGT. 705.2	Computers in Organisations	2
MGT. 706.2	Business Statistics	2
MGT. 707.2	Global Economic Environment	2
MGT. 708.2	Business Strategy and Policy	2
MGT. 709.2	Organisational Behaviour	2
MGT. 710.2	Research Project	4
Total		18

Total = 36 Credits Units (All courses are compulsory)

B. MASTER OF BUSINESS ADMINISTRATION (MBA) IN MANAGEMENT PROGRAMMES

Philosophy of MBA in Management Programme

The philosophy of this programme is to provide graduate education and training in management with a view to broadening the intellectual exposure

of students in the discipline, developing their capacities to take rigorous and quality research in the core areas of the discipline, and applying theoretical understanding and research results to practical management situations and problems.

Objectives of MBA in Management Programme

The objectives of the programme include:

- i. To prepare graduates for various management and administrative positions in both public and private organizations.
- ii. To develop effective managerial skills and know-how among candidates to put them in good stead to effectively recognize, analyse, and solve business related problems.
- iii. To equip candidates with the basic skills of utilizing modern concepts, principles, theories, and methods in running organizations.
- iv. To develop the students' skills in critical thinking and analysis, logical reasoning and research methodologies to improve their capacities to appreciate rigorous and quality research, and formulation of management policies and strategies at the organisational and national levels.
- v. To expose the students to the fundamental courses in management necessary for M.Sc., and Ph.D., in the management programme.
- vi. To update the students in the area of cognate business courses necessary for understanding and analyzing management problems.
- vii. To help the student acquire the necessary skills needed for evaluating business and its environment both within and outside the business.

Structure of the MBA Programme

The programme consists of selected courses from all the disciplines in business administration which is coordinated in a way that they may be directed towards the preparation of candidates for further graduate work in Management.

First Semester

Core Courses	Course Description	Credit Units
MGT 801.1	Business Research Methods	3
MGT 801.1	Quantitative Methods for Management	3
FIN 801.1	Corporate Finance	3
MGT 803.1	Operations Management	3
MKT 806.1	Marketing Management and Strategy	3

ACT 807.1	Introduction to Accounting	3
MGT 804.1	Organization Behaviour	3
SGS 801.1	ICT and Research Methods	2
Total		23

Second Semester

Core Courses	Course Description	Credit Units
MGT 805.2	Business Law	3
MGT 806.2	Environment of Business	3
MGT 807.2	Introduction to General Management	3
MGT 808.2	Corporate Strategy and Policy	3
FIN 802.2	Managerial Economics	3
FMS 801.2	MBA Language Programme	3
MGT 809.2	Human Resources Management	3
SGS 801.2	Management and Entrepreneurship	2
Total		23

Third Semester

ELECTIVES COURSES FOR SPECIALIZED AREAS (student are required to choose one but areas to offer will be subject to availability of academic staff for each academic session)

ELECTIVE COURSES FOR GENERAL MANAGEMENT OPTION:

Core Courses	Course Description	Credit Units
MGT 851.3	Corporate Management	3
MGT 852.3	Human resources Management	3
MGT 851.3	Entrepreneurship Development and Small Business Management	3
MGT 854.3	Comparative Management	3
MGT 855.3	Organizational Behaviour	3
MGT 856.3	International Business	3

ELECTIVE COURSES FOR PRODUCTION/OPERATIONS MANAGEMENT OPTION:

Core Courses	Course Description	Credit Units
MGT 810.3	Production management and problem solving Techniques	3
MGT 811.3	Case Studies in Production and	3

MGT 812.3	Operation Management Facility location methods	3
MGT 813.3	Operations Management	3
MGT 814.3	Strategic Decisions in Production	3
MGT 815.3	Operational decisions in production management	3
MGT 816.3	Project management and feasibility studies	3

ELECTIVE COURSES FOR OPERATIONS RESEARCH OPTION:

Core Courses	Course Description	Credit Units
MGT 817.3	Linear programming	3
MGT 818.3	Mathematical Programming	3
MGT 819.3	Introduction to Stochastic Process	3
MGT 820.3	Applied Queuing Models	3
MGT 821.3	Dynamic Programming	3
MGT 822.3	Theory of Games	3

ELECTIVE COURSES FOR ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT OPTION:

Core Courses	Course Description	Credit Units
MGT 823.3	Entrepreneurship Development	3
MGT 824.3	Small Business Management	3
MGT 825.3	Purchasing and Supplies Management	3
MGT 826.3	Venture Management	3
MGT 827.3	Small Business Accounting	3
MGT 828.3	Feasibility Studies and Marketing Survey	3

ELECTIVE COURSES FOR HUMAN RESOURCE MANAGEMENT OPTION:

Core Courses	Course Description	Credit Units
MGT 829.3	Compensation: Theory and Administration	3
MGT 830.3	Personnel Staff Evaluation	3
MGT 831.3	Industrial Relations	3
MGT 832.3	Organisational Change and Development	3
MGT 833.3	Advanced Organisational Behaviour	3
MGT 834.3	Organizational Design	3

MGT 835.3	Managerial Problem Solving	
MGT 836.3	Seminar in Organisational Behaviour	

ELECTIVE COURSES FOR INTERNATIONAL BUSINESS OPTION:

Core Courses	Course Description	Credit Units
MGT 837.3	International Business	3
MGT 838.3	International Law and Business	3
MGT 839.3	Cross Cultural Management	3
MGT 840.3	Issues in International Business	3
MGT 841.3	International Trade and Finance	3
MGT 842.3	International Business Finance	3

Fourth Semester

Core Courses	Course Description	Credit Units
MGT 836.4	MBA Seminar	3
	Dissertation	6
	Total	9

Total = 73 Credit Units

C. MASTER OF SCIENCE (M.Sc) IN MANAGEMENT PROGRAMMES

i. M.Sc MANAGEMENT

Philosophy of M.Sc. Management Programme

The philosophy of the Master of Science (M.Sc.) programme in management is to provide graduate education and training in management aimed at broadening the intellectual exposure of students in the discipline, develop their capacities to undertake rigorous and quality research in the core areas of management, and also be able to apply theoretical understanding and research results to practical management situations and problems.

Objectives of the M.Sc. in Management Programme

The objectives of the programme include:

- To develop the students' skill in critical thinking and analysis, logical reasoning and research methodologies to improve their capacity in understanding rigorous and quality research, and formulation of management policies and strategies at the organizational and national levels.
- To develop the students expertise in the functional areas of business administration/management so that they can advance the frontiers of management theory and practice and enhance the

- contributions that management as a practical discipline needs to make to the larger society;
- c) To provide critical manpower in the area of management needed for national development.
- d) To expose the students to the fundamental courses in management necessary for Ph.D., in the management programme.
- e) To update the students in the area of cognate business courses necessary for understanding and analyzing management problems.
- f) To help the students acquire the necessary skills needed for evaluating business and its environment both within and outside the business.
- g) To prepare graduates for various management and administrative positions in business, government, as well as other public and private organizations.
- h) To develop effective managerial skills and know-how among candidates to enable them to effectively recognize, analyze, and solve business-related problems.
- i) To equip candidates with the basic skills of utilizing modern concepts, principles, theories, and methods in running organisations.

Structure of the M.Sc. Management programme

The M.Sc., Management requires a minimum of 36 credit units made up as follows:

- a) Thirteen (13) core courses units each =26
- b) Two (2) Elective courses of 2 credit units each (chosen from the students area of specialization) =4
- c) M.Sc., Dissertation of 6 credit units = 6
- Total 36 units+4 units =40**

Year One First Semester

Core Courses	Course Description	Credit Units
MGT. 800.1	Management Theory	2
MGT, 801.1	Global Economic Environment	2
MGT. 802.1	Strategic Management	2
MGT. 803.1	Organisational Behaviour	2
MGT. 804.1	Management Information System	2
MGT. 805.1	Research Methodology	2
SGS. 801.1	ICT and Research Method	2
Total		14

Year One Second Semester

Core Courses	Course Description	Credit Units
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MGT. 806.2	Quantitative Analysis	2
ECO. 800.2	Economic Theory	2
MGT. 807.2	Strategy and Structure	2
MGT. 808.2	Comparative Management	2
MGT. 809.2	Diversity and Conflict Management	2
MGT. 810.2	Reward and Compensation Management	2
SGS. 801.2	Management and Entrepreneurship	2
Total		14

Year Two Third Semester

Third Semester (Students are required to take any two elective courses)

Core Courses	Course Description	Credit Units
MGT. 811.3	Business Policy	2
MGT. 812.3	Economy and Industry Analysis	2
MGT. 813.3	Operations Management	2
FIN. 850.3	Advanced Corporate Finance	2
MGT. 814.3	International Business Management	2
MGT. 815.3	Organisational Development and Change	2

Fourth Semester

Core Courses	Course Description	Credit Units
MGT 816.4	M.Sc., Seminar	2
MGT 817.4	M.Sc., Dissertation	6
total		8

Total = 40 Credits Units

Specialization Areas

i) M.Sc. HUMAN RESOURCE MANAGEMENT

Structure of the M.Sc. Human Resources Management programme

The M.Sc. Human Resources Management programme requires a minimum of 36 credit units made up as follows:

- Fifteen core courses (2 credits each) - 30 units
 - Two elective courses (2 credits each)- 4 units
 - M.Sc., Thesis - 6 units
- Total 36 units +4 units = 40**

Course Description	Credit Units
Human Resource Management	2
Human Behaviour in Organizations	2

Labour Law	2
Retirement and Pension Administration	2
Performance Evaluation and Control	2
Managing Diversity (Cultural Differences)	2
Human Resource Training and Development	2
Labour Market Analysis	2
Human Resource Planning	2
Research Methodology	2
Micro-economic Theory	2
Macro-economic Theory	2
ICT and Research Methods	2
Management and Entrepreneurship	2
M.Sc. HRM Seminar	2
M.Sc. Dissertation	6
Elective Courses (Select any two courses of two credit units)	
Industrial Relations	2
Strategic Management	2
Negotiations	2
Managing Organizational Change	2
Compensation Management	2
Qualitative Methods	2
Organizational Theory	2
Women Participation in the Labour Force	2
International Labour Movements and Institutions	2
Collective Bargaining	2

(ii) M.Sc. Industrial and Labour Relations

Structure of the M.Sc. industrial and Labour Relations

The M.Sc., programme requires a minimum of 36 credit units made up as follows:

- Thirteen core courses (2 credits each) 26 units
 - Two elective courses (2 credits each) 4 units
 - Thesis 6 units
- Total 36 units + 4 Units = 40 units**

Course Description	Credit Units
Labour History and Philosophy	2
Labour Law	2
Industrial Relations Theory	2
Collective Bargaining	2
Trade Unions and Management in Nigeria	2
State and Industrial Relations	2
Labour Relations and Administration in Nigeria	2
Occupational Safety and Health	2
Micro-economic Theory	2
Macro-economic Theory	2
Research Methodology	2
ICT & Research Methods	2
Management & Entrepreneurship	2
M.Sc. Seminar	2
M.Sc. Dissertation	6

Students are required to take any two elective courses of two credit units from the following:

Labour Management Relations

Women Participation in the Labour force	2
Seminar in Nigerian Labour Relations	2
Comparative industrial Relations	2
Industrial Conflict and Dispute Settlement	2
Compensation and Benefit Systems	2
International Labour Bodies	2
Collective Bargaining and Simulation	2
Motivation and Productivity at Work	2
Job Evaluation	2

Collective Bargaining

Collective Bargaining Simulation	2
Trade Union Management	2
Labour Arbitration and Alternative Dispute Resolution	2
Current Issues in Collective Bargaining	2

(iii) M.Sc. MANAGEMENT INFORMATION SCIENCE

Structure of the M.Sc Management Information Science

The M.Sc., programme requires a minimum of 36 credit units made up as follows:

- Fifteen core courses (2 credits each) 30 units
 - Thesis 6 units
- Total 36 unit + 4 Units = 40 units**

Course Description	Credit Units
Management Information Resources: Characteristics and Types	2
Information Representation, Organization and Retrieval	2
Management Theory and Practice	2
Database Management	2
Information Technologies	2
Evaluation of Management Information Resources and Systems	2
Financial Management and Strategy	2
Strategic Management	2
Information Behaviour of Organizations and institutions	2
Preservation and Security of Management Information	2
Resources and Systems	2
Automated and Networked Information Systems	2
Independent Study in Management Information Science	2
Research Methodology	2
Financial Accounting	2
ICT & Research Methods	2
Management & Entrepreneurship	2
M.Sc. Seminar	2
M.Sc. Dissertation	6

D. DOCTOR OF BUSINESS ADMINISTRATION (DBA) IN MANAGEMENT PROGRAMME

Philosophy

The philosophy of the Doctor of Business Administration (DBA) in Management is the development of distinguished and result-oriented business executive who is vast in distinguished functional area of business skills and knowledge to lead organizations, provide high valued consulting services and educate the next generation of specialized on management theory and practice through sound and analytical research background as well as specialized courses.

Justification for the Programme:

- a. The DBA is an advanced post graduate programme that focuses on professional business practice as well as providing experienced managers with research skills that can be applied to issues of organizational leadership. In line with this, our professional MBA graduates will be better suited to pursue further education through this programme.
- b. The DBA is fashioned to take care of further academic needs of executive professionals with MBA degree, which have career ambition to gain academic recognition in their chosen profession.
- c. In terms of its relationship with the Doctor of Philosophy (Ph.D), the DBA is an equivalent of the Ph.D, In terms of application to specific industry needs. The DBA though industry based, is equally fashioned to cater for the demand of the academia while the Ph.D is purely academic based.
- d. The DBA provides a platform for business executives to further their career ambition in their different professions, thereby widening the broad based of the academic system with theory and applications.

Objectives of the programme

The objectives of the programme are:

- i. To produce sound, corporate executives who can evaluate evolving conceptual models, theoretical framework as well as technological and organizational systems with particular emphasis on their implications on business theory and practices.
- ii. To produce candidates who can critically and properly access cultural and societal perspectives influencing business practice in the global era.
- iii. To produce business executives who can lead high value consulting services and

- exhibit proficiency in research and critical thinking skills.
- iv. To develop in students, effective communication, skills and the use of information technologies in the global business environment.
- v. To produce candidates equipped with analysis skills to evaluate business issues, ethical and legal within regulatory frameworks that guide the theory and practice in accounting, finance and banking, management and marketing.
- vi. To develop the entrepreneurial capacity of the student in dynamic business environment (world).

Structure of the DBA programme

The DBA in Management programme require a minimum of 54 credit units made up as follows:

- i. 7 General Course - 21 Units
- ii. 6 Core courses (3 credit units each) - 18 Units
- iii. DBA Seminar - 3 Units
- iv. Thesis - 12 Units
- Total - 54 Units**

GENERAL COURSES:

Core Courses	Course Description	Credit Units
MGT 921	Advanced Research Methods	3
ACT 922	Advanced Management Accounting	3
MKT 922	Strategic Marketing Management	3
FIN 922	Corporate Financial Management and Policy	3
MGT 922	Business Policy and Strategy	3
FMS 900	Managerial Economics	3
FMS 901	Entrepreneurship Development/ Management	3

CORE COURSES:

Core Courses	Course Description	Credit Units
MGT 923	Advanced Organisational Theory	3
MGT 924	Contemporary Management Philosophy	3
MGT 925	Decision Models and Simulation	3
MGT 926	Comparative Management Systems	3
MGT 927	Quantitative Decision-Making for Business Analysis	3
MGT 928	Human Resource Planning and Development	3

MGT 930	DBA Seminar in Management	3
MGT 931	DBA Thesis	12

E. DOCTOR OF PHILOSOPHY (Ph.D) IN MANAGEMENT PROGRAMME

Ph.D in Management Specialization Areas:

The Department of Management offers Doctor of Philosophy (Ph.D) degree in the following specialization areas

- i. Doctor of Philosophy (Ph.D) in General Management
- ii. Doctor of Philosophy (Ph.D) in Human Resources Management
- iii. Doctor of Philosophy (Ph.D) in Industrial and Labour Relations
- iv. Doctor of Philosophy (Ph.D) in Organizational Behaviour
- v. Doctor of Philosophy (Ph.D) in Information Science Programme
- vi. Doctor of Philosophy (Ph.D) in Production/Operations Management

i. Ph.D GENERAL MANAGEMENT PROGRAMME

Philosophy

The philosophy of the programme is to provide graduate education and training in management to develop and deepen the culture of enquiry and responsibility in the students, to take on teaching, research in higher institutions, as well as management responsibilities in public and private sectors of the national and global economies. The Ph.D., programme in management also seeks to develop business scholars who are versed in the theory and in research skills in management as well as having the capability of developing and promoting indigenous academic culture in the field of management.

Objectives

The objectives of the Ph.D (Management) programme are to provide training in Management research for those whose future careers lie in teaching and research at the university and other tertiary institutions and for those who may have to operate in research and development environments in core and specialized areas of management that would equip graduates to provide quality consultancy services to both local and international clientele. It also aims at providing critical manpower in the area of business administration/management needed for national development.

The specific objectives of the Ph.D programme in Management are as follows:

- a) To produce candidates with high level of intellectual rigour and maturity for independent work in Management.
- b) To produce candidates who can develop and promote indigenous concepts, principles, and theories in their area of specialty and translate same to practice.
- c) To equip candidates with the requisite theoretical, quantitative, and qualitative tools to enable them undertake teaching and research responsibilities in universities, industries and government.

Structure of the Ph.D in General Management

The structure of the courses offered in the Ph.D., (General Management) programme is shown below:

The Ph.D., Management programme requires a minimum of 36 credit units made up as follows:

- Six core courses (3 credits each) 18 units
- Two elective courses (3 credits each) 6 units
- Ph.D., Thesis 12 units

Total 36 units+4 units = 40 units

First Semester

Core Courses	Course Description	Credit Units
MGT. 900.1	Management Thought and Philosophy	3
MGT. 901.1	Seminar in Strategic Management and Entrepreneurship	3
MGT. 902.1	Advanced Research Methodology	3
SGS. 801.1	ICT and Research Methods	2

First Semester

Core Courses	Course Description	Credit Units
MGT. 903.2	Imperatives of Globalization	3
MGT. 904.2	Advanced Quantitative Techniques	3
SGS 801.2	Management and Entrepreneurship	3
Elective courses (Chose any two courses)		
MGT. 905.2	Seminar in Business Environment	3
MGT. 906.2	Management of Change in Organisation	3
MGT. 907.2	Government, Business and Society	3
MGT. 908.2	Seminar in Public Enterprises Management	3

MKT. 909.2	Advanced Marketing Theory	3
MGT. 909.2	Multinational Enterprises Management	3
MGT. 910.2	Advance Conflict Management	3
MGT. 911.2	Ph.D., Seminar	3
MGT. 912.1	Ph.D. Thesis	3
	Total	40

Contemporary Issues in Industrial and Labour Relation	3
Ph.D., Seminar	3
Management Thought and Philosophy	3
Research Methodology	3
ICT and Research Methods	2
Management and Entrepreneurship	2
Elective Courses	
Economics of Collective Bargaining	3
Seminar in Labour law and Research	3
Seminar in International Labour Organizations	3
Labour Markets: Processes and Dynamics	3
Ph.D Thesis	12

Specialized Areas

i) Ph.D HUMAN RESOURCE MANAGEMENT PROGRAMME

Course Structure

The Ph.D., programme requires a minimum of 36 credit units made up as follows:

- Six core courses (3 credits each) 18 units
- Two elective courses (3 credits each) 6 units
- Thesis 12 units
- Total 36 units+ 4 units = 40**

Course Description	Credit Units
Management Thought and Philosophy	3
Contemporary Issues in Human Resource Management	3
Advanced Research Methodology	3
Ph.D., HRM Seminar	3
Advanced Human Resource Management	3
Seminar in Training, Development, Leadership and Productivity	3
ICT and Research Methods	2
Management and Entrepreneurship	2

Electives Courses (Students to choose any 2 of their choice)

Advanced Labour Analysis	3
Advanced Conflict Management	3
Advanced Strategic Management	3
Ph.D., Thesis	12

ii) Ph.D INDUSTRIAL AND LABOUR RELATIONS PROGRAMME

Structure of the Ph.D in Industrial and Labour Relations

The Ph.D., programme requires a minimum of 36 credit units made up as follows:

- Six core courses (3 credits each) - 18 units
- Two elective courses (3 credits each)- 6 units
- Thesis - 12 units
- Total 36 units + 4 units = 40 units**

Course Description	Credit Units
Advanced Theories of Industrial Relations	3
Globalization and Industrial and Labour Relation	3

(iii) Ph. D ORGANIZATIONAL BEHAVIOUR PROGRAMME

The objectives

The objectives of the Ph.D., (Organisational Behaviour) programme are to provide training in Organisational Behaviour for those whose future careers lie in teaching and research at the university and other tertiary institutions and for those who may have to operate in research and development environments; in core and specialized areas of Organisational Behaviour that would equip graduates to provide quality consultancy services to both local and international clientele. It also aims at providing critical manpower in the area of Organisational Behaviour for national development.

The specific objectives of the Ph.D., programme in Organisational Behaviour are as follows:

- a) To produce candidates with high level of intellectual rigour and maturity for independent work in Organisational Behaviour.
- b) To produce candidates who can develop and promote indigenous concepts, principles, and theories in their area of specialty and translate the same to practices.
- c) To equip candidates with the requisite theoretical, quantitative, and qualitative tools to enable them undertake teaching and research responsibilities in universities, industries and government.

(iv) Ph.D MANAGEMENT INFORMATION SCIENCE PROGRAMME

Structure of the Ph.D in Management Information Science

The PhD programme requires a minimum of 36 credit units made up as follows:

- Six core courses (3 units each) - 18 units
- Two electives (3 units each) - 6 units

- Thesis - 12 units
- Total 36 Units + 4 Units = - 40 units**

Course Description	Credit Units
Advanced Research Methodology	3
Advanced Quantitative Techniques	3
Advanced I.T. Applications	3
Advanced Evaluation of Information Systems	3
Seminar in Organization and Retrieval of Information and Records	3
PhD Seminar	3
ICT and Research Methods	2
Management and Entrepreneurship	2
Elective Courses	
Performance Evaluation and Control	3
Leadership in Theory and Practice	3
Seminar in ICT Applications to Management	3
Information Systems	3
Seminar in Information Behaviour of Organizations	3
Human Resources Information Systems	3
Qualitative Research Method	3
Seminar in Financial Management	3
Conflicts Management	3
PhD Thesis	12

iv) Ph. D PRODUCTION/OPERATIONS MANAGEMENT PROGRAMME

Structure of the Ph.D in Production/Operations Management Science

The Ph.D., (Production/Operations Management) programme requires a minimum of 44 credit units made up as follows:

- i) Nine Core Courses (3 units each) - 27 units
- ii) Two General Courses (ICT and Entrepreneurship) of 2 credit units each - 4 units
- iii) Two Electives (2 units each) - 4 units
- Thesis - 12 units
- Total - 47 Units**

Course Structure

The course work of the Ph.D., (Production/Operations Management) programme consists of research tools courses, and field of specialization courses.

Course Description	Credit Units
Research Methods and Statistical Techniques	3
Advanced Statistics for Business and Government	3
Advanced Production/Operation Management Problem Solving Techniques	3
Programming and Theory of Games	3
Operations Control Systems	3
ICT	2

Second Semester

Management Thought and Philosophy	3
Decision Model and Simulation	3
Strategic Decision in Production/Operation and Project Management	3
Entrepreneurship	2

ELECTIVE COURSES (Choose any two)

Operations control system	3
Service system design and control Systems Dynamics	3
Seminar in ICT Application to Management	3
Seminar in Production/Operations Systems	3
Ph.D., Thesis	12

1. COURSE DESCRIPTIONS FOR THE PGD PROGRAMME IN THE DEPARTMENT OF MANAGEMENT

MGT. 700.1 Principles of Management

The development of management thought; theories and models of management; the manager and his environment; organisation structure and relationships; leadership and motivation; organization development, the management functions and procedures; planning, organising; directing; controlling etc.

ACT. 700.1 Principles of Accounting (see Department of Accounting)

This course deals with the underlying theory of double entry book keeping. Topics: the nature, scope and purpose of accounting, theories and mechanics of double entry, book-keeping statements, fixed accounts, funds flow statements, account of not-for-profit organisations, incomplete records.

POL. 701.1 Introduction to Public Administration

This course focuses on the emergence of public administration; problems of organisations, the bureaucratic phenomenon and social change. The basics of public policy formulation and implementation process by bureaucracies accountability and efficiency in public administration.

MKT. 700.1 Fundamentals of Marketing (see Department of Marketing)

This course focuses on the appreciation of functions and channels of marketing and its role in the corporate environment. Major elements of marketing strategy in relation to product development; distribution channels; advertising, sales promotion and pricing are examined in details.

FIN. 710.1 Principles of Finance (see Department of Finance)

This provides a systematic and vigorous examination of the theoretical framework of financial/investment management analysis. The Main topics include: The economic theory of choice: investment decision and appraisal techniques, financial requirements planning, working capital management, financial ratios, dividend decision, cash budgeting, fixed assets and equity management, funds flow statement, and emphasis on financial markets.

ECO. 701.1 Principles of Economics (see Department of Economics).

This course covers both Introduction to Economics, Micro and Macro economics and other economic theories.

MGT 701.1 Research Methods

The objective of this course is to introduce the students to scientific enquiry through gathering and analysis of relevant data.

MGT 702.2 Comparative Management

In this course, students are exposed to the opinion differences about the universality of management which are attributed to the fact that management as science (organised knowledge) has universal applications, but the practice of management is an art. To achieve these objectives, students are made to appreciate how external environmental factors such as demographics of labour force characteristics, educational factors, socio-cultural factors, legal-political factors, economic factors as well as internal environmental factors such as management philosophy; organisation structure, etc. lead to difference in the managerial effectiveness of managers in different countries.

MGT. 703.1 Business Mathematics

Topics to be covered include: Revision of basic algebra; set theory; permutations and combinations; annuity, cash flow; functions and functional relationship; analysis of marginal utility and integral calculus; partial and total derivatives. In discussing these topics, emphasis will be on their specific relevance to business/management contents.

MGT. 704.1 Human Resource Management

Topics to be addressed in this course include: Nature and scope of HRM; strategies and management practices in manpower planning; staffing; human resource planning; human resource training and development; performance measurement and management, career planning and employee welfare; compensation designs and reward management.

MGT. 705.2 Computers in Organisations

This course explains the why and how of computers, the use of computers in business and

other organisations; Data transmission, nature, speed and error detection. it also examines system analysis and design, the programming process; problem definition, flow charting and decision table.

MGT. 706.2 Business Statistics

This course covers basic concepts in descriptive and inferential statistics and their use in empirical research.

MGT. 707.2 Global Economic Environment

This course deals with the following topics: Nigeria and the global economy, the implication of the free market economy on business; governments, consumers, and labour, strategic aspects of international trade, globalisation and international institutions; multilateral negotiations; lessons from the Asian tigers.

MGT. 708.2 Business Strategies and Policy

This course covers contemporary managerial decision approaches in the organisation. Topics to be covered include: business opportunities, mission statements and the development of corporate strategy, building the organisation competence, resource allocation, mergers and acquisition strategies, integration strategies, building organisational competitive strategies for their effectiveness through product pricing techniques, management process and policy control. This course also discusses analysis of industry structures and dynamics, ebusiness, process reengineering and corporate turnaround. Case writing and analysis are fundamental to this course.

MGT. 709.2 Organisational Behaviour

The course is intended to help in the exposure of students to the essential theories and concepts for analysing managerial problems, individual and group analysis of cases and experimental exercises, exchange of ideas and experiences in the classroom, intensive field-based project work in groups.

MGT. 710.2 Research Project

A research-based study and report on an acceptable management problem area approved by the supervisor and the Head of Department.

2. COURSE DESCRIPTIONS FOR THE MBA PROGRAMME IN THE DEPARTMENT OF MANAGEMENT

MGT 801.1 Research Methodology 3 Credits

This course will acquaint students with the basic principles of research design, methodology, methods of data collection and analyses, analytic communication skills, hypotheses testing, sampling procedures, parametric and non

parametric procedures and presentation of research reports. Topics to be covered include: introduction to Research Methodology, Research in Social Sciences, Research in Physical and Natural Sciences, Problems of Research in Developing countries, Common errors in Research, Research in Practice: Problem identification, Literature Review, Materials and Methods(Methodology), Results (Data Analysis), Results and Discussions, Summary, Conclusion and Recommendations, Report writing.

MGT. 802.1 Quantitative Methods in Business

This course seeks to further expose students to the use of quantitative techniques in business management, theories and practices. It covers basic elements of decision making under condition of uncertainty, set theory, probability theory, classical statistics and statistical decision theory; linear programming, primal and dual simplex algorithm, transportation and network analysis, dynamic programming, decision theories, structural operation modeling, inventory models, and queuing theory, games theory, markov analysis, assignment techniques, integral programming among others. More specifically, the course is designed to enable students understand and apply quantitative techniques in research and business decision making situations, emphasizing multivariate quantitative methods, optimization techniques in solving business management problems, among others.

FIN. 801.1 Corporate Finance

This course focuses on the principles and procedures underlying financial statements; financial transactions; alternative accounting statements; tools for analysis of ratios and other quantitative measures; accounting information useful for managerial action; application of information in decision making situations. Project appraisal analysis of investment projects, the impact of risk, tax and inflation, the term structure of interest rates, the cost of capital and target rates of return; capital market, its efficiency, the role of intermediaries, sources of finance, the borrowing decision and company valuation and optimal portfolio allocation; capital structure- optimal capital structure of firms, mergers and acquisitions and market for corporate control, market efficiency, the principle of capital structure, gearing and the basis of hedging and international finance.

MGT 803.1 Operations Management

This course deals with issues in operations strategy, process analysis and the use of data and managerial opinion in making effective propositions to address the questions in the cases. Major economic decision, problems of production

and operations management; aggregate production and work-force scheduling; multi- plant allocation of product; large scale project control (CPM and PERT); production and inventory control; demand forecasting; quality control; and short run job shop scheduling; the interaction of production problems with those of other functional areas, queuing theory, dynamic programming, multiple regression and correlation.

MKT. 806.1 Marketing Management and Strategy (MMS)

This course discusses the managerial aspects of marketing. It deals with the perspectives and problems of marketing management in a multi-product firm; the concept and application of strategic planning to business units and functional areas of marketing, utilization of current marketing strategy models as aids in strategy formulation, decision processes for product planning, pricing, promotion, distribution and competitive strategy.

ACCT. 807.1 Introduction to Accounting 3 Credits

This course deals with accounting concepts, construction of financial statements, balance sheets, income statements, cash-flow statements, analysis and interpretations of financial statements, element of costing and auditing.

MGT 804.1 Advanced Organisational Behaviour

This course exposes students to essential theories and concepts for analyzing managerial problems, individual and group analysis of cases and experiential exercises in the organization, exchange of ideas and experiences in the classroom, intensive field-based project work in groups. Topics covered to be in this area include: individuals and group behaviour, motivation, organisation design theory, work design and control. Other topics include leadership style, group decisionmaking, organisational socialisation, power and influence, group dynamics, organisational communication dynamics, union-management dynamics and conflict management.

MGT 805.2 Business Law 3 Credits

This course will familiarize candidates with the legal aspect of business law of contracts. The course reviews Nigerian Business Laws including laws of contract, forms of contract, law of agency formation and termination, negotiable instruments, bills of exchange, promissory notes, sale of goods, hire purchase, insurance including goods in transit insurance, obligations and liability, agency, carriage of goods and related laws are examined. The company act and company, and miscellaneous matters decree are examined in depth.

MGT 806.2 Environment of Business 3 Credits

The basic objective of the course is to examine the legal, socio-cultural, political and economic framework which business organization must operate in the Nigerian environment. Because of the pervasive influence of globalization and reduction of distances between nations, their value systems, language etc., international business environments will be explored.

Topic to be covered include: the concept, scope and nature of the business environment and environmental scanning, legislations related to business. Ethical theories of business decision, social and cultural issues in business. Theoretical and practical issues of the Nigerian political economy which dictates the basis of fiscal and monetary policies, macroeconomics management and business practices.

MGT 807.2 Introduction to General Management (IGM) 3 Credits

This course deals with the evolution of management thought, functions and responsibility of general management, understanding global management, managing through processes, managerial values, managerial decision making, planning, organizing, directing and coordination, problems affecting the character and success of the enterprise, the design and implementation of corporate strategy.

MGT 805.2 Corporate Strategies and Policy 3 Credits

This course deals with conceptual frameworks and models for the analysis of competitive situation and strategic dilemmas, insight into strategic management, analyses of external competitive environment, industry structure, value chain dynamics, etc. Topics to be covered include business opportunities, mission statements and the development of corporate strategy, building the organisation competence, resource allocation, mergers and acquisition strategies, integration strategies, building organisational competitive strategies for their effectiveness through product pricing techniques, management process and policy control. This course also discusses analysis of industry structures and dynamics, e-business, process reengineering and corporate turnaround. Case writing and analysis are fundamental to this course.

FIN.802.2 Managerial Economics 3 Credits

This course focuses on the application of principles from various fields in economics and business to management decision making, price mechanism, allocation of resources, profit drivers of the firm, revenue and cost drivers, interaction among the market players, firm strategy, understanding

market forces, the meaning of competition, pricing, and profits, market power good or evil, playing games I competition versus cooperation, play games II entry and exit, firm versus markets; make or buy, auctions and market design, economies of information.

FMS 801.2 MBA Language Programme (MBA LP) 3 Credits

This course focuses on teaching students at least one foreign language. Examples of foreign languages required include; French, German Language, Spanish etc.

MGT 809.2 Human Resource management 3 Credits

Topic to be covered should include the scope, nature, methods, and principle of organizational human resources management. The course could provide an overview of strategies and management practices in manpower planning techniques; staffing, human resource training and development, performance management and systems design, compensation designs and reward management, career planning and employee welfare, line and staff functions as well as the relationship between personnel department and other departments. Review of current principles and practices of human resource management in the Nigerian and global context.

SGS 801.2 Management and Entrepreneurship 3 Credits

This course is aimed at empowering the graduates with the relevant skills that will empower them to engage in income-yielding ventures to be responsible, enterprising individuals who will eventually become entrepreneurs or entrepreneurial thinkers and by so doing make significant contributions to nation building, national economic development, and sustainable communities. It will equip graduates with the basic skills to make them job creators rather than job seekers.

MGT 837.2 International business

Students will be introduced to the language and terminology of international business and major international, legal, political and socio-cultural, educational, demographic/labour force, economic variables in international businesses. Special attention is given to fundamental concepts of international finance, international accounting, international law, international business management and international marketing. International trade theories, challenges and risks of engaging in international business, modes of entering international business will also be examined.

MGT 838.3 International Law and Business

This course surveys trends and practices that are part of the proceeds of adjudication across national boundaries. Students will study the interrelationships among countries as these affect individuals and business organizations attempting to operate internationally. Course content focuses on transnational business activities.

MGT. 814.3 International Business Management

Course content focuses on the development of management skills related to multinational business. Students will examine the issues of operating in a foreign country or cross national boundaries and how management theory and practice in an international setting differs from those in foreign countries. Students will be introduced to the language and terminology of international business. The course focuses on the international dimension of business, including trade, financial and foreign investment patterns, and problems and policies at the corporate and national levels. It covers theoretical, institutional and case analysis of major issues, including to impact of international codes and organisations on corporate policies in home and host countries, the effect of changing governmental policies on strategies for managing international operations. It also covers legal, political and socio-cultural, educational, demographic/ labourforce, economic variables in international businesses. Special attention is given to fundamental concepts of international finance, international accounting, international law, international business management and international marketing. International trade theories, challenges and risks of engaging in international business, modes of entering international business will also be examined. Using a wide range of data sources, cases, and other empirical studies, each student will prepare and individual study of a specific company and country.

MGT 839.3 Cross-Cultural Management

The course examines the cultural, attitudinal and behavioural differences that affect international business. Course content focuses on the cultural differences between nations and how these differences affect social organizations. The management of multinational corporations from the perspective of environment, structure, process and inter-firm and intrafirm relations are considered. A comparative study of management practice in selected countries. Topics include cross-cultural methodology for management studies, impact of social environment and culture on management functions of business enterprises.

MGT 840.3 Issues in International Business

Current and significant issues in international business are examined. Course content focuses on existing theories and practices with emphasis given to new and emerging topics in the field.

MGT 841.3 International Trade and Finance

This course examines the theories, policies and instruments (tariff quotas) of international trade and considers trade integration. Course content focuses on the foreign exchange and balance of payments in international trade. Theories and policies of direct investment in foreign markets are considered.

MGT 842.3 International Business Finance

Course content focuses on the environment in which the international financial manager operates. Students will be taught the risks of doing business overseas and the tools available to minimize those risks. Foreign exchange risks, political risks, working capital management, long-term investments and financing and accounting and control are examined within this context.

ELECTIVE COURSES FOR ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT OPTION

MGT 823.3 Entrepreneurship

Concept and objectives. The objective is to impart knowledge and skills required to start new business. Analysis of personal efficacy and self-awareness. Personal characteristics of entrepreneurs. Identification of ideas and venture capital opportunities. Sources and availability of resources; finance; technology; manpower appropriate technology; government regulations; national and international regulatory and support environment, marketing plan, policy and strategy, accounting and keeping account, financial statements, feasibility studies and project evaluation, students' business plan.

MGT 824.3 Small Business Management

The objective of this course is to encourage effective and successful management of small business or training for future managers who will have contact in one way or the other with small firms either as bankers, consultants, investors and government officials. Topics to be covered include: small firm characteristics and trends, start-up situation and development of business plans. Venture and expansion capital, cost and benefits analysis, sources of finance, problems and prospect of small business generally and of small scale industries in particular. Case studies of entrepreneurs and small businessman (owners/managers). Students' actual proposals made to panel of venture capital firms, banks and other financial institutions.

MGT 826.3 Venture Management

This course deals with introduction, venture creation, venture growth, diversification, growth models, technology, licensing, venture strategy, venture financing and venture capital. Patent, copy rights and inventions.

ELECTIVE COURSES FOR OPERATIONS RESEARCH OPTION

MGT 817.3 Linear Programming (LP) 3 Credits

Linear programming with geometric and algebraic interpretations, duality, primal and dual simplex algorithm; primal-dual algorithm, shadow prices and perturbation analysis; the revised simplex method; transportation and network problems,

MGT 818.3 Mathematical programming (MP) 3 Credits

An introduction to integer programming and non-linear programming problems; formulation; applications; intuitive qualitative concepts, and solution techniques.

MGT 819.3 Introduction to Stochastic Process (ISP) 3 Credits

Introduction to stochastic process in 3 major areas; queues with poisson arrivals, Markov processes and renewal theory, Random walks, reliability and maintenance, winner processes and application to finance and marketing.

MGT 820.3 Applied Queuing Models (AQM) 3 Credits

Concepts of single server and multi server queues; utilization, busy period analysis, residual service times, queues length distribution, M/G 1 queues; priority rules and other service disciplines; Phase-type distribution, diffusions and other approximation techniques, effects of limited waiting room and estimation of overflow probabilities, computational methods.

MGT 821.3 Dynamic Programming (DP) 3 Credits

Principle of optimality and structural results for sequential decision process. Models of both deterministic and probabilistic systems markovian decision processes. Effect of planning horizon and interest rates. Computations drawn from inventory control production planning, combinatorial optimization and other application. Selected examples of theory and computations drawn inventory, control, production planning, combination optimization and other applications.

MGT 822.3 Theory of Games (TG) 3 Credits

Introduction to optimization problems characterized by more than one decision- maker and or more than one decision criterion. Topics include two-person games with zero- sum pay offs, admissibility and utility. Concepts of differential and stochastic games of differential and stochastic games.

ELECTIVE COURSES FOR PRODUCTIONS! OPERATIONS MANAGEMENT OPTION

MGT 810.3 Production Management Problems & Techniques 3 Credits

Economic decision problems in production management; schematic and quantitative techniques; size and location choices; process and equipment selection; aggregate production; planning and scheduling; production and inventory control; planning system; distribution system, project control, assembly balancing and sampling inspection and quality control.

MGT 811.3 Case Studies in Production & Operation Management 3 Credits

Analysis of cases illustrating decision problems in production and operation management using techniques studies in MGS 672, aggregate scheduling, job- shop scheduling; equipment replacement, inventory and production control, plant size and location.

MGT 812.3 Facilities Location Models 2 Credits

Theory and method of facility location; plant and warehouse siting; plant layout problems; and location of service facilities such as hospital and stations. Cases of actual applications.

MGT 813.3 Operations Management 3 Credits

An introduction to techniques of work measurement facility location, process planning production scheduling and sequencing, PERT and limited resource project planning.

MGT 814.3 Strategic Decisions in Production Management 3 Credits

Analysis Management decision problems in process design, equipment selection and replacement, selection of materials, project planning and control.

MGT 816.3 Project Management and Feasibility Studies 3 Credits

This course focuses on project identification, project definition and management, the concept and practice of project evaluation and appraisal, definition of feasibility studies, implications of feasibility studies; the accepted format for presenting feasibility studies report, tools used in

project management and feasibility studies e.g., techniques of monitoring, forecasting etc., such as PERT, CPM etc.

ELECTIVE COURSES FOR HUMAN RESOURCE MANAGEMENT OPTION

MGT 836.3 Organizational Behavior 3 Credits

This course deals with employees' attitudes and behaviours in organizations. Analysis of how individual, group, and organization characteristics influence employee behaviors such as participation and performance. It also examines the influence of managerial policies and practices on work attitudes and behaviours.

MGT 829.3 Compensation: Theory and Administration 3 Credits

This course focuses on the examination of the determinants of wage levels, wage structures, and individual wages; analysis of the impact of wages on work attitude and performance in organization.

MGT. 830.3 Personnel Staffing Evaluation 3 Credits

This course focuses on elements of manpower planning and internal labour markets; validation procedures for determining the potential job effectiveness and individuals, description and validity of selection instruments such as tests, interviews, and biographical data, measuring performance, turnover absenteeism and the process of performance appraisal.

MGT 831.3 Industrial Relations 3 Credits

This course deals with theories of industrial relations and the industrial relations system. Trade unionism and employers associations. Labour/management relations at the organizational and industry level. The role of government in industrial relations. Strikes and trade disputes settlements and collective bargaining in the public and private sectors of the Nigerian economy. The Nigerian labour Law.

MGT 832.3 Organizational Change and Development 3 Credits

This course outlines the basic steps or stages involved in the process of organizational diagnosis and change. Emphasis is placed upon the development of strategies necessary for gaining entry into an organization, collecting data, feeding back data to the client organization. Several specific strategies and technologies for general organizations are presented and the relative strengths and weaknesses of these strategies are presented.

MGT 834.3 Organisational Design 3 credits

This course takes an indepth study of organizational processes and structures. The following are the primary objectives:

- i. To develop an understanding of theories or approaches to the design of organizations; where design is defined primarily in terms of structure and requisite processes of coordination and information processing in organisations. To develop a sensitivity to and awareness of the "realities" of organizations.
- ii. To understand how organizational planning and design decisions are interdependent and critical to the successful implementation of strategic and short term aims of the organization

MGT 835.3 Managerial Problem Solving 3 credits

This course focuses on the practical study of managerial work. It examines communication skills and offers the opportunity for assessment and feedback. Organizational context, team building and case work.

MGT 836.3 Seminar in Organizational Behavior 3 credits

The seminar critically investigates advanced topics and themes in current theories and research on organizational behaviour.

ELECTIVE COURSES FOR MANAGEMENT INFORMATION SYSTEM OPTION

MGT 843.3 Simulation and Systems Modeling

This course focuses on the concepts of simulation, simulation software, system modeling and model validation. Statistical analysis of output data, random variable general and input probability.

MGT. 844.3 Data and Business Communications

This course deals with the overview of data and computer communication; general categories of principles, TCPJJP, internetworking family of protocols, LANs, WANs, wireless, peer to peer computing, security, and infrastructure driving networked economy. Methods, processes and functions necessary for effective communication in today's high-tech global market place.

MGT. 845.3 Social Issues of Computing

This course deals with the survey of the individual, organizational and environmental impact of computers, social and ethical issues of present and projected uses of computers, computers and workplaces, computers and communities, computers and moral values, computers and privacy, computers and education, etc.

MGT 846.3 Business Computing Environments (BCE)

This course deals with information architecture, functional characteristics of business resource planning (BRP environments, alternatives to integrated BRP environment, impact of BRP implementation on business processes.

MGT 847.3 Information Systems Analysis and Design

This course introduces the basic concept in engineering and design, techniques for analysis, design and overall software lifecycle management. Analysis, basic object-oriented analysis and development of large scale systems. Architecture in the context of business process of engineering of business information systems.

MGT 848.3 International Dimensions of IT

This course deals with national, regional and international information technology development strategies and policies; IT and national sovereignty, development and control of global information highways; international institutions and IT, convergence and divergence of information systems across nations, regions and international sectors.

MGT 849.3 E-business

This course deals with designing and implementing practical E-business centered software projects, system integration in the web environment, widely deployed scripting languages; python, perl etc. Aspects of E-business: business to business, business to customer and intranet knowledge management. E-procurement, E-payment and other applications.

MGT 850.3 Data Mining

This course deals with industry trends in data mining and business intelligence; decision trees, regression, neural net, clustering, network analysis and future selections; genetic algorithms, spreading activation, information retrieval and natural language processing. Evaluation of business intelligence systems, data warehousing, privacy issues, strategic use of information and emerging information systems in business engineering and bioinformatics.

ELECTIVE COURSES FOR INDUSTRIAL MANAGEMENT OPTION

MGT 857.3 Production and inventory management

This course deals with introduction to production and inventory management, purchasing, work simplification, value analysis, forecasting and calculation and value of economic order quantity. Master planning, material requirements planning

capacity requirements planning and production activity control.

MGT 858.3 Quality and series control

This course focuses on product quality control and reliability using sampling plans, control charts and limits, statistical evaluations of tolerance, systematic investigation of processing variables, and evaluations of reliability. The history of quality control, the impact of the methods of squires, Deming Juran, and Taguchi on competitive position, the International Standards Organizations (ISO). The 150 900 series of standards to include, ISO 9000, 9001, 9002. 9003 and 9004 and Workforce Development.

MGT 859.3 Industrial Safety

This course deals with the control of industrial hazards through safe-guarding machineries and processes, mechanical guards, remote control, nature and analysis of accidents, and control of accidents, laws, electrical safety, lifting, oxyacetylene welding, fire safety, chemical safety, grinding wheel safety, eye safety etc.

MGT 860.3 Waste Management

This course deals with waste and environment handling of solid waste substances which are original converted raw materials and in most cases, can be reconverted. Monitoring adverse health effects of wastes and hazardous materials.

MGT 861.3 Computer Integrated Manufacturing (CIM)

This course deals with the role of CIM components. The planning of CIM, the CIM implementation and management, and overcoming obstacles to implementation. The strategic, leadership, operational and material flow process associated with the planning and implementation of CIM.

MGT 862.3 Management of Technology

This course deals with technology and managerial challenges in hi-tech industries, forces affecting nature and rate of technological innovation, developing technology vision and forecasting (examples and emphasis on micro-electronics, computers and telecommunications, medical device technology, etc).

ELECTIVE COURSES FOR GENERAL MANAGEMENT OPTION

MGT 851.3 Corporate Management

This course will provide an integrative view of business operations and decision making interconnected business accounting marketing, management and financial problems using both theory and case methods will be examined and

policy solutions sought complex business problems will be identified, solved and control measure set in motion.

MGT 852.3 Human Resource management 3 Credits

Topics to be covered should include the scope, nature, methods, and principle of organizational human resources management. The course could provide an overview of strategies and management practices in manpower planning techniques; staffing; human resource training and development; performance management and systems design; compensation designs and reward management; career planning and employee welfare; line and staff functions as well as the relationship between personnel department and other departments. Review of current principles and practices of human resource management in the Nigerian and global context.

MGT 853.3 Entrepreneurship Development and Small Business Management 3 Credits

The objective this course is to impart knowledge and skills required to start new business. Analysis of personal efficacy and self-awareness. Personal characteristics of entrepreneurs. Identification of ideas and venture capital opportunities. Sources and availability of resources; finance; technology; manpower, appropriate technology; government regulations; national and international regulatory and support environment; marketing plan, policy and strategy; accounting and keeping account, financial statements; feasibility studies and project evaluation; business plan. Students will also learn the skills and strategies for effective and successful management of small business or training for future managers who will have contact in one way or the other with small firms either as bankers, consultants, investors and government officials. Topics to be covered include: small firm characteristics and trend; start-up situation and development of business plans. Venture and expansion capital, cost and benefits analysis, sources of finance; problems and prospect of small business generally and of small scale industries in particular. Case studies of entrepreneurs and small businessman (owners/managers). Students' actual proposals made to panel of venture capital firms, banks and other financial institutions.

MGT 854.3 Comparative Management 3 Credits

In this course, students are exposed to the opinion differences about the universality of management which are attributed to the fact that management as science (organised knowledge) has universal application, but the practice of management is an art. To achieve these objectives, students are made to appreciate how external environmental factors

such as demographics or labour force characteristics, educational factors, socio-cultural factors, legal-political factors, economic factors as well as internal environmental factors such as management philosophy; organisation structure, etc. lead to difference in the managerial effectiveness of managers in different countries. Students will be introduced to the management principles and practices in different companies- Japanese management as opposed to western management practices of enterprise managers in the public and private sectors.

MGT 833.3 Advanced Organisation Behaviour 3 Credits

This course exposes students to essential theories and concepts for anglicizing managerial problems, individual and group analysis of cases and experiential exercises in the organization, exchange of ideas and experiences in the classroom, intensive field-based project work in groups. Topics covered in this area include: individuals and group behaviour, motivation, organisation design theory, work design and control. Other topics include leadership style, group decision-making, organisational socialisation, power and influence, group dynamics, organisational communication dynamics, union-management dynamics and conflict management.

MGT 837.3 International business 3 Credits

Students will be introduced to the language and terminology of international business. The course focuses on the international dimension of business, including trade, financial and foreign investment patterns, and problems and policies at the corporate and national levels. It covers theoretical, institutional and case analysis of major issues, including to impact of international codes and organizations on corporate policies in home and host countries, the effect of changing governmental policies on strategies for managing international operations. It also covers legal, political and socio-cultural, educational, demographic/labourforce, economic variables in international businesses. Special attention is given to fundamental concepts of international finance, international accounting, international law, international business management and international marketing. International trade theories, challenges and risks of engaging in international business, modes of entering international business will also be examined. Using a wide range of data sources, cases, and other empirical studies, each student will prepare and individual study of a specific company and country.

3. COURSE DESCRIPTIONS FOR THE M.Sc PROGRAMMES IN THE DEPARTMENT OF MANAGEMENT

A. M.Sc (MANAGEMENT) PROGRAMME:

The programme consists of selected courses from all the disciplines in business administration which is coordinated in a way that they may be directed towards the preparation of candidates for further graduate work in business administration.

MGT 800.1 Management Theory

The intent of this course is to expose students to the basic issues and theories with regard to the practice of management in contemporary organisations. It examines the introduction and integration of the evaluation and the development of theories and concepts, their application in the field of management. Students are expected to critically analyse the different perspectives within the field of management. Development of management models (Rational goals, internal process, human relations and open system models): organisational effectiveness, business environments, technology design and performance; images of organisations and implications for research and practice; organisational ecology; institutional theories organisational culture and climate; organisational learning and globalisation theory. This is tended to build a theoretical foundation for the understanding of management issues, and provide guidance for research activities in the programme.

MGT 801.1 Global Economic Environments

This course is to help situate Nigerian economy within the broader global economy. It examines the implementation of the movement towards free market economy on stakeholders including business, government, consumers, labour and public. This takes a multidisciplinary approach drawing from international politics, economy, and finance, cross-cultural and business management. Topic covered here include: Strategic aspect of international trade, globalisation/international institutions, industrialisation strategies, determinants of economic growth and poverty reduction in Africa; global power and wealth distribution; lessons from Asian and Mexican financial crises; multilateral negotiations, global culture and information technology, exchange rates/inflation/interest rates.

MGT 802.1 Strategic Management

This course deals with theoretical and practical aspects of strategy formulation and implementation. Attention is placed on the art of strategic thinking leading to creativity and innovation as well as the rational strategic planning

process. Topics covered include business opportunities, mission statements and the development of corporate strategy, building the organisation competence, resource allocation, mergers and acquisition strategies, integration strategies, building organisational competitive strategies for their effectiveness through product pricing techniques, management process and policy control. This course also covers analysis of industry structures and dynamics, assessing positions, actions, and reactions of competitors; processes of strategic planning, technology strategy and e-business, process reengineering and corporate turnaround. Case writing and analysis are fundamental to this course.

MGT 803.1 Advanced Organisation Behaviour

This course is designed to aid students in understanding organizations both at the micro and macro levels. Specifically, this course examines rigorously, the structure, function and people in the organisations and society. It helps students understand the behavior of individuals and groups in the organisation. Topics covered in this area include: individuals and group behaviour, motivation and job satisfaction, organizational dynamics, micro and macro perspectives; organizations and the systems concept; organizational entry, bases of individual attitudes and behaviours in organizational settings, individuals and their relationships in organizations; and group and inter-group behaviours; organizational design and structures, work design and control. Other topics include leadership style, group decision —making, organisational socialization, power and influence, group dynamics, organisational communication dynamics, union- management dynamics and conflict management; organisational efficiency and effectiveness; environmental factors and organisational structures; Typology/Taxonomy of organisations; organisational politics; organisational change and development; organisation and environment.

MGT 804.1 Management Information System

This course is designed to expose students to the practical appreciation of computerized data processing of business activities. Topics covered include: system analysis, fact finding techniques, fact recording, data analysis, dialogue design, Input/output design and analysis, data control and the promotion of information sharing in the organisation; meaning and use of information technology; evaluation and administration of MIS with emphases on computer based systems, meaning of information technology and its application in business finance and management.

MGT 805.1 Research Methodology

This course is designed to sharpen the students' skills and appreciation of organized enquiry. The course is designed to cover such topics as: meaning and nature of research; comparison between research, common sense and science; types of research; the research circle; selecting research topics, problem and hypotheses formulation, the basic principles of research design, sampling procedures, research instruments, methods of data collection and analyses and interpretation; hypothesis testing, parametric procedures and presenting of research reports; research and the issue of relevance; ethical issues in research.

MGT 806.2 Quantitative Analysis

Analytical tool is very vital to acquisition and development of managerial skills. Hence, there is the need to expose students to basic quantitative analysis and reasoning and its application to management decision making. The course introduces students to basic problem solving techniques in decision making. It provides them with set of mathematical models which are directly applicable to situations in business and government. Topics to be covered shall include: set theory; basic concepts in probability; probability distributions; decision theory; forecasting models and techniques, linear programming (graphic and simplex methods); introduction to operations research, queuing models; network models; introduction to operations research and simulation.

ECO. 800.1 Economic Theory (provided by Department of Economics)

MGT 807.2 Strategies and Structure

This course will be built on a base of the study on organizations and focus on the ways organizations are structured to suit the evolving strategies and the mutual impact of strategy and structure.

MGT 808.2 Comparative Management 3 Credits

In this course, students are exposed to the opinion differences about the universality of management which are attributed to the fact that management as science (organised knowledge) has universal application, but the practice of management is an art. To achieve these objectives, students are made to appreciate how external environmental factors such as demographics or labour force characteristics, educational factors, socio-cultural factors, legal-political factors, economic factors as well as internal environmental factors such as management philosophy; organisation structure, etc. lead to difference in the managerial effectiveness of managers in different countries. Students will be introduced to the management

principles and practices in different companies- Japanese management as opposed to western management practices of enterprise managers in the public and private sectors.

MGT 809.2 Diversity and Conflict Management

This course deals with managing and resolving workplace conflict and examines dispute resolution and conflict management in both various and non-various settings. The course covers two related topics: (1) third- party dispute resolution, including alternative dispute (ADR). It focuses primarily on the use of mediation and arbitration but also deals with other dispute resolution techniques, such as fact finding, facilitation, mini-trials, early neutral evaluation peer review, and the ombuds function: (2) conflict management in organizations, including the recent development of conflict management systems. This course also reviews the factors that have cause the growth of ADR and conflict management systems, and it provides instruction on the design, Implementation and evaluation of such systems.

MGT 810.2 Rewards and Compensation Management

This course will familiarize students with the basic responsibilities of the Human Resources function in organization. This course covers topics such as strategic manpower planning, job analysis, employees' recruitment, selection, training and development, career planning, performance appraisal, reward management or compensation and international HRM. It also covers such topics as incentives and fringe benefits administration, collective bargaining, labour management relations, retirement. Students will learn about the various tools and techniques available to Human Resources professionals (such as environmental scanning, Delphi methods and transition probability matrices, performance appraisal instruments, selection techniques, job evaluation methods, and some of the various applications of needs analysis); through the use of lectures, case analyses, student presentation, and textbooks with supplemental readings to enrich the students' knowledge.

SGS 801.2 Management and Entrepreneurship 3 Credits

This course is aimed at empowering the graduates with the relevant skills that will empower them to engage in income-yielding ventures to be responsible, enterprising individuals who will eventually become entrepreneurs or entrepreneurial thinkers and by so doing make significant contributions to nation building, national economic development, and sustainable communities. It will equip graduates with the basic

skills to make them job creators rather than job seekers.

MGT 816.4 M.Sc. Seminar

This course introduces the student to the skill of writing seminar papers. How to write journal articles, use of internet to access materials, retrieve the materials and use them for journal articles, referencing techniques and cross referencing of materials etc. The Students' position paper will be presented and evaluated.

MGT 817.4 M.Sc., Dissertation

The M.Sc., dissertation is designed to give each student the opportunity to undertake a sustained piece of research work. The students will work under the supervision of an appointed post graduate supervisor. The specific research topic is chosen from any area of management that is of interest to the students. The research topic is approved by the students' supervisor and ratified by the Departmental Post Graduate Committee. The students are required to provide detailed reports of their original research work and thereafter present/defend same before an appointed external examiner.

ELECTIVE COURSES

MGT. 811.3 Business Policy 3 Credits

This course deals with conceptual frameworks and models for the analysis of competitive situation and strategic dilemmas; insight into strategic management; analyses of external competitive environment, industry structure, value chain dynamics, etc. Topics covered include business opportunities, mission statements and the development of corporate strategy, building the organisation competence, resource allocation, mergers and acquisition strategies, integration strategies, building organisational competitive strategies for their effectiveness through product pricing techniques, management process and policy control. This course also discusses analysis of industry structures and dynamics, ebusiness, process reengineering and corporate turnaround. Case writing and analysis are fundamental to this course.

MGT 812.3 Economy and Industry Analysis

The basis of formulating strategy is the assessment of the environment in all its dimension. This course will focus on the use of concepts and techniques used in environmental and industry analysis and in identifying trends and changes in the environment. These will include: economic, social and technological forecasting, Delphi method, Scenario. This course provides managers with an overview of the economic environment within which business must operate, and an

understanding of some of the analytical tools that economists use to solve business and economic problems. The focus is to enable students to identify, understand and evaluate the domestic and global forces causing economic change. Key concepts and ideas from both microeconomics and macroeconomics are introduced. Topics relevant to real- world issues and problems provide the focus for in-class discussion. With this course, students are expected to be familiar with the fundamental concepts of economics, and to be able to analyze how changes in the economic environment affect business performance and future strategic options. On the other hand, students are exposed to current trends/industry analysis/research curriculum is to explore, interpret, and use current industry trends. The instructor will lead participants through an open discussion on how to access this information and apply it to basic business practices including the use of term papers and case studies.

MGT 813.3 Operations Management

This course deals with aggregate planning methods with emphasis on the mathematical model; seasonal production planning and workforce planning. Integration of planning and scheduling levels in hierarchical systems. Determination of capacity in services systems; services design and service mix problems. Concepts, models and theories relevant to the management of the processes involved to provide goods and/or services to consumers in both the public and private sectors; production, inventory and distribution functions, scheduling of services or manufacturing activities; facilities planning and device of technology. This course is intended to discuss issues in operations strategy, process analysis and the use of data and managerial opinions in making effective propositions to address the questions in the identified cases. Major economic decision, problems of production and operations management; aggregate production and work force scheduling; multi-plant allocation of product; large scale project control (CPM and PERT); production and inventory control; demand forecasting; quality control; and short run job shop scheduling; the interaction of production problems with those of other functional areas, queuing theory, dynamic programming, multiple regression and correlation.

FIN. 850.3 Advanced Corporate Finance

This course is design to introduce student to an advanced treatment of theories and three decision areas or financing, investment and dividend. This course therefore examines the effects of various corporate financial policy decisions (example capital structure, working capital, capital budgeting and dividend policies) on the values of

the firm. Issues to be examined include: financial structure, capital structure, market valuation of risky assets under uncertainty, risk and uncertainty management strategies, capital budgeting, operation of capital market and money market, analysis for investment in securities, portfolio theories and the concept of diversification, efficient market theory, cost of capital, dividend policy, corporate financial problems example leasing, mergers, and of new securities, the institution of Zakat, the insurance debate and the non-interest banking and financial system. This course also helps students to understand financial ratios, current assets, investment and capital structure such as money and capital markets.

MGT 814.3 International Business Management

This course focuses on the international dimension of business, including trade, financial and foreign investment patterns, and problems of policies at the corporate and national levels. It covers theoretical, institutional and case analyses of major issues, including the impact of international codes and organisations on corporate policies at home and in the host countries, the effect of changing government policies on strategies for managing international business operations. Using a wide range of data sources, cases, and other empirical studies, each student will prepare an individual study of specific firm and country.

MGT 815.3 Organisational Development and Change

This course examines the problem associated with implementing change in the organisation; the role of external consultants, entering and contracting consultants, determining needs and measuring relevant variables; change management. Students are expected to examine the theory, and techniques for organisation diagnoses both at personal, group and organisational levels, data collection, analyses and writing and presenting reports, etc.

B. M.Sc. (HUMAN RESOURCE MANAGEMENT) PROGRAMME:

MGT. 819.1 Human Behaviour in Organizations

This course examines rigorously, people in organizations and society. Topics include organizational dynamics micro and macro perspectives; organizations and the systems concept; organizational entry, motivation and job satisfaction, bases of individual attitudes and behaviour in organizational settings, individual and their relationships in organizations; and group and inter group behaviour.

MGT. 820.1 Human Resource Management in the Public Sector

The course provides the student with tools to make administrative decisions regarding personnel in public and nonprofit settings. These include human resource planning, recruiting, coordinating, development, compensation, and evaluation. Important additional influences are examined such as legal, environmental, behavioral, sensitivity, labor relations, and grievance systems.

MGT. 821.1 Performance Evaluation and Control

This course focuses on the theoretical underpinnings, analysis, design, and implementation of performance appraisal, control, and reward methods, tools and systems. Directs critical attention to measurement, motivation, personality, goal setting and behavioral theory and concepts and applies them to the selection of performance criteria and incentives. Includes the design of performance appraisal instruments and control reward systems; and the management of the implementation process, for example, involving performance feedback and behavior modification of performance, control, and reward systems in an existing organization. It may discuss topics performance appraisal, compensation, benefits, and incentive systems. In the area of performance appraisal, topics to be studied include systems, methods, rater errors, and interviewing. Other topics to be explored include pay plans, compensation administration, flexible benefits, health plans, individual and group incentives, employee motivation, and HRIS.

MGT. 822.1 Managing Diversity (Cultural Differences)

This course is designed to provide an understanding of the diverse people that are involved in the employment relationship and how to manage such without disrupting the flow of work. Such diversity includes cultural, gender, generational, religious among others. Participants are expected to study the different ways various cultures think, communicate and behave, particularly within business contexts, in order to develop a necessary level of cross-cultural competency. Today's global business implies co-operating, coordinating, negotiating and supervising, using management processes appropriate to the cultural context. The student will explore cultural implications in those management processes, as well as its impact on team-building, ethics, conflict resolution and creative problem-solving. Students will also study their own culturally-based perceptions, patterns of thinking and behavior, communication styles, values and how they can be adapted to an intercultural context. Although the course will primarily deal with cultural differences in national culture

context, it will also address cultural differences in gender and in organizational level as long as they affect the global business environment.

MGT. 823.1 Human Resource Training and Development

This course examines key principles relevant to training and development, including the role of training in an organization, adult learning theory, needs assessment, training methodology, organizational support, resources and constraints, evaluation of training, and managing the training function. International training considerations are also addressed. Issues that influence training implementation, such as ethics and interpretation, are also reviewed. Students design and develop training modules in response to the needs of a client organization and of adult learners.

MGT. 824.1 Research Methodology

The objective of this course is to deepen the understanding of the students, of the traditional scientific research methods. Topics to be discussed include Research in Social, Physical and natural sciences; problems of research in developing countries; common errors in research; types of research; and research in practice: selecting a topic, problem and hypotheses formulation, research design, instruments and data collection data analysis and interpretation, research report, etc.

MGT. 826.3 Industrial Relations

This course discusses the determination, acquisition, development, utilization and maintenance of human resources by employment organizations. Covers manpower/employment planning, recruitment and selection, training and development, performance evaluation, and compensation administration, while giving special emphasis to labor-management relations. Considers whether recent developments such as concession bargaining, worker participation programme and the growth of nonunion firms represent a fundamental transformation in industrial relations practice, review recent research and new theories arguing that such a transformation is occurring, also reviews the counterarguments and evidence put forth by those who believe no such transformation is underway.

MGT. 827.3 Strategic Management

The course is intended to introduce participants to strategic and futuristic thinking and planning; and theories, skills and tools for translating long-term plans into attainments. Topics to be covered include visioning, setting strategic goals, objectives and targets, preparing, implementing,

monitoring, evaluation and review of strategic plans while contextualizing discussions within the private and public sector settings. An integral component, futures studies, shall involve an introduction into thinking about the future, the foundation of the field, its methodologies, link to planning, decision-making, strategy and public policy.

MGT. 825.2 Human Resource Planning

This course will emphasize decision-making processes in the development and maintenance of various programme elements in human resource management. Decision analysis will also be considered. Traditional and current issues-oriented programming will be addressed. Programme elements that may be included are human resource

MGT. 828.3 Negotiations

This course examines the dynamics that occur before, during, and after negotiations and the theory behind various negotiation approaches. Topics to be addressed will include: claiming versus creating value (also known as distributive and integrative bargaining); preparation strategies the nature of power; psychological aspects of negotiation; experience and expertise; multi-party/group negotiations; culture and gender; communications and perception; mediation and other alternative dispute resolution systems; working with lawyers; organizational change, and salary negotiations.

MGT. 829.3 Managing Organizational Change

Management of change is designed to acquaint participants with the issues, techniques, and strategies for the management of change. The first part of the course concentrates on developing expertise in predicting relevant changes in the organization's task environment and making sure that change initiatives are in harmony with environment. Techniques for environmental scanning and task forecasting will be explored and useful models analyzed. Students will also discuss and make presentations on current issues such as employee ownership, team-based management, mergers and acquisitions, and organizational renewal, etc. By course end, participants will understand the techniques for creating a change, managing resistance, and applying change models to various industries and situations.

MGT. 830.3 Qualitative Research Methods

This course will focus on the styles of research, analysis, and epistemologies associated with qualitative research in the social and policy sciences. The objective is for students to gain confidence in the applicability and relevance of non-quantitative methods in our research environment, where the tradition of believing in

“objective measurement” is strong. Qualitative research methods open up for us a class of research questions that is not accessible within the “normal” scientific method. That is, as researchers, we can ask new questions if we have a richer repertoire of tools, both the qualitative and the quantitative from which to choose. Topics to be discussed include the basics of qualitative research methods and research approaches. Some qualitative research approaches, such as phenomenography, activity theory and ethnography, data collection methods such as interviews, field studies and rapid rural appraisal, and observations; and evaluating collected data.

MGT. 831.3 Organizational Theory

This course is an introduction to the major theoretical approaches and debates in organizational theory, which draws primarily on sociology and secondarily on economics, psychology, and political science to explain the basic building blocks of modern society. The purpose of this course is to provide you a roadmap for you to roam the terrain of organizational theory. Accordingly, we will start with the classics and then trace the history of ideas as the field has evolved to the present.

MGT. 832.2 Labour Market Analysis

In-depth treatment of the characteristics and problems of labour markets in developing countries. Analysis of the theories which explain the evolution and functioning of such markets. The specific content include structure and characteristics of internal migration, employment problems, skill generation and labour market needs, wage determination. Inflation and government policies and the effective functioning of urban labour markets.

MGT. 833.3 International Labour Movement and Institutions

This course would discuss in details the International Labour Organizations (ILO), origin and growth. It will also look at the other institutions that work with the international labour movement including its agencies. The contributions of the international labour movement in labour issues around the world and its relationship with various governments would be discussed.

MGT. 701.1 Micro-economic Theory (see Department of Economics)

MGT. 701.2 Macro-economic Theory (see Department of Economics)

C. M.Sc INDUSTRIAL AND LABOUR RELATIONS PROGRAMME:

MGT. 834.1 Labour History and Philosophy

This course examines the organized labour movement in Nigeria and its influence on political and legal institutions. Topics covered include: the emergence of wage employment, the origin and evolution of trade unions. In addition, it reviews Nigerian labour history from the perspectives of workers social dimensions of the development of the working class, reform and revolutionary movements. It also includes the discussion of the development of trade union institutions and leaders and the evolution of union political activities and collective bargaining.

MGT. 835.1 Labour Law

This course surveys and analyses the laws governing labour management relations and employee right in the workplace in Nigeria. Topics include; the legal framework of collective bargaining, problems in the administration and enforcement of agreements, protection of individual employee right including such topics as employment discrimination, the development of law of unjust dismissal, and union democracy.

MGT. Case Studies in Labour-Management Relations

This course surveys labour management relationships in a variety of organizational settings in Nigeria using case study technique.

MGT. 836.1 Industrial Relations Theory

This course traces the evolution of theory and research on industrial relations. Topics include: theories of the labour movement; institutional models and evidence regarding what unions do; origins of internal labour markets and their relationship with unions; models of strikes; empirical assessments of arbitrations; research on union decline; and empirical evidence of the impacts of new technology and globalization.

MGT. 837.3 Comparative Industrial Relations

This course focuses on identifying the similarities and differences in industrial relations in selected countries of Europe, North America, Africa, Latin America and Asia. It examines trade unionism and industrial relations of these countries showing their roles in economic, social and political developments. It takes historical, analytical and comparative perspectives in the study of the industrial relations of the selected countries. Topics include: structure and functions of labour movements: interaction between unions and political organizations; national labour policies; resolution of workplace problems and the functions of international organizations in labour relations among others.

MGT. 838.1 State and Industrial Relations

The course would focus on the conceptualization and theories of the State, Members and institutions of the State, Determinants of State action in TR: Theory of the State in IR, labour policy, theoretical overview of the role of government: the Marxist perspective, democratic elitism, pluralism: The role of government in JR from 1960 to date.

MGT. 839.2 Trade Unions and Management in Nigeria

This course focuses on the evolution of Unionism as well as the principles and practices of effective union management. Students learn the dynamics of democratic organizations and the development of labour union leadership. It is taught in two parts; the first part looks at the evolution of trade unionism in Nigeria with special reference to the rise of the Nigerian working class. It also considers the structure of the labour force and growth of trade unions with primary emphasis on their organization, leadership and ideology. In addition, it looks at the emergence of central labour organizations. The second part of the course focuses on management. Issues examined include the emergence of employers' organization, methods of decisions making and lines of responsibility, managerial ideology, indigenization, legal obligations of unions and union officials and other labour union related policies in Nigeria.

MGT. 805.1 Research Methodology

The course allows students to develop the skills to critically evaluate a wide variety of research relating to unions and the work place. It exposes students to the quantitative and qualitative research techniques used by trade unions and in the field of industrial relations. Topics include: research design, methods, techniques, and procedures applicable to research problems in labour studies.

MGT. 817.4 Thesis

Thesis provides the scholarly approach or the opportunity to undertake independent research of an industrial and labour relation issue or a case study of an organization or several organizations and to develop the ability to express their ideas in an organized form.

Specialization Areas:

(1) Labour Management Relations

MGT. 840.3 Seminar in Nigerian Labour Relations

Seminar in Labour Relation is designed to cultivate and hone the skills of students to prepare for and participate in collective bargaining process in Nigeria. Students are allowed to prepare and present scholarly papers in areas such as labour law reform in Nigeria, union growth and structure

in Nigeria, alternative dispute resolution mechanism in Nigeria, collective bargaining by Federal, State and Local government employees, impact of collective bargaining on wages and other conditions of employment in Nigerian organizations etc.

MGT. 841.3 Principles and Techniques of Collective Bargaining

This course deals with collective bargaining and negotiation in Nigeria. It gives a critical understanding of the institutions of unionism and collective bargaining, their rationale, policies, programmes and effects on workers, organizations and the society. Topics include; theory and practice of collective bargaining and negotiation, bargaining structure and practice, union and campaign power analysis, role of membership in bargaining, interest-based bargaining, strategic and coordinated campaigns, strikes and lockouts, bargaining in a global economy etc.

MGT. 842.3 Industrial Conflicts and Dispute Management

This course looks at forms of workers' protest and resolution of industrial conflict. It examines conflict resolution and management in both public and private organizations. Topics include: third party dispute resolution, mediation and arbitration, fact finding, facilitation, mini-trials, early neutral evaluation, peer review etc.

MGT. 843.3 Compensation and Benefit Systems

The course provides a comprehensive understanding of compensation systems and how organisations use them to attract and motivate employees. Topics covered include: legal constraints, job analysis and evaluations, performance appraisal, person based pay, setting and administering pay, structures, incentives, benefits and the compensation of special groups, theory and practice relating to organizations system strategy, design and administration, job evaluation, pay survey structure, pay administration, group incentives and benefits such as pensions, childcare, health care etc.

MGT. 844.3 International Labour Bodies

An examination of the emergence and roles of international bodies and agencies involved in employment relations, such as the ILO. AU Labour Commission, OATIJU and international trade union organizations. The impact of these bodies on industrial peace and fair labour practices.

MGT. 845.3 Collective Bargaining Simulation

This course exposes students to real life collective bargaining issues and processes. They prepare for and participate in a simulated negotiation between a hypothetical corporation and a hypothetical union in a typical big company with mid-size

single site bargaining unit context. Students are assigned, usually in line with preferences, to either a management or union bargaining team. The course stresses the negotiation process over settlement or substantive outcomes. Negotiation problems are as real life as possible, constrained by student time needs and with attention given to dynamic legal, political, economic, and communications concerns as well as power, information, and time factors. Participants plan for negotiations, reach agreements in principle and negotiate language, bargain wages, pensions, health care and noneconomic items in the context of a company and union with an established contract, policies, and culture. This is a hands-on programme with active participation considered essential.

2. Human Resource Development

MGT. 846.4 Seminar in Human Resource Development in Nigeria

The course focuses on developing the knowledge and skills to design, implement and evaluate human resource development programmes generally but gives consideration to recruitment, selection and development of human resource. It deals with how to establish appropriate recruitment strategies, choose effective selection tools etc. Students will also how to create, use and evaluate pattern behavior, describe interview questions to increase validity and reliability in the selection process etc.

MGT. 847.2 Human Resource Economics

This course takes a critical review of labor-market trends, data collection systems, and theories pertaining to public efforts to develop the employment potential of the nation's human resources and to combat unemployment. It examines the major segments of the nation's educational training enterprise (e.g., public education, higher education, employer-provided training, apprenticeship, and special training programs for the economically disadvantaged). It also covers policy issues pertaining to welfare reforms, direct job creation, worker relocation, economic development, and targeted tax credits.

MGT. 820.1 Human Resource Management

This course will familiarize students with the basic responsibilities of the human resource functions in organizations. It covers topics such as strategic planning, job analysis, recruitment, selection, training and development, career planning, performance appraisal, and compensation. In addition, it covers current topics in HRM that border on environmental and organizational challenges, such as technology, globalization, legislation, restructuring, work/life balance,

changing labor markets etc. The course also places emphasis on developing relevant problem solving and critical thinking skills because the basic concepts of HRM and the skills developed in this course are applicable to all types of organizations and jobs.

MGT. 848.2 Human Resource Simulation

The course uses a simulation model and an open-systems approach (as means) to enhance students' skills in strategic planning and managerial decision making. Attention is given to the implications and effects of strategic human resource managerial and supervisory decisions as measured by some organizational performance indicators, including quality of work life, employee productivity, customer satisfaction, employee retention, internal control, and the bottom line. Each student is assigned to a group (team) of five to ten members and must be committed to the work of that group.

MGT. 849.2 Human Resource Information Systems

This course is a comprehensive analysis of human-resource information systems with exploration of major applications and use of systems to improve decision-making, it emphasises hands-on use of technology in human resource planning, selection, appraisal, and compensation. In addition, the course provides an introduction to the development and use of information systems to organise and retrieve data pertinent to human resource and industrial relations operations. It focuses on understanding how and why human resource information systems are developed, maintained, and managed. Consequently, the course familiarizes students with general design issues, choices to be made, and problems encountered in the creation of an IS, and it also provides students with rudimentary applications' programming skills. Furthermore, the course examines ways to make databases efficient and consistent. Production database systems such as PeopleSoft also are reviewed and used. A computer laboratory is used to introduce the different software packages.

MGT. 850. Field Study in Strategic Human Resource Management

This course provides students with in-depth classroom instruction on HRM in a specific region of the world, and a one-to three-week visit to the region to explore human resource strategies and practices firsthand. Attention is paid to the development of selected European business entities, the history, role, and current efforts of the European Union in the workplace, and local cultural nuances as they affect the world of work. Students are asked to compare and contrast significant aspects of the dominant Nigeria strategic HR model with strategic HR models

found in the other countries. Students incorporate their learning in the classroom and on the field visit in a final paper and on class presentation. Papers and projects are essential parts of the course.

3. Collective Bargaining

MGT. 851.3 Collective Bargaining

This course is a comprehensive introduction to collective bargaining in Nigeria, the negotiation, scope, and day-to-day administration of contracts, the major substantive issues in bargaining, including their implication for public policy, industrial conflict, the major challenges facing unions and employers today, Nigeria industrial relations in international and comparative perspective. Topics include: theory and practice of collective bargaining and negotiation, bargaining structure and practice, union and campaign power analysis, role of membership in bargaining, interest based bargaining, strategic and coordinated campaigns, strikes and lockouts, bargaining in a global economy etc.

MGT. 841.3 Principles and Techniques of Collective Bargaining

This course deals with collective bargaining and negotiation. It gives a critical understanding of the institutions of unionism and collective bargaining; their rationale, policies programmes and effects on workers, organizations and the society. Topics include; theory and practice of collective bargaining and Negotiation; bargaining structure and practice; union and campaign power analysis; role of membership in bargaining, interest based bargaining, strategic coordinated campaigns, strikes and lockouts; bargaining in a global economy etc.

MGT. 845.3 Collective Bargaining Simulation

This course exposes students to real life collective bargaining issues and processes. They prepare for and participate in a simulated negotiation between a hypothetical corporation and a hypothetical union in a typical big company with mid-size single site bargaining unit context. Students are assigned, usually in line with preferences, to either a management or union bargaining team. The course stresses the negotiation process over settlement or substantive outcomes. Negotiation problems are as real life as possible, constrained by student time needs and with attention given to dynamic legal, political, economic, and communications concerns as well as power, information, and time factors. Participants plan for negotiations, reach agreements in principle and negotiate language, bargain wages, pensions, health care and noneconomic items in the context of a company and union with an established contract, policies, and culture. This is a hands-on program with active participation essential.

MGT. 839.2 Trade (Labour) Union Management

The course studies and analyses the structure and operations of Nigerian unions, including the complicated and complex internal life of the organizations: the varied environments in which unions develop and grow or decline; the relationship of national unions, local unions, and members in the context of internal union government; the ways in which unions are set up to handle organizing, collective bargaining, contract management, and political activities, It also examines the role of union leaders and the strategic choices they make. Attention is also given to current developments in the labour movement and to the eternal problems of attaining union democracy.

MGT. 852.3 Labour Arbitration and Alternate Dispute Resolution

This course looks at the legal framework for contract negotiations and administration. Topics include: National Labour Relations Acts; right to organize and undertake concerted activity; strikes and lockouts and unfair labour practices.

MGT. 841.3 Current Issues in Bargaining

This course is designed to provide an in-depth analysis of the contemporary collective bargaining process from a strategic and theoretical perspective. It takes a critical review of recent literature on bargaining theory and practice as well as an analysis and evaluation of a series of contract negotiations from a variety of industries, unions, strategic models, and outcomes. Topics covered include: changing bargaining climate, bargaining theory, changes and variations in bargaining structures and practices, union and company power analysis, role of membership in bargaining, interest-based bargaining, strategic coordinated campaigns, strikes and lockouts, bargaining in a global economy, labour coalitions, concessions and job security, and settlement.

D. MSc. (MANAGEMENT INFORMATION SCIENCE) PROGRAMME:

MGT. 853.1 Management Information Resources: Characteristics and Types

Examines the characteristics that distinguish management information resources, their types and the offices that generated them, lifecycle of information resources: creation, storage, utilization, preservation, and disposal. Problems in the acquisition, storage and preservation of information resources.

MGT. 854.1 Information Representation, Organization and Retrieval

Exploration of methods of representing information and organization for efficient storage and retrieval of information and records. The course will expose students to the design of information retrieval systems and conventional methods of information representation and organization.

MGT. 800.1 Management Theory and Practice

Conventional and modern conceptions of management; definition and dynamics of management theory; features of theories of management; applications and relevance of theories in the management of information organizations in Nigeria.

MGT. 855.1 Database Management

Critical examination of manual and computerized data bases on various subject areas covered by the organization with particular reference to file structure and file organization updating information, revision etc.

MGT. 856.1 Information Technology

Examination of variety of information technology relevant to management information handling namely, telecommunication, E-mail, facsimile, teletext, computer, reprography and micrograph, etc.

MGT. 857.1 Evaluation of Management Information Resources and Systems

Critical analysis of management information resources and systems in relation to selected parameters such as relevance, timeliness, appropriateness, etc.

MGT. 816.4 Graduate Seminar in Management Information Science

An examination of contemporary issues in Management Information Systems in consultation with supervisor. The seminar paper is presented at departmental or faculty seminars.

MGT. 817.4 Thesis

Original research independently conducted by the student under the direction of a supervisor.

FIN. Financial Management and Strategy

Examines the theoretical and practical aspects of financing organizations and institutions as well as the strategies adopted in attracting increase in budget allocation. Topics to be considered include macro/micro allocation of resources, types of budgeting, incrementalism, programme budgeting, zero base budgeting, MBO, etc

MGT. 892.1 Strategic Management

This course deals with Management Information Systems focusing on the nature and dynamics of organizational policies, missions and objectives;

strategic planning process, techniques for strategic appraisal, SWOT analysis, development of strategic options, etc.

MGT. 858.2 Information Behaviour of Organizations and Institutions

The course examines the information needs, searching behaviour, the utilization and non-utilization of management members of organizations and institutions. It also examines policies procedures and ethics on information in the organization.

MGT. 859.2 Preservation and Security of Management Information Resources and Systems

The modern methods for preserving and securing management information resources and systems will be examined in this course. Topics to be covered include threat to information resources and systems, techniques for combating the threats etc.

MGT. 860.2 Automated and Networked Information Systems

Computerized and networked information systems will be examined in this course. Case studies of such systems will be critically examined to know their strength and weaknesses.

MGT. 861.2 Independent Study in Management Information Science

A case study of Management Information Science conducted under the supervision of a lecturer will be the main focus of this course.

4. COURSE DESCRIPTIONS FOR THE DBA PROGRAMME

MGT 923 - Advanced Organizational Theory

This course contrasts and compares a variety of perspectives in organization theory and design; contingency theory, resource dependency and population ecology models. Students are expected to develop an understanding of the special methodological problems in undertaking organizational research.

MGT 924 - Contemporary Management Philosophy

The course will look at how various approaches to the management process will be analyzed. Attention is focused on such topics as social, political and religious factors having bearing on management decision. Emphasis is placed on the development of a philosophy of management by such student through a critical examination of current managerial thought and action in our social and economic system.

MGT 925- Decision Models and Simulation

This course consists of a survey of analytical and simulation approached to model building. Deterministic models, such as mathematical programming and scholastic models are included. All of the mathematical developments are related to an overall framework of modeling and problem solving.

MGT 926 -Comparative Management Systems

This course is designed to study in different types of managerial systems required to administer organizations in varying cultures. Culture has profound effects on the behavior of individuals in organizations, on their motivations and expectations, or their views of the functions of management etc. as a consequence, effective management in different cultures require different approaches to a variety of management problems. The basic aim of the course is to develop in the students and understanding of these problems and an ability to deal with them from a top management point of view.

MGT 922 - Business Policy and Strategy

This course provides an advanced coverage of the development and transformation of business enterprise within the global economy, by focusing on the business strategy and dynamics of institutional and organizational change resulting from today's globalization process. This includes the effect of structural, institutional, and organizational change upon the strategy of the business enterprises for survival and success in the contemporary hyper-competitive, technology-driven, fast-paced, uncertain, globalized environment. This course provides the student with several survival strategies adopted by organizations to overcome competitive challenges such as; dynamics of transnational corporations; strategy in a fast-paced, uncertain environment; competition and hyper-competition; the meaning of management strategy in a globalized world; technological innovation as a strategy; understanding the organizational transformation as a interface of internal and external change leadership and mobilization; institutional and organizational innovation; globalization as a strategy.

MGT 921- Advanced Research Methods

This course moves students towards the fulfillment of the thesis and publication requirements of the doctoral degree. The course focuses on 'when' and 'why' to use the different methodologies; such as case study research, action research, etc. understanding their nature, and appreciating the advantages and disadvantages of each research method. It also covers the main two research paradigms; the quantitative as well as the qualitative paradigms. Other class topics include

concepts from the philosophy of science and from psychology, acquiring data, interpreting and presenting of research results, and thesis writing. Ethical, social and political aspects of conducting research and producing knowledge for practice are examined. Quantitative designs covered include experimental and quasi-experimental, survey, causal-comparative, evaluation and existing action research, qualitative designs covered include case study, phenomenology, grounded theory, and ethnography. The coursework also covers the application of several modern mathematics/statistical software, such as SPSS, ANOVA, etc.

MGT 927 -Quantitative Decision-Making Using Statistics for Business Analysis

This course develops students' skills in descriptive statistics, statistical inference, quantitative techniques including analysis of variance and covariance, multiple linear regressions and various non-parametric techniques. Students will use quantitative data reduction and analysis and data management techniques. Students will learn to utilize software for data analysis. This research competency component is intended to focus on key concepts and issues in the conduct of data analysis in management-oriented social science research, including the role of distribution assumptions underlying various hypothesis tests, the distribution assumptions underlying various hypothesis tests, the computational details of various tests, and the use of readily available statistical software packages. It is specifically not expected that learners will become fully grounded in statistical methods, rather it is hoped that students will learn what questions to ask about data analysis and be able to defend their use of specific techniques to be used in professional practice.

MGT 928 - Human Resource Planning and Development

The purpose of this course is to analyze and evaluate manpower policies designed to enhance national priorities, organizational goals, and individual values in a pluralistic economy. A framework of analysis is developed to permit a critical investigation of manpower questions relating to employment, human resource planning and job design, appraisal and evaluation, recruiting and selecting, training and development, career planning, compensation, conflict and its resolution and various special topics.

MGT 930 - DBA Seminar in Management

This course critically examines the issues, problems, and strategies for managing organizations in a dynamic business environment.

5. COURSE DESCRIPTIONS FOR THE Ph.D PROGRAMMES

A. Ph.D (GENERAL MANAGEMENT) PROGRAMME:

MGT 900.1 Management thought and philosophy

This course examines the idea and evolution of management as a field of study.

MGT. 901.1 Seminar in Strategic Management and Entrepreneurship

Students will gain a well-developed understanding of business enterprises, the entrepreneurial and strategic thinking that drives them in a dynamic, competitive regional, national, and global economy. Students will learn to apply entrepreneurial and strategic management practices (e.g., using case analysis) to organizations of varying sizes. An integral component, future studies, shall involve an introduction into thinking about the future, the foundation of the field, its methodologies, linked to planning, decision-making, strategy and public policy. The relationship between core competences (at the company level) and key success factors at the industry shall be examined.

MGT. 902.1 Advanced Research Methods

The objective of this course is to deepen the understanding of the students of the traditional scientific research methods. Topics to be discussed here include research in social, physical and natural sciences, problems of research in developing countries, common errors in research, types of research, and research in practice, selecting a research topic, problem and hypotheses formulation, research design, instruments for data collection, data analysis and interpretation, research report, etc.

The objective is for students to gain confidence in the applicability and relevance of non-quantitative methods in our research environment, where the tradition of believing in 'objective measurement' is strong. Quantitative research opens up for us a class of research questions that are not accessible within the 'normal' scientific method. That is, as researchers, we can ask new questions if we have a richer repertoire of tools, both the qualitative and the quantitative research methods and research approaches from which to choose.

Topics to be discussed include the basics of qualitative research methods and research approaches. Some qualitative research approaches, such as phenomenography, activity theory and ethnography, data collection methods such as

interviews, field studies and rapid rural appraisal and observations and evaluating the collected data.

MGT 903.2 Imperatives of Globalisation

Globalisation Overview: Why has the global economy grown so rapidly? How is it affecting the environment, 'ocal economies, social and cultural customs throughout the world? Questioning Free Trade: What are the negative and positive impacts of free trade? Economic globalisation and technological changes. These processes are examined in relation to the national development. It also examines multinational companies, their histories, the reasons for these companies' special mobility and the impact on developing world. Globalisation and the environment, social equity, is social equity relevant to trade issues? What is gained and lost through the gradual homogenization and distortion of cultures as a result of globalisation? The role of regional economic groupings.

MGT. 904.2 Advanced Quantitative Techniques

The course is designed to provide students the opportunity to explore more advanced quantitative techniques for decision making in general and research in particular. It introduces students to basic problem solving techniques in decision making. It provides them with set of mathematical models which are directly applicable to situations in business and government. Emphasis will be on multi-variate statistical methods, advanced topics in optimization techniques and stochastic models, decision theory, network analysis, inventory management concepts, queuing models; linear programming (graphic and simplex methods); introduction to operations research and simulation

MGT. 905.3 Seminar in Business and Environment

Students will gain a well-developed understanding of business enterprises and the environmental factors that influence the performance of enterprise managers. The basic objective of the course is to examine the legal, social, political and economic framework in which business organizations should operate in the Nigerian environment. Because of the pervasive influence of globalization and reduction of distances between nations, their value systems, language etc., international business environments will be explored.

Topics to be covered include: the concept, scope and nature of the business environment and environmental scanning, legislations related to business. Ethical theories of business decision, social and cultural issues in business. Theoretical and practical issues of the Nigerian political economy which dictate the basis of fiscal and

monetary policies, macroeconomics management and business practices.

MGT. 906.3 Management of Change in Organisations

Management of change is designed to acquaint participants with issues, techniques, and strategies for the management of change. The first part of the course concentrates on developing expertise in predicting relevant changes in the organisation's task environment and making sure that change initiatives are in harmony with the changes in the business environment. Techniques for environmental scanning and task forecasting will be explored and useful models analysed. Students will also discuss and make presentations on current issues such as employee ownership mindset, team-based management, mergers and acquisitions, organisational renewal etc. At the end of the course, participants will understand the techniques for creating change, managing resistance, change agents, and the application of various change models to various industries and situations.

MGT. 907.3 Government, Businesses and Society

The course will examine the area of government business and business-society relations as one of the critical areas where managers spend considerable amount of time. The responsibilities of the firm in these areas, the role of general manager, the skills needed, ethical and philosophical issues involved will be discussed.

MGT. 908.3 Seminar in Public Enterprise Management

This course seeks to acquaint students with the theoretical and practical issues confronting non-profit organisations. The course systematically examines the ways in which the public policy process both supports and regulates the activities of non-profit organisations and the ways in which they seek to affect public policy governing their behaviour. How these government organisations are controlled by boards of directors appointed by government machinery. This course discusses the legal foundations for boards, their conventional roles and responsibilities, and the strategic planning processes to strengthen board leadership.

MKT. 909.2 Advanced Marketing Theory

The objective of this course is to provide students with the knowledge of advanced marketing theory and research. Marketing is an applied discipline that is informed by professional scholarly research in marketing and related fields (e.g. psychology, economics). This course provides an in-depth review of marketing theory and research, an advanced review of influential theory in the development of marketing thought, and an

overview of contemporary theories of research in marketing. Reading material shall largely be scholarly articles in refereed journals.

MGT. 909.3 Multinational Enterprises

This course covers World Trade Organisation (WTO) and multilateral trade agreements. The course will present an overview of the WTO and then focus on multilateral trade negotiations. Multilateral trade agreements shall be studied in four parts: trade in goods, trade in services, trade related aspects of intellectual property rights and institutional issues. Agreements on trade in goods are further divided into three subcategories: market access, custom-related issues and trade rules. Lastly, this course will look at the future challenges facing the current multilateral trading system. Although this course deals with trade agreements, it will put more emphasis on the economic interpretation rather than the legal aspects. For this course, outside scholars and experts from policy, academic, and private sectors may be invited as special guest lecturers.

MGT. 910.3 Advanced conflict Management:

This course is designed to provide an understanding of intercultural management useful for international management and trade negotiations. Participants are expected to study the different ways various cultures think, communicate and behave, particularly within business contexts, in order to develop a necessary level of cross-cultural competency. Today's global business implies co-operating, coordinating, negotiating and supervising, using management processes appropriate to the cultural context. The student will explore cultural implications in those management processes, as well as their impacts on team-building, ethics, conflict resolution and creative problem-solving. Students will also study their own culturally-based perception, patterns of thinking and behaviour, communication styles, values and how they can be adapted to an intercultural context. Although the course will primarily deal with cultural differences in national culture context, it will also address cultural differences in gender and in organizational context as long as they affect the global business environment. Topics to be covered include:

- a) Foundations and theories of conflict: theories of conflict resolution- an interdisciplinary approach to examination of conflict and conflict resolution theory.
- b) Responses to conflict: An examination of the different approaches to conflict resolution represented by two party negotiation, facilitative processes such as mediation, the various evaluative processes, adjudicative processes such as litigation and binding arbitration, and the

- various hybrid processes as well as negotiation.
- c) Mediation skills clinic- A basic introduction to the mediation skills, theory and ethics.
 - d) Interpersonal and inter-group conflict: An indepth study of the dynamics of interpersonal and intergroup conflicts.
 - e) Organizational and community conflict- An exploration of the dynamics of conflict in organizations and the community.
 - f) International and cross-cultural conflict- An examination of the practical negotiation skills central to the resolution of situation-specific international and inter-cultural conflict.
 - g) Methodology of Conflict Resolution Research — an introduction to a range of qualitative data collection methods with particular focus on techniques used in research on conflict and conflict resolution, including participant observation, content analysis, behavioural mapping, and non-intrusive measures as well as a review of relevant research literature in the field.

MGT. 911.4 Ph.D., Seminar

This seminar introduces students to the most recent research in the area of Management and Organisational analysis, examining current issues and trends. Students have the opportunity to present and discuss their own research and are actively engaged in the analysis and discussion of the work of others. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and results in the student's research.

B. Ph.D., HUMAN RESOURCE MANAGEMENT) PROGRAMME:

MGT. 900.1 Management Thought and Philosophy

This course examines the idea and evolution of management as a field of endeavor.

MGT. 914.2 Organization Theory

This course is designed to enable students undertake an indepth study of the organizational processes and characteristics that influence organizational decisions and change. Topics to be covered include: dimensions of organization structure, organization design, organization culture, organization change and development, organization technology, the environment of organizations, and the relationships between these processes and characteristics.

MGT. 915.2 Advanced Human Resource Management

This course introduces students to the most recent developments in the area of HRM, examining current issues and trends. Students have an opportunity to present and discuss their own research and actively engage in the analysis and discussion of the work of others. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and results of his/her method is to identify and conceptualize the structural determinants of relative bargaining power. On this basis, the course examines both the economic outcomes of collective bargaining and current bargaining trends in a variety of industries. Tentative theoretical analyses of unionism (neoclassical, institutionalist) are compared. The statistical techniques and empirical results of research on the union effect on economic outcomes (wages, prices, inflation, profits, productivity, earnings inequality) are also evaluated. The effect of technology, corporate structures, and public policy on union bargaining power is outlined, and a number of case studies on collective bargaining in the private sector are reviewed.

MGT.911.2 Seminars in ILR

This seminar introduces students to the most recent research in the area of ILR, examining current issues and trends. Students have an opportunity to present and discuss their own research and actively engage in the analysis and discussion of the work of others. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and results of his or her research.

MGT. 925.2 Contemporary Issues in ILR

This will run as a seminar to address emerging theoretical and empirical issues in ILR.

C. Ph.D (MANAGEMENT INFORMATION SCIENCE) PROGRAMME

MGT. 902.1 Advanced Research Methodology

This course examines in-depth concepts and tools on research methodology and their application to research situations. Topics to be covered include types of research, selecting a topic for investigation, problem statements, hypothesis, conceptual, theoretical and empirical frame works, types of research methods, instrumentation, sample and sampling techniques, statistical techniques, reporting findings etc.

MGT. 926.1 Advanced Quantitative Methods

An examination of quantitative methods involves analysis of research data in quantitative terms. The methods include the use of descriptive statistics such as percentage and inferential statistics such as

t-test, ANOVA etc. The students are expected to utilize quantitative methods in the research report.

MGT. 927.1 Advanced Information Technology Application

Critical examination of information technologies, notably computers, the effective management of information and information systems in organizations. Examines the steps followed in the utilization of electronic data processing system in producing management information.

MGT. 928.2 Advanced Evaluation of Information Systems

Critical assessment of information systems in different organizations based on selected parameters. Manual and mechanical information systems will be examined, the recall and precision of the systems will also be examined.

MGT. 929.2 Performance Evaluation and Control

Examines the theoretical underpinnings, analysis, design, and implementation of performance appraisal, control, reward methods, tools and systems. Measurement, motivation, personality, goal setting and behavioural concepts and their application to the selection of performance criteria and incentives.

MGT. 930.2 Leadership in Theory and Practice

This course examines leadership both in theory and in practice. The strengths and limitations of the theories will be examined and related to leadership in information organizations.

MGT. 931.2 Seminar in Organization and Retrieval of Information and Records

Oral presentation of seminar paper on the organization, access, retrieval and delivery of management information in the department or faculty directed by academic staff.

MGT. 932.2 Seminar in ICT Applications to Management Information Systems

Oral presentation of seminar paper on the application of ICT to the management of information resources and systems in the department or faculty directed by academic staff. The seminar presentation will explore internet tools that enable the international community have access to the organizations' information as well as search strategies

MGT. 933.2 Seminar in Information Behaviour of Organization

Oral presentation of seminar paper on aspects of information user attitudes and behaviours in the department or faculty directed by academic staff. Topics for seminar papers include organizational

dynamics, motivation and job satisfaction, basis of individual attitude and behaviours in organizational settings, individual and their relationships in organizations.

MGT. 934.2 Human Resources Information Systems

Examines the expert human resources available inside and outside organization in diverse areas and the process of developing information systems based on knowledge of human resources in an environment, their maintenance and management.

MGT. 935.2 Qualitative Research Method

The course introduces students to the methodology of qualitative research with particular emphasis on the case study method and the use of interview and observation as data collection tools. Topics to be examined include basics of qualitative research and research approaches such as phenomenology, field studies, appraisal and observation. Evaluation of data collected.

FIN Seminar in Financial Management and Budgetary

Oral presentation of seminar paper on financial management and budgeting practices in the department or faculty directed by academic staff.

MGT. 936.2 Managing Conflicts

This course introduces the students to the theories of conflicts, types of conflict and resolution of conflict in information environment. It examines the theories of conflict, conflict resolution, organizational and the community conflict, international and the cross-cultural conflict and the methodology of conflict resolution research.

D. Ph.D., (ORGANISATIONAL BEHAVIOUR) PROGRAMME:

MGT. 937.1 Advanced Research Methods and Statistical Techniques

The objective of this course is to deepen the understanding of the students of the traditional scientific research methods. Topics to be discussed here include research in social, physical and natural sciences, problems of research in developing countries, common errors in research, types of research, and research in practice, selecting a research topic, problem and hypotheses formulation, research design, instruments for data collection, data analysis and interpretation, research report, etc. Other topics to be discussed include the basics of qualitative research methods and research approaches. Some qualitative research approaches, such as phenomenography, activity theory and ethnography, data collection methods such as interviews, field studies and rapid rural appraisal and observations and evaluating the collected data.

The aim is for students to gain confidence in the applicability and relevance of non-quantitative methods in our research environment, where the tradition of believing in 'objective measurement' is strong. Quantitative research opens up for us a class of research questions that are not accessible within the 'normal' scientific method. That is, as researchers, we can ask new questions if we have a richer repertoire of tools, both the qualitative and the quantitative research methods and research approaches from which to choose.

MGT. 938.1 Advanced Statistics for Business and Government

This course covers basic concepts in descriptive and inferential statistics and their use in empirical research.

MGT.939.1 Advanced Organization Theory

This course contrasts and compares a variety of perspectives in organization theory and design, contingency theory, resource dependency and population ecology models. Students are expected to develop an understanding of the special methodological problems in undertaking organizational research.

MGT.913.2 Management Thought and Philosophy

Various approaches to the management process will be analyzed. Attention is focused on such topics as social, political and religious factors having bearing on management decisions. Emphasis is placed on the development of a philosophy of management by each student through critical examination of current managerial thought and action in our social and economic systems.

MGT. 940.1 Comparative Management System

This course is designed to study different types of managerial systems required to administer organization in varying cultures. Culture has profound effect on the behavior of individuals in organizations, on their motivation and expectations, on their views of the functions of management etc. As a consequence, effective management in different cultures requires different approaches to a variety of managerial problems. The basic aim of the course is to develop in the students an understanding of these problems and an ability to deal with them from a top management point of view.

MGT. 941.2 Organisational Development and Change Management

This course examines the problem associated with implementing change in the organization, the role of external consultants, entering and contracting

consultants, determining needs and measuring relevant variables; change management. Students are expected to examine the theory, and techniques for organisation diagnoses both at personal, group and organisational levels, data collection, analyses and writing and presenting reports, etc.

MGT. 942.2 Advanced Topics in Organizational Behaviour

The course deals with theory of individual behavior in organizational settings. Theory of motivation, statistics and job designs are carefully explored and their research implications identified.

SGS 901.2 Entrepreneurship

This course is aimed at empowering the graduates with the relevant skills that will enable them to engage in income-yielding ventures to be responsible, enterprising individuals who will eventually become entrepreneurs or entrepreneurial thinkers and in so doing make significant contributions to nation building, national economic development, and sustainable communities. It will equip graduates with the basic skills to make them job creators rather than job seekers.

MGT.943.3 Government, Businesses and Society

The course will examine the area of government business and business-society relations as one of the critical areas where managers spend considerable amount of time. The responsibilities of the firm in these areas, the role of general manager, the skills needed and ethical and philosophical issues will be discussed.

MGT. 910.3 Advanced Conflict Management:

This course is designed to provide an understanding of intercultural management useful for international management and trade negotiations. Participants are expected to study the different ways various cultures think, communicate and behave, particularly within business contexts, in order to develop a necessary level of cross-cultural competency. Today's global business implies co-operating, coordinating, negotiating and supervising, using management processes appropriate to the cultural context. The students will explore cultural implications in those management processes, as well as their impacts on team-building, ethics, conflict resolution and creative problem-solving. Students will also study their own culturally-based perspectives, patterns of thinking and behaviour, communication - styles, values and how they can be adapted to an intercultural context. Although the course will primarily deal with cultural differences in national culture context, it will also address cultural differences in gender and at organizational level as

long as they affect the global business environment. Topics to be covered include:

- i) Foundations and theories of conflict, theories of conflict resolution- An interdisciplinary approach to examination of conflict and conflict resolution theory;
- ii) Responses to conflict: an examination of the different approaches to conflict resolution represented by two party negotiation, facilitative processes such as mediation, the various evaluative processes, adjudicative processes such as litigation and binding arbitration, and the various hybrid processes; negotiation;
- iii. Mediation skills clinic- A basic introduction to the mediation skills, theory and ethics;
- iv. Interpersonal and inter-group conflict: An in depth study of the dynamics of interpersonal and inter group conflicts.
- v. Organizational and community conflict- An exploration of the dynamics of conflict in organizations and the community
- vi. International and cross-cultural conflict- An examination of the practical negotiation skills central to the resolution of situation-specific international and intercultural conflict.
- vii. Methodology of Conflict Resolution Research — an introduction to a range of qualitative data collection methods with particular focus on techniques used in research on conflict and conflict resolution, including participant observation, content analysis, behavioural mapping, and non-intrusive measures as well as a review of relevant research literature in the field.

MGT. 944.3 Seminar in Strategic Management and Entrepreneurship

This course deals with theoretical and practical aspects of strategy formulation and implementation. Attention is placed on the art of strategic thinking leading to creativity and innovation as well as the rational strategic planning process. Topics covered include business opportunities, mission statements and the development of corporate strategy, building the organisation competence, resource allocation, mergers and acquisition strategies, integration strategies, building organisational competitive strategies for their effectiveness through product pricing techniques, management process and policy control. This course also covers analysis of industry structures and dynamics, assessing positions, actions, and reactions of competitors; processes of strategic planning, technology strategy and e-business, process reengineering and corporate turnaround. Case writing and analysis are fundamental to this course.

Students will also gain a well-developed understanding of business enterprises and the entrepreneurial and strategic thinking that drives them in a dynamic, competitive regional, national, and global economy. Students will learn to apply entrepreneurial and strategic management practices (e.g., using case analysis) to organizations of varying sizes. An integral component, futures studies, shall involve an introduction into thinking about the future, the foundation of the field, its methodologies, link to planning, decision-making, strategy and public policy. The relationship between core competences (at the company level) and key success factors at the industry shall be examined.

MGT. 945.3 Advanced Theories of Industrial Relations

This course traces the evolution of theory and research on industrial relations and gives an advanced study and analysis of topics such as the ideological problems in industrial relations literature and research, the theoretical approaches to the study of management and trade unions, theories of strikes, wage determination, research on union decline or ascendancy and the impact of new technology on industrial relations.

MGT.911.2 Seminar in Organizational Behaviour

The seminar critically investigates advanced topics and themes in current theories and research on organizational behavior. The course is intended to provide Ph.D students in the organizational behavior concentration opportunities to conduct in depth investigations in specialized area of inquiry and to prepare them for their preliminary examination in their major fields.

This seminar introduces students to the most recent research in the area of Management and Organisational analysis, examining current issues and trends. Students have the opportunity to present and discuss their own research and are actively engaged in the analysis and discussion of the work of others. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and results in the student's research.

MGT.912.4 Ph.D., Dissertation

The Ph.D Dissertation is designed to give each student the opportunity to undertake a sustained piece of research work. The students will work under the supervision of an appointed post graduate supervisor. The specific research topic is chosen from any area of organizational behaviour that is of interest to the students. The research topic is approved by the students' supervisor(s) and

ratified by the Departmental Post Graduate Committee. The students are required to provide detailed reports of their original research work and thereafter present/defend same before an appointed External Examiner.

E. Ph.D (PRODUCTION/OPERATIONS MANAGEMENT) PROGRAMME:

MGT 902.1 Advanced Research Methods and Statistical Techniques

The objective of this course is to deepen the understanding of the students of the traditional scientific research methods. Topics to be discussed here include research in Social, Physical and natural sciences; problems of research in developing countries; common errors in research; types of research; and research in practice: selecting a topic, problem and hypotheses formulation, research design, instruments for data collection, data analysis and interpretation, research report, etc. Other topics to be discussed include the basics of qualitative research methods and research approaches. Some qualitative research approaches, such as phenomenography, activity theory and ethnography, data collection methods such as interviews, field studies and rapid rural appraisal and observations and evaluating the collected data.

The aim is for students to gain confidence in the applicability and relevance of non-quantitative methods in our research environment, where the tradition of believing in 'objective measurement' is strong. Quantitative research opens up for us a class of research questions that are not accessible within the 'normal' scientific method. That is, as researchers, we can ask new questions if we have a richer repertoire of tools, both the qualitative and the quantitative research methods and research approaches from which to choose.

MGT 938.1 Advanced Statistics for Business and Government

This course covers basic concepts in descriptive and inferential statistics and their use in empirical researches.

MGT. 946.1 Advanced Production/Operations Management Problem Solving Technique

This course further strengthens students' knowledge on how to adopt scientific approach in decision making in the organizations. Topics examined are decision problems in production/operations management, schematic and quantitative techniques, work measurement, facility location and choice, process planning, scheduling and sequencing, process and equipment selection, aggregate production, planning and

scheduling, inventory control, project and network analysis.

MGT. 947.1 Programming and Theory of Games

This area exposes student to ways of using programming approach and games model in decision making. Topics to be covered here include linear programming, mathematical programming, dynamic programming, integer programming, shadow price, perturbation analysis and games theory.

MGT. 913.2 Management Thought and Philosophy

Various approaches to the management process will be analyzed. Attention is focused on such topics as social, political and religious factors having bearing on management decisions. Emphasis is placed on the development of a philosophy of management by each student through critical examination of current managerial thought and action in our social and economic systems.

MGT. 948.2 Decision Models and Simulation

This course consists of a survey of analytical and simulation approaches to model building. Deterministic models, such as mathematical programming, and stochastic models are included. All of the methods of mathematical developments are related to an overall framework of modeling and problem solving.

MGT. 949.2 Strategic Decision in Production/Operation Management and Project Management.

This course is concerned with how students will be exposed to decision making process in both conditions of certainty and uncertainty in organization that will yield maximum benefits. Topics to be covered here include process design, decision making in stable and unstable environment, project planning, evaluation and appraisal and forecasting.

SGS. 801.2 Management and Entrepreneurship

This course is aimed at empowering the graduates with the relevant skills that will enable them to engage in income-generating ventures to be responsible, enterprising individuals who will eventually become entrepreneurs or entrepreneurial thinkers and in so doing, make significant contributions to nation building, national economic development, and sustainable communities. It will equip graduates with the basic skills to make them job creators rather than job seekers.

MGT. 950.1 Operations Controls Systems

This course explores systems procedures, and model that can be used to change the productivity and effectiveness of an organization's operations over medium and short horizons. Topics to be considered include uses and management of inventories, aggregate production planning, scheduling and control of operations, and quality control.

MGT. 951.3 Service System Design and Control

This course focuses on design and management of service operations in non-manufacturing organizations.

MGT. 952.3 System Dynamics

This course deals with the analysis of feedback structure and dynamic behavior of management decision and information system.

MGT. 953.3 Seminar in ICT Applications to Management Information Systems

Oral presentation of seminar paper on the application of ICT to the management of information resources and systems in the department or faculty directed by academic staff. The seminar presentation will explore internet

tools that enable the international community have access to the organizations' information' as well as search strategies

MGT. 911.4 Seminar in Production/ Operations Systems

The seminar critically investigates advanced topics and themes in current theories and research on Production/Operations Systems. The course is intended to provide Ph.D., students in the Production/Operations Systems ample opportunities to conduct indepth investigations in specialized area of inquiry and to prepare them for their preliminary examination in their major fields.

This seminar introduces students to the most recent research in the area of Management and Production/Operations Systems, examining current issues and trends. Students have the opportunity to present and discuss their own research and are actively engaged in the analysis and discussion of the work of others. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and results in the student's research.

LIST OF ACADEMIC STAFF

S/N	NAME OF ACADEMIC STAFF	QUALIFICATIONS	DESIGNATION	AREAS of SPECIALIZATION
1	R.S. Needorn	B.Sc., MBA, Ph.D.	Professor (HOD)	Operations Mgt/Quant. Analysis, Project Mgt.
2	Seth Accra Jaja	B.Sc., MBA, Ph.D.	Professor	Organizational Behaviour/ Policy studies/ Global business Management
3	Chima B. Onouha	B.Sc MBA (Mgt.), M.Sc, MBA (Finance), Ph.D PGDE	Professor	Business Policy and Strategic Management, Entrepreneurship, General Management, Global business Management
4	G. I. Umoh	M.Sc., Ph.D. PGD, Dip IDP (finals),	Professor (Dean)	Operations Management, Quantitative. Analysis, Operations Research, Project Mgt.
5	(Mrs.) C.A. Nwuche	B.Ed., M.Sc.,Ph.D.	Professor	Human Resource Management, Labour & Industrial Relations, Global business Management
6	(Mrs.) Edwinah Amah	B.Sc., MBA,M.Sc., Ph.D.	Professor	Organizational Behaviour, Entrepreneurship, Human Resource Management, Global business Management
7	C. A. Eketu	B.Sc.,MBA, Ph.D.	Professor	Research methodology/ Organizational Behaviour, Policy Studeies & Leadership
8	W.O. Olori	B.Sc., MBA, Ph.D	Professor	Business Policy. Human Resource Management, Labour & Industrial Relations Research Methodology/ Global business Management
9	Omoankhanlen Joseph Akhigbe	B.Sc., M.Sc. Ph.D.	Professor	Management & Organization/General Management, Global Business Management, Human Resources Management
10	John I. Ogolo	B.Sc., M.Sc. MBA, Ph.D.	Professor	Human Resources Management, Labour & Industrial Relations/ Global business Management
11	Mrs. A. D. Alaghah	NCE, B.Sc.(Ed), PGD, MBA, Ph.D.	Professor	Organizational Behaviour/ Business Policy and Strategic Management
13	J.E. Chikwe	B.Sc., MBA., Ph.D., PGDE	Senior Lecturer	Business policy, Policy studies, Strategic Management, Labour & Industrial Relations
14	G.O. Worlu	B.Sc., MBA, Ph.D.	Senior Lecturer	Organizational Behaviour/ Business Policy and Strategic Management
15	Haliru Bala	HND, B.Sc, PGD, MBA, M.Phil, Ph.D	Senior Lecturer	International Business, Business policy, Policy studies, Public management

16	Joseph Elang O. Oshi	B.Sc., MBA, PGDE	Senior Lecturer	Entrepreneurship/ HRM, Labour & Industrial Relations, Global business Management
17	Maxwell Nwinye	B.Sc., MBA, LLB, Ph.D.	Senior Lecturer	Organizational Behaviour/Global business Management
18	Sylva Waribugo	B.Sc.,M.Sc, Ph.D.	Senior Lecturer	Operations Mgt/Management Science, Project Mgt.
19	Macaulay E. Wegwu	B.Sc., MBA, M.Sc., Ph.D.	Senior Lecturer	Business Policy, Strategic Management and Leadership
20	Wilson Ofoegbu,	B.Sc, M.Sc., Ph.D.	Senior Lecturer	Operations Mgt/Quant. Analysis, Project Mgt.
21	Ike, Osadebe O.	B.Sc.,MBA	Lecturer I	General Management, Global business Management
22	Matthias Okon Nkuda	B.Sc.,MBA, Ph.D.	Lecturer I	Business Policy/General Management, Global business Management
23	C.T. Jonah	B.Sc., M.Sc., Ph.D.	Lecturer I	Business Policy, strategic Management Human Resources Management
24	Chukwuma, Isaac O.	B.Sc., M.Sc., Ph.D.	Lecturer II	Human Resources Management, Global business Management
25	Wogwu V.E,	B.Sc., M.Sc., Ph.D.	Lecturer II	Human Resources Management, Global business Management

ASSOCIATE LECTURERS

26	B.F. Nwinee	B.Sc, MBA, M.Sc, Ph.D, Ffian, FNISM, FIIMN, FPPA, ACAI	Professor	Finance/Banking
27	Okeychukwu Onuchukwu	B.Sc, M.Sc, Ph.D	Professor	Economics
28	Nna Johnson	B.Sc, M.Sc, Ph.D	Professor	Political Science
29	E.J. Okereke	B.Sc, MBA, M.Sc, Ph.D	Professor	Finance/Banking
30	I.A. Akakuru	BA, MA, DEA, Ph.D	Professor	Translation Studies & Stylistics (Francophone)
31	I.S. Nnamdi	B.Sc, MBA, Ph.D	Professor	Finance/Banking
32	F.N. Akani	B.Sc, MBA, Ph.D	Professor	Accounting
33	G.N. Ogbonna	B.Sc, MBA, M.Sc, Ph.D	Professor	Accounting
34	S.S. Ogunbiyi	B.Sc, MBA, Ph.D	Professor	Finance/Banking
35	L.L. Torbira	B.Sc, MBA, Ph.D	Professor	Finance/Banking
36	G.O. Omojefe	B.Sc, MBA, M.Sc, Ph.D	Professor	Finance/Banking
37	U. I Ironkwe	B.Sc, MBA, LLB, BL, Ph.D	Professor	Accounting Business Law Company Law
38	J.N. Obiora	B.Sc, PGD, MBA, Ph.D	Reader	Hospitality Management & Tourism
39	Y.O. Bello	B.Ss, M.Sc, Ph.D	Reader	Hospitality Management & Tourism
40	N.J. Nwaiwu	B.Sc, MBA. Ph.D	Reader	Accounting
41	Dufua Sharp-akosubo	BA, MA, Diploma	Lecturer 1	French Language & French/Francophone Literatures

DEPARTMENT OF MARKETING

INTRODUCTION

The Postgraduate programmes in the Faculty of Management Sciences, University of Port Harcourt have been designed to equip people with the basic managerial knowledge and skills needed to cope with the rapidly changing modern society. Given the continuous increase in the challenges faced by enterprise managers in both the public and private sectors of the Nigerian economy, managerial arts and sciences will assume increased importance in the years ahead. This challenges faced by enterprise managers in both the public and private sectors have complicated the social and organizational problems they are confronted with on a daily basis and thus require students of Management Sciences to adapt their knowledge and skills to the dynamism of the environment by thinking globally although with the peculiarity of our unique local environmental circumstance in mind.

To meet these challenges in our contemporary society, the Department of Marketing introduced post graduate programmes to enable students acquire the basic knowledge and skills required to cope with modern day business related challenges as well as drive organizations to success. Thus, the uniqueness of these programmes is its emphasis on bridging the gap between theory and practice by helping students imbibe the relevant concepts, principles, and theories for creative decision making in the relevant spheres of industry, administration, academics /research.

VISION OF THE DEPARTMENT OF MARKETING, UNIVERSITY OF PORT HARCOURT

The vision of the Department is to ranked amongst the top rated Departments in Nigerian and African Universities, renowned for its active involvement in teaching, research activities, creativity, and innovation thereby, serving as a reference point for other Nigerian and African Universities and higher institutions of learning.

MISSION OF THE DEPARTMENT OF MARKETING, UNIVERSITY OF PORT HARCOURT

The mission of the Department is the pursuit of academic excellence, advancement of knowledge and community service through quality teaching, research activities, continuous learning, creativity, and innovation in an organized and most articulate manner, which will accelerate the dissemination of the knowledge of Marketing discipline and contribute to the growth of the private and public sectors of the Nigerian and African economy. To

achieve this mission, the Department is guided by the spirit of enquiry, self-reliance, fairness, ethical and professional standards of the Marketing discipline.

Procedures for Registration in the Department of Marketing

After a candidate has been duly registered at the College of Graduate Studies he/she shall proceed to the Department for briefing by the Head of Department and Course registration in the Department. The underlisted documents shall be presented for the Departmental Registration:

- Admission letter
- Evidence of Registration at the College of Graduate Studies
- Evidence of payment of all prescribed dues

Every student is expected on first registration to sign the University Register of Graduate Students at the College of Graduate Studies. When all these procedure have been duly accomplished, the candidate becomes a bona fide graduate student of the University of Port Harcourt.

Examination Malpractice

Any report of examination malpractice is investigated and deliberated upon by the Departmental and Faculty Graduate Committees before submission to the Provost, College of Graduate Studies through the Dean, Faculty of Management Sciences. Students found guilty are sanctioned in accordance with the University of Port Harcourt regulations on examination malpractice.

PHILOSOPHY OF THE Ph.D (MARKETING) PROGRAMME

The philosophy of the programme is to provide graduate education and training in marketing, which develops and deepens the spirit of enquiry and responsibility in the students, to take on teaching, research in higher institutions, as well as management responsibilities in public and private sectors of the national and global economies. The Ph.D programme in Marketing also seeks the development of business scholars who are versed in the theory and in research skills in marketing as well as having the capability of developing and promoting indigenous academic culture in the field of marketing.

THE AIM/OBJECTIVES OF THE Ph.D (MARKETING) PROGRAMME

The objectives of the Ph.D (Marketing) programme is to provide training: In marketing research for those whose future careers lie in

teaching and research at the University and other tertiary institutions and for those who may have to operate in research and development environments; in core and specialized areas of marketing that would equip graduates to provide quality consultancy services to both local and international clientele; and aimed at providing critical manpower in the area of business Administration/Marketing needed for national development.

The specific objectives of the Ph.D programme in Marketing are as follows:

- a) To produce candidates with high level of intellectual rigour and maturity for independent work in their chosen areas of specialisation.
- b) To produce candidates who can develop and promote indigenous theories in their area of specialty and translate same to practices
- c) To equip candidates with the requisite theoretical, quantitative, and qualitative tools to enable them undertake teaching and research responsibilities in universities, industries and government.

Ph.D. Comprehensive/ Candidacy

Examination:

Candidates in the Ph.D programme in Marketing are required to write a 3-hours written comprehensive examination in their areas of specialization at the successful completion of their course work. Also, each candidate may be examined orally. The Ph.D comprehensive examination in Marketing requires candidates to attempt questions from eight (8) sections of the paper involving the general courses, the core/compulsory courses, and the candidates' areas of specialization.

Each candidate shall be examined by not less than four examiners approved by the Board of the College of Graduate Studies. If a candidate fails the comprehensive examination, one reseat is allowed the following year. Candidates are required to pass the Ph.D comprehensive examination at not more than two attempts. A candidate who fails the examination after the second attempt will be advised to withdraw from the programme. Success in the Ph.D comprehensive examination serves as a prerequisite for the candidate to proceed to the Ph.D Thesis stage.

(A) Ph.D (MARKETING) PROGRAMME COURSE DESCRIPTIONS/ CONTENTS/ SPECIFICATIONS

Course structure

The PhD Marketing programme requires a minimum of 36 credit units made up as follows:

- Six core courses (3 credits each) - 18 units
- Two elective courses (3 credits each) -6 units
- Thesis -12 units
- Total -36 units

First Semester Core Courses

Courses Code	Course Description	Credit
MKT 900.1	Advanced Research Methodology in Marketing	3
MKT 902.1	Development of Marketing Thought and Theory	3
MKT 903.1	Ph.D. Seminar 1	3
MKT 901.1	Advanced Quantitative Techniques in Marketing	3
	Total	9

Second Semester Core Courses

Courses Code	Course Description	Credit
MKT 904.2	Contemporary Issues in Marketing	3
MKT 905.2	Advanced Marketing Research	3
MKT 906.2	Seminar in Consumer Behaviour	3
MKT 907.2	Marketing Models	3
MKT 923	Thesis	12
	Total	21
	Total	6
	Grand Total	36

COURSE DESCRIPTION

MKT 900.1 Advanced Research Methodology in Marketing

This course examines the role and nature of marketing research methods, the importance of marketing research and its contribution to competitive success. Secondly, students will be exposed to the use of advanced qualitative, quantitative research designs and methods and multivariate techniques in conducting empirical research and theoretical modeling in marketing domain. Special emphasis will be given to probabilities approach to decision-making under conditions of uncertainty, following the principles of Bayesian analysis. Critical reviews of current scholarly literature in marketing domains will be emphasized.

MKT 901.1 Advanced Quantitative Techniques in Marketing

This course shall examine various techniques and methods apply in solving marketing problems. The course shall involve intensive review in such areas

as multivariate methods (factor analysis, cluster analysis, multi-dimensional scaling); Regression and Forecasting Techniques (multiple regression, discriminant analysis, automatic interaction detection) statistical decision theory for stochastic methods (Queuing, stochastic processes, Game theory); Deterministic operational research methods (linear, non-linear, transportation model); Hybrid Techniques (Dynamic Programming, Heuristic programming, stock control); Network programming (PERT, CPM).

This is a course in the application of quantitative techniques for marketing decision-making and for formulating marketing policies. The course shall also employ other modern quantitative tools for deriving estimates of relevant marketing variables for managerial decision-making.

MKT 902.1 Development of Marketing Thought and Theory

The development of the Marketing Organization specialized marketing activities, the total systems approach, and the social role of marketing are traced by means of a survey of marketing literature from early writers to the present.

MKT 903.1 Ph.D. Seminar 1

Topics of special interest to doctoral candidates in marketing management will be discussed and approved.

MKT 904.2 Contemporary Issues in Marketing

Analysis of current and unresolved issues in Marketing Role of economic development, political, social-cultural factors in conditioning performance of the marketing function. The role of marketing in interaction with the social-economic systems and on economic growth and stability. Effects of marketing activities on consumer welfare, and on economic growth and stability. Effects of governmental regulations, legislation, consumer reaction, social change on marketing policies and operations.

MKT 905.2 Advanced Marketing Research

Essentially, this is a course that takes marketing from an art to a science, from conjecture to rigour and therefore represent market behaviour mathematically. The course involve the development and application of quantitative models to understand market behaviour and to solve problems in marketing decision making. Emphasis shall be on the models of marketing mix variables. Such models include New product decision models, models for strategic marketing decision making, aggregate models to analyse promotional effect, pricing models, sales force strategy model and marketing efficiency and effectiveness using such models as trial and repeat model, choice models and product portfolio

analysis model all will be emphasized. The course shall examine comprehensively the empirical evidence on the efficiency of the use of models in marketing decision making in the context of Nigeria and international marketing environment.

MKT 906.2 Seminars in Consumer Behaviour

Topics of special interest to doctoral candidates in consumer behaviour will be discussed and approved.

MKT 907.2 Marketing Models

Describes theoretical and empirical models used to analyse marketing management issues in areas of product introduction and positioning, pricing, advertising and distribution channels. Theoretical structure of this course stems from micro-economics of the firm and consumer decision making, with special consideration of competitive issues analysed with game theory and applications of control theory. Empirical requirements include conjoint analysis, choice modeling and multivariate techniques.

(B) MASTER OF SCIENCE (M.Sc) PROGRAMME IN MARKETING.

PHILOSOPHY, AIMS AND OBJECTIVES OF M.Sc. PROGRAMME IN MARKETING

i) Philosophy of M. Sc Programme in Marketing

Philosophy: The philosophy of the programme is derived from the philosophy of the NUC and the Faculty of Management Sciences of the University of Port Harcourt. Specifically, it seeks to broaden and deepen the intellectual exposure of students in their major areas of marketing; and to develop their capability to undertake in-depth graduate research in marketing. The Master of Science in Marketing is highly specialized.

ii) Objectives of the M. Sc. (Marketing) Programme

The programme in keeping with similar objectives promoted by the NUC seeks to accomplish the following objectives;

- (a) To inculcate requisite intellectual/conceptual foundations in the students that will permit meaningful participation in the discussion or resolution of problems that confront marketing.
- (b) To encourage research into problems that impede the maximum contribution of marketing to National, social and international development of economies
- (c) To develop the skill of logical reasoning and critical analysis and improve students' capacity to formulate sound marketing policies and strategies
- (d) To arm candidates with required theoretical and quantitative tools to enable them

undertake teaching and research responsibilities in universities, industry and government.

Course structure

The M. Sc. Marketing programme requires a minimum of 36 credit units made up as follows:

- Twelve core courses (2credits each)- 24 units
- Dissertation - 12 units
- Total - 36 units

First Semester Year 1 Core Courses

Courses Code	Course Description	Credit
MKT 800.1	Marketing Models	2
MKT 801.1	International Marketing	2
MKT 803.1	Advanced Consumer Behaviour	2
MKT 802.1	Marketing of Services	2
SGS 801.1	ICT&Research Methods	3
Total		11

Second Semester Year 1 Core Courses

Courses Code	Course Description	Credit
MKT 806.2	Advanced Quantitative Techniques in Marketing	2
MKT 807.2	Advanced Marketing Research	2
MKT 808.2	Serminar in Marketing	2
SGS 801.2	Entrepreneurship&Mgt	3
Total		9

First Semester Year 2

Courses Code	Course Description	Credit
MKT 804.1	Marketing Communication	2
MKT805.1	Research Methodology	2
MKT 806.1	Marketing Mgt.	2
MKT 812.1	Marketing Logistics/Distribution Management	2
Total		8

Second Semester Year 2

Courses Code	Course Description	Credit
MKT 816	MSC Dissertation	12
Grand Total		40

M.Sc COURSE

STRUCTURE/DESCRIPTION

The Department of Marketing offers an M.Sc degree programme and therefore all courses leading to the award of the degree are compulsory.

COURSE DESCRIPTION

MKT 800.1 International Marketing

Course covers marketing planning, strategy and action in international and multinational environments. Examines international market environment; international marketing planning and strategies; marketing action in international settings and valuation and control of international marketing plans that integrate the cultural, economic, political and demographic factors etc for class presentation, Can combine marketing, ethnographic and international business studies.

MKT 801.1 Marketing Management

Covers managerial aspects of marketing: Marketing concept, marketing management process and practices, behavior of markets, demand measurement/forecasting, marketing mix decisions and strategies and policy implications etc. also covers marketing and social responsibility and other broad policy issues in marketing.

MKT 802.1 Consumer Behaviour

Designed to prepare students to understand the customer in order to serve him/her with appropriate marketing mix programmes. Covers consumer decision process; economic and demographic influences on consumption, cross-cultural and sub-cultural influences on consumption, cross-cultural and sub-cultural influences; style and fashion research and marketing strategy; innovation diffusion, beliefs, attitudes and intentions, brand loyalty and repeat purchase behavior; and retailing strategies, models of consumer behavior etc.

MKT 803.1 Service Marketing

Designed to expose students to the skills and techniques of applying concepts of marketing to the business or services delivery and requirements for the development of market research, marketing, mix etc. in depth examination and analysis of the critical theories and concepts in services marketing, and demonstrates how these concepts can be practicalised to meet the needs of service organizations especially those operating in key industries of the economy like banks, insurance, communication, government, transportation, leisure, travel, hotels, tourism, hospitality. Health, sports, recreation etc. Topics include characteristics of people, processes and physical marketing, mix, management of service quality, current developments in service marketing theories and practices.

MKT 804.1 Research Methodology

Design the understanding of research methods in both quantitative and qualitative research

environments; review and computation and application of inferential, statistical tools to research. Types of research and types of data, problems of research, problem definition and hypotheses formulation, data collection analysis and report writing.

MKT 805.1 Marketing Communication

Covers various theories of promotion and sales management principles and practices. Promotional implications of marketing mix integration; advertising, design and management/measurement); models of communication/advertising; media characteristics and planning strategies, advertising agencies, sales promotion, publicity and public relations. Sales force training, motivation and compensation, sales forecasting, and resource allocation, market potentials etc.

MKT 806.1 Marketing Models

Describes theoretical and empirical models used to analyze marketing management issues in areas of product introduction and positioning, pricing, advertising and distribution channels. Theoretical structure of this course stems from micro-economics of the firm and consumer decision making, with special consideration of competitive issues analyzed with game theory and applications of control theory. Empirical requirements include conjoint analysis, choice modeling and multivariate techniques.

MKT 810.2 Industrial Marketing

This course takes students on an exploration of the ramifications and dynamics of the operations in industrial markets. The students at the end of the course should underscore the point that marketing in industrial markets is greatly different from consumer market. It covers areas like; concept and nature of industrial products and their features; industrial markets, industrial services, marketing mix strategies and selling techniques in industrial marketing, segmenting the industrial market and industrial buyer behavior.

MKT 811.2 Marketing Theory

Designed to provide knowledge of marketing theories and research Marketing is an applied discipline informed by scholarly research in marketing and related fields like psychology, economics, sociology etc. reviews marketing theories and research especially the influential theories in the development of marketing thought. Review of contemporary theories and research in marketing from published scholarly articles in refereed journals.

MKT 812.2 Seminars In Marketing

Designed to introduce students to the most recent research in marketing includes the examination of

current issues and trends. Students will be required to present their own research and discuss and analyze the work of others. Research presentation will focus on the formulation, design, execution and results/or findings of the research work. Topics can include, market development, demand creation, psychological and sociological determinants of behavior, consumer protection laws etc.

MKT 813.2 IT Applications in Marketing

Will cover different forms of computers, and their applications to marketing. Other issues include systems theory and design, data analysis and networking; data manipulation and administration; data collection, coding and output data transmission and error detection. Process of national, regional and international information technology development; design implementation and control of e-marketing, the necessity for control of information technology.

MKT 814.2 Marketing Research

Covers theoretical and practical procedures in marketing research, including measurements and scaling, research, sampling, data collection and analysis, and statistical techniques; advertising research, motivation research and theory, product and channel research and report writing etc.

MKT 815.2 Marketing Logistics/Distribution Management

Analysis of the policies, practices and problems of corporate logistics, including activities like transportation, warehousing, materials management, inventory control, order processing and customer services. Physical distribution activities and the role of middle men in the channel problems and conflict management etc.

MKT 816.2 Agricultural and Food Marketing

Review and analysis of agricultural and food marketing techniques in Nigeria. exposes students to major agricultural and food products, agricultural marketing inputs, agric technology and sources. Consider development, policies and problems of agricultural and food marketing in Nigeria; government intervention in agric marketing, international problems cooperatives, standardization and grading, packaging, weights and measures, agric market centralization and decentralization; interstate marketing of farm products, and the future of agricultural marketing in Nigeria.

(C) MASTER OF BUSINESS ADMINISTRATION (MBA) PROGRAMME IN MARKETING

i) Philosophy of MBA Programme in Marketing

Philosophy: The philosophy of the programme is to develop highly skilled professional managers for the public, private and international organizations.

ii) Objectives of the MBA (Marketing) Programme

The programme in keeping with similar objectives promoted by the NUC seeks to accomplish the following objectives;

- a. Providing students with knowledge and skills to enhance their performance and to enable them assume broader responsibility in the rapidly changing environment faced by private and public sectors.
- b. The provision of knowledge required for understanding, and practical analysis of problems related to management/and administration, public, private and international organizations.
- c. Producing managers who are capable of appropriate management principles and techniques of problem solving in the Nigerian environment and the world at-large.
- d. To produce especially responsible managers who are mindful of accepted norms and ethics.
- e. To produce managers who are equipped with relevant ICT knowledge and skills
- f. To produce managers with entrepreneurial skills and leadership qualities.
- g. To provide interested individuals with the necessary competencies and skills to function effectively as academics in business administration.

MBA CORE COURSES

Courses Code	Course Description	Credit
MKT 816.1	Research Methodology	3
MKT 827.1	Quantitative Methods for Management	3
MKT 818.1	Corporate Finance	3
SGS 801.1	ICT & Research Methods	3
MKT 804.1	Operations Management	3
MKT 806.1	Marketing Management and Strategy	3
MKT 828.1	Introduction to Accounting	3
MKT 809.2	Organization Behaviour	3
MKT 810.2	Business Law	3
MKT 811.2	Environment of Business	3
MKT 828.2	Introduction to General Management	3
MKT 817.2	Corporate Strategy	3

MKT 819.2	Managerial Economics	3
MKT 814.2	MBA Language Programme	3
MKT 815.2	Human Resource Management	3
SGS 801.2	Entrepreneurship & Management	3
MKT 808.1	Graduate Seminar	3
Total		51

MBA CONCENTRATION COURSES

Courses Code	Course Description	Credit
MKT 817.2	Advanced marketing Research	2
MKT 818.2	Pricing Policies	2
MKT 819.2	Consumer Behaviour	2
MKT 820.2	Product Planning and Development	2
MKT 821.2	Industrial Marketing	2
MKT 822.2	Advertising Management	2
MKT 823.2	International Marketing	2
MKT 824.2	Marketing Thought	2
MKT 825.2	Marketing Communications Management	2
MKT 820.2	Marketing Logistics and Distribution Management	2
MKT 820.2	MBA Thesis	6
TOTAL		26

Elective Courses

Candidates are required to register for and pass any two out of the following four courses.

Courses Code	Course Description	Credit
MKT 823.2**	International Marketing	2
MKT 824.2**	Marketing Thought	2
MKT 825.2**	Marketing Communications Management	2
MKT 826.2**	Marketing Logistics & Distribution Management	2
Note **=	our additions	2
TOTAL		77

MBA COURSE

STRUCTURE/DESCRIPTION

The Department of Marketing offers an MBA degree programme and therefore all courses leading to the award of the degree are compulsory.

COURSE DESCRIPTION

MKT 800.1 International Marketing

Course covers marketing planning, strategy and action in international and multinational environments. Examines international market environment; international marketing planning and strategies; marketing action in international settings and valuation and control of international marketing plans that integrate the cultural, economic, political and demographic factors etc for class presentation, Can combine marketing, ethnographic and international business studies.

MKT 801.1 Marketing Management

Covers managerial aspects of marketing; Marketing concept, marketing management process and practices, behavior of markets, demand measurement/forecasting, marketing mix decisions and strategies and policy implications etc. also covers marketing and social responsibility and other broad policy issues in marketing.

MKT 802.1 Consumer Behaviour

Designed to prepare students to understand the customer in order to serve him/her with appropriate marketing mix programmes. Covers consumer decision process; economic and demographic influences on consumption, cross-cultural and sub-cultural influences on consumption, cross-cultural and sub-cultural influences; style and fashion research and marketing strategy; innovation diffusion, beliefs, attitudes and intentions, brand loyalty and repeat purchase behavior; and retailing strategies, models of consumer behavior etc.

MKT 804.1 Research Methodology

Design the understanding of research methods in both quantitative and qualitative research environments; review and computation and application of inferential, statistical tools to research. Types of research and types of data, problems of research, problem definition and hypotheses formulation, data collection analysis and report writing.

MKT 805.1 Advertising Management

Covers various theories of promotion and sales management principles and practices. Promotional implications of marketing mix integration; advertising, design and management/ measurement); models of communication/ advertising; media characteristics and planning strategies, advertising agencies, sales promotion, publicity and public relations. Sales force training, motivation and compensation, sales forecasting, and resource allocation, market potentials etc.

MKT 810.2 Industrial Marketing

This course takes students on an exploration of the ramifications and dynamics of the operations in industrial markets. The students at the end of the

course should underscore the point that marketing in industrial markets is greatly different from consumer market. It covers areas like; concept and nature of industrial products and their features; industrial markets, industrial services, marketing mix strategies and selling techniques in industrial marketing, segmenting the industrial market and industrial buyer behavior.

MKT 811.2 Marketing Thought

Designed to provide knowledge of marketing theories and research Marketing is an applied discipline informed by scholarly research in marketing and related fields like psychology, economics, sociology etc. reviews marketing theories and research especially the influential theories in the development of marketing thought. Review of contemporary theories and research in marketing from published scholarly articles in reefered journals.

MKT 812.2 Seminar in Marketing

Designed to introduce students to the most recent research in marketing includes the examination of current issues and trends. Students will be required to present their own research and discuss and analyze the work of others. Research presentation will focus on the formulation, design, execution and results/or findings of the research work. Topics can include, market development, demand creation, psychological and sociological determinants of behavior, consumer protection laws etc.

MKT 814.2 Marketing Research

Covers theoretical and practical procedures in marketing research, including measurements and scaling, research, sampling, data collection and analysis, and statistical techniques; advertising research, motivation research and theory, product and channel research and report writing etc.

MKT 827.1 Quantitative Methods for Management (QMM)

Basic elements of decision making under conditions of uncertainty, set theory; probability theory; classical statistics and statistical decision theory ; linear programming, primal and dual simplex algorithm, Transportation and network analysis, Concept of queuing theory, games, statistical Inference and Hypothesis testing, Time series.

MKT 818.1 Corporate Finance

The principles and procedures, underlying financial statements; financial transactions; alternative accounting statements; tools or analysis of ratios and other quantitative measures; accounting information useful for managerial action; application of information in decision

situations. Project Appraisal analysis of investment projects, the impact of risk, tax and inflation, the term structure of interest rates, the cost of capital and target rates of return; capital markets, its efficiency, the role of intermediaries, sources of finance, the borrowing decision and company valuation and optimal portfolio allocation; Capital structure, optimal capital structure of firms, mergers and acquisitions and the market for corporate control, market efficiency, the principle of capital structure, gearing and the basics of hedging and international finance.

SGS 801.1 ICT&Research Methods (ICM)

Uses of computers in problem solving; its application to the solution of problems at the introductory level in capital budgeting and linear programming.

MKT 804.1 Operations Management (OM)

Issues in operations strategy, process analysis and the use of data and managerial opinion in making effective propositions to address the questions in the cases. Major economic decision, problems of production and operations management; aggregate production and work-force scheduling; multi-plant allocation of product; large scale project control (CPM and PERT); production and inventory control; demand forecasting; quality control; and short run job shop scheduling; the interaction of production problems with those of other functional areas, queuing theory, dynamic programming, multiple regression and correlation.

MKT 806.1 Marketing Management & Strategy (MMS)

Perspectives and problems of marketing management in a multi-product firm; the concept and application of strategic planning to business units and functional areas of marketing, utilization of current marketing strategy models as aids in strategy formulation, decision processes for product planning, pricing, promotion, distribution and competitive strategy.

MKT 809.2 Organizational Behaviour (OB)

Exposure to essential theories and concepts for managerial problems, individual and group analysis of cases and experiential exercises, Exchange of ideas and experiences in the classroom, intensive field-based project work in groups.

MKT 828.2 Introduction to General Management (IGM)

Evolution of Management thought; functions and responsibility of general management;

Understanding global management; Managing through processes; managerial values; Managerial decision making; planning, organizing, directing and coordination, problems affecting the character and success of the enterprise; the design and implementation of corporate strategy.

MKT 817.2 Corporate Strategy (CS)

Conceptual frameworks and models for the analysis of competitive situation and strategic dilemmas; Insight into strategic management; Analyses of external competitive environment, industry structure, value chain dynamics, etc.

MKT 819.2 Managerial Economics (ME)

Application of principles from various fields in economics and business to management decision making; price mechanism, allocation of resources, profit drivers of the firm, revenue and cost drivers, interaction among the market players, firms strategy, understanding market forces, the meaning of competition, pricing profit, market power good or evil, playing games I, Competition versus Cooperation, playing games II, Entry and Exit, firms versus Markets; Make or Buy, auctions and market design, economics of information.

MKT 828.1 Introduction to Accounting

Accounting concepts, Construction of Financial statements Balance sheet, Income Statements, Cash-flow statements, Analysis and Interpretations of financial statements, Element of costing and auditing.

MKT 811.2 Environment of Business

The basic objective of the course is to examine the legal, social, political and economic framework which business organization must operate in the Nigerian environment, due to the pervasive influence of globalization and reduction of distances between nations, their value systems, language etc. international business environments will be explored.

MKT 815.1 Human Resource Management

Topic to be covered should include the scope, nature, methods and principles of organizational human resources management. The course could provide an overview of strategies and management practices in manpower planning techniques; staffing; human resource training and development; performance management and systems design; compensation designs and reward management; career planning and employee welfare; line and staff functions as well as the relationship between personnel department and other departments. Review of current principles and practices of human resources management in the Nigerian and global contest.

RESEARCH/PROJECT

Research/Project Policy, Methodology and Thrust:

The MBA (Marketing) policy centres on;

- Establishment of ownership and empirical evaluation of existing research problems
- Evolution of scientific problem-solving procedures that could provide valid, testable and reliable results.
- Potency of the results in terms of their validity for reliance as basis for extension of policy formulation and/or modification of same in both the public and private sectors of the economy.

The research/project component of the MBA (Marketing) programme provides an avenue which encourages students to adopt contemporary research methods that are in line with world class standards and international best practices. Candidates are encouraged to adopt research procedures that are evident of high level of intellectual rigour, and has practical implications for the Nigerian work environment in particular and businesses in general. Candidates are encouraged to ensure rigorous verification of the subject matter of their research and thus, provide results that are derived from verification of the study-implied hypotheses, which are based on carefully drawn data and reviewed literature.

(D) POST GRADUATE DIPLOMA (PGD) PROGRAMME IN MARKETING

i) Philosophy of PGD Programme in Marketing

Philosophy: the philosophy of the programme is to prepare graduates with some deficiencies in their previous studies to adequately fit into the MSC and MBA Marketing programme.

ii) Objectives of the MBA (Marketing) Programme

The programme in keeping with similar objectives promoted by the NUC seeks to accomplish the following objectives;

iii) To expose students to the fundamental courses in marketing needed for advanced MSC and MBA Marketing programme.

iv) To teach students the process of investigative science needed to explore theoretical and practical problems in Marketing.

v) To update students regarding deficient knowledge in marketing and cognate business courses needed to understand and analyse marketing problems.

PGD CORE COURSES

Courses Code	Course Description	Credit
MKT 700.1	Fundamentals of marketing	2
MGT 700.1	Principles of Management	2
FIN 710.1	Principles of finance	2
MGT 703.1	Business mathematics	2
ACT 701.1	Principles of accounting	2
ECO 710.1	Microeconomics	2
MKT 707.2	Business statistics	2
MKT 708.2	Research methodology	2
MKT 709.2	Introduction to marketing management	2

CONCENTRATIONS COURSES

Courses Code	Course Description	Credit
ECO 701.2	Principles of Macroeconomics	2
MKT 710.2	Introduction to consumer behavior	2
MKT 713.2	Introduction to marketing Research	2
MKT 710.2	Introduction to Consumer Behaviour	2
MKT 714.2	Introduction to International Marketing	2
MKT 712.2	Introduction to strategic marketing	2
MKT 720	Research project	2
	TOTAL	34

Elective Courses

Candidates are required to register for and pass any three out of the following five courses.

Courses Code	Course Description	Credit
MKT 710.2	Introduction to consumer behavior	2
MKT 713.2	Introduction to marketing Research	2
MKT 710.2	Introduction to Consumer Behaviour	2
MKT 714.2	Introduction to International Marketing	2
MKT 712.2		2

PGD COURSE STRUCTURE/ DESCRIPTION

MKT 700.1 Fundamentals of Marketing

The course introduces students to the basics of marketing with regard to meaning, definitions of marketing, basic marketing concepts, marketing

evolution and practices, behavior and market segmentation, introduction to marketing research and introduction to international marketing as well as other areas of marketing.

MKT 714. Introduction to International Marketing

Course covers marketing planning, strategy and action in international and multinational environments. Examines international market environment; international marketing planning and strategies; marketing action in international settings and valuation and control of international marketing plans that integrate the cultural, economic, political and demographic factors etc for class presentation, Can combine marketing, ethnographic and international business studies.

MKT 709.2 Introduction to Marketing Management

Covers managerial aspects of marketing: Marketing concept, marketing management process and practices, behavior of markets, demand measurement/forecasting, marketing mix decisions and strategies and policy implications etc. also covers marketing and social responsibility and other broad policy issues in marketing.

MKT 710.2 Introduction to Consumer Behaviour

Designed to prepare students to understand the customer in order to serve him/her with appropriate marketing mix programmes. Covers consumer decision process; economic and demographic influences on consumption, cross-cultural and sub-cultural influences on consumption, cross-cultural and sub-cultural influences; style and fashion research and marketing strategy; innovation diffusion, beliefs, attitudes and intentions, brand loyalty and repeat purchase behavior; and retailing strategies, models of consumer behavior etc.

MKT 708.2 Research Methodology

Design the understanding of research methods in both quantitative and qualitative research environments; review and computation and application of inferential, statistical tools to research. Types of research and types of data, problems of research, problem definition and hypotheses formulation, data collection analysis and report writing.

MKT 713.2 Introduction to Marketing Research

Covers theoretical and practical procedures in marketing research, including measurements and scaling, research, sampling, data collection and analysis, and statistical techniques; advertising research, motivation research and theory, product and channel research and report writing etc.

MKT 711.2: Introduction to Sales Management

The course introduces students to principles of selling, sales, management evolution of sales management, major tasks of sales management, determining sales policies and strategies and sales forecasting among others.

Mkt 712.2: Introduction to Strategic Marketing Management

The course introduces students to knowledge regarding foundations of strategic marketing, strategic marketing management process, opportunity analysis and market targeting, case analysis in marketing management and environment for strategic marketing management decisions, among others.

POST GRADUATE DIPLOMA IN SUPPLY CHAIN MANAGEMENT

Admission Requirements

- i. Holders of B. Sc. or B.A. degrees in relevant fields not lower than third class including Marketing, Mass Communication, Linguistics, Public Administration, Political Science, Management, Personnel/Human Resources Management, Advertising, Purchasing and Supply, History and International Relations, Law, Sociology, Hospitality Management and Tourism, Accounting, Finance and Banking, Personnel Management, English language, Library science, Education, Economics, etc. with a grade not lower than third class.
- ii. Holders of upper credit in Higher National Diploma (HND)

Duration

The duration of the program shall be for a minimum of 12 calendar months and a maximum of 18 calendars months. It shall run on the usual semester pattern like other PGD programmes in the Department.

Graduation Requirements

Candidates for the PGD in Supply Chain Management programme are required to pass all their course work and seminars before proceeding further to the Project. On the whole, candidates are expected to complete the programme and graduate within the stipulated maximum period of residency as provided in the admission guideline.

Table of Courses/Codes/ Credit Units

Post Graduate Diploma in Supply Chain Management (SCM)

Course Code	Course Title	Credit Unit
First Semester		

MKT 700.1	Fundamentals of Marketing	2
MGT 700.1	Principles of Management	2
FIN 710.1	Principles of Finance	2
MGT 703.1	Business Mathematics	2
ACT 701.1	Principles of Accounting	2
ECO 710.1	Logistic Economics	2
SCM 701.1	Supply Chain Strategy and Sustainability	2
Total		14
Second Semester		
SCM 702.2	Strategic Procurement & Materials Management	2
SCM 703.2	Inventory and Operations Management	2
SCM 704.2	Analytical Techniques for SCM	2
MKT 704.2	Advanced Marketing Research	2
SCM 705.2	Freight Transport	2
SCM 707.2	Physical Distribution & Network Design Management	2
MKT 706.2	Marketing Management & Strategy	2
SCM 708.2	Project	6
Total		20

COURSE DESCRIPTIONS

MKT 700.1: FUNDAMENTALS OF MARKETING-2 UNITS

The fundamentals of marketing will treat the nature and scope of marketing in details. It will give a general survey of the field of marketing covering marketing channels and intermediaries in distribution, the role and importance of marketing to organization and society, evaluate the function of a marketing manager of a company, marketing systems and other areas in marketing as may be deemed necessary.

MGT 700.1: PRINCIPLES OF MANAGEMENT- 2 UNITS

Principles of management covers the nature, definition and scope of management, types of businesses, principles of management or management functions as discharged by individuals giving such responsibilities. It further treats organizational structure and chart and reporting lines in the organization for effective and efficient management of human and other resources for optimal productivity.

FIN 710.1: PRINCIPLES OF FINANCE- 2 UNITS

Principles of finance is a core course for supply chain managers at the intermediate level of the

organizational structure. It treats the under listed and other topical areas such as introduction to finance, time value of money, ratio analysis, simple financial statements and simple and compound interest which forms the mathematical aspect of finance.

MGT 703.1: BUSINESS MATHEMATICS-2 UNITS

Business mathematics covers differentials, indices, inequalities, vein diagrams, logarithms, set theories etc.

ACT 701.1: PRINCIPLES OF ACCOUNTING-2 UNITS

Principles of accounting will expose the students to revenue and expenditure recognition principle, cost principle, production principle, matching principle, full disclosure principle, objectivity principle and other conventions.

ECO 710.1: LOGISTIC-ECONOMICS- 2 UNITS

Micro-economics is a social science that covers the implication of incentives and decisions, specifically about how those incentives and decisions affects the utilization and distribution of resources, why different goods have different values, how individuals and businesses conduct and benefit from efficient production and exchange and how individuals can best coordinate and cooperate with one another in the organization.

SCM 701: SUPPLY CHAIN STRATEGY AND SUSTAINABILITY 2 UNITS

This module is intended to provide you with a sound foundation to the course by introducing the main concepts and principles that underpin Logistics and Supply Chain Management, including the important issue of sustainability. It presents the fundamental principles of contemporary logistics and supply chain management within a business context. This unit will explore the ways in which good practice in these fields can contribute to achieving sustainable competitive advantage. Overarching aspects of Supply chain sustainability are explored, such as corporate responsibility and ethics. Further the Global Supply Chain Game will enable students to understand through an interactive and competitive business game the principles of building an efficient global sourcing and supply chain under conditions of uncertainty so as to achieve high levels of profit and product availability. Global marketplaces are characterised by shortening product life cycles, increasing product variety, and highly variable demand that is difficult to forecast. The module explores how the competitive landscape is constantly changing, and

the role of logistics and supply chain management in meeting the challenges raised.

SCM 702.2: STRATEGIC PROCUREMENT & MATERIAL MANAGEMENT-2 UNITS

The course will explore the subject of procurement and supply in the industrial and commercial context, explaining its role and purpose within the supply chain. Students will learn how procurement has developed, the skills and information needed by procurement professionals, the academic theory and knowledge accumulated on the subject area and the use of specific tools and techniques employed in managing the procurement function. In addition, we will explore and use some of the recently emerged technologies within e-procurement which are designed to improve both process and cost management.

SCM 703.2: INVENTORY AND OPERATIONS MANAGEMENT-2 units

To provide comprehensive overview of the role of operations in the organization's collaborative/constructive working environment, business models and performance, within the overall context of supply chain management/external environment, and enable them to analyze and design effective supply chain operations with the ultimate goal to improve the match between demand and supply.

SCM 704.2: ANALYTICAL TECHNIQUES FOR SCM-2 units

Managerial decisions in logistics and supply chain management are heavily based on quantitative analysis using models from the management science discipline. Data, models, and available software have dramatically changed the operations in manufacturing, services, and logistics sectors. The module aims to provide students with an introduction to the role and the relevance of analytical techniques in logistics and supply chain management. From simple graphs to deterministic and stochastic optimisation models, it offers transferable skills to use associated techniques for the practice of these disciplines. Students will develop the ability to model and solve realistic decision problems in the context of logistics and supply chain management. This process will be facilitated by spreadsheet-based software packages where the students will have an opportunity to build their own spreadsheet models with emphasis on appropriate application of methods and interpretation of model outputs.

SCM 705.2: FREIGHT TRANSPORT-2 units

The Freight Transport module provides a sound foundation in road, rail, air and sea freight transport. The focus is primarily from a user perspective in order to provide a logistics and

supply chain management viewpoint. However, in road freight, the module also covers more detailed fleet management and operational aspects, recognising that many organisations operate their own road transport fleets but also reflecting the importance of road freight as the primary inland freight mode in most geographies for national and urban freight traffic.

SCM 707.2: PHYSICAL DISTRIBUTION & NETWORK DESIGN MGT -2 units

The heart of any logistics and supply chain operation is its physical network. The location of factories, distribution centers, suppliers, customers and so forth and the means by which they are linked, fundamentally affects the efficiency with which an organization's network operates. This module aims to introduce the concepts and techniques of network theory and analysis and use these to demonstrate how physical networks are designed, redesigned and optimized and how current supply chain trends and challenges are influencing this design. Physical distribution, channel intensity and structures.

MKT 706.2: MARKETING MANAGEMENT AND STRATEGY-2 units

Marketing environment. Organizing, planning, coordinating and control of the marketing functions. Product strategy, pricing, distribution and promotion. Services marketing, marketing information system, market research and post marketing activities.

SCM 708.2: PROJECT-6 UNITS

At the completion of course work each student is expected to embark on a dissertation to be defended before an external examiner.

MASTER OF SCIENCE IN SUPPLY CHAIN MANAGEMENT

Admission Requirements

- i. Holders of B. Sc. or B.A. degrees in relevant fields including Marketing, Mass Communication, Public Administration, Political Science, Management, Personnel/Human Resources Management, Advertising, Purchasing and Supply, International Relations, Law, Sociology, Hospitality Management and Tourism, Accounting, Finance and Banking, Personnel Management, Education, Economics, etc. with a minimum of second class lower division.
- ii. Holders of PGD in the above-mentioned fields or in Supply Chain Management of the University of Port Harcourt or any other

recognized University with lower and upper credit.

Duration

The duration of the program shall be for a minimum of 18 calendar months and a maximum of 36 calendar months for full time study and minimum of 24 calendar months & maximum of 48 calendar months for part time study. It shall run on the usual semester pattern like other M.Sc. programmes in the Department.

Graduation Requirements

Candidates for the MSc in Supply Chain Management programme are required to pass all their course work and seminars before proceeding further to the Dissertation. On the whole, candidates are expected to complete the programme and graduate within the stipulated maximum period of residency as provided in the admission guideline.

Table of Courses/Codes/ Credit Units

Master of Science Supply Chain Management (SCM) Compulsory Courses

Course Code	Course Title	Credit Unit
First Semester		
SCM 801.1	Supply Chain Strategy and Sustainability	2
SCM 802.1	Strategic procurement & Materials Management	2
SCM 803.1	Inventory and Operations Management	2
SCM 804	Analytical Techniques for SCM	2
MKT 804.1	Global Logistics	2
SCM 805.1	Freight Transport	2
MKT 806.1	Marketing Management & Strategy	2
SGS 801.1	ICT and Research Methods	2
SCM 812.1	Research Methodology	2
Total		18
Second Semester		
SCM 806.2	Information Systems and e-business	2
SCM 807.2	Physical Network Design	2
SCM 809.2	Warehousing	2
SCM 810.2	Customer Service Management	2
SCM 811.2	Seminar in Supply Chain Management	2
SGS 801.2	Management & Entrepreneurship	2
SCM 808.2	Dissertation	6
Total		18

COURSE DESCRIPTIONS

SCM 801: SUPPLY CHAIN STRATEGY AND SUSTAINABILITY- 2 units

This module is intended to provide you with a sound foundation to the course by introducing the main concepts and principles that underpin Logistics and Supply Chain Management, including the important issue of sustainability. It presents the fundamental principles of contemporary logistics and supply chain management within a business context. This unit will explore the ways in which good practice in these fields can contribute to achieving sustainable competitive advantage. Overarching aspects of Supply chain sustainability are explored, such as corporate responsibility and ethics. Further the Global Supply Chain Game will enable students to understand through an interactive and competitive business game the principles of building an efficient global sourcing and supply chain under conditions of uncertainty so as to achieve high levels of profit and product availability. Global marketplaces are characterised by shortening product life cycles, increasing product variety, and highly variable demand that is difficult to forecast. The module explores how the competitive landscape is constantly changing, and the role of logistics and supply chain management in meeting the challenges raised.

SCM 802: STRATEGIC PROCUREMENT & MATERIALMANAGEMENT-2 units

The course will explore the subject of procurement and supply in the industrial and commercial context, explaining its role and purpose within the supply chain. Students will learn how procurement has developed, the skills and information needed by procurement professionals, the academic theory and knowledge accumulated on the subject area and the use of specific tools and techniques employed in managing the procurement function. In addition we will explore and use some of the recently emerged technologies within e-procurement which are designed to improve both process and cost management.

SCM 803: INVENTORY AND OPERATIONS MANAGEMENT-2 units

To provide comprehensive overview of the role of operations in the organisation’s collaborative/constructive working environment, business models and performance, within the overall context of supply chain management/external environment, and enable them to analyse and design effective supply chain operations with the ultimate goal to improve the match between demand and supply.

SCM 804: ANALYTICAL TECHNIQUES FOR SCM-2 units

Managerial decisions in logistics and supply chain management are heavily based on quantitative analysis using models from the management science discipline. Data, models, and available software have dramatically changed the operations in manufacturing, services, and logistics sectors. The module aims to provide students with an introduction to the role and the relevance of analytical techniques in logistics and supply chain management. From simple graphs to deterministic and stochastic optimisation models, it offers transferable skills to use associated techniques for the practice of these disciplines. Students will develop the ability to model and solve realistic decision problems in the context of logistics and supply chain management. This process will be facilitated by spreadsheet-based software packages where the students will have an opportunity to build their own spreadsheet models with emphasis on appropriate application of methods and interpretation of model outputs.

SCM 805: FRIEGHT TRANSPORT-2 units

The Freight Transport module provides a sound foundation in road, rail, air and sea freight transport. The focus is primarily from a user perspective in order to provide a logistics and supply chain management viewpoint. However, in road freight, the module also covers more detailed fleet management and operational aspects, recognizing that many organizations operate their own road transport fleets but also reflecting the importance of road freight as the primary inland freight mode in most geographies for national and urban freight traffic.

SCM 806: INFORMATION SYSTEMS AND eBUSINESS-2 units

To provide theoretical and practical knowledge about: The value of information and the role of information systems (IS) for supply chain management. The role and impact of information systems in e-business. The opportunities and implementation challenges provided by information systems in supply chain management.

SCM 807: PHYSICAL NETWORK DESIGN - 2 units

The heart of any logistics and supply chain operation is its physical network. The location of factories, distribution centres, suppliers, customers and so forth and the means by which they are linked, fundamentally affects the efficiency with which an organisation's network operates. This module aims to introduce the concepts and techniques of network theory and analysis and use these to demonstrate how physical networks are designed, redesigned and optimised and how current supply chain trends and challenges are

influencing this design. Physical distribution, channel intensity and structures.

SCM 809: WAREHOUSING - 2 units

The module provides a thorough grounding in the role and operation of warehouses including the range of storage and handling equipment, the design of warehouses and the use of information technology. It emphasizes on the strategic use of methods to analyze the wide range of available options. Additionally, the module focuses on developing the students' ability to discern and use appropriate warehouse design techniques. This module is taught in light of the wider context of an organisation's supply chain strategy and, thus, equips students with the means to tackle the warehousing aspects of complex supply chain problems.

MKT 806: MARKETING MANAGEMENT AND STRATEGY-2 units

Marketing environment. Organizing, planning, coordinating and control of the marketing functions. Product strategy, pricing, distribution and promotion. Services marketing, marketing information system, market research and post marketing activities.

SGS 801.2: MANAGEMENT & ENTERPRENUERSHIP-2 units

Advanced learning in starting and running small and medium scale businesses. Entrepreneurship theories and applications. Conducting Feasibility surveys and preparing a business plan. Consultancy services for SMEs and as a career option.

SGS 801.1: ICT AND RESEARCH METHODS- 2units

Application of Information communication technology tools to the conduct of research at an advanced level. Exposure to different Statistical softwares used for analysis. ICT importance in carrying out the collection, analysing and interpretation of data.

SCM 810 : CUSTOMER SERVICE MANAGEMNET-2 units

Designed to expose students to the skills and techniques of applying concepts of marketing to the business or services delivery and requirements for the development of market research, marketing, mix etc. in depth examination and analysis of the critical theories and concepts in services marketing, and demonstrates how these concepts can be practicalised to meet the needs of service organizations especially those operating in key industries of the economy like banks, insurance, communication, government, transportation, leisure, travel, hotels, tourism, hospitality. Health, sports, recreation etc. Topics

include characteristics of people, processes and physical marketing, mix, management of service quality, current developments in service marketing theories and practices.

SCM 811: SEMINARS IN SUPPLY CHAIN MANAGEMENT- 2units

The course is designed to introduce candidates to the most recent research supply chain management including examination of current issues and trends. Students are required to present their own research, discuss analyze the various presentations by colleagues. Research presentation will focus on the formulation, design, execution and results/or findings of the research work. Topics can include procurement, logistics, transportation, inventory control, materials management, warehousing and supply chain integration etc.

SCM 812: RESEARCH METHODOLOGY- 2units

Design the understanding of research methods in both quantitative and qualitative research environments. Review and computation, application of inferential, statistical tools to

research. Types of research and types of data, problems of research, problem definition and hypotheses formulation, data collection analysis and reporting.

MKT 804: GLOBAL LOGISTICS -2 units

Investigation into export promotion ordinance and their implication on their export and import trade. Theories of international trade and their implications, reason for internationalization, adapting marketing strategies to international operations (product, price, promotion, distribution). Planning for international marketing (resources, environmental factors organization, etc). Product and brand concepts in marketing planning and their implications. International marketing, foreign exchange and balance of payments disequilibrium. Creative innovations in international marketing, multinational and economic development, etc.

SCM 808.2: DISSERTATION-6 units

At the completion of course work each student is expected to embark on a dissertation to be defended before an external examiner.

DEPARTMENT OF MARKETING ACADEMIC STAFF LIST

S/N	NAME	QUALIFICATION	AREAS OF SPECIALIZATION	RANK
1	Igwe, S.R.	B.Sc, MBA, Ph.D. (UPH)	Strategic Marketing, Consumer Behavior and Supply Chain	Professor/HOD
2	Ezirim, A.C.	DIP, B.Sc, (OWERRI) MBA (ENUGU) M.Sc, (FUTO) Ph.D. (RSUST)	International Marketing, Logistics and Distribution	Professor

3	Asiegbu, I.F.	B.Sc, (RSUST), MBA (IMSU), Ph.D. (UPH)	Marketing Communication, Logistics and Supply Chain Management	Professor
4	Ogbuji, C.N.	B.Sc, (ABSU), MBA, M.Sc (UNHC) Ph.D.(ABSU)	Social/Services Marketing and Marketing Research	Professor
5	Awa, H.O.	B.Sc, (UNICAL), MBA(UPH), M.Sc,(ABSU), Ph.D. (UPH)	Consumer Behaviour, Digital & Interactive Marketing	Professor
6	Ozuru, H. N.	BBA, MBA, (USA), Ph.D. (RSUST)	Consumer Behavior & E-Commerce	Professor
7	Onuoha, A. O.	BSc, MBA, MSc (ABSU), Ph.D. (UNN)	Marketing Communications and Quantitative Techniques in Marketing	Professor
8	Ademe, D G.	BSc., MBA, (RSUST), PhD (UPH)	Services Marketing and Relationship Marketing	Reader
9	Igwe, P	BSc., MBA, MSc. PhD (UPH)	Logistics and Distribution Management	Senior Lecturer
10	Eke, Haniel O	BSc, MSc, PhD (UPH)	Marketing Communication and Strategy	Senior Lecturer
11	Nnenanya, D. A.	B.A (IMSU), PGD (FUTO), MBA (FUTO) M.Sc. (UPH), PhD (UPH)	Logistics and Distribution Management	Senior Lecturer
12	Lekue, J.	B.Sc., M.Sc. (RSUST) PhD (UPH)	Logistics and Distribution Management	Senior Lecturer
13	Atuo, E.C.	B.Sc., M.Sc (RUST)., PhD (UPH)	Marketing Communication and Digital Marketing	Senior Lecturer
14	Abiye, H. L.	BSc, MBA, (UPH), MSC (ABSU)	Marketing Management and Sustainable Marketing	Lecturer 1
15	Nwiepe, M.N.	BSc, MBA, M.Sc. (UPH), PhD. (RSUST)	Strategic Marketing and Consumer Psychology	Lecturer 1

DEPARTMENT OF FINANCE AND BANKING

History of Post Graduate programmes In the Department of Finance and Banking

Post graduate studies in Finance and Banking started under the erstwhile Graduate School of Business Administration which commenced in 1980 with Professor Lucius as the first Dean. The Graduate School of Business Administration offered four (4) Major MBA Programmes - Accounting, Finance, Management and Marketing. In 1984, the Graduate School of Business Administration metamorphosed into the Faculty of Management Sciences to enable it commences undergraduate programmes in the four stress areas. Accelerate the dissemination of the knowledge of finance discipline and contribute to the growth of the private and public sectors of the Nigerian economy.

The above move was principally informed by the fact that undergraduate studies in the above disciplines were not offered in then Graduate School of Business Administration and also, to align with the University-wide faculty structure. Adoption of the faculty structure paved way for introduction of more post graduate programmes in the department as follows:

- i. PGD (Finance and Banking) 1998/99
- ii. MSc (Finance and Banking) 2009/10
- iii. Ph.D. (Finance and Banking) 2006/07

Vision of the Department of Finance and Banking, University of Port Harcourt

The vision of the department is to become a top rated department among Nigerian and other universities actively involved in educating students, training and research activities thereby, serving as a reference point for other Universities and higher institutions of learning.

Mission of the Department of Finance and Banking, University of Port Harcourt

The mission of the department is to provide knowledge to our students and potential members of the public in an organized and most articulate manner, which will

Philosophy of PGD (Finance and Banking) Programmes

The philosophy of the PGD (Finance and Banking), Programme is to strengthen the exposure of deficient business related and/or non-business related discipline graduates to business managerial/business related courses essential for

their future undertakings in managerial and academic aspects of business.

The Aims/Objectives of PGD (Finance and Banking) Programme

The objectives of PGD (Finance and Banking) Programme are to:

- i. Prepare men and women whose previous training are deficient in business courses for entry in the faculty's MBA and M.Sc. courses in business related disciplines.
- ii. Prepare non-business graduates with basic business related knowledge to improve their professional and managerial contributions in the industry where they are already working or may find themselves.

Examination Malpractice

Any report of examination malpractice is investigated and deliberated upon by the Departmental and Faculty Graduate Committees before submission to the Provost, College of Graduate Studies, through the Dean, Graduate School of Management, Business and Trade and Dean, Faculty of Management Sciences for decision. Students found guilty are sanctioned in accordance with University of Port Harcourt regulations on examination malpractice.

Grading System

The grading system in the PGD (Finance and Banking) Programme is as follows:

0-49	F (Fail)
50-59	C
60-69	B
70 and Above	A

Structure of the PGD (Finance and Banking) Programme

The structure of courses offered for the PGD (Finance and Banking) Programme is shown below:

1st SEMESTER, FIRST YEAR

Course Code	Course Title	Credit Units
FIN 710	Principles of Finance	2
ACT 700	Principles of Accounting	2
MGT 700	Principles of Management	3
FIN711	Quantitative Techniques for Financial Decision	2

FIN 712	Principles of Microeconomics	2
FIN 713	Principles of Macroeconomics	2
MKT 701	Fundamentals of Marketing	2
	SUB TOTAL	14

2nd SEMESTER, FIRST YEAR

Course Code	Course Title	Credit Units
FIN 720	Research Methodology	2
FIN 721	Financial Institutions and Markets	2
FIN 722	Investment Analysis and portfolio	2
FIN 723	Business Finance	2
FIN 724	Micro and Small Business Financing	2
FIN 725	Regulations of Financial Institutions	2
FIN 726	Research Project	4
	SUB TOTAL	16
	GRAND TOTAL	30

PGD (Finance and Banking) Programme Course Outlines

FIN 710 Principles of Finance

This provides a systematic and vigorous examination of the theoretical framework of financial/ investment management analysis. Main topics include: The economic theory of choice; investment decision and appraisal techniques, financial requirements planning, working capital management, financial ratio, dividend decision, cash budgeting, fixed assets and equity management funds flow statement, and emphasis on financial markets.

ACT 700 Principles of Accounting

This course deals with the underlying theory of double entry book keeping. Topics include: the nature, scope and purpose of accounting, theories and mechanics of double entry, book keeping statements, fixed accounts, funds flow statements, account of not-for-profit organizations, incomplete records.

MGT 700 Principles of Management

The development of Management thought; theories and models of management; the manager and his environment; organization structure and relationships; leadership and motivation; organization development, the management functions and procedures; planning; organizing; directing; controlling etc.

FIN 711 Quantitative Techniques for Financial Decision

This course aims at giving the students quantitative skills necessary for banking and financial decision making. The focus of the course will be more of application rather than of the theory per se. It covers descriptive statistics, probability and expectations, discrete and continuous distributions and statistical decision theory, study of estimation, test of hypotheses and confidence intervals. Time series analysis index numbers with applications in finance, multiple regressions including correlation analysis. Also it includes inventory, forecasting queuing models, analysis of variance, and use of computer as a tool, emphasized with application to finance

FIN 712 Principles of Microeconomics

Economic systems and organization, demand and supply individual consumer behaviour, the utility and indifference curve approaches. Market classifications, the principles of production, the firm and perfect competition, pure monopoly, monopolistic and oligopolistic competitions, pricing and employment of resources.

FIN 713 Principles of Macroeconomics

The emphasis in this course is on the macro or aggregative aspect of the economy. Topics include: National Income Account, the Determination of the level of Aggregate Output: Employment and Prices; the Monetary system: Monetary and Fiscal Policies; Economic Growth, and International Monetary Economics,

MKT 701 Fundamentals of Marketing

This course focuses on the appreciation of functions and channels of marketing and its role in the corporate environment. Major elements of marketing strategy in relation to product development, distribution channels, advertising; sales promotion and pricing are examined in detail

FIN 720 Research Methodology

The course is designed to improve the ability of students to carry out empirical research and to evaluate published research. Topics covered include the nature of scientific research, theory building, and concept definition, formulating hypotheses, validity and reliability, measurement and scaling methods, concepts, and problems in data collection and sampling, criteria for causal inferences, studies and control groups, considerable times will be devoted to report writing including editing, foot noting etc.

FIN 721 Financial Institutions and Markets

The course covers: overview of the financial system embracing banks, non-banks financial

institution, money and capital markets and the regulatory authorities-the Central Bank, the Securities and Exchange Commission, the Stock Exchange, survey of the structure and operation of the market for short, medium and long term securities. Other topics include overview of the nature, types, sources and uses of term securities as well as the nature, objectives, structure, functions, and practices of institutions, such as the stock exchange, investment banking, insurance and pension institutions as well as international finance institutions. The other aspects include: economics and legal aspects of the capital market, analysis of interest rates, cost of capital, prices of securities, risk in securities operations and their implications for investment and performance of the financial operators.

FIN 722 Investment Analysis and Portfolio Management

The study covers portfolio selection as a problem of constrained utility maximization under conditions of uncertainty; Discussion of the different markets, along empirical evidence for validity of the theory; activities involved in making selection among alternative financial assets from the viewpoints of individuals and institutional investors; implications of the efficient market theory for the profitability of alternative investment; valuation of financial statement and analysis. The empirical evidence for various mean variance models of assets for evaluating portfolio performance is emphasized.

FIN 723 Business Finance

This course covers working capital financial management: Accounts, Receivables Management, Inventory Management, and Cash Management. It also covers capital budgeting decisions, and capital structure decisions

FIN 724 Micro and Small Business Financing

This course covers the problem of provision of micro-credit and the financial problems of small business in the economy. Topics covered include: sources; acquisition and use of capital by small businesses; financial analysis relating to income, repayment of capital and risk management, leasing and other finance alternatives, the role of small business in the economy, required government assistance, how microcredit can be effectively provided and the provision of finance by credit institutions as well as the non financial components to make finance be productively employed.

FIN 725 Regulations of Financial Institutions

An advanced treatment of fiscal and monetary policy issue in respect of economic stabilization

measures. The instruments and targets of fiscal and monetary policies and theory impacts on macroeconomic aggregates including unemployment, income levels, inflation etc. regulatory institutions in domestic and international economic environment such as the CBN, NDIC/FDIC, IMF ETC as they affect national and international economic development.

FIN 726 Research Project

The course is designed to train students in the skill of scientific information gathering, analysis and interpretation in dealing with problems in finance and related topics. Through reading, assignments and direct experience students are exposed to the art of problem identification and analysis, data gathering, analysis and report writing. Emphasis will be placed on the approach at every stage.

(B) MSC (FINANCE & BANKING): FULL-TIME

Philosophy of the M.Sc (Finance and Banking) programme:

The philosophy of the M.Sc (Finance and Banking) programme is to broaden and deepen the intellectual exposure of students in the major areas of finance and banking and particularly, develop their capability to undertake in-depth graduate research in finance and banking.

The Aims/Objectives of M.Sc (Finance and Banking) programme:

The objective of the M.Sc (Finance and Banking) programme are to:

- (a) Develop requisite intellectual and conceptual foundations in students that will permit meaningful participation in the discussion or resolution of problems that confront financial management practices.
- (b) Equip students with the requisite analytical and quantitative skills for undertaking meaningful research that will encourage maximum contribution of the finance and banking progression to national, social and international development of economics.
- (c) Develop the skills of logical reasoning and critical analysis so as to improve students' capacity to formulate sound financial and investment policies and practices.

Admission Requirements:

M.Sc (Finance and Banking) candidates are admitted based on their prior relevant qualifications and experience. M.Sc candidates are required to have a minimum second class lower division for B.Sc degree holders in finance and Banking or equivalent and a minimum CGPA of

3.5 on a 5 point scale for PGD holders in Finance and Banking.

Structure of the M.Sc (Finance and Banking) programme:

The detailed structure of courses offered for the M.Sc (Finance and Banking) programme is presented below:

1st SEMESTER, FIRST YEAR

Course Code	Course Title	Credit Units
FIN 850	Corporate Finance	3
FIN 851	Theory of Financial Intermediation	2
FIN 852	Research Methodology	2
FIN 853	Microeconomic Theory	2
FIN 854	Macroeconomic Theory	2
FIN 861	Regulation of Financial Intuition	2
CGS 801	ICT & Research Methodology	2
FIN 855	Quantitative Methods for Finance Decision	2
SUB TOTAL		17

2nd SEMESTER, FIRST YEAR

Course Code	Course Title	Credit Units
FIN 862	Management of Financial Institutions	2
FIN 863	Basic Econometrics	2
FIN 864	MSc Research Seminars in Finance	3
SGS 801.2	Management and Entrepreneurship	2

Elective Courses

Candidates are required to choose any four (4) elective courses from the underlisted two (2) areas of concentration FINANCE and BANKING as follows:

Finance Option

Course Code	Course Title	Credit Units
FIN 865	International Business Finance	2
FIN 866	Investment Analysis and Portfolio Management	2
FIN 867	Derivative Securities and Markets	2
FIN 868	Micro and Small Business Finance	2
FIN 869	Public Sector Financial Management	2

SUB TOTAL 17

Banking Option

Course Code	Course Title	Credit Units
FIN 870	International Banking and Finance	2
FIN 871	Banking Lending and Credit Administration	2
FIN 872	Marketing of Financial Services	2
FIN 873	Financial Planning and Control	2
FIN 874	Management of insurance Business	2
SUB TOTAL		17

1st SEMESTER, SECOND YEAR

Course Code	Course Title	Credit Units
FIN 880	Thesis / Dissertation	6
FIN 875	Development Finance (Both options)	2
SUB TOTAL		8
GRAND TOTAL		42

MSC (FINANCE & BANKING) PART-TIME

1st SEMESTER, FIRST YEAR

Course Code	Course Title	Credit Units
FIN 850	Corporate Finance	3
FIN 851	Theory of Financial Intermediation	2
FIN 852	Research Methodology	2
FIN 853	Microeconomic Theory	2
SGS 801.1	ICT & Research Methodology	2
SUB TOTAL		11

1st SEMESTER, FIRST YEAR (GENERAL COURSES)

Course Code	Course Title	Credit Units
FIN 854	Macroeconomic Theory	2
FIN 861	Regulation of Financial Intuition	2
FIN 855	Quantitative Methods for Finance Decisions	2
FIN 862	Management of Financial Institutions	2
CGS 802	Management and Entrepreneurship	2
FIN 863	Basic Econometrics	2
SUB TOTAL		12

1st SEMESTER, SECOND YEAR (GENERAL COURSES)

Course Code	Course Title	Credit Units
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FIN 864	MSc Research Seminars in Finance	3
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gathering, analysis and report writing. Emphasis will be placed on the approach at every stage.

CORE COURSES

Candidates are required to choose any four (4) core courses from the underlisted two (2) areas of concentration FINANCE and BANKING as follows

Finance Option

Course Code	Course Title	Credit Units
FIN 865	International Business Finance	2
FIN 866	Investment Analysis and Portfolio Management	2
FIN 867	Derivative Securities and Markets	2
FIN 868	Micro and Small Business Finance	2
FIN 869	Public Sector Financial Management	2
SUB TOTAL		11

Banking Option

Course Code	Course Title	Credit Units
FIN 870	International Banking and Finance	2
FIN 871	Banking Lending and Credit Administration	2
FIN 872	Marketing of Financial Services	2
FIN 873	Financial Planning and Control	2
FIN 874	Management of insurance Business	2
SUB TOTAL		10

2ND SEMESTER, SECOND YEAR

Course Code	Course Title	Credit Units
FIN 880	Thesis /Dissertation	6
FIN 875	Development Finance (Both options)	2
SUB TOTAL		8
GRAND TOTAL		42

M.Sc Finance and Banking Course Descriptions/Contents/Specifications:

FIN 852 Research Methodology

The course is designed to train students in the skill of scientific information gathering, analysis and interpretation in dealing with problems in finance and related topics. Through reading, assignments and direct experience students are exposed to the art of problem identification and analysis, data

FIN 855 Quantitative Techniques for Financial Decisions

This course aims at giving the students quantitative skills necessary for banking and financial decision making. The focus of the course will be more of application rather than of the theory per se. It covers descriptive statistics, probability and expectations, discrete and continuous distributions, and statistical decision theory, study of estimation, tests of hypotheses and confidence intervals. Time series Analysis Index Number with applications in finance, multiple regression, including correlation analysis. Also it includes inventory, forecasting, queuing models, analysis of variance, use of computer as a tool, emphasized with application to finance.

FIN 850 Corporate Finance

The nature of the firm and corporate objectives. Implementation of the firms' goals for choice among alternative investment projects (the capital budgeting problems), market evaluation of non assets under uncertainty and implication for capital budgeting, analysis and illustration with problems of alternative investment criteria, alternative approaches to value of the firm and the cost of capital; discussion of corporate financial problems; e.g. leasing, mergers and acquisitions, and issuance of new securities.

FIN 851 Theory of Financial Intermediation

The course analysis financial markets conceptually and theoretically, emphasizing the role, structure and activities of financial intermediaries. The dynamic pattern of financial flows is analyzed by flow of funds, and uses/sources of funds, models of the process of financial intermediation and the theory of the banking firm. The crucial role of interest rate and structure of interest rates are analyzed. Also analyzed at the regulatory framework and its impact on banking operations, market structure and performance of the financial intermediation functions of the institutions.

FIN 872 Marketing of Financial Services

The course covers the nature, characteristics and consequences of financial services, and consequently, the need for products to be marketed in a special way. It is to enable students to skillfully apply marketing concepts functions, strategies and techniques, for efficient provision of banking financial services. It also requires background knowledge of banking theory and practice for

effective application of marketing principles to enhance financial services delivery at profit.

FIN 870 International Banking and Finance

Topics covered include; overview of the global financial system, foreign exchange market, national banking and financial markets, Euro-banks and euro financing international trade financing; International financial institutions and financial integration in ECOWAS and Africa; problems of developing countries in the international financial system and markets; reform of the international financial system; external borrowing, debt and debt servicing problems; foreign aid and foreign direct investment; Nigeria and international trading, payments and financial issues in the context of the changing global financial developments.

FIN 866 Investment Analysis and Portfolio Management

The study covers portfolio selection as a problem of constrained utility maximization under conditions of uncertainty: Discussion of the different markets, along empirical evidence for validity of the theory; activities involved in making selection among alternative financial assets from the viewpoints of individuals and institutional investor; implications of the efficient market theory for the profitability of alternative investment; valuation of financial statements and analysis. The empirical evidence for various mean variance models of assets for evaluating portfolio performance are emphasized.

FIN 863 Basic Econometrics

In this introduction to Econometrics covers, topics to be covered include: the study of the specification of econometric models in economics and finance theory, stochastic disturbances, and the link between conceptual variables and observable economic data are combined. Other topics include: estimation of single equation linear; non-linear models by least squares (OLS) and other methods and estimation of time-series models and simultaneous equation models. Particular attention is given to specifications of problems and errors, and the application of the various tools to aid analysis in finance.

FIN 862 Management of Financial Institutions

The course is concerned with financial management of banks and other financial institutions. The management decision making problems in the course view, the financial firm as having goals of maximizing returns on assets subject to the constraints of the funds model, the

maintenance of solvency, the capital adequacy problem and demands of the regulatory authorities. Also covered are the analysis of various issues and problems common to many financial intermediaries, such as corporate planning and control in financial institutions; competition for funds, assets and liability management, marketing of financial services, the measurement of performance, and the reconciliation of profit objectives with public relations and social obligations. Case studies are expected to be employed in illustrating typical real issues.

FIN 865 International Business Finance

It covers overview of the international financial system; international banking and financial market, including the foreign exchange risks and management practices by international businesses; Euro bank and Euro-financing; financing methods in international trade; international, financial management, capital budgeting, project finance, and transfer pricing by multinational corporations, foreign direct investment, multilateral investment guarantee and investment codes; intentional business operations in the context of changing global financial development.

FIN 867 Derivative Securities and Markets

The rapid and extreme development in financial services industry demand that graduates in finance be exposed to financial innovations in recent years. The course in derivatives and markets fulfills this requirements. The course introduces the students to the concepts, types, operations and regulatory framework of financial derivatives markets. It covers traded options, futures/future contracts, forwards, swaps, derivatives exchanges and traded systems.

FIN 861 Regulations of Financial Institutions

An advanced treatment of fiscal and monetary policy issues; in respect of economic stabilization measures. The instruments and targets of fiscal and monetary policies and theory impacts on macroeconomic aggregates including unemployment, income levels, inflation etc. regulatory institutions in domestic and international economic environment such as the CBN, NDIC/FDIC, IMF etc. as they affect national and international economic development.

FIN 871 Bank Lending and Loan Administration

The course is designed to expose students to the basic principles of lending and credit administration costs Topics in bank credit

organizations, the lending environment and financial statements analysis. Others are sectorial forms of lending such as commercial lending consumer lending and credit administration. The course involves course work and case studies

FIN 868 Micro and Small Business Finance

The course covers the problem of provision of microcredit and the financial problems of small business in the economy Topics covered include: sources, acquisition and use of capital by small businesses; financial analysis relating to income, repayment of capital and risk management leasing and other finance alternatives, the role of small business in the economy, required government assistance, how microcredit can be effectively provided and the provision of finance by credit institutions as well as the non financial components to make finance be productively employed.

FIN 864 M.Sc Seminars in Finance

This seminar introduces students to the most recent research in the area of Finance and Investment, examining current issues and trends. Students have an opportunity to present and discuss their own research and actively engage in the analysis and discussion of the work of others. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and results of his/her research.

FIN 864 M.Sc. Research Seminars

Candidates are here required to make at least two well researched presentations. The first presentation is the thesis proposal if the approved proposal is completed. The presentation will emphasize the actual result of the students' research work.

FIN 873 Financial Planning and Control.

The course emphasizes basic concepts and analytical tools essential for financial decision making and in understanding of the market environment in which the firm operate. Possible topics include the concepts of organizational goals and the selection and preparation of information essential to financial planning and control firms operations such as cost estimation and analysis, co volume profit analysis, budgeting and budgetary control variance analysis and cost allocation.

FIN 869 Public Sector Financial Management

This covers the procedure for estimation and control c government expenditure and the raising of reven estimation of expenditure, authorization

of expenditure and accounting processes for planning public expenditure efficiency of government expenditure: measurement of "efficiency" of government expenditure: objective functions of government expenditure: the planning programming Budgeting system and other budgeting systems as an approach to cost effectiveness appraisal of government expenditure. Also included are; the mult nature of public sector-federal state and local authorities and the financial relationship between government units fiscal federalism, local government finance; rates, borrowing, federal/state grants, commercial activities, the systems of federal/states grants and changes overtime; the central of local authority expenditure: current and capital, its planning and control; pricing and investment problems, accosting and financial control in public owned enterprises.

FIN 874 Insurance Management

This course examines the whole areas of risk management Topics covered include: principles of Insurance, risk exposures of the individual and the firm, risk reduction, property and casualty insurance, investment profiles and analysis and applications and actuarial science.

FIN 864 Seminar in Finance and Banking

This course takes an in-depth approach to the evaluation of critical and core issues in various are of finance covering Investment Evaluation and Analysis, Portfolio Management Financial Intermediation. Issues in Capital Structure. Cost of Capital. Money and Capital Market, Foreign Exchange Risks. Balance of payments. International Finance, Capital Markets. Operations of Multinational Corporations, Transfer of Funds, International Monetary Systems and Institutions etc. Issues in Financial, Institutions Rules and Regulations, Bank and Bank Management.

FIN 875 Development Finance

This course evaluates the role of finance in the evaluation and stimulation of mainly public sector/social projects for economic development. Topics covered include: the meaning of development, common characteristics of developing economies, economic growth (causes and characteristics). Mobilisation of domestic resources (financial intermediation, taxation etc). Mobilisation of foreign resources (public financial aid, international money systems and financial assistance), foreign private investment and transfer of technology Appraisal of social projects (social cost, benefit analysis). Distortions in fact markets.

Monetary and fiscal policies, the emergence of development banks (exigency theory, gap theory and catalyst thesis). Taxation for development finance, direct and indirect taxation, fiscal policy and inflation for development financing Financing for: capacity building (human resource development, health, education agriculture, entrepreneurship, employment, international trade, development planning models and markets.

(C) MBA (FINANCE & BANKING) FULL-TIME

Philosophy of the MBA (Finance and Banking) Programme

The Philosophy of MBA (Finance and Banking) programme is to broaden and deepen the intellectual and managerial exposures of students in the major areas of finance and banking and particularly, develop their capability to undertake advanced managerial, administrative and academic pursuits in different areas of financial concerns.

The Aims/Objectives of MBA (Finance and Banking) Programme

- a) Develop effective managerial skills among candidates with which to recognize, analyze and solve organizational problems
- b) Train candidates who are equipped with capacity to utilize modern concepts and methods in running complex organizations
- c) Prepare candidates for further graduate work in the management sciences

Examination Malpractice

Any report of examination malpractice is investigated and deliberated upon by the departmental and faculty Graduate Committees before submission to Provost, College of Graduate Studies through Dean, Graduate School of Management, Business and Trade and Dean, Faculty of Management Sciences for decision. Students found guilty are sanctioned in accordance with University of Port Harcourt regulations on examination malpractice.

Structure of the MBA (Finance and Banking) Programme

The structure of courses offered for the MBA (Finance and Banking) Programme is shown below;

1ST SEMESTER, YEAR 1

Course Code	Course Title	Credit Units
FIN 800	Research Methodology	3
MGT 801	Quantitative Methods for Management	3
FIN 801	Corporate Finance	3

MGT 802	Operations management	3
MKT 801	Marketing Management and Strategy	3
ACT 801	Introduction to Accounting	3
MGT 807	Organization Behavior	3
SGS 801.1	ICT & Research Methods	2
TOTAL		23

1ST SEMESTER, YEAR 1

Course Code	Course Title	Credit Units
MGT 803	Business and Company Law	3
MGT 806	Human Resources Management	3
MGT 804	Environment and Business	3
MGT 808	Corporate Strategy	3
MGT 805	Introduction to General Management	3
FIN 802	Managerial Economics	3
FMS 800	MBA Language Programme	3
SGS 801.2	Management and Entrepreneurship	2
SUB TOTAL		23

1ST SEMESTER, SECOND YEAR

Course Code	Course Title	Credit Units
ACT 802	Managerial Accounting	3
FIN 811	Investment Analysis and Portfolio Management	2
FIN 803	Management of Financial Institutions	2
FIN 804	Portfolio theory and Capital Institution	2
FIN 805	International Business Finance	2
FIN 806	Case Problems in Financial Management, Banking and Financial Institutions	2

Elective Courses

Candidates are required to choose any two (2) elective courses from the underlisted three (3) courses

Course Code	Course Title	Credit Units
FIN 807	Banking Theory and Management	2
FIN 808	Public Finance	2
FIN 809	Insurance Management	2
SUB TOTAL		17

1ST SEMESTER, SECOND YEAR

Course Code	Course Title	Credit Units
FIN 810	MBA Seminar	3
FIN 820	Thesis/Dissertation	6
	SUB TOTAL	9
	GRAND TOTAL	72

MBA (FINANCE & BANKING) PART-TIME

1ST SEMESTER, YEAR 1

Course Code	Course Title	Credit Units
FIN 800	Research Methodology	3
MGT 801	Quantitative Methods for Management	3
FIN 801	Corporate Finance	3
MGT 802	Operations management	3
SGS 801.1	ICT & Research Methodology	2
	SUB TOTAL	14

1ST SEMESTER, YEAR 1

Course Code	Course Title	Credit Units
MKT 801	Marketing Management and Strategy	3
ACT 801	Introduction to Accounting	3
MGT 807	Organization Behavior	3
MGT 803	Business and Company Law	3
SGS 801.2	Management and Entrepreneurship	2
	SUB TOTAL	14

1ST SEMESTER, YEAR 2

Course Code	Course Title	Credit Units
MGT 806	Human Resources Management	3
MGT 804	Environment and Business	3
MGT 808	Corporate Strategy	3
MGT 805	Introduction to General Management	3
FIN 802	Managerial Economics	3
	SUB TOTAL	15

2ND SEMESTER, YEAR 2

Course Code	Course Title	Credit Units
FMS 800	MBA Language Programme	3
FIN 811	Investment Analysis and Portfolio Management	2

FIN 803	Management of Financial Institutions	2
FIN 804	Portfolio theory and Capital Market Analysis	2
ACT 802	Managerial Accounting	3
	SUB TOTAL	12

1ST SEMESTER, YEAR 3

Course Code	Course Title	Credit Units
FIN 806	Case Problems in Financial Management, Banking and Financial Institutions	2
FIN 805	International Business Finance	2

Elective Courses

Candidates are required to choose any two (2) elective courses from the underlisted three (3) courses.

Course Code	Course Title	Credit Units
FIN 807	Banking Theory and Management	2
FIN 808	Public Finance	2
FIN 809	Insurance Management	2
	SUB TOTAL	8

1ST SEMESTER, YEAR 3

Course Code	Course Title	Credit Units
FIN 810	MBA Seminar	3
FIN 820	Thesis/Dissertation	6
	SUB TOTAL	9
	GRAND TOTAL	72

MBA (FINANCE AND BANKING) PROGRAMME COURSE DETAILS

FIN 800: Research Methodology

The course is designed to train students in the skill of scientific information gathering, analysis and interpretation in dealing with problems in finance and related topics, through reading, assignments and direct experience students are exposed to the art of problem identification and analysis, data gathering, analysis and report writing. Emphasis will be placed on the approach at every stage.

MGT 801: Quantitative Techniques For Financial Decisions

This course aims at giving the students quantitative skills necessary for banking and financial decision making. The focus of the course will be more of application rather than of the theory per se. It covers descriptive statistics, probability and

expectations, discrete and continuous distributions, and statistical decision theory, study of estimation, tests of hypotheses and confidence intervals. Time series analysis, Index Number with applications in Finance, multiple regressions including correlation analysis. Also it includes inventory, forecasting, queuing models, analysis of variance, and use of computer as a tool, emphasized with application to finance.

FIN 801: Corporate Finance

The nature of the firm and corporate objectives. Implementation of the firms' goals for choice among alternative investment projects (the capital budgeting problems), market evaluation of non assets under uncertainty and implication for capital budgeting, analysis and illustration with problems of alternative investment criteria, alternative approaches to value of the firm and the cost of capital; discussion of corporate financial problems e.g. leasing, mergers and acquisitions, and issuance of new securities.

FIN 807: Banking Theory and Management

Structure of financial statements. Analysis of bank performance, Capital structure and policy, Assets and Liability Management, Liquidity policies and Management, Credit policies and Loan Portfolio Management, Interest Rates Theories and Bank solvency, Banking Regulations and Regulators.

FIN 805: International Banking and Finance

Topics covered include; overview of the global financial system, foreign exchange market, national banking and financial markets, Euro-banks and euro financing, international trade financing; international financial institutions and financial integration in ECOWAS and Africa; problems of developing countries in the international financial system and markets; reform of the international financial system; external borrowing; debt and debt servicing problems; foreign aid and foreign direct investment; Nigeria and international trading, payments and financial issues in the context of the changing global financial developments.

FIN 802: Investment Analyses and Portfolio Management

The study covers portfolio selection as a problem of constrained utility maximization under conditions of uncertainty; Discussion of the different markets, along empirical evidence for validity of the theory; activities involved in making selection among alternative financial assets from the viewpoints of individuals and institutional

investors; implications of the efficient market theory for the profitability of alternative investment; valuation of financial statement and analysis. The empirical evidence for various mean variance models of assets for evaluating portfolio performance are emphasized.

FIN 803: Management of Financial Institutions

The course is concerned with financial management of banks and other financial institutions. The management decision making problems in the course view, the financial firm as having goals of maximizing returns on assets subject to the constraints of the funds model, the maintenance of solvency, the capital adequacy problem and demands of the regulatory authorities. Also covered are the analysis of the various issues and problems common to many financial intermediaries such as corporate planning and control in financial institutions; competing for funds, assets and liability management, marketing of financial services, the measurement of performance, and the reconciliation of profit objectives with public relations and social obligations. Case studies are expected to be employed in illustrating typical real issues.

FIN. 805: International Business Finance

It covers overview of the international financial system; international banking and the financial market, including the foreign exchange risks and management practices by international businesses.

FIN 804: Portfolio Management Theory

This course provides an advanced treatment of investment portfolio theories; computer enhanced models used to provide instruction in capital asset portfolio management and technique. Advanced treatment of diversification theories and applications in asset selection, analysis, and management and risk management are extensively discussed.

FIN 808: Public Sector Financial Management

This covers the procedure for estimation and control of government expenditure, and the raising of revenue; estimation of expenditure, authorization of expenditure and accounting processes for planning public expenditure; efficiency of government expenditure; measurement of 'efficiency' of government expenditure; objective functions of government expenditure; the planning programming. Budgeting system and other budgeting systems as an approach to cost effectiveness appraisal of government expenditure. Also included are: the

multi-nature of public sector-federal, state and local authorities and the financial relationship between government units; fiscal federalism, local government finance; rates, borrowing, federal/state grants, commercial activities; the systems of federal/states grants and changes overtime; the central of local authority expenditure: current and capital expenditure, its planning and control; pricing and investment problems, accounting and financial control in public owned enterprises.

(E) PhD (FINANCE & BANKING)

Philosophy of the PhD (Finance and Banking) Programme

The Philosophy of PhD (Finance and Banking) programme is to broaden and deepen the intellectual and managerial exposures of students in the major areas of finance and banking in particular, develop their capability to undertake advanced managerial, administrative and academic pursuits in different areas of financial concerns

The Aims/Objectives of PhD (Finance and Banking) Programme

- Develop effective managerial skills among candidates with which to recognize, analyze and solve organizational problems
- Train candidates who are equipped with capacity to utilize modern concepts and methods in running complex organizations
- Prepare candidates for further graduate work in the management sciences

Examination Malpractice

Any report of examination malpractice is investigated and deliberated upon by the departmental and faculty Graduate Committees before submission to Provost, College of Graduate Studies, through Dean, Graduate School of Management, Business and Trade and Dean, Faculty of Management Sciences for decision. Students found guilty are sanctioned in accordance with University of Port Harcourt regulations on examination malpractice.

Structure of the PhD (Finance and Banking) Programme

The structure of courses offered for the PhD (Finance and Banking) Programme is shown below:

FIRST SEMESTER, YEAR 1

Course Code	Course Title	Credit Units
FIN 901	Advanced Theory of corporate Finance	3

FIN 902	Advanced Portfolio Theory and Management	3
FIN 903	Advanced Theory of financial Intermediation	3
FIN 904	Advanced Quantitative Decisions Techniques in Finance	3
FIN 905	Advanced Research Methodology	3
FIN 906	Advanced Financial Econometrics	3
SUB TOTAL		18

SECOND SEMESTER, YEAR 1

Finance Option

Course Code	Course Title	Credit Units
FIN 914	Theory and Management of Financial Institutions and Markets	3
FIN 907	Empirical investigations in Finance	3
FIN 908	Contemporary issues in Finance	3
FIN 909	Issues in Public Financial Management	3
FIN 910	Advanced International Trade and Finance	3
SUB TOTAL		15

Banking Option

Course Code	Course Title	Credit Units
FIN 914	Theory and Management of Financial Institutions and Markets	3
FIN 911	Empirical investigations in Banking	3
FIN 912	Contemporary issues in Banking	3
FIN 913	Issues in insurance Management	3
FIN 910	Advanced International Trade and Finance	3
SUB TOTAL		15

FIRST SEMESTER, YEAR 2

Finance Option

Course Code	Course Title	Credit Units
FIN 920	Ph.D Seminar in Finance 1	3
FIN 921	Ph.D Seminar in Finance 11	3
SUB TOTAL		6

Banking Option

Course Code	Course Title	Credit Units
FIN 924	Ph.D Seminar in Banking 1	3
FIN 925	Ph.D Seminar in Banking 11	3
	SUB TOTAL	6

SECOND SEMESTER, YEAR 2

Course Code	Course Title	Credit Units
FIN 930	Ph.D Thesis/Dissertation	12
	GRAND TOTAL	51

COURSE DESCRIPTIONS

FIN 902: Advanced Portfolio Theory and Management

Essentially, this is a course in multi period wealth maximization using portfolios and in the analysis of capital markets where portfolio assets are traded. Emphasis shall be on the models of portfolio management and capital market analysis, such models include the Capital Asset Pricing Models (CAPM); the Arbitrage Pricing Theory (APT); Random Walk and Martingale Models. Also tests of Capital markets for efficiency using such models as special analysis, Special Correlation and Runs Analysis shall be emphasized. The courses shall be examined comprehensively. The empirical evidence on the efficiency of selected international capital markets including Nigeria.

FIN 914: Theory and Management of Financial Institutions and Markets

The course shall examine the various theories of financial intermediation plus the role played in financial markets by financial institutions and the Central Bank. The course shall involve intensive literature review in such areas as the saving investment process; financial institutions and instruments; inflation in financial markets; money demand and money supply models, transmission mechanism and effectiveness of monetary policy in financial markets; impacts of fiscal policies on financial markets.

FIN 906: Advanced Financial Econometrics

Scope and methodology of econometric research, modeling, specifications and evaluation, correlation and regression theories, statistical tests for significance, regression analysis of variance, second order tests of the assumptions of linear regression, autocorrelation, multi collinearity, errors in variables, time as variable, dummy variables and distributed lag models, models of simultaneous relationships, mixed estimation methods of principal components, maximum likelihood method, three stages least square,

forecasting power of estimated models, choice of econometric technique, Monte Carlo studies.

FIN 910: International Banking and Finance

Topics covered include; overview of the global financial system, foreign exchange market, national banking and financial markets, Euro-banks and euro financing, international trade financing; international financial institutions and financial integration in ECOWAS and Africa: problems of developing countries in the international financial system and markets; reform of the international financial system; external borrowing; debt and debt servicing problems; foreign aid and foreign direct investment; Nigeria and international trading, payments and financial issues in the context of the changing global financial developments.

FIN 904: Advanced Quantitative Decision Techniques in Finance

It is designed to provide students the opportunity to explore more advanced quantitative techniques for decision making in general and research in particular. Emphasis will be on: quantitative methodologies in business, export commerce and international business, multivariate statistical methods, advance topics in optimizing techniques and stochastic models: application of t series, inbox number, other vital statistics to issues in business studies. In addition, it covers techniques of mathematical programming as applied in finance-the development of an intuitive appreciation of the techniques as opposed to rigorous mathematical derivation, illustration of the application in financial analysis-to be accomplished via a computer-assessed case, analysis and/or journal articles.

FIN 901: Advanced Theory of Corporate Finance

The course treats at the theoretical level the conceptual foundations of funds allocation among assets and assets classes, and analyses the effects of various corporate financial policy decisions (e.g. capital structure and dividends policies) on the value of the firm. It also includes analysis of the effects of taxes, bankruptcy costs, and agency costs on these decisions. The analyses are conducted successively under the assumptions of perfect and imperfect markets, and certainty and uncertainty conditions. In addition, it covers recent literature with emphasis on mathematical techniques which have been used to solve problems in portfolio theory, multi period asset pricing models and option pricing models. Financial leverage, market efficiency and information economics, term structure models,

capital market equilibrium models, corporate finance issues. Readings are drawn almost exclusively from the theoretical literature of corporate finance.

FIN 902: Advanced Portfolio Theory and Management

This course provides an advanced treatment of investment portfolio theories; computer enhanced models used to provide instruction in capital asset portfolio management and technique. Advanced treatment of diversification theories and applications in asset selection, analysis and management and risk management are exclusively discussed.

FIN 909: Public Sector Financial Management

This covers the procedure for estimation and control of government expenditure, and the raising of revenue estimation of expenditure, authorization of expenditure and accounting processes for planning public expenditure efficiency of government expenditure; measurement of 'efficiency' of government expenditure; objective functions of government expenditure; the planning programming Budgeting system and other budgeting systems as an approach to cost effectiveness appraisal of government expenditure. Also included are: the multi-nature of public sector-federal, state and local authorities and the financial relationship between government units; fiscal federalism, local government finance; rates, borrowing, federal/state grants, commercial activities; the systems of federal/states grants and changes overtime; the central of local authority expenditure: current and capital expenditure, its planning and control; pricing and investment problems, accosting and financial control in public owned enterprises.

FIN 908: Contemporary Issues in Finance

This is a seminar to address emerging issues in theoretical and empirical literature in finance.

FIN 912: Contemporary Issues in Banking

This is a seminar to address emerging issues in theoretical and empirical literature in Banking

FIN 920: PhD Seminar In Finance I

Candidates will be required to make a seminar presentation. Each student will be required to produce a manuscript in the usual journal format on the topic under investigation. For these candidates, a sound literature review and development of relevant mathematical models or techniques of analysis related to their research topics will be acceptable.

FIN 921: PhD Seminar In Finance II

Candidates will be required to make at least two seminar presentations. The first seminar presentation is the thesis proposal if the approved proposal is completed. The second seminar presentation will emphasize the actual results of the students research work.

FIN 911: Empirical Investigations In Banking

Market efficiency tests, term structure theory test, market structure, and financial structure issues. Topics focus on statistical and methodological problems encountered in empirical research in related areas of finance, economics and accounting.

FIN 924: PhD Seminar in Banking I

Candidates will be required to make a seminar presentation. Each student will be required to produce a manuscript in the usual journal format on the topic under investigation. For these candidates, a sound literature review and development of relevant mathematical models or techniques of analysis related to their research topics will be acceptable.

FIN 925: PhD Seminar in Banking II

Candidates will be required to make at least two seminar presentations. The first seminar presentation is the thesis proposal if the approved proposal is completed. The second seminar presentation will emphasize the actual results of the students research work.

STAFF LIST

S/NO	NAME OF LECTURER	QUALIFICATION	RANK
1.	Dr. G. O. Omojefe	B.Sc., M.Sc., PGD, MBA, Ph.D	Professor/HoD
2.	Prof C.B. Ezirim	B.Sc, MBA, M.Sc, Ph.D, FNISM, FIABBS, FICN, LMNES, PGDE	Professor
3.	Prof. E. J. Okereke	BSc, MBA, M.Sc, Ph.D, MACM, FISM	Professor
4.	Prof. B. F. Nwinee	B.Sc, MBA, M.Sc, Ph.D, FCIFIA, FNISM, FIIMMN, EPPA	Professor
5.	Prof. I. S. Nnamdi	B.Sc, MBA, Ph.D, FCIFIA,	Professor
6	Prof. E.P. Ifionu	B.SC, M.SC, Ph.D, M.SC	Professor
7	Dr. S. S. Ogunbiyi	B.Sc, MBA, Ph.D, FCIFIA	Professor
8	Dr. L.L. Torbira	NCE, B.Sc, MBA, Ph.D, FCIFIA	Professor
9.	Dr. V. O. Olulu-Briggs	B.Sc, MBA, M.Sc, Ph.D,	Reader
10.	Dr. R. E. Odi	B.Sc, MBA, M.Sc, Ph.D, ACIB	Senior Lecturer
11.	Dr. G.U. Oji	B.Sc, MBA, M.Sc.	Senior Lecturer
12.	Dr R O Mojekwu	B.Sc, MSC, Ph.D	Lecturer II
13.	Dr. E. U. Makwe	PhD.	Lecturer II

DEPARTMENT OF HOSPITALITY MANAGEMENT AND TOURISM

Preamble

The idea to establish the Department of Hospitality Management and Tourism was based on the realization that the Hospitality and Tourism Industry is fast growing with attractive potentials which create the need for training of graduates in the discipline. This thought corroborates the Federal Government's initiative to develop the Hospitality and Tourism Industry to enhance the foreign exchange earning capacity of the economy. In reaction to this noble idea, the Faculty mandated a committee to write a proposal for the proposed department. On the 7th of September 2007, a committee to develop the programme was constituted. The committee submitted its report which includes the mission, philosophy, objectives and curriculum of the programme. The report was harnessed to form a proposal which the Faculty presented to the Senate for approval. The proposal was approved by the Senate on 3rd December 2009 at its 353rd meeting (extraordinary), authorizing the establishment of the Department of Hospitality Management and Tourism, in the Faculty of Management Sciences.

Philosophy

The general philosophy of programmes in Postgraduate Programme in Tourism and Hospitality Management is to provide graduate education and training in the discipline, which develops and deepens the spirit of enquiry and responsibility in the graduate students, to take on research, teaching and administrative responsibilities, in public and private sectors of the nation and global economies.

Vision

The vision of the programme is to become top rated among Nigerian and other universities that are actively involved in educating and training students in the profession by integrating practical and theoretical learning to give the knowledge and tools needed to succeed in the rapidly evolving hospitality and tourism environment.

Mission

The mission of the programme is to provide knowledge to our students and potential members of the public through a broad based, qualitative and analytical background deemed necessary for success in the professional, business and academic spheres of life.

Rationale

The tourism and hospitality industry is undergoing major global changes bringing both opportunities and challenges and the ability to provide a

consistently high level of service is paramount to the success of any business operating within this competitive environment. Due to its enormous size and scope the tourism and hospitality industry generates both positive and negative impacts that must be properly understood and managed. Many opportunities are emerging that require a combination of management and organizational skills as well as a sound knowledge and understanding of the industry, its products and its services. Students interested in pursuing a career in the Hospitality and Tourism cluster will need knowledge and experiences to prepare for on-the-job or post-secondary training. Tourism and Hospitality Management is a course designed to provide this knowledge and training by focusing on the management skills needed in hospitality and tourism occupations.

Aim

The aim of the programme is to advance the professional, academic and competitive competence of graduates in the discipline for higher level managerial and executive accomplishments in the cooperate world.

Objectives

The objectives of the programme are:

- i. Providing academic experiences through appropriate research and course work in Tourism and Hospitality Management.
- ii. Developing student's intellectual capabilities and enhance the marketability of their professional competencies.
- iii. Developing a critical mass intellectual that will help lead the way forward in developing innovative solutions, through research and scholarship, to address the many challenges facing tourism industry.
- iv. Preparing scholars in selected areas of tourism and hospitality management who will take active role in developing the tourism and hospitality industry.

A) Postgraduate Diploma Programmes (PGD)

Admission Requirements

Candidates seeking admission for Postgraduate Diploma in Tourism and Hospitality Management must have any of the following qualification from recognized institutions; Provided the matriculation requirements are satisfied:

- i. Five credit passes including English language, Mathematics and any two from, Commerce/economics, Geography, Biology

- /Agricultural Science, Catering, Tourism and Nutrition at the 'O' level.
- ii. Relevant Bachelor's Degrees not lower than third Class Division from recognized Universities.
 - iii. Bachelor's Degrees with any grade lower than 3.00 averages in a 5-point grading system or its equivalent in areas not related to Tourism and Hospitality Management may be considered.
 - iv. Higher National Diploma at minimum of lower credit level.
- N/B: Relevant professional qualifications will be added advantage.

Duration of Postgraduate Programmes

A) Postgraduate Diploma Programmes (PGD)

- a) Full-time Diploma: Minimum of two (2) semesters and a maximum of four (4) semesters.
- b) Part-time Diploma: Minimum of four (4) semesters and a maximum of six (6) semesters

Requirements for Graduation

The programme consists of course work, project work and seminars or special topics.

A) POSTGRADUATE DIPLOMA

To be awarded the Postgraduate Diploma in Tourism and Hospitality Management a candidate must have fulfilled the following conditions:

- i. Passed a minimum of 44 Credit Units, as follows:

Course Structure for Postgraduate Diploma in Tourism and Hospitality Management

FULL TIME

First Semester Year One

Course code	Core Courses	Units
THM 702.1	Introduction to Tourism and Hospitality management	2
THM 704.1	Zoo and Park Management	2
THM 705.1	Research Methods / Computer Application in Tourism and Hospitality Management	3
THM 711.1	Ecotourism Management, Planning and Development	3
MKR 700.1	Fundamentals of Marketing	2
MGT 700.1	Principles of Marketing	2
ACT 708.1	Principles of Accounting	2
FIN 701.1	Principles of finance	2
	Total	18

Second Semester Year One

Course code	Core Courses	Units
THM 722.2	Industrial Relations in Tourism & Hospitality Industry	2
THM 724.2	Hotel Operations and Customer Relationship Management	2
THM 725.2	Advanced Food and Beverage Production / Service Management	3
THM 726.2	Tourism and Hospitality Law	2
THM 729.2	Advance Events Management and Tourism Marketing	3
THM 730.2	Tourism and Hospitality Economics	2
THM 731.2	Project	4
THM 732.2	Seminar	2
	Total	20

COURSE STRUCTURE FOR PGD (PART TIME)

First Semester Year One

Course code	Core Courses	Units
THM 702.1	Introduction to Tourism and Hospitality management	2
THM 704.1	Zoo and Park Management	2
THM 705.1	Research Methods / Computer Application in Tourism and Hospitality Management	3
MGT 700.1	Principles of Management	2
	Total	9

Second Semester Year One

Course code	Core Courses	Units
THM 711.1	Ecotourism Management, Planning and Development	3
MKR 700.1	Fundamentals of Marketing	2
ACT 701.1	Principles of Accounting	2
FIN 701.1	Principles of finance	2
	Total	9
	Grand Total	18

First Semester Year Two

Course code	Core Courses	Units
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THM 722.2	Industrial Relations in Tourism & Hospitality Industry	2
THM 724.2	Hotel Operations and Customer Relationship Management	2
THM 725.2	Advanced Food and Beverage Production / Service Management	3
THM 726.2	Tourism and Hospitality Law	2
THM 729.2	Advance Events Management and Tourism Marketing	3
THM 730.2	Tourism and Hospitality Economics	2
	Total	14

Second Semester Year Two

Course code	Core Courses	Units
THM 731.2	Project	4
THM 732.2	Seminar	2
	Total	6
	Grand Total	20

Course Description for Postgraduate Diploma in Tourism and Hospitality Management

COURSE CODE, COURSE TITLE AND CONTENT

THM 702.1 Introduction to Tourism and Hospitality Management

An introductory course providing an overview of the structure and scope of the travel/tourism and hospitality industries. This course examines the components of the tourism industry: transportation, accommodation, food and beverage, and attractions. Other topics include the history, economic, political, social and cultural impacts tourism have on local, state and global environments. A section of the course is devoted to the State of the Nigerian Tourism and Hospitality environment. Students will review marketing, motivation and other forces that draw guests to sites of attraction. Students will be required to prepare a career-planning outline. Hotel classification, etc the basic structure and organization of the foodservice industry, basics of catering operations, the structure, amenities and product types available in the lodging industry. Various types of companies in the travel industry.

THM 704.1 Zoo and Park Management

Concepts of ecosystem, ecotourism, zoo, park and park management. Principles of recreation. Principles of nature conservation; population and natural resources relationship, social values and ethical issues in leisure; nature protection.

THM 705.1 Research Methods and Computer Application in Tourism and Hospitality Management

This course provides a methodological foundation for doing tourism and Hospitality research. Method here is understood not only as research techniques, procedures, and practices, but also as involving the theories and perspectives that inform the production of a particular kind of research and justify it in terms of knowledge-building skills. By exploring different tourism research methods, students will learn how to apply these methods to themselves. Practical examples will be used to illustrate these methods and the problems entailed. Types of research and research design in tourism, hospitality. Diverse aspects of research, from setting the theoretical background to evaluating the results of analyses. Strategies and methods of primary and secondary data collection. Preparation of different research instruments. Elements of statistics and applications in research. Demand forecasting methods. Data processing, quantitative and qualitative methods of data analysis in tourism, hospitality management. Research report writing.

THM 711.1 Sustainable and Ecotourism Management

Explain sustainable developments and ecotourism; Explain sustainable tourism as a problem of scale; Explain the Time Scale involved; Explain the sustainable development framework - sustainable development in environmental, socio-cultural and economic terms; Explain community participation; Identity a tourist; Illustrate the corporate dimension; Explain the regulatory contest of sustainable development; Identify the role of the community in the sustainable development framework (i.e. the community as owner of the resources and their responsibility towards tTHM); Concepts of ecosystem, eco-tourism, park, and park management. Principles of nature conservation; population and natural resources relationship, social values and ethical issues in leisure; nature protection, protected ecosystems. Study of the components, history, practice and current issues of nature-based tourism. Explores principles and problems of ecotourism for natural resources and host populations and includes rural tourism, economic impacts, tourism life cycle and case studies, sustainable tourism, Principles of intermediate tourism, etc. This course will introduce students to the history, concepts, marketing, planning and management of ecotourism activities and development.

THM 722.2 Industrial Relations in Tourism and Hospitality

The course focused on the difference and the relationship between an employer and an employee. Discuss labour relations and trace the history of labour unionism in the country and identify the fore-runners of industrial relations struggles; identify some labour unions both nationally and internationally. Highlight and discuss labour laws and their relevance in achieving industrial peace. Discuss; engagement, disengagement, dismissal, retrenchment, retirement, annual leave etc. discuss agitation by employees and industrial actions and the impact on the organization. Current approaches in the study of industrial system relation; environmental conditioning; industrial relations parties in Nigeria; government intervention in industrial relations in Nigeria: aims, factors necessitating the intervention, methods and forms of intervention; trade unionism: objectives, methods, functions and problems in Nigeria; principles of collective bargaining, industrial democracy, industrial conflict and types; trade dispute, strike, measurement of strikes, causes and strike settlement mechanism.

THM 724.2 Hotel Operations and Customer Relationship Management in the Tourism and Hospitality Industry

This course is designed to give an overview of the working components of a hotel and their interrelationships. Students will explore in a descriptive fashion the responsibilities of each hotel department and how and why their interactions are important. Students will examine the difference in operations of various types and sizes of hotels from B&B to full-service hotels. An examination of the challenges in operating food and beverage outlets as well as on- and off-premise catering. Topics to be covered include: menu development, beverage operations, levels and types of service, structures of kitchens and dining rooms, in-room dining, marketing, customer service, purchasing, inventory management, labour scheduling, pricing, costing, and the role of the food and beverage manager. An analysis of the rooms division within hotels and the role of revenue management in successful operations. Topics to be covered include: revenue management, pricing patterns and models, rooms division staffing, departmental structures, cost containment, customer data analysis, revenue optimization, and the integrated operation of lodging departments (rooms division, front office, guest services, sales and marketing night audit, accounting, housekeeping, reservations, engineering/maintenance, and security). Front office and housekeeping are the two basic departments in the room division. In this course, students will learn the daily operation of these two departments. Also, students will brainstorm on

how to keep these two departments work harmonically in order to provide ready rooms efficiently. This course provides students with basic skills in how to meet the expectations of their customers, upper management, colleague and even government as being a supervisor. In this course, students will learn not only theories but also learn from the discussion of cases for their future career path. Actual case studies of operations will be used.

THM 725.2 Advance Food and Beverages Production / Service Management

Purposes of cooking food, use of heat, effect of various methods of heat application on physical, nutritional and aesthetic aspects of foods; nutrients loss in food processing and preparation, enzymatic and microbiological aspects of food preparation, measuring techniques; leavenings; flour mixes; modern and traditional equipment and procedures in relation to time, energy and monetary expenditures and health preparation. Menu planning; food standardisation; food commodities selection and storage; food products and their preparations; food production resources; Effective use of manpower resources and profit generation in hospitality business. Food hygiene legislation. Statutory requirements to reduce and control food borne infection; relationship of public health officers with hospitality personnel; menu planning: food habits, age, sex, skills, time, resources like materials, equipment, energy etc. Management principles and its application to decision making in food production; pareto analysis, sensitivity analysis, cost-benefit analysis; labour and material management in food production processes; organization and management of special functions; utilization of local food commodities; sources of fuels and usages; choice and management of cooking equipment; kitchen planning and layouts; Menu making, pricing, cost control. Production methods, production systems, service systems. Management of different menus table *dhote*, *a la carte*, etc.

THM 726.2 Tourism and Hospitality Law

A comprehensive overview of laws and regulatory agencies governing the tourism, hospitality, and events industry in Nigeria. Legal implications of civil laws, areas of tort and contract will be discussed, along with the law and legal relationships that exist in the business context. Hospitality law, especially when dealing with customers and business contracts, will be the main focus. Students will review theory and the application of general and contract law as they relate to business regulations. A further study of the legal procedures as they apply to the statutes and common law governing innkeeper's liability. Students will also learn the legal issues as they

relate to the travel and tourism industry. Additional topics include: disclaimer of liability, safe keeping facilities, guests' rights, personnel issues and other hospitality related issues. Issues will be discussed from the points of view of innkeepers, restaurateurs, travel agents, and event planners. Attention will be given to labour relations laws, risk management, land use zoning, and labour unions. Overview of the fundamental legal framework that governs the conduct of hospitality and tourism managers. Topics include civil rights, contracts, court procedures, ethics, and risk management. Ethical principles as applicable to the industry.

THM 729.2 Advance Events Management and Tourism and Hospitality Marketing

Students acquire an understanding and skills related to the processes involved in overall management of events. Critical path, goal development and program administration are explored. In addition, emphasis is placed on task diagnosis, timeframes, analysis of work problems, and alternative work designs for improving the organizational performance and effectiveness of events. MICE programme strategies. Also, Students develop a conference program including speaker and entertainment selection, delivery methods, such as workshops, plenary, round tables and webcasts. Skills for master of ceremony. Students gain the skills and knowledge to plan and execute successful meetings. Strategies for the creation of green meetings and conferences are discussed. Casino Operations, Private Clubs and Resorts Management skills. MICE. Special attention is given to recreational programming, sporting activities, food and beverage operations, social events, educational activities, private parties and profit oriented vs. not-for-profit enterprises. Event Administration, Event Coordination and Operations, Event Marketing, Event Risk Management, event protocol, social event management, Event Entertainment and Production, event catering and hospitality management, event fundraising and sponsorship, event design and décor, event negotiations and contracts.

THM 730.2 Tourism and Hospitality Economics

This course takes a system approach and is designed to extend students' knowledge and experience in marketing to tourism, hospitality and events by first understanding the nature of competition within the tourism industry; second, by understanding the role of information technology; and third, by developing extensive analytical skills. An overview of hospitality and tourism economics; the hospitality and tourism

industry; theory of demand and supply as applicable to hospitality and tourism industry; Production and production resources management in the hospitality and tourism industry; Pattern of integration and franchising in the hospitality and tourism industry; nature of hospitality and tourism market; pricing policies and practices in the hospitality and tourism industry; regulatory agencies and operators in the Nigerian hospitality and tourism industry. Application of basic and advanced principles of marketing and sponsorship to the tourism and hospitality industry. The course will provide students with the skills and competencies to a) understand why consumers attend events to participate and/or watch and b) use this knowledge to develop a marketing plan with an embedded sponsorship proposal to attract a corporate sponsor. Strategies for realising successful sponsorship of tourism and hospitality industry. Major topics include: strategic selling principles, prospecting, building relationships, conducting sales meetings, delivering sales presentations, and dealing with objections and closing the sale. Emphasis will be on developing confidence and professionalism in the selling interaction and enhancing the student's communications, listening, presentation, team participation and problem-solving skills.

TEM 731.2 Project

THM 732.2 Seminar

Practical included in most courses

MASTERS IN HOSPITALITY MANAGEMENT AND TOURISM

Options

- i) Tourism and Leisure Studies
- ii) Hospitality and Event Management)

Admission Requirements

Candidates seeking admission for Masters in Tourism and Hospitality Management must have any of the following qualification from recognized institutions: Five credit passes including English language, Mathematics, Economics and any two from, Commerce/ Geography, Biology /Agricultural Science, Catering, Tourism and Nutrition at the 'O' level.

Bachelor's Degree with a minimum of second-class lower division in Tourism and/or Hospitality Management or any other related discipline from a recognized university may be considered. However, candidates with obvious deficiency will be required to take some foundational courses and in addition to graduation requirements, pass same.

A postgraduate Diploma with a minimum of 3.50 on a 5-point scale in Tourism and /or Hospitality Management or related discipline from a recognised university. However, candidates with obvious deficiency will be required to take some foundational courses and in addition to graduation requirements, pass same.

Duration of programmes:

For both options, the duration is as follows:

- a) Full-time: A minimum of twelve calendar months and maximum of 24 calendar months
- b) Part-time: A minimum of 24 calendar months and a maximum of 36 calendar months

Requirements for Graduation

The programme consists of course work, dissertation and seminars or field trip.

A) MASTERS IN TOURISM AND LEISURE MANAGEMENT

To be awarded the Masters in Tourism and Leisure Management a candidate must have fulfilled the following conditions:

- i. Passed a minimum of 40 Credit Units, as follows:

Course	Units
Core Courses	28
Dissertation	6
Electives	4
Seminar	2
Total	40

- ii. Carried out a dissertation relevant to the area of specialisation and submitted an acceptable project report.

C) MASTERS IN HOSPITALITY AND EVENT MANAGEMENT

To be awarded the Masters in Hospitality and Event Management a candidate must have fulfilled the following conditions:

- i. Passed a minimum of 37 Credit Units, as follows:

Course	Units
Core Courses	27
Dissertation	6
Seminar	2
Field Tour	2
Total	37

- ii. Carried out a dissertation relevant to the area of specialisation and submitted an acceptable project report.

Examinations

i. Course work

For all postgraduate coursework, the minimum pass score shall be 50%; continuous assessment shall constitute 30% of the examination for each course, while the written semester examination will be 70%

To be in good standing, a student must in each semester have a Cumulative Grade Point Average (CGPA) of not less than 2.75.

A student whose Cumulative Grade Point Average is below 2.75 at the end of a particular year of study, shall be placed on probation for one academic session. Note: Scoring and grading of courses shall be as follows:

Marks%	Letter Grades	Grade Points
70 and above	A	5
60 – 69	B	4
50- 59	C	3
0- 49	F	0

Course Structure for M.Sc. in Tourism and Leisure Management

First Semester Year One

Course code	Core Courses	Units
THM 812.1	Tourism Policy Development and Administration	2
THM 813.1	Ecotourism and Park Management	3
THM 814.1	Tourism Law	2
THM 815.1	Strategic Management and Organizational Behaviour in Tourism	3
THM 826.1	Recreation Resources Management	2
THM 827.1	Cultural Tourism	2
FIN 850.1	Corporate Finance	2
SGS 801.1	ICT and Research Methodology	2
		18

Second Semester Year One

Course code	Core Courses	Units
THM 822.2	Strategic Marketing Tourism	2
THM 823.2	Financial Management in Tourism	2
THM 824.2	Seminar	2
THM 825.2	Dissertation	6
MKT 812.2	Marketing Logistics/Distribution Mgt.	2
ACT 830.2	Advanced Cost and Management Accounting	2
SGS 801.2	Entrepreneurship and Management	2

		18
ELECTIVES 4 Credit units		
THM 852.2	Tourism/Hospitality Economics	2
THM 862.2	Zoo and Museum Management	2
THM 872.2	Travel/Retail Management	2
THM 882.2	Insurance, Security and Loss Preventions Management in Tourism Industry	2
THM 892.2	International Tourism Management	2
THM 897.2	Special Interest Tourism	2
THM 898.2	Transportation Management	2
THM 899.2	Climate Change and Tourism	2

THM 824.2	Seminar	2
THM 825.2	Dissertation	6

ELECTIVES 4 Credit units		
THM 852.2	Tourism/Hospitality Economics	2
THM 862.2	Zoo and Museum Management	2
THM 872.2	Travel and Retail Management	2
THM 882.2	Insurance, Security and Loss Preventions Management in Tourism Industry	2
THM 892.2	International Tourism Management	2
THM 897.2	Special Interest Tourism	2
THM 898.2	Transportation Management	2
THM 899.2	Climate Change and Tourism	2

M.SC. TOURISM AND LEISURE MANAGEMENT (PART TIME)

FIRST SEMESTER YEAR ONE

Course code	Core Courses	Units
THM 812.1	Tourism Policy Development and Administration	2
THM 815.2	Strategic Management and Organizational Behaviour in Tourism	3
THM 827.1	Cultural Tourism	2
FIN 850.1	Corporate Finance	2
SGS 801.1	ICT and Research Methodology	2
		11

SECOND SEMESTER YEAR ONE

SGS 801.2	Entrepreneurship and Management	2
THM 813.2	Ecotourism and Park Management	3
THM 814.2	Tourism Law	2
THM 826.2	Recreation Resources Management	2
		9

FIRST SEMESTER YEAR TWO

Course code	Core Courses	Units
THM 822.2	Strategic Tourism Marketing	2
THM 823.2	Financial Management in Tourism Management	2
MKT 812.2	Marketing Logistics/Distribution Management	2
ACT 830.2	Advanced Cost Management Accounting	2
		8

SECOND SEMESTER YEAR TWO

Course Description for M.Sc in Tourism and Leisure Management

COURSE CODE, COURSE DESCRIPTION

THM 812.1 Tourism Planning, Development and Administration

This course is designed to enable the students review, analyse and apply concepts, strategies, techniques and approaches associated with destination tourism planning, development and management. Students to be able to identify tourism development processes and practices, principles, process and techniques for preparing local, regional and national tourism plans, importance of community participation in tourism planning, role of stakeholders in tourism development. An analysis of the socioeconomic planning process involved in developing tourism destinations in global, community, metropolitan, urban, and rural settings. Emphasis will be on policy and product development, regeneration and enhancement of facilities and services to meet the needs of tourists. Focus will also be on the adjustment process involved in integrating tourism into a developing economy, and the project management skills inherent in steering a development from inception to fruition. Extensive use is made of concepts from sociology, economics, political science, and business disciplines. Case studies will form an integral part of this course.

THM 813.1 Ecotourism and Park Management

Introduction to ecotourism and management, environmentalism, sustainable development and planning, the politics and sociology of ecotourism, economic development, and globalization. Ecotourism and examples of sustainable

development, both in the public and private sectors, will also be examined at the local, national, and international level. Students will examine theories, policies and practices specific to nature-based tourism. We will consider both the tourist and host community perspectives as we explore opportunities and constraints related to ecotourism development including social, environmental and economic outcomes. Dimensions and processes of park management shall be examined

THM 814.2 Tourism Law

This course explores the legal dimension to professional activity in the tourism industry; Legislative act, Civil and criminal law ; Court system ; Contract law and tort law (negligence) ; Consumer Protection ; Insurance ; Unique Tourism Law; Travel agency ; Aviation law tangential tourism law ; Rulings related to the tourism industry

THM 815.1 Strategic Management and Organizational Behaviour in Tourism

This course focuses on how managers can guide their tourism firms in the formulation, implementation, and evaluation of strategies. The goal is to develop a mastery of the analytical tools to perform analyses of the industry and competitors. Attention is given to strategies for building competitive advantage and generating superior value for customers. Readings and lectures are essential to provide foundation. In addition, effective strategic decision making requires learning by active problem solving; hence, our emphasis will be on translating concepts into action through the case method. Cases of tourism-specific companies, readings, and lectures/discussions are utilized. Topics include the tourism industry internal and external contexts of strategic planning and execution; growth and competitive advantage strategies for tourism organizations; organizational resource and capability analysis; prevention and management of crisis situations in the tourism industry. Topics also include the evaluation of how values shape individual and organizational ethical behaviors, and how these behaviors influence leadership and decision-making. Students apply practical knowledge and tools needed to effectively manage the everyday ethical conduct of self and employees. Core components include discussions on how legal, philosophical, and corporate practices influence ethical behavior for individuals and companies. Hofstede analysis of culture. Students examine how social, environmental, and stakeholder responsibilities, as well as different values, impact ethical behavior in companies. Using an interdisciplinary approach, students will deepen and broaden their learning about theories, models, and constructs related to the study and

practice of ethics and leadership while examining compelling contemporary questions and dilemmas. Students will develop strategies and ways of thinking when faced with ethically complex dilemmas in the leadership process. This is a highly interactive learning that requires the students reflect and actively participate in in-class activities and discussion.

THM 826.2 Recreation Resources Management

This course provides an overview of community based recreation including municipal and non-profit recreation agencies. The Course will focus on the history, legalities, complexities and unique needs of managing community based recreation, along with examining the interrelationships between leisure behaviour and the natural environment, administrative functions such as staffing, risk management and transportation while in the outdoors will be discussed. Students are expected to synthesise research, lecture, experiential and reading components of course into assignments which demonstrated an understanding of outdoor adventure leadership; maintenance of recreational resources. This course explores the increasingly diversified nature of society and its impact on individuals experiences of leisure. A focus will be placed on factors that influence the experience of leisure and leisure service delivery. Focus is on the principles of managing indoor/outdoor recreation sites and visitor systems where the natural environment provides the dominant attraction. Other topics include recreation activities, agencies, philosophy and management. Topics include outdoor recreation management and visitor systems; the natural environment as a major focus in outdoor recreation, characterize the different types of agencies that provide outdoor recreation and define their missions, management principles of outdoor recreation resources, impact of technology methods for monitoring recreational impacts and approaches to managing resource quality and recreational opportunities will be address.

THM 827.1 Cultural Tourism

This course explores the many dimensions of cultural tourism, including how arts, crafts, local heritage, history, and other elements of culture can be incorporated into tourism planning and development. Topics covered include the meaning, value, and potential tourism roles of historical sites and monuments, festivals and other events, local and regional arts and artisans, archaeological and other cultural heritage sites, and museums and other educational institutions. Complex issues such as cultural identity and representation and authenticity and commoditization will be explored

THM 822.2 Strategic Tourism Marketing

Building upon the Principles of Marketing this course investigates a range of approaches and issues associated with marketing destinations and the tourism experience. Using selected case studies from around the world the course examines the challenges of contemporary marketing approaches to the development and promotion of sustainable tourism. Working through experiential exercises the student undertakes research and marketing strategies reflective of current professional practice. Strategic marketing and sustainable tourism; Destination marketing and branding; Understanding tourist markets; Tourism marketing, communication and promotion; Tourism marketing and information technology; Tourism product and price; Collaborative approaches to tourism marketing; Tourism marketing and crises; Approaches to and trends in tourism destination marketing; A practical framework for strategic destination marketing; Analysing and interpreting the macro, market and competitive environments; Doing a destination attractions and resource analysis; Segmenting markets and selecting target markets; Destination branding and competitive positioning; Developing and implementing integrated marketing and communication strategies; Facilitating destination partnerships; Managing information and marketing research; Destination marketing and the future.

THM 823.2 Financial Management in Tourism Management

Exposes students to four key areas of financial management – financial accounting, managerial accounting, corporate finance and international finance. Students develop financial models for predicting funding requirements, as applied to the tourism industry. Key topics such as budgeting, foreign exchange, profit centers, productivity, and reading financial statements will be discussed.

THM 824.2 Seminar

In this course, students are to make comprehensive presentations on contemporary issues and trends impacting the Tourism Industry and therein proffer practical solutions to challenges faced in the Industry.

THM 852.2 Tourism and Hospitality Economics

This course is designed to enhance the scarce resource orientation of hospitality and tourism managers. It explores relevance theories and their applicability to hospitality and tourism industry; Production and production resources management in the hospitality and tourism industry; Pattern of integration and franchising in the hospitality and tourism industry; nature of hospitality market;

pricing policies and practices in the hospitality and tourism industry; regulatory agencies and operators in the Nigerian hospitality and tourism industry.

THM 862.2 Zoo and Museum Management

The primary objective of this course is to provide students with an understanding of management and administration procedures that are essential to operating and managing zoo and park facilities and recreation programs within. Secondly, students will be given an opportunity to be exposed to zoo and park governance processes and will be asked to synthesize the roles that key stakeholders play in the management of public-sector zoo and park organizations. Key topics covered in this course include a historical account of park and zoo operating environment as well as trends in park support and positioning of the field; Inter-organizational partnerships and collaborations in the park and zoo recreational field; Financing, budgeting and fiscal control processes; Human resource management principles and policies; Creating effective working relationships with community stakeholders and park and zoo board members

THM 872.2 Travel Retail Management

This covers gives a thorough understanding of the Travel Retail chain, the way it operates and its players. It describes the methods and techniques required to succeed and develop the students career in this rapidly growing market. Comprehensive knowledge of the Travel Retail market, its principal players and the airport environment; Sales and Merchandising techniques in the Travel Retail sector; Techniques for recruiting, managing and leading a multicultural team; The development of commercial performance; A capacity to anticipate and adapt to the major trends of tomorrow in Travel Retail mgt; Commercial network management in the Travel Retail sector; Travel Retail sales outlet management; Flow management; Travel Retail financial data analysis; effective communication process in travel retail management; Retail pricing strategy and retailing research

THM 882.2 Insurance, Security and Loss Preventions Management in Tourism Industry

The basics of insurance, security and loss preventions management are covered in this course. Problems of liability and personal loss exposures of a business are examined. Private insurance programs such as health and life insurance, and employee benefit plans are examined and assessed. Life, health and disability insurance; property and liability insurance; control measures in loss prevention; elements of risk management.

THM 892.2 International Tourism Management

This course provides students with the fundamental knowledge concerning marketing, human resources management, financial management, destination planning, policy, environment and prospects in the tourism industry. Real life cases will also be discussed in order to give students a relatively comprehensive understanding of the tourism industry.

THM 897.2 Special Interest Tourism

An analysis of the issues involved in developing destinations and tourism products that are sensitive to the natural and cultural resources of the area. Topics to be covered include: sustainable development; rural tourism; poverty tourism; heritage and cultural tourism; adventure tourism; and urban tourism.

THM 898.2 Transportation Management

This course provides students with an understanding of system analysis tools used in urban transportation. Students will work with analytical techniques employed in urban transportation planning, such as traffic forecasting and system capacity analysis and apply these techniques using real-world data for analyzing both the demand and supply of transportation; e-ticketing principles. This course provides students with an understanding of system analysis tools used in urban transportation. Students will work with analytical techniques employed in urban transportation planning, such as traffic forecasting and system capacity analysis and apply these techniques using real-world data for analyzing both the demand and supply of transportation; This course focuses on public transportation issues and models. Topics include: policy issues, government's role in transit, transit planning

THM 899.2 Tourism and Climate Change

To analyse the implications (threats/ opportunities) for tourism destinations; tourism's contribution to climate change; evaluate a range of policy tools that can be used in managing for sustainable tourism; examine the impact of climate change, and future projections, on important tourism space such as mountains, small islands and coastal environments; evaluate and criticise alternative tourism approaches within a sustainable tourism context.

THM 825.2 Dissertation

Researches are to focus on trends and current problems in Tourism Management projects. Case analysis examines and finds solutions to chosen contemporary issues or case studies in the tourism and hospitality management industry, particularly in Nigeria.

MASTER OF SCIENCE (M.Sc.) PROGRAMME IN HOSPITALITY AND EVENT MANAGEMENT

Course Structure for M.Sc. in Hospitality and Event Management (FULL TIME)

Year One First Semester

Course Code	Course Title	Unit
THM 831.1	Advanced Lodging Service Administration	2
THM 832.1	Advanced Hospitality Food and Beverage production management	2
THM 834.1	Financial Management in Hospitality Business	2
THM 835.1	Cost and Control Management in Hospitality Industry	2
THM 837.1	Event Management and Customer Relationship Management	3
THM 841.2	Hospitality Information System	2
THM 854.3	Strategic Marketing & Brands Management in Hospitality Industry	2
SGS 801.1	ICT & Research Methods	2
Total Units		17

Units

Year One Second Semester

Course Code	Course Title	Units
THM 840.2	Contemporary Issues in Hospitality Industry	2
THM 842.2	Resort and Destination Development	2
THM 843.2	Hospitality Management Law	2
THM 844.2	Leadership & Organizational Behavior in Hospitality Industry	2
THM 845.2	Human Resources Management in Hospitality Industry	2
SGS 801.2	Management & Entrepreneurship	2
THM 856.2	Field Trip	2
THM 857.2	Dissertation	6
Total Units		20

Course Structure for M.Sc in Hospitality and Event Management (PART TIME)

YEAR ONE First SEMESTER

Course Code	Course Title	Unit
THM 831.1	Advanced Lodging Service Administration	2

THM 832.1	Advanced Hospitality Food and Beverage production management	2	of finance, sources of capital, development of a business portfolio, financing for lodging construction projects, investment funds & joint venture opportunities. Students will be responsible for developing a business plan for a lodging project. In-depth analysis of lodging management with emphasis on room pricing, structures, and revenue and yield management strategies, hotel operating statistical and financial information.
THM 834.1	Financial Management in Hospitality Business	2	
SGS 801.1	ICT & Research Methods	2	
		8	
YEAR ONE SECOND SEMESTER			
Course Code	Course Title	Unit	
THM 835.1	Cost and Control Management in Hospitality Industry	2	THM 832.1 Advanced Hospitality Food & Beverage Production Management 2 Units
THM 837.1	Event Management and customer relationship management	3	An examination of the challenges in operating food & beverage outlets as well as on- and off-premise catering. Topics to be covered include: menu planning and development using appropriate theories. Beverage operations, levels & types of service, structures of kitchens & dining rooms, in-room dining, marketing, customer service, purchasing, inventory management, labour scheduling, pricing, costing, and the role of the food and beverage manager. Actual case studies of operations will be used.
THM 841.2	Hospitality Information System	2	
SGS 801.2	Entrepreneurship & Management	2	
	Total Units	9	
		Units	
YEAR TWO FIRST SEMESTER			
Course Code	Course Title	Units	
THM 842.2	Resort and Destination Development	2	THM 834.1 Financial Management in Hospitality Business 2 Units
THM 843.2	Hospitality Management Law	2	Knowledge of investment analysis and financing is an important necessity in events, and hospitality business development and property acquisition. This course will focus on the various investment and financial analysis methods used in deciding on the investment in lodging projects. Topics will include cash flow analysis as it relates to property investment, methods of measuring the rate of return, income-property analysis, and exploration of public and private markets, equity and debt sources of funds, and the use of software programs as a tool for financial analysis.
THM 844.2	Leadership & Organizational Behavior in Hospitality Industry	2	
THM 845.2	Human Resources Management in Hospitality Industry	2	
THM 840.2	Contemporary Issues in Hospitality Industry	2	
		10	
YEAR TWO SECOND SEMESTER			
Course Code	Course Title	Units	
THM 854.2	Strategic Marketing & Brands Management in Hospitality Industry	2	THM 835.1 Cost and Control Management in Hospitality Industry 2 Units
THM 856.2	Field Trip	2	Definitions; Cost Control as a management function in hospitality industry; basic objectives and principles of operational control in hospitality industry; food cost control; factors affecting food cost control, by-menus, types of service, purchasing methods; storage room control; pricing methods, portion standardization, etc; labour cost control; factors affecting labour cost control; work measurement and work study; bar and restaurant control, records for control, analysis of operations and financial reports, reports and statistics; operational control, store keeping; budgeting, financial management; critical control point analysis.
THM 857.2	Dissertation	6	
	Total Units	12	
COURSE DESCRIPTION FOR MASTERS IN HOSPITALITY AND EVENT MANAGEMENT			
THM 831.1 Advanced Lodging Service Administration 2 Units			
An understanding of the development process within the lodging industry is imperative for managers involved in the expansion of hotel chains or independent lodging facilities. This course will provide an overview of current trends in lodging development, finance and the implications on the industry. Students will learn about the importance			
THM 837.1 Event Management and Customer Relationship Management 2 Units			
The course discusses the challenges of planning, organizing and executing conferences and			

meetings. Topics to be covered include: types of meetings and events; facility types; the role of planner; setting conference objectives; lodging & transportation issues, site selection negotiation; program design; budgeting; vendor management; speaker selection; creative merchandising; registration; on-site logistics; vendor contracts; staffing; transportation; & security. This course is designed to analyze the organizations that provide services as products in order to provide an understanding of the forces in this environment (technological, economic, competitive, social, cultural, political and legal forces) that impact the customer service relationship. This course investigates structures, cultures, and the goals of organizations with the purpose of developing effective strategies for customer relationship management. Topics include analysis of customer touch points within organizations, service challenges in the next millennium, developing service strategies consistent with corporate culture and mission, and implementing customer service necessary to achieve excellence & dominant market share.

THM 841.2 Hospitality Information System 2 Units

The course focuses on study of various applications of computers in the hospitality industry. Systems studied include front office management, management accounting, restaurant management, bar and beverage management, telephone management, security management, and property management.

THM 854.2 Strategic Marketing & Brands Management in Hospitality Industry 2 Units

Strategic Marketing is an advance marketing course with an emphasis on hospitality service, theory of marketing, & its application to both long and short-term strategies. Through discussion, reading, case studies, and real life examples, from hospitality corporations, students will develop a strategic marketing plan. Topics cover mission statement, revenue management, competitive advantages, marketing information systems, SWOT analysis, positioning, & marketing strategies as they apply to the unique position of hospitality industry. Moreover, the importance of managing brand of an international hotel is fundamental to meeting revenue & sales goals. In an era of global competition the development & maintenance of integrated brand strategies impacts marketing and development plan, product and service offerings, distribution channels, and pricing. This aspect of the course focuses on defining and analyzing brand competition, determining customers' attractiveness, developing market forecasts. Topics include pioneering and innovative brand strategies, growth strategies,

strategies for mature and declining markets, and defensive marketing strategies.

THM 840.2 Contemporary Issues in Hospitality Industry 2 Units

This course exposes students to current issues and trends impacting on hospitality industry. This entails issues on food safety policy, legal standards, purchase of food, temperature control, goods in controls, labelling, stock rotation, food complaint procedures, personal hygiene, controlling food hazards, food cost controls, etc. It will give students the opportunity to know reasons why losses are made in wines, spirits, and beers sales, and also issues concerning beverage service, and controls involved in beverage management.

THM 842.2 Resort and Destination Development 2 Units

Studies resort and destination development and management in resort planning, development and management. Includes current examples from the industry itself as well as laboratory experience for on-site research and study.

THM 843.2 Hospitality Management Law 2 Units

Concentrates on the legal aspects of recreation, tourism, hospitality and event management. Enables students to better understand the law as it pertains to their area of specialization and improves risk management practice. Legal structures, major laws, regulations and case precedents that establish legal responsibilities, rights, privileges and controls related to hospitality industry in Nigeria. Basic concepts of law-common, civil, company, criminal cases. Company law- partnerships law, sole-trading and corporation; Introduction to employment law, employers, liability, contract law provisions. Relevant provision of ECOWAS, contractual basis of employment, the contract and its incidence at common law and by statute, remuneration-salary controls and negotiation, the payment of salaries, health, safety and welfare, conditions at work. Detailed expositions of the Hotel Proprietor's act 1956 and hotel rights of lien; Law of contr/food and drug decree of 1973; hygiene regulations, liquor licensing laws. Staff employment regulations. Wages and industrial councils decree of 1973 torts and occupiers liability.

THM 844.2 Leadership & Organizational Behavior in Hospitality Industry 2 Units

Effective professionals must understand modern leadership and behaviour within their organizations. The concepts of leadership versus management, the development of culture within an organization and the formation of effective

contemporary leadership techniques are the focus of this course. Issues such as managing diversity, transformational leadership and modern leadership theory will be discussed in detail. Topics covered in this class include comparative leadership models effective communication, global leadership issues, individual and group motivational theory, team-building and managing change in organizational settings.

THM 845.2 Human Resources Management in Hospitality Industry 2 Units

This course emphasizes contemporary human resource issues in the hospitality industry through

research and case study analysis. Topical areas include labour relations and collective bargaining, compensation and benefits, performance assessment tools, social and ethical issues, and leading change in the 21st century. This course defines the relationship between strategic management and human resources. Contemporary issues are analyzed through proper seminar presentation.

THM 856.3: Field Trip

This course is designed to enable students visit various organizations within the hospitality sector

ACADEMIC STAFF LIST

S/N	Names	Qualification/Awarding Institution	Area of Specialization	Rank
1	Uboegbulam, G.C.	B.Tech, PGD, MBA, M.Sc (RSU), PhD (UNN) D.Mgt.Sc. (Bloemfontein)	Tourism Planning and Development	Reader & Ag. HOD
2	Obiora, J.N.	B.Sc (UPH), PGD, MBA (RSU), PhD (UPH)	Organizational Behaviour in Tourism/Hospitality Management	Professor
3	Ukabulu,E. N.	BSc, MBA, MSc, PhD (IMSU); PhD (UNN).	Hospitality and Tourism Management	Professor
4	Igbojekwe P. A.	B.Sc, M.Sc (Wincosin), MBA, PhD (IMSU)	Hospitality Management	Professor
5	Ndu, E. C.	BSc, PGDM, PGDE, MBA, MSc, Ph.D (UPH)	Operations Management and Tourism	Reader
6	Bello, Y. O.	ND (Owo), BSc, MSc (IMSU), PhD (Putra)	Hospitality and Tourism Management	Reader
7	Ekeke, J. N.	B.Sc M.Sc(Uturu), M.Sc (IMSU), Ph.D (UNN)	Tourism Marketing	Snr. Lecturer
8	Etuk, J. S.	B.Sc (UPH), MBA (RSU), PhD (UNN)	Tourism/Hospitality Marketing	Snr. Lecturer
9	Anwuri, P. N.	B.Sc (UPH), MBA (RSU), PhD (UPH), MSc (IMSU)	E- Tourism Marketing, Hospitality and Tourism Management	Snr. Lecturer
10	Asiegbu,U. A.	B.Sc (MOUA), M.Sc (Ibadan).	Food Science and Nutrition	Lecturer 1
11	Sonari-Otobo, V. A.	B.Sc (RSU), M.Sc (Plymouth)	Hospitality and Tourism Management	Lecturer 1
12	Ofodu, A. J.	B.Sc (UNN), M.Sc (IMSU)	Nutrition and Dietetics/ Hospitality Management	Lecturer I
13	Ajayi, O.O.	B.Sc, M.Sc, Ph.D (Ibadan)	Wildlife & Ecotourism Management	Lecturer I

STRUCTURE OF THE MFB/ACIB LINKAGE PROGRAMME

LIST OF COURSES, CODE AND CREDIT UNITS

The structure of the MFB/ACIB Linkage programme is as shown below:

Year One	First Term First Year	Credit Units	Second Term, First Year	Credit Units	Thir Term, First Year	Credit Units
	FIN. 802.1 Corporate Finance	2	FIN. 823.2 Banking Regulations	2	FIN. 826.3 Quantitative Methods for Financial Decision	2
	FIN. 821.1 Theory of Financial Intermediation	2	FIN. 823.2 Banking laws, Ethics & Corporate Governance	2	FIN. 827.3 International Banking & Finance	2
	FIN, 822.1 Research Methodology	2	FIN. 825.2 Management of Financial Institutions	2	FIN. 828.3 Practice of Banking	2
	**CGS 801.1 ICT & Research Methodology	2	**CGS 802.2 Management & Entrepreneurship	2	FIN. 829.3 Investment Analysis and Portfolio Mgt.	2
	FIN 802.1 Managerial Economics	2	MGT 802.2 Strategic Management & Leadership	2		2
	Sub Total	10	Sub Total	10	Sub Total	8

** Compulsory University-wide courses at Masters level.

Year Two	First Term Second Year	Credit Units	Second Term, Second Year	Credit Units	Thir Term, Second Year	Credit Units
	FIN. 830.1 Banking Lending & Credit Administration	2	FIN. 834.2 Basic Econometrics	2	FIN. 838.3 Research Seminar in Finance	3
	FIN. 831.1 Marketing of Finance Service	2	FIN. 835.2 Risk Mgt & Insurance	2	FIN. 839.3 Thesis! Dissertation	6
	FIN. 832.1 Financial Planning & Control	2	FIN. 836.2 Derivative Securities and Mkts.	2		
	FIN. 833.1 Public Sector Financial Mgt.	2	FIN. 837.2 Micro and Small Business Finance	2	One Elective	1
	Sub Total	8	Sub Total	8	Sub Total	9
			GRAND TOTAL			54

** Compulsory University-wide courses at Masters level.

COURSE DESCRIPTION FOR THE MFB/ACIB PROGRAMME:

FIN. 820.1 Corporate Finance

The nature of the firm and corporate objectives. Implementation of the firm's goals for choice among alternative investment projects (the capital budgeting problems), market evaluation of assets under uncertainty and implication for capital budgeting, analysis and illustration with problems of alternative investment criteria, alternative

approaches to value of the firm and the cost of capital; discussion of corporate financial problems; e.g. leasing, mergers and acquisition, and issuance of new securities.

FIN. 821.1 Theory of Financial Intermediation

The course analyzes financial markets conceptually and theoretically, emphasizing the role, structure and activities of financial intermediaries. The dynamic pattern of financial flows is analyzed by flow of funds, and uses/sources of funds, models of

the process of financial intermediation and the theory of the banking firm. The crucial roles of interest rate and structure of interest rates are analyzed. Also analyzed are the regulatory framework and its impact on banking operations, market structure and performance of the financial intermediation functions of the institutions. An advanced treatment of fiscal and monetary policy issues, in respect of economic stabilization measures, the Instruments and targets.

FIN. 822.1 Research Methodology

The course is designed to train students in the filed of scientific information gathering, analysis and interpretation in dealing with problems in finance and related topics. Through reading, assignments and direct experience students are exposed to the art of problem identification and analysis, data gathering, analysis and report writing. Emphasis will be placed on the approach at every stage.

CGS 801.1 ICT & Research Methodology. As provided in Graduate school outlines

FIN. 823.2 Banking Regulations

Banking regulations and supervision; History and development of banking regulation and supervision in Nigeria; Legal framework; Major regulatory tools; Supervisory approaches; Returns rendition by regulated entities; Cooperation and collaboration by regulators and supervisors; Regulatory requirements on designated assets and liabilities; Prudential ratios (banks' financial soundness and health indicators); issues in financial consumer protection; Self-regulation; Bank distress and resolution mechanism, Overview of global banking; Deregulation and re-regulation.

FIN. 824.2 Banking Law, Ethics & Corporate Governance

This course will discuss Banking Law which includes- statutes and regulations governing the establishment, supervision and operation of b banks. Securities Law, Bankruptcy Law. Ethics includes the nature of ethics, basic issues in ethics, fundamental principles of morality, code of ethics and professionalism for bankers and corporate social responsibility. Corporate Governance includes national and international code of corporate governance relating to banks, the role of board and shareholders, self-regulatory mechanism in the financial service industry.

CGS 802.2 Management & Entrepreneurship- As provided in Graduate School outlines.

FIN. 825.2 Management of Financial Institutions

The course is concerned with financial management of banks and other financial institutions. The management decision making problems in the

banks, the financial firm as having goals of maximizing returns on assets subject to the constraints of the funds model, the maintenance of solvency, the capital adequacy problem and demands of the regulatory authorities. Also covered are the analysis of various issues and problems common to many financial intermediaries, such as corporate planning and control in financial institutions; competition for funds, assets and liability management and performance, and the reconciliation of profit objectives with public relations and social obligations. Case studies are expected to be employed in illustrating typical real issues.

FIN 826.3 Quantitative Methods for Financial Decisions

This course aims at giving the students quantitative skills necessary for banking and financial decision making. The focus fo the course will be more on application rather than on the theory per Se. it covers descriptive statistics, probability and expectations, discrete and continuous distributions, and statistical decision theory, study of estimation, tests of hypotheses and confidence intervals, time series analysis, index number with application in finance, multiple regressions, including correlation analysis. Also it includes inventory, forecasting, queuing models, analysis of variance, and the use of computer as a tool as emphasized in finance.

FIN 827.3 International Banking and Finance

Topics covered included; overview of the global financial system, foreign exchange market, national banking and financial markets, Euro-banks and Euro financing. International trade financing; international financial institutions and financial integration in ECOWAS and Africa; problems of developing countries in the international financial systems; external borrowing, debt and debt servicing problems; foreign aid and foreign direct investment; Nigeria and international trading payment and financial issues in the context ofthe changing global financial developments.

FIN 828.3 Practice of Banking

This course covers banker and customer relationship and the determination fo the relationship, types of account holders., banking transactions and the payment systems, negotiable instruments, securities for bank lending, real assets securities, financial securities, perfection of securities and securitization.

FIN 830.1 Bank Lending& CreditAdministration

The course is designed to expose students to the basic principles of lending and credit administration. It covers topics in bank credit organizations, the lending environment and financial statements analysis. Others are sectoral forms of lending such as commercial lending, consumer lending and credit

administration. The course involves course work and case studies.

FIN 832.1 Marketing of Financial Services

The course covers the nature, characteristics and consequences of financial services, and consequently, the need for products to be marketed in a special way. It is to enable students to skillfully apply marketing concepts, functions, strategies and techniques, for efficient provision of banking and other financial services. It also requires background knowledge of banking theory and practice for effective application of marketing principles to enhance financial services delivery at profit.

FIN. 832.1 Financial Planning and Control

Introduction to financial planning and control, Nature and purpose of financial planning and control Corporate strategy, organizational goals and objectives; Cost concepts for financial planning and control; Corporate financial planning; Budgeting and budgeting and budgetary control; impact of organizational structure on financial decision-making; Financial resources management; Financial control mechanism; Financial reporting systems; Techniques used for financial planning and control; Assessment of financial performance in firms, Financial principles and practice of risk management; Financial policy and strategy Business tax planning systems; Contemporary issues in financial planning and control.

The course emphasizes basic concepts and analytical tools essential for financial decision making and in understanding of the market environment in which the firm operates. Possible topics include the concepts of organizational goals and the selection and the preparation of information essential for financial planning and control of firms's operations such as cost estimation and analysis, cost value profit analysis, budgeting and budgeting control, variance analysis and cost allocation.

FIN 834.2 Basic Econometrics

This introduction to Econometrics covers topics in introductory econometrics such as the study of the specification of econometric models in economics and financial theory, stochastics disturbances, and the link between conceptual variables and observable financial and banking data are combined. Other topics include: estimation of single equation-linear; non-linear models b least square and other methods, Estimation of time- series model and simulation equation models. Particular attention is given for specification of the problems and error, and the application of the various tools to aid analysis in finance.

FIN. 835.2 Risk Management and Insurance

This course examines the whole area of the concept of risk and its management. Topics covered include:

principles of insurance, risk management strategies, the insurance mechanism. How insurance works. The insurance functions-underwriting, investment, claims settlement etc. management of insurance business. Pension, life insurance, annuities, insurance classification, insurance regulations.

Elective Course- Any one out of the following three (3) elective courses;

FIN 840.3 Treasury Management

Topics covered included: The basic and concepts in treasury management, mathematics of treasury, financial market, treasury planning and control, factors in treasury management, treasury instruments and markets, foreign exchange management, the human side of Treasury Management, Financial Risk Management, Market of treasury Products, Treasury Dealing Ethics.

FIN 841.3 Financial and Management Accounting

This course covers topics in financial accounting such as partnership accounts, international financial report standard (IFRS), companies' accounts, business reorganization and reconstruction as well as capital reduction, business performance review and specialized accounts. The topics in managerial accounting, include relationship between financial and managerial costing techniques, contribution margin approach and decision making, cost-volume-profit analysis including break- even point, pricing policy, budgeting and budgetary control, cash budget, techniques of investment appraisal and cost benefit analysis, risk and uncertainty in capital budgeting, linear programming.

FIN 842.3 Human Capital Management

The topics include the concept, scope, nature methods, principles and theories of human capital management, strategies and management practices in manpower planning techniques; staffing; human resources training and development; human resources management process; organization and job designs, employee performance management; talent development: reward management and compensation; employment laws and contract in Nigeria; Industrial and Employee Relations; organizational behaviour in human resources management; organizational development, health, safety and environment; the concept of human resources and employee engagement; globalization and contemporary human resources management.

FIN 829.3 Investment Analysis and Portfolio Management

The study covers portfolio selection as a problem of constrained utility maximization under conditions of uncertainty; Discussion of the different markets,

along empirical evidence for validity of the theory; activities involved in making selection among alternative financial assets from the viewpoints of individuals and institutional investor, implications of the efficient market theory for the profitability of alternative investment; valuation of financial statements and analysis. The empirical evidence for various mean variance models of assets for evaluating portfolio performance are emphasized.

FIN 836.2 Derivative Securities and Markets

The rapid and extreme development in financial services industry demand that graduates in finance be exposed to financial innovations in recent years. The course in derivatives and markets fulfills this requirement. The course introduces the students to the concepts, types, operations and regulatory framework of financial derivatives markets. It covers traded options, futures/future contracts, forwards, swaps, derivatives exchanges and traded systems.

FIN 837.2 Micro and Small Business Financial

The course covers the problem of provision of microcredit and the financial problems of small business in the economy. Topics covered include: sources, acquisition and use of capital by small businesses; financial analysis relating to income, repayment of capital and risk management leasing and other finance alternatives, the role of small business in the economy, required government assistance, how microcredit can be effectively provided and the provision of finance by credit institutions are well as the non-financial components to make finance be productively employed.

FIN 838.3 Research Seminars in Finance

This seminar introduces students to the most recent research in the area of finance and investment, examining current issues and trends. Students have an opportunity to present and discuss their own research and actively engage in the analysis and discussion of the work of others,. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and result of his/her research.

FIN 833.1 Public Sector Financial Management

This covers the procedure for estimation and control of government expenditure and the raising of revenue estimation of expenditure, authorization of expenditure and accounting processes for planning public expenditure, efficiency of government expenditure; measurement of “efficiency” of government expenditure; objective functions of government expenditure; the planning programming budgeting system and other budgeting systems as an approach to cost effectiveness appraisal of government expenditure. Also included are; the multi-nature of public sector- federal state and local authorities and the financial relationship between government units, fiscal federalism, local government finance; rates, borrowing, federal/state grants, commercial activities, the systems of federal/states grants and changes overtime; the systems of federal/states grants and changes overtime; the central of local authority expenditure: current and capital, its planning and control; pricing and investment problems, accounting and financial control in public owned enterprises.

MGT 802.2 Strategic Management and Leadership

Strategic management process and framework; Strategic planning; Organizational management, Change and innovation management; Leadership: Business level and generic strategies; Corporate level strategy and portfolio analysis; International business level strategies; Cooperative strategies, Project management issues; Case analysis in strategic management.

RESOURCES PERSONS:

To enhance the quality of the programme and also, enrich the linkage established with CIBN, the professional institute is expected to partake in teaching some of the courses. Such lecturers are expected to possess a minimum of MFB/M.Sc/MBA In addition to Associate or Fellow membership of the Chartered Institute of Bankers of Nigeria. On the part of the Department, the following academic staff are currently on ground for the programme as shown below:

ACADEMIC STAFF

S/NO	NAME	ACADEMIC QUALIFICATION	DESIGNATION
1	EZIRIM, C. B.	B.Sc. MBA, M.Sc., PGDE, Ph.D	Professor of Finance and Banking
2	OKEREKE, E. J.	B.Sc. MBA, M.Sc., Ph.D	Professor of Finance and Banking
3	NWINEE, B.F.	B.Sc. MBA, M.Sc., Ph.D	Professor of Finance and Banking
4	OGBULU, O.M.	B.Sc. MBA, Ph.D	Professor of Finance and Banking
5	NWAKANMA, P.C.	B.Sc. MBA, M.Sc., Ph.D	Professor of Finance and Banking
6	NNAMDI, I.S.	B.Sc. MBA, Ph.D	Snr. Lecturer
7	IFIONU, E.P.	B.Sc. (ed), M.Sc., Ph.D	Snr. Lecturer
8	OGUNBIYI, S.S.	B.Sc. MBA, Ph.D	Snr. Lecturer
9	TORBIRA, L.L.	B.Sc. MBA, Ph.D	Snr. Lecturer
10	ADEBAJO ROSE U.	B.Com, KFA, ACIB, PhD in view	Lecturer 1
11	OMOJEFE, G.O.	B.Sc. M.Sc., PGD, Ph.D	Lecturer 1
12	ODI, E.R.	B.Sc. MBA, M.Sc., Ph.D in view	Lecturer 1
13	OLULU-BRIGGS, O.V.	B.Sc. MBA, M.Sc., Ph.D in view	Lecturer 1
14	OJI, G.U.	B.Sc. MBA.	Lecturer II

DOCTOR OF BUSINESS ADMINISTRATION (DBA) PROGRAMME IN ACCOUNTING, FINANCE & BANKING, MANAGEMENT AND MARKETING

DOCTOR OF BUSINESS ADMINISTRATION (DBA) PROGRAMME IN ACCOUNTING, FINANCE & BANKING, MANAGEMENT AND MARKETING

1. PHILOSOPHY OF THE PROGRAMME:

The philosophy of the Doctor of Business Administration in the four functional areas of management sciences is the development of a distinguished and result-oriented business executive who is vast in advanced modern business skills and knowledge to lead organizations, provide high valued consulting services and educate the next generation of specialized professionals on accounting, finance and banking, management and marketing theory and practice through sound and analytical research background as well as specialized courses.

1.1: Justification for the Programme:

- a. The DBA is an advanced postgraduate programme that focuses on professional business practice as well as providing experienced managers with research skills that can be applied to issues of organizational leadership. In line with this, our professional MBA graduates will be better suited to pursue further education through this programme.
- b. The DBA is fashioned to take care of further academic needs of executive professionals with MBA degree, who have career ambition to gain academic recognition in their chosen professions.
- c. In terms of its relationship with the Doctor of Philosophy (PhD), the DBA is an equivalent of the PhD, in terms of application to specific industry needs. The DBA though industry based, is equally fashioned to cater for the demands of the academia while the PhD is purely academic based.
- d. The DBA provides a platform for business executives to further their career ambition in their different professions, thereby widening the broad base of the academic system with theory and applications.

2. OBJECTIVES OF THE PROGRAMME:

The objectives of the programme are:

- i. To produce sound, corporate executives who can evaluate evolving conceptual models, theoretical framework as well as technological and organizational systems with particular emphasis on their

implications on business theory and practice.

- ii. To produce candidates who can critically and properly access cultural and societal perspectives influencing business practice in the global era.
- iii. To produce business executives who can lead high value consulting services and exhibit proficiency in research and critical thinking skills.
- iv. To develop in students, effective communication, skills and the use of information technologies in the global business environment.
- v. To produce candidates equipped with analytical skills to evaluate business issues, ethical and legal within regulatory frameworks that guide the theory and practice in accounting, finance and banking, management and marketing.
- vi. To develop the entrepreneurial capacity of the student in a dynamic business environment (world).

3. ADMISSION REQUIREMENTS:

The following requirements must be met for admission into the Doctor of Business Administration (DBA) Programme:

- i. Candidates for the DBA programme must possess an MBA or M.Sc in accounting, finance and banking, management and marketing or in an acceptable and closely related area/discipline. The Master's programme must have had a Thesis/Research component. Candidates are required to have had a minimum of 3.5 on a 5.0 point scale or 3.0 on a 4.0 point scale in their master's programme.
- ii. Working experience of two years attained in a middle management position in the corporate world or in an alternative relevant employment will be an added advantage.
- iii. The final selection of candidates for the DBA programme shall be based on the candidate's performance at an interview to be conducted by the Faculty Graduate Committee.
- iv. Holders of Executive MBA Degrees, are not eligible to apply.

4. PROGRAMME OF STUDY:

At the end of the first year, the candidate shall choose, at least two supervisors; one of whom must be from his discipline and serves as the lead supervisor. This is subject to the approval of the

Department Graduate Board. The supervisors shall be responsible for guiding and monitoring the student's progress throughout the remaining duration of his/her study.

5. MODE OF STUDY/DURATION OF PROGRAMME:

Fulltime candidates shall be required to spend a minimum of three (3) years and a maximum of five (5) years from the date of first registration.

Part-time candidates will be required to spend a minimum of five (5) years and a maximum of seven (7) years.

At the end of the maximum period, depending on the progress report on the candidate, the candidate may have his period of study extended for a defined period or advised to withdraw. A minimum of 12 months (full time) and 18 months (part time) shall be strictly dedicated to course work.

6. CANDIDACY EXAMINATION:

Each student shall be required to take a three (3) hour written comprehensive examination at the successful completion of his coursework. Passing these examinations will lead to the declaration for Doctoral Dissertation. If a candidate fails the candidacy examination, one resit is allowed the following year. A candidate who fails the examination after the second attempt will be required to withdraw from the programme.

7. DISSERTATION

i) Research Proposal

After the successful completion of the candidacy examination, the candidate shall be required to write and defend his/her research proposal, first, before a Departmental Graduate Committee, then, a Faculty Graduate Committee. Having successfully defended the research proposal, the candidate on completion of his/her Dissertation shall defend same at the department and faculty before proceeding to the School of Graduate Studies.

ii) Notification of Title

The Head of Department through the Dean shall in not more than 2 months after faculty proposal defense formally notify the Board of School of Graduate Studies, the title of the candidate's dissertation as approved by the Faculty Board.

iii) Dissertation Report

Each candidate shall be examined by an examination board which shall include an external examiner approved by the Board of School of Graduate Studies. After the external examination and without further consultation or correspondence among the examiners, the Head of

Department shall submit to the Faculty Board on a prescribed form, a joint report on the candidate. The report shall contain:

- a. A clear and detailed evaluation of the research work as summed up in the dissertation, including an assessment of its originality and its contribution to the advancement of knowledge.
- b. A clear assessment of the candidate's knowledge and understanding of his subject as shown in the dissertation and subsequent examination.
- c. An unequivocal declaration as to the acceptability or otherwise of the dissertation in partial fulfillment of requirements of the degree. The report shall thereafter, be forwarded by the Head of Department through the Dean, to the School of Graduate Studies.
- d. Every dissertation should be supervised by a minimum of two (2) Supervisors who must not be, below the rank of a senior lecturer with a Ph.D.

iv. Submission of Dissertation:

- (a) A candidate shall submit six copies of his dissertation in hard binding to the Dean, through the Head of Department not later than two months from the date of the examination.
- (b) All dissertations must conform to the specifications laid down by the Faculty Graduate Board.
- (c) Before the degree is conferred, three copies of every dissertation accepted shall be bound in a manner approved by the Faculty Board and these shall become the property of the University.

8. FIELD OF SPECIALIZATION:

The following fields of specialization are available for candidate (a) Accounting (b) Finance & Banking (c) Management (d) Marketing

9. DBA SEMINAR

A candidate shall present one departmental seminar, which must come from any area of his/her discipline. He/she must also present another seminar at the Faculty, which must come from his dissertation. The final seminar will be on the candidate's work to be presented at the school of Graduate studies.

10. AWARD OF THE DBA DEGREE:

The DBA programme is prosecuted by course work, seminars, and dissertation, but the award of DBA is based on comprehensive research to be embodied in a dissertation which will be orally defended.

11. ACADEMIC REQUIREMENTS:

The course work of the DBA programme in Accounting, Finance and Banking, Management and Marketing consist of the Research Tool and General Courses, Core Courses and Stress Area Seminars. The General Courses are compulsory for every student in the DBA programme. All courses must be completed with a grade of not less than a "C". The DBA degree shall be awarded upon successful completion of the prescribed course work and successful defense of dissertation.

12. CURRICULUM:

The course work of the DBA programme in Accounting, Finance and Banking, Management and Marketing consists of Research Tools and Genemi Courses, Core Courses and Seminar Course. These courses are outlined in detail for each of the disciplines below:

13. COURSE STRUCTURE

The DBA in Accounting, Finance and Banking, Management and Marketing programmes require a minimum of 48 credit units made up as follows;

i.	5 General Course	- 15 units
ii.	6 core courses (3 credit units each)	- 18 units
iii.	Dissertation	- 12 units
iv.	DBA Seminar	- 3 units
	Total	- 48 units

DEPARTMENT OF ACCOUNTING

GENERAL COURSES

ACT 921	Advanced Accounting Research Method
ACT 922	Advanced Management Accounting
MKT 922	Strategic Marketing Management
FIN 922	Corporate Financial Management and Policy
MGI 922	Business Policy and Strategy
FMS 900	Managerial Economics
FMS 901	Entrepreneurship Development/Management

CORE COURSES

ACT 923	Philosophy of Accounting
ACT 924	Social and Environmental Reporting
ACT 925	Advanced Financial Accounting
ACT 926	Advanced Tax Strategies and Fiscal Policies
ACT 927	Advanced Forensic Accounting Theory & Practice
ACT 928	Advanced Auditing/Assurance Services
ACT 929	Advanced Public Sector Accounting

COURSE/SEMINAR CODE

COURSE TITLE

ACT 930	Departmental Seminar in Accounting
ACT 931	DBA Dissertation/Defence

COURSE DESCRIPTION

ACT 923 Philosophy of Accounting

The nature and meaning of accounting, the various postulates and concepts that underpin development of accounting thought. The ontology and epistemology that tries to justify conservative accounting.

ACT 924 Social and Environmental Accounting

Social and Environmental effects of organization's economic actions to particular interest groups within society. Purpose of social accounting. Corporate accountability and management control purpose. Self-reporting and third party audits. Cost structure and environmental performance reporting. Environmental Management Accounting and internal reporting practices.

ACT 921 Advanced Accounting Research Methods

Fundamental of experimental and non-experimental accounting research and their applications to the study of accounting problems. Issues will also cover construct, internal and external validities, survey and single-case research designs in accounting.

ACT 925 Advanced Financial Accounting

This course covers more advanced treatment of fundamentals of financial accounting, with preparation of financial statements of corporate organisations in conformity of IFRS and IAS. It reviews dissolutions of partnership accounts and amalgamation, advanced incomplete records, advanced treatment of accounts non trading concern, published financial statements, purchase and sale of business accounts, royalty accounts, contract accounts and other specialised accounts.

ACT 922 Advanced Management Accounting

The aim of this course is to up-grade the analytical skills of the students and to identify research issues in management accounting, budgeting theory, learning curves, forecasting, variance analysis, profit analysis and cost allocation techniques, the agency-theoretic approach in management accounting.

ACT 926 Advanced Tax Strategies and Fiscal Policies

Contemporary issues of research in taxation. Tax laws and Fiscal Policies and their impact on the

economy and society. Overview of Tax Environment, Structure and Administration in Nigeria: issues and challenges arising from Personal Income Tax Laws, Company Income Tax Act, Petroleum Profit Tax Act, Industrial Development (Income Tax Relief) Act, Value Added Tax Laws, Capital Gain Tax Laws, Capital Transfer Tax, Double Taxation Relief and other unfolding events and typical issues such as Tax Review and Reforms.

ACT 927 Advanced Forensic Accounting Theory and Practice

This course reviews the role of the forensic accountant in investigations and audits. Topics covered are: the legal environment audit and investigation, dispute resolution and litigation services, information security, financial statement analysis, and tax fraud. Students will merge from the course with an understanding of the roles of forensic accountants and familiarity with their tools and practices.

ACT 928 Advanced Auditing/Assurance Services

Information theoretic approach to auditing, statistical aspects of auditing and fraud, the

generation and formulation of audit hypothesis, and heuristic and biases in audit judgments. Forensic audit techniques and the role of the forensic auditor as an expert witness. Financial Performance Reporting under International Financial Reporting Standards (IFRS); guidance on IFRS, corporate governance, audit and professional Financial Reporting Standards (IFRS); guidance on IFRS, corporate governance, audit and professional responsibility reporting; Reporting on impairment of non-financial asset, employee benefits, and going concern. Implications of applying IAS 23 (REVISED) "Borrowing costs". Guidance on impairments for financial assets. Ethics as an integral part of accounting profession.

ACT 929 Advanced Public Sector Accounting

This course provides the tools necessary for understanding the principles of fiscal accountability. It will also equip the student with the knowledge of IPSAS (International Public Sector Accounting Standards) with the aim to improve the quality of general purpose financial reporting by public sector entities, leading to better informed assessments of resource allocation decisions made by government, thereby increasing transparency and accountability as well as quality service delivery.

DEPARTMENT OF ACCOUNTING ACADEMIC STAFF LIST

S/NO	NAME	QUALIFICATION	POSITION	SPECIALISATION
1	C.O. OFURUM	Bc, UNIBEN, PGD UNN,MBAUNN, M.Sc FUTO, Ph.D FUTO, ACA ICAN.	Professor	Accounting/ Finance
2	A. A. OKWOLI	B.Sc, UNIJOS. M.Sc, UNIJOS, Ph.D IJNIJOS, FCNA, ACTI	Professor	Accounting Research Method
3	DR. IHENDINIHU J.U.	B.Sc ABSU, MBA ESUT, Ph.D ABSU	Reader	Auditing and Assurance
4	DR. KIABEL, B.D.	B.Sc RSUST, MBA RSUST, CPA MNIM, FCTI, Ph.D RSUST	Snr. Lecturer	Taxation and Fiscal Policies
5	DR. L. C. OBARA	B.Sc, MBA, Ph.D	Snr. Lecturer	Oil and Gas Accounting, Auditing & Assurance.
6	DR. E.A.L. IBANICHUKA	MBA RSUST, Ph.D UPH FCA, FCCA ACCA	Snr. Lecturer	Auditing and Investigation, Executorship law and Financial Acctg.
7	DR. L.C MICAH	B.Sc RSUST, MBA RSUST, Ph.D UPH, CPA.	Snr. Lecturer	Public Sector Accounting, Management Accounting
8	DR. G.N. OGBONNA	B.Sc UPH, MBA UPH, FCA, M.Sc FUTO, Ph.D UPH.	Snr. Lecturer	Info Systems, Fin Acctg and Acctg Research.
9	DR. U.I IRONKWE	B.Sc IFE, MBA UPH, LL.B RSUST, B.L, FCNA, Ph.D UPH.	Snr. Lecturer	Company Law & Exec Law & Acctg.
10	DR. F.N. AKANI	B.Sc UPH, MBA RSUST, PhD UPH	Snr. Lecturer	Auditing & Investi, Fin Reporting.
11	DR. (MRS.) T.E ONUOHA	B.Sc SABS, MBA SWLC, Ph.D UPH	Lecturer I	Auditing & Invest, Cost & MgtAcctg.
12	DR. SOLOMON EGBE	B.Sc, PGD, MBA, PhD UPH.	Lecturer I	Cost & Mgt Actg, Fin Reporting.

DEPARTMENT OF FINANCE AND BANKING

GENERAL COURSES

FIN 921	Research Methods in Finance and Banking
MGT 922	Advanced Management Accounting
FMS 900	Strategic Marketing Management
FMS 901	Corporate Financial Management and Policy
ACT 922	Business Policy and Strategy
MKT 922	Managerial Economics
FIN 922	Entrepreneurship Development! Management

CORE COURSES

FIN 923	Econometrics for Financial and Business Decision
FIN 930	Advanced Micro and Macro Economics
FIN 924	Theory of Finance and Banking
FIN 925	Advanced Public Finance
FIN 926	Advanced Insurance
FIN 927	Advanced International Trade and Finance
FIN 928	Bank Credits and Administration
FIN 929	Seminar in Finance and Banking
i.	Marketing in Contemporary Finance Services Industry.
ii.	Commodity Exchange and Futures Markets.
iii.	Financial Information System.
iv.	Issues in General Finance and Banking.

COURSE DESCRIPTIONS

FIN 925 Theory Of Finance and Banking:

Survey of the relationship between theory of choice, theory of the firm and theory of finance. Money credit and finance. Sources and nature of funds. The allocation of financial resource over time. The nature and application of the theory of utility and indifference curves in financial and risk analysis. The theory of production equilibrium, investment and consumption within the capital market framework. Efficient market theories, theories of risks and returns in enterprises. Liquidity, intermediation and interest rate theories in bank Mgt. Consumption and Investment model in a two period setting. Opportunity and consumer equilibrium with N-assets. Theory of random walk hypothesis, Portfolio and efficient portfolio theories and the various schools of thought, the relationship between portfolio returns and index. Capital Asset Pricing model (CAPM) and other competing models. Theory of mergers and acquisitions. Financial Distress Management, cost

of capital. The choice of discount rate and the effects of leverage on the costs of capital. Capital structure theories and financial risk. Dividend theory.

FIN 926 -Advanced Public Finance:

Meaning and scope of Public Finance; analysis of public revenue, analysis of problems in public expenditure systems, character of governmental expenditures, governmental activity and economic development, role of investment in the modern economy, fiscal policy and budgeting, the changing role of investment in the modern economy, fiscal policy and budgeting, the changing role of fiscal policy, fiscal federalism in Nigeria, the tax structures, institutional and administrative constraints in tax administration, unequal fiscal capacity, public debt management.

FIN 927 - Advanced Insurance:

The regulatory functions of the National Insurance Commission (NICOM), problem, development and organization of the insurance industry in Nigeria, types of insurance businesses life, non-life, social and health insurance etc. Structure of the Nigerian Insurance Market, insurance statistics, reinsurance, state control of insurance, application of Linear programming and actuarial science techniques to various aspects of the insurance business, management and investment of insurance funds, risk management and risk reduction through portfolio diversification, internal funds structure of insurance organizations.

FIN 928- Advanced International Trade and Finance:

Concept of international trade and the need for international trade, Balance of payments and the trends in the structure of Nigeria's balance of payment. The concept of surplus and deficit in the balance of payments and their implications for the macro-economic goals. Automatic measures (exchange rate regime variations) and discretionary measures (exchange control, devaluation, revaluation and other policy intervention measures). Types of exchange rates and their determinants. Exchange rate policies and practices in Nigeria since 1960, international investments (real and portfolio) and the impediments to their inflows. Various reforms carried out since 1986 by the Nigerian monetary authorities to ease foreign capital inflow. Genesis of world monetary crisis and the roles of international Financial Institutions i.e World Bank, IMF etc. in shaping international monetary order. Regional Central Banks e.g. RCB in fostering economic union, exchange rate stability and

growth. Efforts towards the creation of ECOWAS monetary Union and ECOWAS Central Bank.

FIN 929- Bank Credits and Administration:

Basic considerations in financial Analysis: Analysis and criticisms of financial/accounting statements including cash-flow statements, budgeting, cash flow forecasts etc. for lending purposes. Nature of credit risks, uncertainties and lending.

The Credit Process, Issues and Analysis. Short term lending portfolio: Advanced, over drafts, and current lines; Asset based transactions and finance, Trade finance credits and payments.

Medium and Long-Term Credit Facilities:

Term loans, risks and analysis, Mortgage Finance risks and analysis; Equipment lease financing and

risks; Hybrid/irregular credit facilities, (off balance sheet facilities).

Syndication Credit Risks and Analysis.

Consumer lending products and risks. Microfinance lending risks and controls.

Structuring of Credits, Analysis and Approval Processes/Administration: Structuring of risk asset facilities, slippery issues of loan structure. Analysis of Corporate Borrowers, loan approval issues and options.

Credit Policy and Administration: Securitization and documentation, post loan disbursement functions, management of non-performing credits, loan default warning signs, remedial and actions, credit-fraud management and internal control measures.

DEPARTMENT OF FINANCE AND BANKING ACADEMIC STAFF LIST

S/NO	NAME	QUALIFICATION	RANK	SPECIALISATION
1	PROF. EZIRIM, C. B.	BSC. UNN, MBA UNN, MSC./PHD UPH.		Finance, Banking & Finametrics
2	PROF. OKEREKE, E. J.	BSC. IMSIJ, MBA IMSU, MSC FUTO, PHD FUTO.		Fin System, Bank Mgt, Fin Info system.
3	PROF. ONOH, J. K.	BSC. MUNICH, DSC AMSTERDAM.		Money & Banking
4	DR. SANNI, T. A.	BSC. IFE, PHD IOWA.		Money and Banking
5	DR. NWAKANMA, P.C.	BSC, MBA, MSC, PHD		Inv. & Port Mgt, Cap Mkts, Micro Fin, Dev Fin, Corp Fin, Morg,
6	DR. OGBULU, O. M.	BSC UNN, MBA UNN, PHD ABSU.		Investment & Portfolio Mgt.
7	DR NWFNEE, B. F.	BSC RSUST, MBA UPH, MSC RSUST, PHD UPH, FINISM		Inter Fin, Public fin, Banking theo Mgt, Ins Mgt, Econ & fin. Modeling.
8	DR NNAMDI, I. S.	BSC UPH, MBA UPH, PHD ABSU		Investments, Bank Mgt & Fin. Services
9	DR. (MRS) IFIONU, L.	B.ED. UPH, MSC UPH, PHD UPH		Pub. & Dev. Fin. & Econometrics & Monetary econs
10	DR. OGUNBIYI, S. S.	BSC UPH, MBA UPH, PHD UPH		Fin. Mgt, Proj Eva, Corp. Fin & Fin. Info system.
11	DR. TORBIRA, L. L.	BSC. UNN, MBA UNN, PHD UPH		Ins. Mgt, Pub. & Corp. Fin., Fin. Systems
12	DR. NGEREDO, A.	BSC., MBA, MSC., PHD		Money & Fin Inst

DEPARTMENT OF MARKETING ACADEMIC STAFF LIST

S/N	NAMES	QUALIFICATIONS	SCHOOLS ATTENDED	RANK	AREAS OF SPECIALIZATION
1	Umoh, G.I.	M. Sc, Ph.D, DIP IDP (finals)	Aston, UK Birmingham UK Scotland London	Professor	Operations Management Quantitative Analysis
2	Igwe, S.R.	B.Sc, MBA, Ph.D.	UPH	Professor/ HOD	Strategic Marketing & Consumer Behaviour
3	Ezirim, A.C.	DIP, B.Sc, MBA, M.Sc, Ph.D.	OWERRI, ENUGU, FUTO RSUST	Professor	International Public Relation & Management
4	Asiegbu, I.F.	B.Sc, MBA, Ph.D.	RSUST, IMSU, UPH	Professor	Marketing Communication & Promotion
5	Ogboji, C.N.	B.Sc, MBA, M.Sc, Ph.D.	ABSU, UNHC, ABSU	Professor	Stakeholders Public Relation
6	Awa, H.O.	B.Sc, MBA, M.Sc, Ph.D.	UNICAL, UPH, ABSU, UPH	Professor	Consumer Behaviour Product Management
7	Ozuru, H. N.	BBA, MBA, Ph.D.	USA, RSUST	Professor	Electronic Marketing Marketing operations
8	Onuoha, A. O	BSc, MBA, MSc., Ph.D	ABSU, UNN	Reader	Sales Management & Marketing Communication
9	Ademe, D G.	BSc., MBA, PhD	RSUST, UPH	Reader	Consumer Behaviour & Electronic Public Relations
10	Abiye, H. L.	BSc, MBA, MSC,	UPH, ABSU	Lecturer 1	Marketing Management Supply Chain Management
11	Igwe, P	BSc., MBA, MSc. PhD	UPH	Senior Lecturer	Communication Theories & Practices
12	Eke, H.O.	BSc, MSc	UPH	Lecturer 1	Marketing Management/ Sustainable Marketing
13	Nwiepe, N.M.	BSc., MBA, MSc, Ph.D	UPH, RSUST	Lecturer 1	Marketing Psychology & Investigative/Peace Communication
14	Nnenanya, D. A.	B.Sc., M.Sc. PhD	UPH	Lecturer 1	Logistics and Distribution
15	Atuo, E.C.	B.Sc., M.Sc. PhD	RSUST; UPH	Lecturer 1	Consumer Behaviour/Social Media Communication
16	Lekue, J.	B.Sc., M.Sc. PhD	RSUST; UPH	Lecturer 1	Logistics and Distribution Management
17	Ezema- Kalu.N.B	B.Sc, M.Sc, Ph.D in view	UPH	Assistant Lecturer	Marketing Management

UNIVERSITY OF PORT HARCOURT FACULTY OF MANAGEMENT SCIENCES

UNIVERSITY OF PORT HARCOURT BUSINESS SCHOOL

INTRODUCTION

The Doctor of Philosophy (PhD) Programme of the University of Port Harcourt, Faculty of Management Sciences, is the highest degree in terms of academic qualification in the field of Business Management/Administration.

THE PHILOSOPHY OF THE PROGRAMME

The philosophy of the Doctoral Programme in University of Port Harcourt Business School, Faculty of Management Sciences (FMS), is centered on the Development of Business Scholars who are versed in modern method and research skills; as well as having the capability of developing and promoting indigenous academic culture in the field of Management Sciences.

OBJECTIVES OF THE PROGRAMME

- i. To produce candidates with high level of intellectual rigour and maturity for independent work in Management Sciences.
- ii. To produce candidates who can develop and promote indigenous concepts, principles, and theories in their area of specialty and translate same to practices in organizations and institutions
- iii. To equip candidates with the requisite theoretical, quantitative, and qualitative skills to enable them undertake teaching and research responsibilities in Universities, industries and government.

ADMISSION REQUIREMENTS

The following requirements must be met for admission into the doctoral degree programme.

- i. Candidates for the PhD programme must possess a Master of Science (M.Sc) Degree in Accounting, Finance and Banking, Management, and Marketing. Master of Science (M.Sc) programme must have had a Research Project/Dissertation (Thesis) component. Candidates are required to have obtained a CGPA of 3.5 on a 5 Point Scale.
- ii. The final selection of candidates for the doctoral programme shall be based on the candidate's performance at an interview to be conducted by University of Port Harcourt Business School (UPBS) Academic Committee.

PROGRAMME OF STUDY

Following the admission and registration, a student shall be assigned to supervisors who shall be chosen from his/her area of Specialization. The supervisors shall be responsible for guiding and the monitoring of the student's progress throughout the duration of his or her study.

DURATION OF THE PROGRAMME

Full-time Candidates will be required to spend a minimum of 24 Calendar months and a maximum of 60 Calendar months. Part-time Candidates will be required to spend a minimum of 36 Calendar months and a maximum of 84 Calendar months.

TITLE OF THESIS

The candidate shall, in not more than two Modules, notify the University of Port Harcourt Business School (UPBS) Academic Committee in writing and state the full Title of his/her Thesis.

THESIS

The student is expected to work on the approved topic with assigned Supervisors, who will present them for proposal defense. On successful defense of the Research proposal, the student shall commence the writing of his or her full Thesis.

THESIS/DISSERTATION COMMITTEE

In line with Graduate School regulations, the Committee shall include: The Director of UPBS, Deputy Director, Short-Course Coordinator and Three others mainly Professors/Senior Lecturers representing Supervisors, one of which must be bias in Research Methodology.

SUBMISSION OF THESIS

- a. A candidate shall submit four copies of his/her Thesis in hard binding to the UPBS Committee not later than the beginning of the last period of study and not later than two months to the date of examination.
- b. All Theses must conform to the specifications laid down by SGS.
- c. Before the degree is conferred, three copies of every Thesis accepted shall be bound in a manner approved by the UPBS Academic Committee and these shall become the property of the University.

AWARD OF THE Ph.D

The Doctoral Degree shall be awarded upon the successful completion of the course work and oral defense of the Thesis. This gives a **Minimum Total Credit Units of 56** for each specialization. No candidate may defend the Doctoral Thesis more than two (2) times.

THE POST GRADUATE DIPLOMA PROGRAMME (STRUCTURE)

MODULE 1

Course Code	Course Description	Credit Unit
UPBS 700	Business and Environment	3
UPBS 701	Quantitative Methods for Business	3
UPBS 702	Business Statistics	3

MODULE 2

Course Code	Course Description	Credit Unit
UPBS 703	Managerial Economics	3
UPBS 704	Financial Accounting	3
UPBS 705	Practice of Marketing	3

MODULE 3

Course Code	Course Description	Credit Unit
UPBS 706	Management Theory	3
UPBS 707	Financial Management	3
UPBS 708	Strategic Management	3

MODULE 4: SPECIALISATIONS/OPTIONS

FINANCE AND BANKING

Course Code	Course Description	Credit Unit
UPBSF 750	Investment Analysis	3
UPBSF 751	Corporate Finance	3
UPBSF 752	Strategic Financial Management	3
UPBSF 753	Seminar in Finance and Banking	2

MARKETING

Course Code	Course Description	Credit Unit
UPBSK 750	Consumer Behaviour	3
UPBSK 751	Competitive Marketing Strategy	3
UPBSK 752	Industrial and Government Marketing	3
UPBSK 753	Seminar in Marketing	2

MANAGEMENT

Course Code	Course Description	Credit Unit
UPBSM 750	Comparative Management	3
UPBSM 751	Project Management	3

and Feasibility Studies

UPBSM 752	Leadership and Business Ethics	3
UPBSM 753	Seminar in Management	2

ACCOUNTING

Course Code	Course Description	Credit Unit
UPBSA 750	Introduction to Cost and Management Accounting	3
UPBSA 751	Taxation	3
UPBSA 752	Accounting Information System	3
UPBSA 753	Seminar in Accounting	2

HOSPITALITY MANAGEMENT AND TOURISM*

Course Code	Course Description	Credit Unit
UPBST 750	Organization of the Hotel Workplace	2
UPBST 751	Human Resource Management in Hotels	2
UPBST 752	Control Systems	2
UPBST 753	Front Desk Management	2
UPBST 754	Events Activities Management	2
UPBST 755	Facility Management	2
UPBST 756	Tourism and Hotel Information System	2
UPBST 757	Seminar in Hospitality Management and Tourism	2

HEALTH CARE MANAGEMENT*

Course Code	Course Description	Credit Unit
UPBSH 750	Public Health	2
UPBSH 751	Health Systems	2
UPBSH 752	Essentials of Health Care Management	2
UPBSH 753	Ambulatory Care	2
UPBSH 754	Case Studies in Health Care Management	2
UPBSH 755	Seminar in Health Care Management	2

SECURITY MANAGEMENT*

Course Code	Course Description	Credit Unit
UPBSS 750	Risk Management	2
UPBSS 751	Business Function of Security	2
UPBSS 752	Security Administration	2
UPBSS 753	Emergency Planning	2
UPBSS 754	Human Factors in Security	2
UPBSS 755	Seminar on Security	2

Management

* **Students to select five (5) courses**

**POST GRADUATE DIPLOMA
PROGRAMMES (SPECIALISATION
AREAS)**

**FINANCE AND BANKING
COURSE DESCRIPTIONS**

UPBSF 750 Investment Analysis

Analysis of securities, fundamental and technical analysis, market efficiency. Ratio analysis, profit planning, securities market and the capital market stock market analysis. The Securities and Exchange commission, the capital issue committee, transaction costs, portfolio selection and timing, portfolio risk and diversification. Effect of Taxation on investment policies. Timing of cash flow etc. Case studies.

UPBSF 751 Corporate Finance

This will include – Analysis of instruments of corporate finance in Nigeria; promotion, capitalization and financial planning. Fiduciary position of corporate management, sale and regulation of securities, the Nigeria stock exchange, Corporate Income, Dividend and dividend policies. Retained earnings and reserves. Case studies.

UPHBF 752 Financial Strategy & Management

Analysis and techniques used in procurement and management of funds. Strategic issues in money markets, capital markets, use of financial instruments, bonds, treasury bills, commercial papers. Assets pricing and management, mergers and acquisitions. The strategic options in sourcing for funds, leasing venture capital, working capital management etc.

**MARKETING
COURSE DESCRIPTIONS**

UPBSK 750 Consumer Behaviour

This course prepares students to see the users of our products as the pivotal elements of the business. Specific areas to cover include; Consumer rationality, the individual at the market – place, consumer behaviour models, consumer behaviour school of thought, the why, when, where and how of consumer behaviour, perception and Attitude Change organizational buying behaviour, etc.

UPBSK 751 Competitive Marketing Strategies

In this course, students are expected to familiarise themselves with the dynamic and competitive nature of the business environment: Areas to cover include: Product strategy, pricing strategy, distributional strategy, promotional strategy,

marketing of services, the P-mix of services, marketing information system, market research, post marketing activities of the firm, etc.

UPBSK 752 Industrial and Government Marketing

By this course, students will be familiar with the new thinking relating to industrial products, markets, special channels for the industrial products, tools for promotion of industrial goods, government policy formulation, implementation and the people, business – government relations, government incentives for industrial goods, government as a major driver for industrial purchases, reciprocity in industrial buying behavior, etc.

**MANAGEMENT
COURSE DESCRIPTIONS**

UPBSM 750 Comparative Management

Management as an economic resource. External environmental factors in comparative management – economic legal/political, socio-cultural, educational etc. internal Environmental factors, technological factors etc. Comparative management systems in Russia, China, U.S.A; Britain, Germany etc. Case Studies.

UPBSM 751 Project Management & Feasibility Studies

Project identification, definition and management project evaluation and Appraisal; Definition of feasibility studies and implication. Feasibility report writing. Tools used in project and management, feasibility studies in monitoring and forecasting – PERT, CPM, etc. management of cost, quality, HR communication, Risk and procurement communication, Risk. Case Studies.

UPBSM 752 Leadership and Business Ethics

The course seeks to identify key interpersonal and teamwork skills and ethical behavior. It deals with skills that underlie management and leadership and ethical practices in global business environment and how to adapt them in difference contexts. Examines formulation and implementation of company code of conduct, conflict of interest, ethical standards, bribery and corruption etc. Case Studies.

**ACCOUNTING
COURSE DESCRIPTIONS**

UPBSA 750 Cost and Management Accounting

This course will prepare students on the rudimental elements of management accounting, cost elements and concepts, product costing, management audit, cash management, debt management, marginal costing and overheads, etc.

UPBSA 751 Taxation

Students for this course must be familiar with all forms of taxes, tax policies in Nigeria, tax planning of the government. Income tax adjustments: computation of total income, assessment year; liability to income tax, basis of assessment, deduction of tax at source. Returns and appeals. Government agencies for revenue collection in Nigeria, recent developments in tax management and tax theories, etc. comparative tax systems.

UPBSA 752 Accounting Information System

By this course, students are expected to be acquainted with the accounting information network of the firm, documentation systems, time management and reporting patterns, responsibilities and training of information managers, IT facilities handling and record keeping, data storage and retrieval (Computer based), etc.

TOURISM AND HOSPITALITY MANAGEMENT COURSE DESCRIPTIONS

UPBSH 750 Organization of the Hotelworkplace

Organization, the nature and Purpose of organization, the mechanistic view of organization. The Human Relations view of Organization, the systems approach to organization, organization structure, the informal structure, Hotel organization.

UPBSH 751 Human Resources Management in Hotels

Work charts, Communication and coordination, staff management, monitoring workloads and work procedures, authority/chain of command, career structure.

UPBSH 752 Control Systems

Sources and storage of Information, creating and maintaining information, creating and maintaining control systems, types of control, production control, quality control, sales control, labour utilization control, materials control, maintenance control, financial control, setting standards and corrective action, work study, organization and methods.

UPBSH 753 Front Desk Management

The functions of the front office, customer service, dealing with grievances & complaints, understanding communication, conversation development, using the telephone, business letters, promotions and customer relations, client interpersonal skills, self-esteem & reinforcement etc.

UPBST 754 Events Activities Management

Tour desk, gymnasium, events (e.g weddings, balls etc), in house services, recreation facilities, guest information services, swimming pools, spa & sauna facilities.

UPBST 755 Facility Management

Management of hotels and other tourism facilities; management of various facilities within hotels. These will include dining, recreation, gymnasium, security, power and water, housekeeping, etc.

UPBST 756 Tourism and Hotel Information System

The major goal of this course is to help students become competent, confident and versatile communicators through the use of modern information technology gadgets: learn how to prepare clear and powerful messages related to Tourism and Hotel services delivery – reports, oral presentations using in- focus, letters and memos. How to approach problems analytically and make thoughtful communication choices in tourism service delivery for managerial decisions making.

HEALTH CARE MANAGEMENT COURSE DESCRIPTIONS

UPBSH 750 Public Health

This course introduces students to the organization, administration and practice of public health. Public health policies are discussed as well as how public health policies are developed.

UPBSH 751 Health Systems

This course introduces students to health care delivery systems and the unique challenges faced by Nigerians in the delivery of health care. The National Health Insurance Scheme (NHIS) and other payment systems are also discussed.

UPBSH 752 Essentials of Health Care Management

This course is an in-depth and comprehensive introduction to concepts and applications of health information management in healthcare. Students explore the latest legislation affecting health data as well as the use of data warehousing, web technologies and database management systems in health information practice.

UPBSH 753 Ambulatory Care

An in-depth and comprehensive introduction to the ambulatory care field and to the principles of management planning and marketing a group practice, this course addresses strategic management issues such as managed care, integrated health systems and research.

UPBSH 754 Case Studies in Health Care Management

Students apply the skills of management to specific scenarios in public and private sectors of the healthcare delivery system. The course addresses pivotal issues that students may encounter as administrators or managers.

SECURITY MANAGEMENT COURSE DESCRIPTIONS

UPBSS 750 Risk Management

Students learn to identify and manage risks, crises and disasters, and to prepare emergency and contingency plans. Students learn how to prevent losses, mitigate losses and accelerate recovery from security events or natural disasters. This is accomplished through case studies and practical exercises.

UPBSS 751 Business Function of Security

This course covers the role of security in an organization or business context. Topics include budgets, contracts, financial analyses, how the security functions support the overall mission of the organization, and the relationship of security to other essential business functions. Students also learn how to defend the costs of security systems and security operations to high-level executives.

UPBSS 752 Security Administration

Students apply principles of management to security administration. Topics include personnel management, security planning, organizational leadership and communication, and recruitment and training.

UPBSS 753 Emergency Planning

Students discuss the role of the security manager in the identification, analysis, and response to a variety of human and natural crises. They examine threats resulting from riots, demonstrations, product tampering, work stoppage activities, terrorism, and natural disasters.

UPBSS 754 Human Factors in Security

This course focuses on historical and contemporary perspectives of human behaviour. Theories of behaviour in the context of threat-producing activities are discussed. Contemporary issues such as substance abuse, violence, ideologies, and similar themes are examined.

EXECUTIVE MBA CORE COURSES (STRUCTURE)

BUSINESS ANALYTICAL TOOLS/ANALYSIS & DECISION MAKING (MODULE ONE)

Course Code	Course Description	Credit Unit
UPBS 800	Quantitative Methods/Operations Management	2
UPBS 801	Managerial Economics	2
UPBS 802	Research Methodology in Business	3
UPBS 803	Global Economic Environment	2

FINANCIAL AND PROJECT MANAGEMENT (MODULE TWO)

Course Code	Course Description	Credit Unit
UPBS 804	Accounting for Managers	2
UPBS 805	Corporate Financial Strategy and Management	2
UPBS 806	Organizational Behaviour	2
UPBS 807	Project and Operations Management	3

ENTREPRENEURIAL AND STRATEGIC THINKING (MODULE THREE)

Course Code	Course Description	Credit Unit
UPBS 808	Strategy and Innovation	2
UPBS 809	Marketing Operations & Strategy	2
UPBS 810	Entrepreneurship	3
UPBS 811	Management Theory	2

BUSINESS SUPPORT AND LEADERSHIP (MODULE FOUR)

Course Code	Course Description	Credit Unit
UPBS 812	ICT & Data Analytics	3
UPBS 813	Leadership, Ethics and Corporate Governance	2
UPBS 814	Business and Company Law	2
UPBS 815	Supply Chain Analytics	2

PERFORMANCE AND ORGANISATIONAL MANAGEMENT (MODULE FIVE)

Course Code	Course Description	Credit Unit
UPBS 816	Strategic Human Resources Management	3
UPBS 817	Management of Organisational Change	2
UPBS 818	Management Communication	2
UPBS 819	Social Media Analytics	2

RESEARCH PROJECT AND GRADUATE SEMINAR (MODULE SIX) *

Course Code	Course Description	Credit Unit
UPBS 820	Graduate Seminar	3
UPBS 821	Research Project	6

*EMBA students are exempt from this Module

UPBS 807: Project and Operations Management

In recent years, computers and the availability of software have changed the way companies analyse, evaluate, and optimise decisions. This course provides the foundation for the use of decision technologies to solve complex management problems in various business areas. Students will learn a combination of Management Science/Operations Research Techniques (MS/OR) and Operations Management Techniques (OM), with a focus on prescriptive analytics. Students will get familiar with the concept of Modelling and Optimisation to structure optimisation problems, to solve them using software, and to generate insights on how to manage variability in their today's businesses.

UPBS 812: ICT and Data Analytics

You require a profound understanding of data management methods and organisational and technical measures to derive value from data and to bring fully its potential to business processes.

In this course, students will learn the basics of data storage and database management systems and gain basic skills in data cleansing and data quality to facilitate data use and ensure data quality in companies and in data science projects.

The course will cover the basics of metadata and metadata standards, methods for solving basic data integration problems and data models and software architectures for integrating different data types. Packages like Excel, SPSS, and E-views will be discussed and applied.

In addition, it will present in a practical-oriented way the following topics, using company examples: Relational databases, document-based databases, NoSQL, data manipulation, access to data sources, web APIs, web crawling and parsing of text data.

MBA ELECTIVE COURSES

ACCOUNTING

Course Code	Course Description	Credit Unit
UPBSA 801	Advanced Accounting and Theory	3
UPBSA 802	Advanced Auditing and Investigations	3
UPBEA 803	Taxation and Public Finance	3

ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT

Course Code	Course Description	Credit Unit
UPBSE 801	Social Entrepreneurship	3
UPBSE 802	Small & Family Business Management	3
UPBSE 803	Venture Management	3

FINANCE AND BANKING

Course Code	Course Description	Credit Unit
UPBSF 801	Investment and Portfolio Management	3
UPBSF 802	Advanced Financial Management	3
UPBSF 803	Money and Banking	3

MANAGEMENT

Course Code	Course Description	Credit Unit
UPBSM 801	Contemporary Issues in Performance Management	3
UPBSM 802	Advanced Corporate Governance	3
UPBSM 803	Advanced Management Theory	3

MARKETING

Course Code	Course Description	Credit Unit
UPBSK 801	Comparative Marketing Strategies	3
UPBSK 802	Marketing Research	3
UPBSK 803	International Marketing	3

SECURITY MANAGEMENT

Course Code	Course Description	Credit Unit
UPBSS 801	Introduction to Security Management and Security Organizations	3
UPBSS 802	Security and Forensic Investigations	3
UPBSS 803	Communication and Public Relations in Security Management	3

HEALTH MANAGEMENT

Course Code	Course Description	Credit Unit
UPBSH 801	Essentials of Health and Human Diseases	3
UPBSH 802	Management of Healthcare Organizations	3
UPBSH 803	Development, Implementation and	3

Evaluation of Health
Policies and Plans

management, compensation and rewards
management, etc.

EXECUTIVE MBA CORE COURSES COURSE DESCRIPTIONS

UPBS 800: Quantitative Method in Management (3 Credits)

Advance analyses of decision making under conditions of uncertainty, set theory; probability theory, classical

UPBS 801: Managerial Economics (3 Credits)

Application of principles from various fields in economics and business to management decision making, price mechanism, allocation of resources, profit drivers of the firm, revenue and cost drivers, interactions among market players, firms strategy, understanding market forces, the meaning of competition, pricing and profits, market power good or evil, playing games 1 competition versus cooperation, playing game Entry and exit, firms versus Markets; make or Buy, auctions and market design economics of information.

UPBS 802: Quantitative Method in Management (3 Credits)

Advance analyses of decision making under conditions of uncertainty, set theory; probability theory, classical

UPBS 803: Global Economic Environment (2 Credits)

This course explores the fundamentals of national competitiveness, productivity and growth. It studies the forces that determine production, consumption, savings and investment. It introduces the problem of variable foreign exchange rates and their impact on policy, performance and finance. It explores the complex relationships among government policies and private-sector performance in a global setting.

PROJECT AND OPERATIONS MANAGEMENT

UPBS 804: Corporate Strategy(3 Credits)

Conceptual frameworks and models for the analysis of competitive situation and strategic dilemmas, insight into strategic management analyses of external competitive environment, industry structure, value chain dynamics, etc.

UPBS 805: Strategic Human Resources Management (3 Credits)

An analysis of the methods and techniques used in the management of human resources. Strategies and practices in manpower planning, staffing, HR training and development, performance

UPBS 806: Leadership and Ethics (3 Credits)

This course is an overview of leadership theory and models including discussions of ethical issues and dilemma that corporate decision makers face.

UPBS 807: Project and Operations Management

In recent years, computers and the availability of software have changed the way companies analyse, evaluate, and optimise decisions. This course provides the foundation for the use of decision technologies to solve complex management problems in various business areas. Students will learn a combination of Management Science/Operations Research Techniques (MS/OR) and Operations Management Techniques (OM), with a focus on prescriptive analytics. Students will get familiar with the concept of Modelling and Optimisation to structure optimisation problems, to solve them using software, and to generate insights on how to manage variability in their today's businesses.

UPBS 808: Marketing Operations and Strategy (3 Credits)

Perspectives and problems of marketing management in a multi-product firm; the concept and application of strategic planning to business units and functional areas of marketing utilization of current marketing strategy models as aids in strategy formulation, decision processes for product planning, pricing, promotion, distribution and competitive strategy.

UPBS 809: Financial Strategy and Management

The course outlines the concepts of financial management and decisions and responsibilities of financial managers, tools of financial planning and financial analysis, working capital management, capital budgeting, cost of capital, capital asset pricing model and corporate policy; mergers & acquisitions, business failure and corporate bankruptcy etc.

UPBS 812: ICT and Data Analytics

You require a profound understanding of data management methods and organisational and technical measures to derive value from data and to bring fully its potential to business processes.

In this course, students will learn the basics of data storage and database management systems and gain basic skills in data cleansing and data quality to facilitate data use and ensure data quality in companies and in data science projects.

The course will cover the basics of metadata and metadata standards, methods for solving basic data

integration problems and data models and software architectures for integrating different data types. Packages like Excel, SPSS, and E-views will be discussed and applied.

In addition, it will present in a practical-oriented way the following topics, using company examples: Relational databases, document-based databases, NoSQL, data manipulation, access to data sources, web APIs, web crawling and parsing of text data.

UPBS 814: Business and Company Law (3 Credit)

Familiarize candidates with the legal aspects of business. Law of contract, agency, hire purchase, carriage of goods, and related laws are examined. The company act and company and miscellaneous matters decrees are examined.

UPBS 802: Research Methods in Business (3 Credits)

- Introduction to Research Methodology
- Research in Social Sciences
- Research in Physical and Natural Sciences
- Problems of Research in Developing Countries
- Common errors in Research
- Research in practice:
 - (a) Problem identification
 - (a) Literature review
 - (b) Materials and Methods (Methodology)
 - (c) Results (Data Analysis)
 - (d) Discussions
 - (e) Summary, Conclusions and Recommendations
 - (f) Report Writing

UPBS 813: Introduction to Management Thinking (3 Credits)

A critical analysis of the theories as well as the study of selected problems and developments in management thinking. The course places particular emphasis on the application of a wide range of social science theory and research to the study of managerial thought.

UPBS 817: Management of Organizational Change (3 Credits)

A course that gives special attention to the human aspects of problems that arise in technical, social, and organizational arenas faced with the need to change. The course includes detailed analyses of organizations as systems and of organizational leadership, change and development.

UPBS 815: Management Communication (3 Credits)

Methodology for understanding both written and oral presentations. Students develop a language to use to manage written and oral verbal skills in specific business environments.

UPBS 810: Entrepreneurship (3 Credits)

Advanced Theories in entrepreneurship and new venture creation, entrepreneurship in theory and practice. Funds of business, staffing, marketing and new venture, opportunity, financial planning and management. Insurance, innovation, legal responsibilities and environmental consideration. Strategy development, successful planning, implementing and launching of new business venture, development of business plan etc

UPBS 820: Graduate Seminar (3 Credits)

UPBS 821: Research Project/Independent Study (6 Credits)

UPBS 812: ICT & Data Analytics (3 Credits)

A more advanced course on the use of computers and various soft wares. Course introduces the student to use of software such as Microsoft Excel for creation and use of spreadsheets, Microsoft Access for creation and use of databases, Microsoft Powerpoint for creation of presentations, Microsoft word for creation of documents, and Microsoft Publisher for creation of magazines and periodicals, etc. It emphasizes the use of computers in capital budgeting and financial analysis.

MBA AND EXECUTIVE MBA (SPECIALISATION AREA COURSES) COURSES FOR ACCOUNTING OPTION

UPBA 801: Advanced Accounting and Theory

Analysis of the Accounting discipline and its purpose, needs of users of accounting information, accounting theory and concepts of income measurement, disclosure requirements for profit and loss statement and balance sheet, amalgamations and reconstruction, consolidated accounts, branch and departmental accounts, current cost accounting, inflation account, fixed asset valuation, human asset valuation, social responsible accounting.

UPBA 802: Advanced Auditing and Investigations

Evolution of auditing, procedures with particular reference to internal control systems, internal audit functions, sampling and statistical techniques, auditing standards and guidelines including exposure drafts, post audit review, audits of accounts of solicitors, charitable and other non-trading organizations.

UPBA 803: Taxation and Public Finance

Tax theory, income tax for individuals, partnerships and corporation tax, tax planning and control, sales and company tax, value added tax, Nigerian tax law, Tax planning in a multinational context, Examination of government operations and its role in economic activity and distribution, Theory of public goods and its optimal distribution.

COURSES FOR FINANCE AND BANKING OPTION

UPBF 802: Advanced Financial Management

Asset Pricing and Management Financial and Capital Structure theories Cost of Capital, Dividend Policy Advanced Capital Budgeting, Mergers and Acquisition; Financial Planning and Strategy Sources of Finance Leasing, Venture Capital Working Capital Management Financial Performance Measurement.

UPBSF 803: Money and Banking

Brief history of money and banking
Different types of monetary standards in the development of banking, Theories of Banking, Capital adequacy, base money, theories of money, Types of banks, various definitions of money supply and their determinants, banking laws and regulations.

UPBF 803: Financial Markets and Portfolio Management

Money markets, capital markets, Foreign exchange markets, Inter-bank market, Financial institutions, Banks, Investment companies, the Stock Exchange, Financial Instruments, Bonds, treasury bills, commercial papers.

Theories of portfolio management, CAPM, APT, Options, Portfolio performance, Nigerian capital market in a global economy.

UPBF 804: Corporate Finance

Principles and procedure underlying financial statements, financial transactions, alternative accounting statements, Project appraisal; Analysis of investment projects, impact of risk, tax and inflation; term structure of interest rates; cost of capital and target rates of return; capital markets; role of intermediaries, sources of finance; Capital structure; mergers and acquisitions; etc.

COURSES FOR ENTREPRENEURSHIP OPTION

UPBE 802 Small and Family Business Management

The Course will provide rigorous discussion on Sustaining Entrepreneurship across Generations;

Resources for Starting and Managing Family Firms; Recipe of Successful Entrepreneurial Family Firms; Life cycles Leaders of Family Business must know; Governance Issues in Family Businesses; Planning in Small Business; Franchising, taking over an existing business starting a new business; Small Business Finance; Government and Small Business ; Accounting and Financial Records Small Businesses should keep; Building Systems and Processes; Human Resource Management in Small and Family Business.

UPBE 801 Social Entrepreneurship

The Course will, among others, provide insight into, Definition – Towards a general definition of Social Entrepreneurship; Development and Emergence of Social Entrepreneurship; Social Entrepreneurship Models; Social Entrepreneurship Process; The Social Entrepreneur; trait and motivation; The Social Enterprise; What is it and Why do they exist?; Forms of social enterprise and Focus of Social Enterprise; Regulation of Social Enterprise a Contemporary approach; Measuring social impact of Social Enterprises.

UPBE 805 Intrapreneurship

UPBE 803 Venture Management

This course will among others discuss Business Model Formulation; Planning within Organizations; Team Building and Leadership; Intellectual Property Protection; Strategic Planning at various levels and in Competitive environment; Marketing and Selling; Going global: Prospect and Challenges.

COURSES FOR MANAGEMENT OPTION

UPBSM 801: Contemporary Issues in Performance Management (3 Credits)

A graduate seminar devoted to the study of current topics of interest.

UPBSM 802: Advanced Corporate Governance

UPBSM 803: Advanced Management Theory (3 Credits)

Evolution of management thought; functions and responsibilities of general management; understanding global management; managing through processes; managerial values, managerial decision making; planning, organizing; directing and coordination, problems affecting the character and successes of the enterprise; the design and implementation of corporate strategy.

COURSES FOR MARKETING OPTION

UPBSK 801: Comparative Marketing Strategies

Prospectives and problems of marketing management in a multiproduct firm are presented.

The concept and application of strategic planning to business units and functional areas of marketing; utilization of current marketing strategy models as aids in strategy formulation; decision processes for product planning, pricing, promotion, distribution and competitive strategy.

UPBSK 802: MARKETING RESEARCH

UPBK 803: International Marketing

Students explore international strategies, special goals, decision making processes across several countries, and selection of entry strategies for foreign markets. Comparative marketing arrangements are examined. Cover factor which need to be recognized by international marketing managers in analyzing markets covering foreign operations are presented, and used in assessing economic, cultural and political aspects of international markets.

COURSES FOR HEALTH MANAGEMENT OPTION

UPBSH 801: Essentials of Health and Human Diseases

This course is an in-depth and comprehensive introduction to concepts of health and human diseases. It provides the non-health professional with an overview of the broad classifications of human diseases. Introduction to the principles of public health is offered.

UPBSH 802: Management of Health Care Organization

An analysis of the problems, issues, and environmental forces affecting management in health care organizations. Emphasis is given to the role of management and its particular functions in a health care environment.

UPBSH 803: Development, Implementation and Evaluation of Health Policies/ Plans

This first part of this course describes the principles and processes involved in the development, implementation and evaluation of a health policy. The process starts from identifying a potential public health policy issue, to developing a public health policy proposal, to advocating the public health policy, to getting the health policy passed, to implementing the health policy, and finally to evaluating the health policy.

The second part of the course describes the processes involved in the development, implementation and evaluation of a health plan. Annual, medium range (2-5 years) and long range (6-10 years) health plans are discussed. Strategic planning for health is also discussed.

COURSES FOR SECURITY MANAGEMENT OPTION

UPBSS 801: Introduction to Security Management and Security Organizations

This course provides students with an overview of security management. Students will be familiarized with the most significant literature, theories and research findings in the field. Topics to be covered will include perceived and real security concepts, people security, computer security, National security, physical security, etc. It also focuses on how and where the security department operates within the organizational framework and the management and operations of private security in corporate Nigeria Management styles, basic management principles applied to crime prevention and, budgetary preparation and concerns are discussed.

UPBSS 802: Security and Forensic Investigations

This course focuses on theoretical and practical aspects of crime solution. The importance of understanding all aspects of criminal evidence and adherence to constitutional guarantees is paramount. Computer crime, informational privacy, investigative ethics, videotaping and psychological profiling are considered. Legal status, offender characteristics and investigative techniques are discussed. It also covers aspects of criminalistics and focuses on standards, certification, genetic technology, drugs, chemicals, crime scene technology, prints, artifacts, and photography.

UPBSS 803: Communication and Public Relations in Security Management

The course covers issues related to effective communication; diligence based on effective communication, essential of effective communication, proper use of communication devices, two way radio, papers, intercoms etc.

It also examines the community environment and how this environment affects the operations of different agencies. Legal, illegal, formal and informal mechanisms of influence are examined, including voting, marching, striking, demonstrating, petitioning, and working through organizations and governmental bodies.

MSC OIL, GAS AND ENERGY MANAGEMENT

MODULE 1

Course	Course Title	Credit Units
UPBSOG 800	Introduction to Oil &	3

UPBSOG 801	Gas Industry Oil & Gas Economics & Risk Analysis	3
UPBSOG 802	Health, Safety & Environment Management in the Oil and Gas Management	3
MODULE 2		
Course	Course Title	Credit Units
UPBSOG 803	Oil and Gas Law	3
UPBSOG 804	Oil Spills and Remediation Management	3
UPBSOG 805	Renewable Energy Management	3
MODULE 3		
Course	Course Title	Credit Units
UPBSOG 806	Oil & Gas Marketing	3
UPBSOG 807	Oil & Gas Accounting	3
UPBSOG 808	Ethics & Corporate Social Responsibility in Oil & Gas Industry	3
MODULE 4		
Course	Course Title	Credit Units
UPBSOG 809	ICT & Research Method	3
UPBSOG 810	Oil and Gas Security and Geopolitics	3
UPBSOG 811	Strategic Leadership in Oil and Gas Industry	3
MODULE 5		
Course	Course Title	Credit Units
UPBSOG 812	Petro Retailing Business	3
UPBSOG 813	Advanced Safety, Risk and Reliability in Oil and Gas Management	3
UPBSOG 814	Entrepreneurship and Management	3

**COURSE DESCRIPTION FOR OIL, GAS
AND ENERGY MANAGEMENT (MSC)**

MODULE 1:

UPBSOG 800: Introduction to Oil & Gas Industry

The aim is to provide a wide ranging and practical industry overview. Topics to be covered include the scientific origins of oil and gas, the commercial issues underpinning hydrocarbon exploration and development. The role of government and its agencies, the oil and gas terminology, the technological process of exploration, the technological process of drilling, the technological process of production and the challenges of decommissioning.

UPBSOG 801: Oil & Gas Economics & Risk Analysis

Fundamentals of oil & gas E & P economics and Analysis. Profitability analysis in oil and gas investments, interpretation of technique and economic data, evaluation of risk and uncertainty in oil and gas exploitation. Decision tree analysis: Monte Carlo simulation preference theory; pricing and bidding strategies; optimum development of oil and gas fields.

UPBSOG 802: Health, Safety & Environment Management in the Oil and Gas Industry

Introduction to (HSE MS). HSE legislation/policies, security management, accident prevention, reporting and investigation. Health Risk Assessments. HSE Auditing. Hazard management tools. Contingency management. Interaction with the environment. EIA – instrument for sustainable development, problems and solutions of sustainable development.

UPBSOG 803: Oil and Gas Law

This course aims at providing the skills and knowledge necessary to work in and on the legal aspects of the exciting global industry. The focus is upon setting practical and real problems in a wider conceptual context with the aim that you should not just know, but understand the relevant areas of oil and gas law. Topics covered includes, state control of Hydrocarbons, international energy and environmental law, contracting in Hydrocarbon operations, downstream and upstream energy law, international investment law and arbitration law in the Energy sector, local content laws.

UPBSOG 804: Oil Spills and Remediation Management

Management of the composition of crude oil and some petroleum products and naturally occurring hydrocarbons. Sources of hydrocarbon spillage in the Nigerian environment. Oil spill remediation and management of their impact. Hydrocarbon toxicity, determination and the effects of hydrocarbon pollution in the environment. Case

studies of actual oil spills and their management in the Nigerian context.

UPBSOG 805: Renewable Energy Management

The course aim to provide an opportunity for graduates and professionals to acquire knowledge of renewal energy and energy management and develop skills appropriate to its practice. Topics covered includes: energy policy, market and economics, current status of energy systems, energy management, wind energy conversion technologies, solar Thermal and photovoltaic processes and technologies and biomass process and technologies.

MODULE 3

UPBSOG 806: Oil & Gas Marketing

The main objective of this course is to expose students to the dynamics of oil and gas marketing with respect to development, production, transportation, distribution and trading. Topics covered include: An overview of the Nigerian economy and the role of oil and gas, the structure and operation of the oil and gas sector, integrated petroleum business, from crude oil supply and trading through refining, wholesale product marketing; the concept of deregulation and global oil pricing; regulation and regulatory authorities of oil and gas marketing including the influences of international institutions like OPEC on oil and gas marketing. Marketing implications of mega-mergers in the oil and gas sector.

UPBSOG 807: Oil & Gas Accounting

The course aim at introducing the students to oil and gas accounting in the down streams and upstream of oil activities in Nigeria. Royalties, petroleum tax and financial control activities in the oil and gas industry.

UPBSOG 808: Ethics & Corporate Social Responsibility in Oil & Gas Industry

Principles and moral values. Managing ethics in oil and gas work environment. Assessing culture and cultivating ethical work culture. Business ethics. Resources for managing ethics in oil and gas work environment. Social responsibility. Resource for managing corporate social responsibility.

MODULE 4

UPBSOG 810: Oil and Gas Security and Geopolitics

This course provides you with the ability to analyse political and legal oil and gas issues. The course will equip you with an in-depth all round ability to analyse oil and gas issues. Topics covered includes oil and gas politics, commercial domestic and international political regulations of oil and gas markets. The politics of renewable energy. The role of OPEC in oil politics.

UPBSOG 811: Strategic Leadership in Oil and Gas Industry

The course aims at providing the skills and leadership ability to influence others to voluntarily make decisions that will enhance the prospects for the oil and gas firm's long-term success while maintaining short-term financial stability. Topics includes- definition and qualities of a strategic leader, strategic leadership framework, systems and design thinking, complete project leadership and management, strategic organization development and change, juxtaposition of military and civilian strategic leadership, theory of constraints, pattern of strategy, leading in the digital oil and gas transformation age.

UPBSOG 812: Petro Retailing Business

This course involved the marketing and distribution of crude oil once it has been refined into transportation fuels, heating oil, lubricants and other products. The course will equip you with knowledge of how refined products are transported; types and operations of storage terminals. Topics includes crude oil production, product distribution. Pipeline and depot, Petroleum products supply in Nigeria, distribution infrastructure, Petroleum products measurement and quality assurance.

UPBSOG 813: Advanced Safety, Risk and Reliability in Oil and Gas Management

Review of the principles of risk identification, assessment and control, work place safety, materials handling, mechanical plant and equipment, fire and explosion, noise, whole body vibration, electrical safety and workplace design, concepts of reliability, availability and maintainability, failure rate and mode, and reliability data, reliability block diagram analysis of series and parallel system, reliability center maintenance and inspection, markov modelling of system failures, probabilistic safety analysis, concept of structural safety and risk.

MBA OIL, GAS AND ENERGY MANAGEMENT

MODULE 1

Course	Course Title	Credit Units
UPBSOG 800	The Industry of Oil and Gas	3
UPBSOG 801	Economic Analysis (Micro)	3
UPBSOG 802	Corporate Strategy	3

MODULE 2

Course	Course Title	Credit Units
UPBSOG 803	Economic Analysis (Macro)	3
UPBSOG 804	Health, Safety,	3

	Environment and Security	
UPBSOG 805	Human Resource Management & Strategic Leadership in Oil & Gas	3

MODULE 3

Course	Course Title	Credit Units
UPBSOG 806	Oil and Gas Law	3
UPBSOG 807	Petroleum Economics	3
UPBSOG 808	Advanced Financial Management	3

MODULE 4

Course	Course Title	Credit Units
UPBSOG 809	Marketing and Operation Strategy	3
UPBSOG 810	Entrepreneurship & Management	3
UPBSOG 811	Managerial Accounting	3

MODULE 5

Course	Course Title	Credit Units
UPBSOG 812	Research Methods	3
UPBSOG 813	Oil and Gas Marketing	3
UPBSOG 814	Renewable Energy Management	3

COURSE DESCRIPTION FOR OIL, GAS AND ENERGY MANAGEMENT (MBA)

UPBSOG 800: The Industry of Oil and Gas

The aim is to provide a wide ranging and practical industry overview. Topics to be covered include the scientific origins of oil and gas, the commercial issues underpinning hydrocarbon exploration and development. The role of government and its agencies, the oil and gas terminology, the technological process of exploration, the technological process of drilling, the technological process of production and the challenges of decommissioning.

UPBSOG 801: Economic Analysis

Fundamentals of oil & gas E & P economics and Analysis. Profitability analysis in oil and gas investments, interpretation of technique and economic data, evaluation of risk and uncertainty in oil and gas exploitation. Decision tree analysis: Monte Carlo simulation preference theory; pricing and bidding strategies; optimum development of oil and gas fields.

UPBSOG 802: Corporate Strategy

Conceptual frameworks and models for the analysis of competitive situation and strategic dilemmas, insight into strategic management analyses of external competitive environment, industry structure, value chain dynamics, etc.

MODULE 2

UPBSOG 803: Petroleum Economics

Fundamentals of oil & gas E & P economics and Analysis. Profitability analysis in oil and gas investments, interpretation of technique and economic data, evaluation of risk and uncertainty in oil and gas exploitation. Decision tree analysis: Monte Carlo simulation preference theory; pricing and bidding strategies; optimum development of oil and gas fields.

UPBSOG 804: Health, Safety & Environment Management in the Oil and Gas Management

Introduction to (HSE MS). HSE legislation/policies, security management, accident prevention, reporting and investigation. Health Risk Assessments. HSE Auditing. Hazard management tools. Contingency management. Interaction with the environment. EIA – instrument for sustainable development, problems and solutions of sustainable development.

UPBSOG 805: Human Resource Management & Strategic Leadership in Oil and Gas Industry

An analysis of the methods and techniques used in the management of human resources. Strategies and practices in manpower planning, staffing, HR training and development, performance management, compensation and rewards management etc.

UPBSOG 806: Oil and Gas Law

This course aims at providing the skills and knowledge necessary to work in and on the legal aspects of the exciting global industry. The focus is upon setting practical and real problems in a wider conceptual context with the aim that you should not just know, but understand the relevant areas of oil and gas law. Topics covered includes, state control of Hydrocarbons, international energy and environmental law, contracting in Hydrocarbon operations, downstream and upstream energy law, international investment law and arbitration law in the Energy sector, local content laws.

UPBSOG 808: Advanced Financial Management

Principles and moral values. Managing ethics in oil and gas work environment. Assessing culture and cultivating ethical work culture. Business ethics. Resources for managing ethics in oil and gas work environment. Social responsibility.

Resource for managing corporate social responsibility.

MODULE 4

UPBSOG 809: Marketing and Operation Strategy

Perspective and problems of marketing management in a multi-product firms; the concept and application of strategic planning to business units and functional areas of marketing utilization of current marketing strategy models as aids in strategy formulation, decision processes for product planning, pricing, promotion, distribution and competitive strategy.

UPBSOG 811: Strategic Leadership in Oil and Gas Industry

The course aims at providing the skills and leadership ability to influence others to voluntarily make decisions that will enhance the prospects for the oil and gas firm's long-term success while maintaining short-term financial stability. Topics includes- definition and qualities of a strategic leader, strategic leadership framework, systems and design thinking, complete project leadership and management, strategic organization development and change, juxtaposition of military and civilian strategic leadership, theory of constraints, pattern of strategy, leading in the digital oil and gas transformation age.

UPBSOG 810: Oil and Gas Accounting

The course aims at introducing the students to oil and gas accounting in the down streams and upstream of oil activities in Nigeria. Royalties, petroleum tax and financial control activities in the oil and gas industry.

UPBSOG 813: Oil and Gas Marketing

The main objective of this course is to expose students to the dynamics of oil and gas marketing with respect to development, production, transportation, distribution and trading. Topics covered includes: An overview of the Nigerian economy and the role of oil and gas, the structure and operation of the oil and gas sector, integrated petroleum business, from crude oil supply and trading through refining, wholesale product marketing; the concept of deregulation and global oil pricing; regulation and regulatory authorities of oil and gas marketing including the influences of international institutions like OPEC on oil and gas marketing. Marketing implications of mega-mergers in the oil and gas sector.

UPBSOG 814: Renewable Energy Management

SCHEDULE OF COURSES FOR DBA MANAGEMENT

MODULE 1

Course Code	Course Description	Credit Unit
UPBSM 901	Advanced Research Methods	3
UPBSM 902	Advanced Management Accounting	3
UPBSM 903	Strategic Marketing Management	3

MODULE 2

Course Code	Course Description	Credit Unit
UPBSM 904	Corporate Financial Management and Policy	3
UPBSM 905	Business Policy and Strategy	3
UPBSM 906	Advanced Managerial Economics	3

MODULE 3

Course Code	Course Description	Credit Unit
UPBSM 907	Entrepreneurship Development/ Management	3
UPBSM 908	Advanced Organizational Theory	3
UPBSM 909	Advanced Tax Strategies and Fiscal Policy	3

MODULE 4

Course Code	Course Description	Credit Unit
UPBSM 910	International Trade and Finance	3
UPBSM 911	Marketing and the Nigerian Business Environment	3
UPBSM 912	Comparative Management Systems	3

MODULE 5

Course Code	Course Description	Credit Unit
UPBSM 913	Human Resource Planning and Development	3
UPBSM 914	Production and Operations Management	3
UPBSM 915	Decision Models and Quantitative Decision-Making for Business Analysis	3

MODULE 6

Course Code	Course Description	Credit Unit
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UPBSM 916	DBA Seminar in Management*	3
UPBSM 917	DBA Thesis*	6

COURSE DESCRIPTION

UPBS 901 – Advanced Research Methodology

This course aims at preparing students for the Thesis research and write-up as well as publications in the management sciences. It will cover several essential areas in research methodology. It will start with a review of research essentials as well as the philosophical and ethical foundations of research. It will deal with some knotty issues in the introductory background, literature reviewing, deigning methods of study; the questions of citation and references in research writing, the questions surrounding research instruments and utilizations; issues in analytical techniques and modelling, use and applications of appropriate descriptive and inferential statistical tools; the data problem and applications to different research situations; knotty issues in data and results' presentations and analyses; dealing with findings and concluding imperatives. The course will conclude with current thinking and developments in management sciences' research.

UPBS 902 - Advanced Management Accounting

In this course, students will be exposed to topics that cover both quantitative and behavioural dimensions of management information such as long range planning, cost control through learning curves, mathematical modelling and decision models. Further topics include behavioural aspects of budgeting, pricing and cost estimation, performance evaluation and strategic cost management.

UPBS 903 – Strategic Marketing Management ???

UPBS 904 – Corporate Finanacial Management and Policy

The goal of this course is to review the fundamental concepts of financial management as a prelude to helping the students sharpen the practical analytical skills required for making sound corporate investment and management decisions fully reflective of risk considerations. In particular, this course recognises corporate valuation as a unifying theme in corporate finance, as reflected in the firm-value-maximization goal of corporate management. As such, students with a solid understanding of the theoretical underpinnings for value maximization, as well as a competent grasp of the practical skills required to analyse business decisions within this context make better, more valuable managers or researchers. The course will thereby examine

various concepts, including discounting and compounding, opportunity costs, discounted cash flow analysis, structure and analysis of financial statements, interest rates and bond valuation, stock valuation, risk and return (including the relation between risk and return in the capital asset pricing model, the efficient market hypothesis, the Fama-French three-factor model, the arbitrage pricing theory, and behavioural finance), the cost of capital, capital budgeting, and capital structure, real options, distribution to shareholders (includes dividend policy), corporate governance, lease financing, working capital management, mergers and corporate control, as well as multinational financial management.

UPBS 905: Business Policyand Strategy

This course provides an advanced coverage of the development and transformation of business enterprise within the global economy by focusing on the business strategy and dynamics of institutional and organizational change resulting from today's globalisation process. This includes the effect of structural, institutional, and organisational change upon the strategy of the business enterprises for survival and success in the contemporary hyper-competitive, technology-driven, fast-paced, uncertain, globalized environment. This course provides the student with several survival strategies adopted by organisations to overcome competitive challenges such as; Dynamics of Transnational Corporations; Strategy in a fast-paced, uncertain Environment Competition and Hyper-Competition. The meaning of management strategy in a globalized world, Technological innovation as a strategy; Understanding the organizational transformation as an interface of internal and external change; Leadership and Mobilization; institutional and organizational Innovation; Globalization as a strategy.

UPBS 906 – Advanced Managerial Economics

This course provides students with the tools of intermediate microeconomics, game theory, and industrial organisation that they need to make sound managerial decisions (In the face of uncertainties). It teaches managers the practical utility of basic economic tools such as present value analysis, supply and demand, regression, indifference curves, isoquants, production, costs, and the basic models of the market such as perfect competition, monopoly, and monopolistic competition, using real world examples and case studies. Public sector economics covering issues of externalities and government policies as they affect productive activities will also be covered.

UPBS 907 – Entrepreneurship Development and Management

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UPBS 908: Advanced Organisational Theory

This course contrasts and compares a variety of perspectives in organisation theory and design; contingency theory, resource dependency and population ecology models. Students are expected to develop an understanding of the special methodological problems in undertaking organisational research.

UPBS 909: Contemporary Management Philosophy

The course will look at how various approaches to the management process will be analysed. Attention is focused on such topics as social political and religious factors having bearing on management decision. Emphasis is placed on the development of a philosophy of management by such student through a critical examination of current managerial thought and action in our social and economic system.

UPBS 910: Decision Models and Simulation

This course consists of a survey of analytical and simulation approaches to model building. Deterministic models, such as mathematical programming and scholastic models are included. All of the mathematical developments are related to an overall framework of modelling and problem solving. Application of simulation to models in business/management (for example, linear and nonlinear, regression models, queuing models, etc) will be dealt with.

UPBS 911: Comparative Management Systems

This course is designed to study in different types of managerial systems required to administer organizations in varying cultures. Culture has profound effects on the behaviour of individuals in organizations, on their motivations and expectations, on their views of the functions of management Etc. As a consequence, effective management in different cultures require different approaches to a variety of management problems. The basic aim of the course is to develop in the students and understanding of these problems and an ability to deal with them from a top management point of view.

UPBS 912: Quantitative Decision-Making for Business Analysis

This course develops students' skills in descriptive statistics, statistical inference. Quantitative techniques including analysis of variance and covariance, multiple linear regressions, and various non-parametric techniques. Students will use quantitative data reduction and analysis and data management techniques. Students will learn to use software for data analysis. This research

competency component intends to focus on key concepts and issues in the conduct of data analysis in management-oriented social science research, including the role of distribution assumptions underlying various hypothesis tests, the computational details of various tests, and the use of readily available statistical software packages. This course does not intend that learners will become fully grounded in statistical methods, rather, it hopes that students will learn what questions to ask about data analysis and be able to defend their use of specific techniques used.

UPBS 913: Human Resource Planning and Development

The purpose of this course is to analyse and evaluate manpower policies designed to enhance national priorities, organizational goals, and individual values in a pluralistic economy. A framework of analysis is developed to permit a critical investigation of manpower questions relating to employment, human resource planning and job design, appraisal and evaluation, recruiting and selection, training and development, career planning, compensation, conflict and its resolution and various special topics.

DEPARTMENT OF MANAGEMENT GENERAL COURSES

UPBSM 901	Advanced Research Methods	
UPBSM 902	Advanced Accounting	Management
UPBSM 903	Strategic Management	Marketing
UPBSM 904	Corporate Management and Policy	Financial
UPBSM 905	Business Policy and Strategy	
UPBSM 906	Advanced Economics	Managerial
UPBSM 907	Entrepreneurship Development/Management	
UPBSM 908	Advanced Behaviour	Organisational
UPBSM 909	Advanced Tax Strategies and Fiscal Policy	
UPBSM 910	International Trade and Finance	
UPBSM 911	Marketing and the Nigerian Business Environment	
UPBSM 912	Comparative Management Systems	

CORE COURSES:

UPBSM 913	Human Resource Planning and Development
UPBSM 914	Production and Operations Management

UPBSM 915	Decision Models and Quantitative Decision-Making for Business Analysis
UPBSM 916	DBA Seminar in Management*
UPBSM 917	DBA Thesis*

UPBSA 905	Management and Policy Business Policy and Strategy	3
UPBSA 906	Advanced Managerial Economics	3

*Note that both the Seminar and Thesis are to reflect each student's area of specialization.

COURSE DESCRIPTION

UPBSM 921: Advanced Research Methods

This course moves students towards the fulfilment of the dissertation and publication requirements of the doctoral degree. The course focuses on 'when' and 'why' to use the different research methodologies, such as Case Study research, Action research, etc., understanding their nature, and appreciating the advantages and disadvantages of each research method. It also covers the main two research paradigms; the Quantitative as well as Quantitative paradigms. Other class topics include concepts from the philosophy of science and from psychology, acquiring data, interpreting and presenting research results, and dissertation writing. It examines ethical, social, and political aspects of conducting research and producing knowledge for practice. Quantitative designs covered include experimental and quasi-experimental, survey, causal-comparative, evaluation, and existing action research, quantitative designs covered include case study, phenomenology, grounded theory, and ethnography. The course work also covers the application of several modern mathematics/statistical software such as SPSS, ANOVA etc.

UPBSM 934: DBA Seminar in Management

This course critically examines the issues, problems and strategies for managing organizations in a dynamic business environment.

SCHEDULE OF COURSES FOR DBA ACCOUNTING

MODULE 1

Course Code	Course Description	Credit Unit
UPBSA 901	Advanced Research Methods	3
UPBSA 902	Advanced Management Accounting	3
UPBSA 903	Advanced Strategic Marketing Management	3

MODULE 2

Course Code	Course Description	Credit Unit
UPBSA 904	Corporate Financial	3

MODULE 3

Course Code	Course Description	Credit Unit
UPBSA 907	Entrepreneurship Development/Management	3
UPBSA 908	Advanced Organisational Behaviour	3
UPBSA 909	Advanced Tax Strategies and Fiscal Policy	3

MODULE 4

Course Code	Course Description	Credit Unit
UPBSA 910	Advanced International Trade and Finance	3
UPBSA 911	Marketing and the Nigerian Business Environment	3
UPBSA 912	Comparative Management Systems	3

MODULE 5

Course Code	Course Description	Credit Unit
UPBSA 913	Advanced Auditing/Assurance Services	3
UPBSA 914	Social and Environmental Reporting	3
UPBSA 915	Advanced Forensic Accounting: Theory and Practice	3

MODULE 6

UPBSA 916 - DBA Seminar in Accounting*
UPBSA 917 - DBA Thesis*

GENERAL COURSES

UPBSA 901	Advanced Research Methods
UPBSA 902	Advanced Management Accounting
UPBSA 903	Strategic Marketing Management
UPBSA 904	Corporate Financial Management and Policy
UPBSA 905	Business Policy and Strategy
UPBSA 906	Advanced Managerial Economics
UPBSA 907	Entrepreneurship Development/Management

UPBSA 908	Advanced Organisational Behaviour
UPBSA 909	Advanced Tax Strategies and Fiscal Policy
UPBSA 910	International Trade and Finance
UPBSA 911	Marketing and the Nigerian Business Environment
UPBSA 912	Comparative Management Systems

CORE COURSES

UPBSA 913	Advanced Auditing/ Assurance Services
UPBSA 914	Social and Environmental Reporting
UPBSA 915	Advanced Forensic Accounting Theory and practice
UPBSA 916	DBA Seminar in Accounting*
UPBSA 917	DBA Thesis*

*Note that both the Seminar and Thesis are to reflect each student's area of specialization.

COURSE DESCRIPTION FOR DBA ACCOUNTING

UPBSA 921: Advanced Accounting Research Method

Fundamental of experimental and non-Experimental accounting research and their applications to the study of accounting problems. Issues will also cover construct, internal and external validities, survey and single-case research designs in accounting.

UPBSA 922: Advanced Management Accounting

The aim of this course is to up-grade the analytical skills of the students and to identify research issues in management accounting, budgeting theory, learning curves, forecasting, variance analysis, profit analysis and cost allocation techniques, the agency-theoretic approach in management accounting.

UPBSA 923: Philosophy of Accounting

The nature and meaning of accounting, the various postulates and concepts that underpin development accounting of accounting thought. The ontology and epistemology that tries to justify conservative accounting.

UPBSA 924: Social and Environmental Reporting

Social and Environmental effects of organization's economic actions to particular interest groups within society. Purpose of social accounting.

Corporate accountability and management control purpose. Self-reporting and third party audits. Cost structure and environmental performance reporting. Environmental Management Accounting and internal reporting practices.

UPBSA 925: Advanced Financial Accounting

This course covers more advanced treatment of fundamentals of financial accounting, with preparation of financial statements of corporate organizations in conformity of IFRS and IAS. It review dissolutions of partnership accounts and amalgamation, advanced incomplete records, advanced treatment of accounts non trading concern, published financial statements, purchase and sale of business accounts, royalty accounts contract accounts and other specialised accounts.

UPBSA 926: Advanced Tax Strategies and Fiscal Policies

Contemporary issues of research in taxation. Tax laws and Fiscal Policies and their impact on the economy and society. Overview of Tax Environment, Structure and Administration in Nigeria: issues and challenges arising from Personal Income Tax Laws, Company Income Tax Act, Petroleum Profit Tax Act, Industrial Development (Income Tax Relief) Act, Value Added Tax Laws, Capital Gain Tax Laws, Capital Transfer Tax, Double Taxation Relief and other unfolding events and typical issues such as Tax Review and Reforms.

UPBSA 927: Advanced Forensic Accounting Theory & Practice

This course reviews the role of the forensic accountant in investigations and audits. Topics covered are: the legal environment audit and investigation, dispute resolution and litigation services, information security, financial statement analysis, and tax fraud. Students will merge from the course with an understanding of the roles of forensic accountants and familiarity with their tools and practices.

Information theoretic approach to auditing, statistical aspects of auditing and fraud, the generation and formulation of audit hypothesis, and heuristic and biases in audit judgments. Forensic audit techniques and the role of the forensic auditor as an expert witness. Financial Performance Reporting under International Financial reporting Standards (IFRS); guidance on IFRS, corporate governance, audit and professional Financial Reporting Standards (IFRS); guidance on IFRS, corporate governance, audit and professional responsibility reporting; Reporting on impairment of non-financial asset, employee benefits, and going concern. Implications of applying IAS 23 (REVISED) "Borrowing costs". Guidance on

impairments for financial assets. Ethics as an integral part of accounting profession.

UPBSA 929: Advanced Public Sector Accounting

This course provides the tools necessary for understanding the principles of fiscal accountability; It will also equip the student with the knowledge of IPSAS (International Public Sector Accounting Standards) with the aim to improve the quality of general purpose financial reporting by public sector- entities, leading to heifer informed assessments of resource allocation decisions made by government, thereby increasing transparency and accountability as well as quality service delivery.

SCHEDULE OF COURSES FOR DBA FINANCE AND BANKING

MODULE 1

Course Code	Course Description	Credit Unit
UPBSF 901	Advanced Research Methods	3
UPBSF 902	Advanced Management Accounting	3
UPBSF 903	Advanced Strategic Marketing Management	3

MODULE 2

Course Code	Course Description	Credit Unit
UPBSF 904	Corporate Financial Management and Policy	3
UPBSF 905	Business Policy and Strategy	3
UPBSF 906	Advanced Managerial Economics	3

MODULE 3

Course Code	Course Description	Credit Unit
UPBSF 907	Entrepreneurship Development/ Management	3
UPBSF 908	Advanced Organisational Behaviour	3
UPBSF 909	Advanced Tax Strategies and Fiscal Policy	3

MODULE 4

Course Code	Course Description	Credit Unit
UPBSF 910	Advanced International Trade and Finance	3
UPBSF 911	Marketing and the Nigerian Business	3

UPBSF 912	Environment Comparative Management Systems	3
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MODULE 5

Course Code	Course Description	Credit Unit
UPBSF 913	Advanced Public Finance	3
UPBSF 914	Corporate Finance	3
UPBSF 915	Econometrics for Financial and Business Decisions	3

MODULE 6

16. UPBSF 916	-	DBA Seminar in Finance and Banking*
17. UPBSF 917	-	DBA Thesis*

GENERAL COURSES

UPBSF 901	Advanced Research Methods
UPBSF 902	Advanced Management Accounting
UPBSF 903	Advanced Strategic Marketing Management
UPBSF 904	Corporate Financial Management and Policy
UPBSF 905	Business Policy and Strategy
UPBSF 906	Advanced Managerial Economics
UPBSF 907	Entrepreneurship Development/Management
UPBSF 908	Advanced Organisational Behaviour
UPBSF 909	Advanced Tax Strategies and Fiscal Policy
UPBSF 910	International Trade and Finance
UPBSF 911	Marketing and the Nigerian Business Environment
UPBSF 912	Comparative Management Systems

CORE COURSES

UPBSF 913	Advanced Public Finance
UPBSF 914	Corporate Finance (Banks and Other Financial Institutions and Markets)
UPBSF 915	Econometrics for Financial and Business Decision
UPBSF 916	Seminar in Finance and Banking*
UPBSF 917	DBA Thesis*

*Note that both the Seminar and Thesis are to reflect each student's ASrea of Specialisation.

COURSE DESCRIPTION FOR DBA FINANCE AND BANKING

UPBSF 925: Theory of Finance and Banking

Survey of the relationship between theory of choice, theory of the firm and theory of finance. Money credit and finance. Sources and nature of funds. The allocation of financial resource over time. The nature and application of the theory of utility and indifference curves in financial and risk analysis. The theory of production equilibrium, investment and consumption within the capital market framework. Efficient market theories, theories of risks and returns in enterprises. Liquidity, intermediation and interest rate theories in bank Management.

UPBSF 926: Advanced Public Finance

Meaning and scope of Public Finance; analysis of public revenue, analysis of problems in public expenditure systems, character of governmental expenditures, governmental activity and economic development, role of investment in the modern economy, fiscal policy and budgeting, the changing role of investment in the modern economy, fiscal policy and budgeting, the changing role of fiscal policy, fiscal federalism in Nigeria, the tax structures, institutional and administrative constraints in tax administration, unequal fiscal capacity, public debt management.

UPBSF 927: Advanced Insurance

The regulatory functions of the National Insurance Commission (NICOM). Problem, development and organization of the Insurance industry in Nigeria, types of insurance businesses life, non-life, social and health insurance etc. Structure of the Nigerian Insurance Market, insurance statistics, reinsurance, state control of insurance, application of Linear programming and actuarial science technique to various aspects of the insurance business, management and investment of insurance funds, risk management and risk reduction through portfolio diversification, internal funds structure of insurance organizations.

UPBSF 928: Advanced Internationaltrade and Finance

Concept of international trade and the need for international trade. Balance of payments and the trends in the structure of Nigeria's balance of payment. The concept of surplus and deficit in the balance of payments and their implications for the macro-economic goals. Automatic measures (exchange rate regime variations) and discretionary measures (exchange control, devaluation, revaluation and other policy intervention measures). Types of exchange rates and their determinants. Exchange rate policies and practices in Nigeria since 1960. International investments (real and portfolio) and the impediments to their inflows. Various reforms carried out since 1986 by the Nigerian monetary authorities to ease foreign capital inflow. Genesis of world monetary crisis

and the roles of international Financial Institutions i.e World bank, IMF etc. in shaping international monetary order. Regional Central Banks e.g. RCB in fostering economic union, exchange rate stability and growth. Efforts towards the creation of ECOWAS monetary Union and ECOWAS Central Bank.

UPBSF 929: Bank Credits and Administration

Basic considerations in financial Analysis: Analysis and criticisms of financial/accounting statements including cash-flow statements, budgeting, cash flow forecasts etc. for lending purposes. Nature of credit risks, uncertainties and lending.

SCHEDULE OF COURSES FOR DBA MARKETING

MODULE 1

Course Code	Course Description	Credit Unit
UPBSK 901	Advanced Research Methods	3
UPBSA 902	Advanced Management Accounting	3
UPBSK 903	Advanced Strategic Marketing Management	3

MODULE 2

Course Code	Course Description	Credit Unit
UPBSK 904	Corporate Financial Management and Policy	3
UPBSK 905	Business Policy and Strategy	3
UPBSK 906	Advanced Managerial Economics	3

MODULE 3

Course Code	Course Description	Credit Unit
UPBSK 907	Entrepreneurship Development/ Management	3
UPBSK 908	Advanced Organisational Behaviour	3
UPBSK 909	Advanced Tax Strategies and Fiscal Policy	3

MODULE 4

Course Code	Course Description	Credit Unit
UPBSK 910	Advanced International Trade and Finance	3
UPBSK 911	Marketing and the Nigerian Business Environment	3
UPBSK 912	Comparative	3

Management Systems

MODULE 5

Course Code	Course Description	Credit Unit
UPBSK 913	Advanced Marketing Communication	3
UPBSK 914	Consumer Behaviour: Theory and Practice	3
UPBSK 915	Digital and Social Marketing	3

MODULE 6

- 14. UPBSK 916 -DBA Seminar in Marketing*
- 15. UPBSK 917 -DBA Thesis*

GENERAL COURSES

UPBSK 901	Advanced Research Methods
UPBSK 902	Advanced Management Accounting
UPBSK 903	Strategic Marketing Management
UPBSK 904	Corporate Financial Management and Policy
UPBSK 905	Business Policy and Strategy
UPBSK 906	Advanced Managerial Economics
UPBSK 907	Entrepreneurship Development/Management
UPBSK 908	Advanced Organisational Behaviour
UPBSK 909	Advanced Tax Strategies and Fiscal Policy
UPBSK 910	International Trade and Finance
UPBSK 911	Marketing and the Nigerian Business Environment
UPBSK 912	Comparative Management Systems

CORE COURSES

UPBSK 913:	Advanced Marketing Communication
UPBSK 914:	Consumer Behaviour: Theory and Practice
UPBSK 915:	Digital Oil and Social Marketing
UPBSK 916:	DBA Seminar in Marketing*
UPBSK 917:	DBA Thesis*

*Note that both the Seminar and Thesis are to reflect each student's Area of Specialization

COURSE DESCRIPTION FOR DBA MARKETING

UPBSK 922: Advanced Strategic Marketing

The course aims to expose students to a relatively high knowledge regarding foundations of strategic marketing, strategic marketing management process, and opportunity analysis and market

management decisions. Strategic marketing mix elements: product analysis, development and management, Pricing and Price Management and Policy, Promotion and Distribution Management.

UPBSK 923: Advanced Marketing Models

This course describes the theoretical and empirical models used to analyze marketing management issues in areas of product development and positioning, pricing, advertising and sales management as well as distribution channels. Theoretical structure of the course micro-economics of the firm and consumer making, with special consideration on competitive analyzed with game theory and applications of theory. The course equally covers quantitative techniques in marketing including but not limited to conjoint analysis, choice modeling, Univariate at bivariate analysis and multivariate techniques.

UPBSK MKT 926: Consumer Behaviour

Designed to prepare students to understand the customer in order to serve him/her with appropriate marketing programmes. Covers consumer decision process: economics and demographic influences; style and fashion research and marketing strategy; innovation diffusion, beliefs, attitudes and intentions, brand loyalty and repeat purchase behavior; and retailing strategies models of consumer behavior etc.

UPBSK MKT 927: Advanced Industrial Marketing

This course aims to take the students through contemporary and emerging trends in industrial, governmental and instructional marketing. After studying the course, students should appreciate the reason for the development of their reason for the development of this specialized branch of marketing called industrial marketing. Areas covered in the course include the nature and scope of industrial marketing, industrial market segmentation, models of industrial buying behavior and application of the marketing mix in industrial marketing as well as marketing of industrial marketing Services. The students should also be guided to appreciate the particular importance of customer relationships in industrial marketing and the important role played by the information and Telecommunications technology in contemporary industrial marketing.

UPBSK MKT 928: Advanced Marketing Communication

Covers various theories of promotion and sales management principles and practices. Promotional implications of marketing mix integration; advertising design and management, measurement, models of communication/advertising; media characteristics and planning

strategies, advertising agencies, sales promotion, publicity and public relations, sale force training, motivation and compensation, sales forecasting and resource allocation, market potentials etc.

UPBSK MKT 930: Dba Seminar in Marketing

Designed to introduce students to the most recent research in marketing which includes the examination of current issues and trends. Students will be required to present their own research and discuss and analyse the work of others. Research presentation will focus on the formulation, design, execution and results/or findings of the research work. Topics can include market development, demand creation, psychological and sociological determinants of behaviour, consumer protection laws etc.

THE DOCTOR OF PHILOSOPHY (PHD) PROGRAMME IN THE UNIVERSITY OF PORT HARCOURT BUSINESS SCHOOL

INTRODUCTION

The Doctor of Philosophy (PhD) Programme in the University of Port Harcourt Business School, Faculty of Management Sciences, is the highest degree in terms of academic qualification in the field of Business Management/Administration. It is to be introduced in the functional departments at different sessions; beginning from the 2021/2022.

THE PHILOSOPHY OF THE PROGRAMME

The philosophy of the Doctoral Programme in University of Port Harcourt Business School, Faculty of Management Sciences (FMS), is centered on the Development of Business Scholars who are versed in modern method and research skills; as well as having the capability of developing and promoting indigenous academic culture in the field of Management Sciences.

OBJECTIVES OF THE PROGRAMME

- i. To produce candidates with high level of intellectual rigour and maturity for independent work in Management Sciences.
- ii. To produce candidates who can develop and promote indigenous concepts, principles, and theories in their area of specialty and translate same to practices in organizations and institutions
- iii. To equip candidates with the requisite theoretical, quantitative, and qualitative tools to enable them undertake teaching and research responsibilities in Universities, industries and government.

ADMISSION REQUIREMENTS

The following requirements must be met for admission into the doctoral degree programme.

- i. Candidates for the PhD programme must possess a Master's Degree in Accounting, Finance and Banking, Management, Marketing or any area closely related thereto. Master's programme must have had a Research Project/Dissertation (Thesis) component. Candidates are required to have obtained a 'B' average or CGPA of 3.5 on 5 Point Scale in their Masters programme.
- ii. Candidates with good first Degree interested in the Ph.D programme must first register and successfully complete the Masters programme.
- iii. The final selection of candidates for the doctoral programme shall be based on the candidate's performance at an interview to be conducted by University of Port Harcourt Business School (UPBS) Academic Committee.

PROGRAMME OF STUDY

Following the admission and registration, a student shall be assigned to a supervisor who shall be chosen from his/her area of Specialization. The supervisor shall be responsible for guiding and the monitoring of the student's progress throughout the duration of his or her study.

DURATION OF THE PROGRAMME

Candidates will be required to spend a minimum of three (3) years and a maximum of seven (7) years. At the expiration of the maximum period, a candidate who is unable to satisfactorily complete his/her programme will be advised to withdraw.

TITLE OF THESIS

The candidate shall, in not more than two Modules, notify the University of Port Harcourt Business School (UPBS) Academic Committee in writing and state the full title of his/her Dissertation.

THESIS

The student is expected to work on the approved topic with assigned Supervisors, who will present them for proposal defense. On successful defense of the Research proposal, the student shall commence the writing of his or her full Thesis.

On completion of the full Thesis, the student is presented for External Examination.

After examination and with or without further consultation or correspondence among the Examiners, the Examiners shall submit to UPBS Academic Committee, through the Director, on a prescribed form a joint report on the candidate. The report shall contain:

- i. A clear and detailed evaluation of the research work as summed up in the Thesis, including an assessment of its originality and

- its contribution to the advancement of knowledge.
- ii. A clear assessment of the student's knowledge and understanding of his/her subject as shown in the Thesis.
 - iii. An unequivocal declaration as to the acceptability or otherwise of the Thesis in fulfillment of requirements of the degree. The report shall thereafter, be forwarded by the Director, UPBS through the Dean, FMS, to the School of Graduate Studies (SGS).

In the case of differences in opinion, the Examiners shall submit separate reports to the UPBS Academic Committee, which will make an appropriate recommendation to the Board, School of Graduate Studies (SGS).

THESIS/DISSERTATION COMMITTEE

In line with Graduate School regulations, the Committee shall include: The Director of UPBS, Deputy Director, Short-Course Coordinator and Three others mainly Professors representing Supervisors, one of which must be bias in Research Methodology.

SUBMISSION OF THESIS

- a) A candidate shall submit four copies of his Thesis in hard binding to the faculty Committee not later than the beginning of the last period of study and no later than two months to the date of examination.
- b) All Theses must conform to the specifications laid down by the Faculty Graduate Board.
- c) Before the degree is conferred, three copies of every Thesis accepted shall be bound in a manner approved by the UPBS Academic Committee and these shall become the property of the University.

AWARD OF THE Ph.D

The Doctoral Degree shall be awarded upon the successful oral defense of the Thesis. No candidate may defend the Doctoral Thesis more than two (2) times.

SCHEDULE OF GENERAL COURSES FOR PhD

MODULE 1

Course Code	Course Description	Credit Unit
UPBS 951	Strategic Management and Entrepreneurship	3
UPBS 952	Advanced Research Methodology	3
UPBS 953	Contemporary Issues in Accounting	3

MODULE 2

Course Code	Course Description	Credit Unit
UPBS 954	Advanced Theory of Corporate Finance	3
UPBS 955	Management of Change in Organizations	3
UPBS 956	Advanced Consumer Behaviour and Demand Analysis	3

MODULE 3

Course Code	Course Description	Credit Unit
UPBS 957	Theory and Management of Financial Institutions and Markets	3
UPBS 958	Advanced Business Management	3
UPBS 959	Digital and Social Marketing	3

MODULE 4

Course Code	Course Description	Credit Unit
UPBS 960	Empirical and Contemporary Issues in Finance and Banking	3
UPBS 961	Globalization and Management	3
UPBS 962	Advanced Business Environment and Corporate Governance	3

MODULE 5 ACCOUNTING (SPECIALIZATION)

Course Code	Course Description	Credit Unit
UPBSA 951	History of Accounting Thought	3
UPBSA 952	Advanced Auditing Theory	3
UPBSA 953	Advanced Financial Accounting Theory	3

MODULE 5 FINANCE AND BANKING (SPECIALIZATION)

Course Code	Course Description	Credit Unit
UPBSF 951	Advanced Theory of Financial Intermediation	3
UPBSF 952	Advanced Quantitative Decisions Techniques in Finance	3
UPBSF 953	Advanced Portfolio Theory and Management	3

MODULE 5 MANAGEMENT (SPECIALIZATION)

Course Code	Course Description	Credit Unit
UPBSM 951	Management Thought and Philosophy	3
UPBSM 952	Advanced Management Theory	3
UPBSM 953	Advanced Conflict Management	3

MODULE 5 MARKETING (SPECIALIZATION)

Course Code	Course Description	Credit Unit
UPBSK 951	Marketing Thought and Philosophy	3
UPBSK 952	Advanced Quantitative Techniques in Marketing	3
UPBSK 953	Advanced International Marketing Strategy and Managerial Decisions	3

MODULE 6 ACCOUNTING (SPECIALIZATION)

Course Code	Course Description	Credit Unit
UPBSA 954	SEMINAR 1*	3
UPBSA 955	SEMINAR 2*	3
UPBSA 956	THESIS*	6

MODULE 6 FINANCE AND BANKING (SPECIALIZATION)

Course Code	Course Description	Credit Unit
UPBSF 954	SEMINAR 1*	3
UPBSF 955	SEMINAR 2*	3
UPBSF 956	THESIS*	6

MODULE 6 MANANGEMENT (SPECIALIZATION)

Course Code	Course Description	Credit Unit
UPBSM 954	SEMINAR 1*	3
UPBSM 955	SEMINAR 2*	3
UPBSM 956	THESIS*	6

MODULE 6 MARKETING (SPECIALIZATION)

Course Code	Course Description	Credit Unit
UPBSK 954	SEMINAR 1*	3
UPBSK 955	SEMINAR 2*	3
UPBSK 956	THESIS*	6

PhD - ACCOUNTING (Forensic Accounting; Taxation and Public Sector Accounting; Management Accounting and Policy)

Ph.D -FINANCE BANKING (Investment and Portfolio Management; Management of Financial Institutions and Markets; Corporate Finance)

Ph.D - MANAGEMENT (Organizational Behaviour; Human Resources and Strategic Management; Production and Operations Management)

Ph.D MARKETING - (Digital and Social Marketing; Consumer Behaviour; International Marketing)

COURSE DESCRIPTION

SCHEDULE OF GENERAL COURSES FOR Ph.D Programme

MODULE 1

UPBS 952: Strategic Management and Entrepreneurship

Students will gain a well-developed understanding of business enterprises and the entrepreneurial and strategic thinking that drives them in a dynamic, competitive regional, national, and global economy. Students will learn to apply entrepreneurial and strategic management practices (e.g., using case analysis) to organizations of varying sizes. An integral component, futures studies, shall involve an introduction into thinking about the future, the foundation of the field, its methodologies, link to planning, decision-making, strategy and public policy. The relationship between core competences (at the company level) and key success factors at the industry shall be examined.

UPBS 952: Advanced Research Methodology

The objective of this course is to deepen the understanding of the students, of the traditional scientific research methods. Topics to be discussed here include research in Social, Physical and natural sciences; problems of research in developing countries; common errors in research; types of research; and research in practice: selecting a topic, problem and hypotheses formulation, research design, instruments for data collection, data analysis and interpretation, research report, etc.

The objective is for students to gain confidence in the applicability and relevance of non-quantitative methods in our research environment, where the tradition of believing in 'objective measurement' is strong. Quantitative research opens up for us a class of research questions that are not accessible within the 'normal' scientific method. That is, as researchers, we can ask new questions if we have a richer repertoire of tools, both the qualitative and

the quantitative research methods and research approaches from which to choose.

Topics to be discussed include the basics of qualitative research methods and research approaches. Some qualitative research approaches, such as phenomenography, activity theory and ethnography, data collection methods such as interviews, field studies and rapid rural appraisal and observations and evaluating the collected data.

UPBS 953: Contemporary Issues in Accounting

Discussion and articulation of recent developments in the accounting literature.

MODULE 2

UPBS 954: Advanced Theory of Corporate Finance

The course treats at the theoretical level the conceptual foundations of funds allocation among assets and assets classes, and analyses the effects of various corporate financial policy decisions (e.g. capital structure and dividends policies) on the value of the firm. It also includes analysis of the effects of taxes, bankruptcy costs, and agency costs on these decisions. The analyses are conducted successively under the assumptions of perfect and imperfect markets, and certainty and uncertainty conditions.

In addition, it covers recent literature with emphasis on mathematical techniques which have been used to solve problems in portfolio theory, multi period asset pricing models and option pricing models. Financial leverage, market efficiency and information economics, term structure models, capital market equilibrium models, corporate finance issues. Readings are drawn almost exclusively from the theoretical literature of corporate finance.

UPBS 955: Management of Change in Organizations

Management of change is designed to acquaint participants with issues, techniques, and strategies for the management of change. The first part of the course concentrates on developing expertise in predicting relevant changes in the organisation's task environment and making sure that change initiatives are in harmony with the changes in the business environment. Techniques for environmental scanning and task forecasting will be explored and useful models analysed. Students will also discuss and make presentations on current issues such as employee ownership, team-based management mergers and acquisitions, and organisational renewal, etc. at the end of the course, participants will understand the techniques for creating change, managing resistance, change agents, and the application of various change models to various industries and situations.

UPBS 956: Advanced Consumer Behaviour and Demand Analysis

Topics of special interest to doctoral candidates in consumer behaviour will be discussed and approved.

MODULE 3

UPBS 957: Theory and Management of Financial Institutions and Markets

The course shall examine the various theories of final intermediation plus the role played in financial markets by financial institutions and the Central Bank. The course shall involve intensive literature review in such areas and saving investment process; financial institutions and instruments; inflation in financial markets; money demand and money supply models, transmission mechanism and effectiveness of monetary policy in financial markets impacts of fiscal policies on financial markets.

UPBS 958: Advanced Business Management

Advanced Business Management is designed to build wealth creation and entrepreneurship in families at their sustainable levels through effective succession plan. The course shall cover conceptual treatment of Business Management, corporate governance, financing, professionalizing, challenges and problems of Family Businesses, among others.

UPBS 959: Digital and Social Marketing

Describes theoretical and empirical models used to analyse marketing management issues in areas of product introduction and positioning, pricing, advertising and distribution channels. Theoretical structure of this course stems from micro-economics of the firm and consumer decision making, with special consideration of competitive issues analysed with game theory and applications of control theory. Empirical requirements include conjoint analysis, choice modeling and multivariate techniques.

MODULE 4

UPBS 960: Empirical and Contemporary Issues in Finance and Banking

This is a seminar to address emerging issues in theoretical and empirical literature in finance and Banking.

UPBS 961: Globalization and Management

Globalization Overview: Why has the global economy grown so rapidly? How is it affecting the environment, local economics, and social and cultural customs throughout the world? Questioning Free Trade: What are the negative and positive impacts of free trade?; Economic globalization and technological changes: these

processes are examined in relation to the national development. It also examines multinational companies, their histories, the reasons for these companies' special mobility and the impact on developing world; Globalization and the Environment: Social equity: Is social equity relevant to trade issues?; What is gained and lost through the gradual homogenization and distortion of cultures as a result of globalization? The role of regional economic groupings.

UPBS 962: Advanced Business Environment and Corporate Governance

The course will examine the area of government business and business-society relations as one of the critical areas where managers spends considerable amount of time. The responsibilities of the firm in these areas, the role of general manager, the skills needed and ethical and philosophical issues will be discussed.

SPECIALIZATION: MODULES 5 & 6

PhD -ACCOUNTING (*Forensic Accounting; Taxation and Public Sector Accounting; Management Accounting and Policy*)

MODULE 5

UPBSA 951: History of Accounting Thought

The nature and scope of accounting and its evolution; The accounting function and its relationship with the information systems of organizations.

Accounting procedures and systems. Source documents, books of original entry and books of accounts. Double entry book-keeping systems, the trial balance, accruals, prepayments and adjustments.

Provisions and reserves, classification of expenditure between capital and revenue, methods of recording accounting data-manual and mechanical; manufacturing, trader. Accounting treatment of control accounts and bank reconciliation.

UPBSA 952: Advanced Auditing Theory

Evolution of auditing, procedures with particular reference to internal control systems, internal audit functions; sampling and statistical techniques; auditing standards and guidelines including exposure drafts; post audit review; audit of accounts of solicitors, charitable and other non-trading organizations.

UPBSA 953: Advanced Financial Accounting Theory

Further work on advanced company accounts including the accounts of banks and insurance companies, and the Nigerian Insurance Acts. Valuation of goodwill and company shares.

Divisible profits and company individuals. Royalty and hire-purchase accounts.

Consolidated and other group accounts. Governmental, municipal and public utility accounting, with special reference to Nigerian Organisations.

Seminars on accounting systems, including business, governmental municipal and public utility accounting systems.

Ph.D -FINANCE BANKING (*Investment and Portfolio Management; Management of Financial Institutions and Markets; Corporate Finance*)

UPBSF 951: Advanced Theory of Financial Intermediation

This course provides an advanced treatment of investment portfolio theories; computer enhanced models used to provide instruction in capital asset portfolio management and technique. Advanced treatment of diversification theories and applications in asset selection, analysis and management and risk management are exclusively discussed.

UPBSF 952: Advanced Quantitative Decisions Techniques in Finance

It is designed to provide students the opportunity to explore more advanced quantitative techniques for decision making in general and research in particular. Emphasis will be on: quantitative methodologies in business, multivariate statistical methods, advance topics in optimizing techniques and stochastic models; application of time series, inbox number, other vital statistics to issues in business studies. In addition, it covers, techniques of mathematical programming as applied in finance the development of an intuitive appreciation of the techniques as opposed to rigorous mathematical derivation illustration of the application in financial analysis-to be accomplished via a computer-assessed case, analysis and/or journal articles.

UPBSF 953: Advanced Portfolio Theory and Management

Essentially, this is a course in multi period wealth maximization using portfolios and in the analysis of capital markets where portfolio assets are traded. Emphasis shall be on the models of portfolio management and capital market analysis, such models include the Capital Asset Pricing Models (CAPM); the Arbitrage Pricing Theory (APT); Random Walk and Martingale Models. Also tests of Capital markets for efficiency using such models as special analysis, Special Correlation and Runs Analysis shall emphasized. The courses shall be examined comprehensively. The empirical evidence on the efficiency of

selected international capital markets including Nigeria.

Ph.D - MANAGEMENT (*Organizational Behaviour; Human Resources and Strategic Management; Production and Operations Management*)

UPBSM 951: Management Thought and Philosophy

This course examines the idea and evolution of management as a field of endeavour.

UPBSM 952: Advanced Management Theory

This course aims at introducing students to the advanced theories and practice of management in the decision making process.

UPBSM 953: Advanced Conflict Management

This course is designed to provide an understanding of intercultural management useful for international management and trade negotiations. Participants are expected to study the different ways various cultures think, communicate and behave, particularly within business contexts, in order to develop a necessary level of cross-cultural competency. Today's global business implies co-operating, coordinating, negotiating and supervising, using management processes appropriate to the cultural context. The student will explore cultural implications in those management processes, as well as its impact on team-building, ethics, conflict resolution and creative problem-solving. Students will also study their own culturally-based perception, patterns of thinking and behaviour, communication styles, values and how they can be adapted to an intercultural context. Although the course will primarily deal with cultural differences in national culture context, it will also address cultural differences in gender and in organizational level as long as they affect the global business environment. Topics to be covered include:

- a) Foundations and theories of conflict: theories of conflict resolution- An interdisciplinary approach to examination of conflict and conflict resolution theory;
- b) Responses to conflict: an examination of the different approaches to conflict resolution represented by two party negotiation, facilitative processes such as mediation, the various evaluative processes, adjudicative processes such as litigation and binding arbitration, and the various hybrid processes; Negotiation;
- c) Mediation skills clinic- A basic introduction to the mediation skills, theory and ethics;

- d) Interpersonal and inter group conflict: An in depth study of the dynamics of interpersonal and inter group conflicts.
- e) Organizational and community conflict- An exploration of the dynamics of conflict in organizations and the community
- f) International and cross-cultural conflict- An examination of the practical negotiation skills central to the resolution of situation-specific international and intercultural conflict.
- g) Methodology of Conflict Resolution Research – an introduction to a range of qualitative data collection methods with particular focus on techniques used in research on conflict and conflict resolution, including participant observation, content analysis, behavioural mapping, and non-intrusive measures as well as a review of relevant research literature in the field.

Ph.D MARKETING - (*Digital and Social Marketing; Consumer Behaviour; International Marketing*)

UPBSK 951: Marketing Thought and Philosophy

The development of the Marketing Organization specialized marketing activities, the total systems approach, and the social role of marketing are traced by means of a survey of marketing literature from early writers to the present.

UPBSK 952: Advanced Quantitative Techniques in Marketing

This course shall examine various techniques and methods apply in solving marketing problems. The course shall involve intensive review in such areas as multivariate methods (factor analysis, cluster analysis, multi-dimensional scaling); Regression and Forecasting Techniques (multiple regression, discriminant analysis, automatic interaction detection) statistical decision theory for stochastic methods (Queuing, stochastic processes, Game theory); Deterministic operational research methods (linear, non-linear, transportation model); Hybrid Techniques (Dynamic Programming, Heuristic programming, stock control); Network programming (PERT, CPM).

This is a course in the application of quantitative techniques for marketing decision-making and for formulating marketing policies. The course shall also employ other modern quantitative tools for deriving estimates of relevant marketing variables for managerial decision-making.

UPBSK 953: Advanced International Marketing Strategy and Managerial Decisions

The objective of this course is to provide students with the knowledge of advanced marketing theory

and research. Marketing is an applied discipline that is informed by professional scholarly research in marketing and related fields (e.g. psychology, economics). This course provides an in dept review of marketing theory and research, an advanced review of influential theory in the development of marketing thought, and an overview of contemporary theories of research in marketing. Reading material shall largely be scholarly articles in refereed journals.

MODULE 6

PhD -ACCOUNTING (*Forensic Accounting; Taxation and Public Sector Accounting; Management Accounting and Policy*)

UPBSA 954: SEMINAR 1*

Each seminar relates to an examination of current issues in the area of specialization in consultation with supervisor.

Results of such examinations shall be at the recommendation of the supervisor and the approval of the departmental post graduate sub-committee.

UPBSA 955: SEMINAR 2*

Each seminar relates to an examination of current issues in the area of specialization in consultation with supervisor.

Results of such examinations shall be at the recommendation of the supervisor and the approval of the departmental post graduate sub-committee.

UPBSA 956: THESIS*

Ph.D -FINANCE BANKING (*Investment and Portfolio Management; Management of Financial Institutions and Markets; Corporate Finance*)

UPBSF 954: SEMINAR 1*

Candidates will be required to make a seminar presentation. Each student will be required to produce a manuscript in the usual journal format on the topic under investigation. For these candidates, a sound literature review and development of relevant mathematical models or techniques of analysis related to their research topics will be acceptable.

UPBSF 955: SEMINAR 2*

Candidates will be required to make at least two seminar presentations. The first seminar presentation is the thesis proposal if the approved proposal is completed. The second seminar presentation will emphasize the actual results the students research work.

UPBSF 956: THESIS*

Ph.D -MANAGEMENT (*Organizational Behaviour; Human Resources and Strategic Management; Production and Operations Management*)

UPBSM 954: SEMINAR 1*

This seminar introduces students to the most recent research in the area of Management and Organisational analysis, examining current issues and trends. Students have the opportunity to present and discuss their own research and are actively engaged in the analysis and discussion of the work of others. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and results in the student's research

UPBSM 955: SEMINAR 2*

This seminar introduces students to the most recent research in the area of Management and Organisational analysis, examining current issues and trends. Students have the opportunity to present and discuss their own research and are actively engaged in the analysis and discussion of the work of others. Each student is expected to make at least one presentation during the course, focusing on the formulation, design, execution, and results in the student's research

UPBSM 956: THESIS*

Ph.D MARKETING - (*Digital and Social Marketing; Consumer Behaviour; International Marketing*)

UPBSK 954: SEMINAR 1*

Topics of special interest to doctoral candidates which should be in area of Specialization in Marketing will be discussed and approved.

UPBSK 955: SEMINAR 2*

Topics of special interest to doctoral candidates which should be in area of Specialization in Marketing will be discussed and approved.

UPBSK 956: THESIS*

***PhD -ACCOUNTING** (*Forensic Accounting; Taxation and Public Sector Accounting; Management Accounting and Policy*)

***Ph.D -FINANCE BANKING** (*Investment and Portfolio Management; Management of Financial Institutions and Markets; Corporate Finance*)

***Ph.D -MANAGEMENT** (*Organizational Behaviour; Human Resources and Strategic*

*Management; Production and Operations
Management)*

**Ph.D MARKETING - (Digital and Social
Marketing; Consumer Behaviour; International
Marketing)*

UNIVERSITY OF PORT HARCOURT BUSINESS SCHOOL LIST OF STAFF

DEPARTMENT OF ACCOUNTING

S/NO	NAME	QUALIFICATION	POSITION	SPECIALISATION
1	C.O. OFURUM	Bc, UNIBEN, PGD UNN, MBA UNN, M.Sc FUTO, Ph.D FUTO, ACA ICAN.	Professor	Accounting/ Finance
2	A. A. OKWOLI	B.Sc, UNIJOS. M.Sc, UNIJOS, Ph.D IJNIJOS, FCNA, ACTI	Professor	Accounting Research Method
3	DR. IHENDINIHU J.U.	B.Sc ABSU, MBA ESUT, Ph.D ABSU	Reader	Auditing and Assurance
4	DR. KIABEL, B.D.	B.Sc RSUST, MBA RSUST, CPA MNIM, FCTI, Ph.D RSUST	Snr. Lecturer	Taxation and Fiscal Policies
5	DR. L. C. OBARA	B.Sc, MBA, Ph.D	Snr. Lecturer	Oil and Gas Accounting, Auditing & Assurance.
6	DR. E.A.L. IBANICHUKA	MBA RSUST, Ph.D UPH FCA, FCCA ACCA	Snr. Lecturer	Auditing and Investigation, Executorship law and Financial Acctg.
7	DR. L.C MICAH	B.Sc RSUST, MBA RSUST, Ph.D UPH, CPA.	Snr. Lecturer	Public Sector Accounting, Management Accounting
8	DR. G.N. OGBONNA	B.Sc UPH, MBA UPH, FCA, M.Sc FUTO, Ph.D UPH.	Snr. Lecturer	Info Systems, Fin Acctg and Acctg Research.
9	DR. U.I IRONKWE	B.Sc IFE, MBA UPH, LL.B RSUST, B.L, FCNA, Ph.D UPH.	Snr. Lecturer	Company Law & Exec Law & Acctg.
10	DR. F.N. AKANI	B.Sc UPH, MBA RSUST, PhD UPH	Snr. Lecturer	Auditing & Investi, Fin Reporting.
11	DR. (MRS.) T.E ONUOHA	B.Sc SABS, MBA SWLC, Ph.D UPH	Lecturer I	Auditing & Invest, Cost & Mgt Acctg.
12	DR. SOLOMON EGBE	B.Sc, PGD, MBA, PhD UPH.	Lecturer I	Cost & Mgt Actg, Fin Reporting.

DEPARTMENT OF FINANCE AND BANKING

S/NO	NAME	QUALIFICATION	POSITION	SPECIALISATION
1	PROF. EZIRIM, C. B.	BSC. UNN, MBA UNN, MSC./PHD UPH.		Finance, Banking & Finametrics
2	PROF. OKEREKE, E. J.	BSC. IMSIJ, MBA IMSU, MSC FUTO, PHD FUTO.		Fin System, Bank Mgt, Fin Info system.
3	PROF. ONOH, J. K.	BSC. MUNICH, DSC AMSTERDAM.		Money & Banking
4	DR. SANNI, T. A.	BSC. IFE, PHD IOWA.		Money and Banking
5	DR. NWAKANMA, P.C.	BSC, MBA, MSC, PHD		Inv. & Port Mgt, Cap Mkts, Micro Fin, Dev Fin, Corp Fin, Morg,
6	DR. OGBULU, O. M.	BSC UNN, MBA UNN, PHD ABSU.		Investment & Portfolio Mgt.

7	DR NWFNEE, B. F.	BSC RSUST, MBA UPH, MSC RSUST, PHD UPH, FINISM		Inter Fin, Public fin, Banking theo Mgt, Ins Mgt, Econ & fin. Modeling.
8	DR NNAMDI, I. S.	BSC UPH, MBA UPH, PHD ABSU		Investments, Bank Mgt & Fin. Services
9	DR. (MRS) IFIONU, L.	B.ED. UPH, MSC UPH, PHD UPH		Pub. & Dev. Fin. & Econometrics & Monetary econs
10	DR. OGUNBIYI, S. S.	BSC UPH, MBA UPH, PHD UPH		Fin. Mgt, Proj Eva, Corp. Fin & Fin. Info system.
11	DR. TORBIRA, L. L.	BSC. UNN, MBA UNN, PHD UPH		Ins. Mgt, Pub. & Corp. Fin., Fin. Systems
12	DR. NGEREDO, A.	BSC., MBA, MSC., PHD		Money & Fin Inst

DEPARTMENT OF MARKETING

S/N	NAMES	QUALIFICATIONS	SCHOOLS ATTENDED	RANK	AREAS OF SPECIALIZATION
1	Umoh, G.I.	M. Sc, Ph.D, DIP IDP (finals)	Aston, UK Birmingham UK Scotland London	Professor	Operations Management Quantitative Analysis
2	Igwe, S.R.	B.Sc, MBA, Ph.D.	UPH	Professor/ HOD	Strategic Marketing & Consumer Behaviour
3	Ezirim, A.C.	DIP, B.Sc, MBA, M.Sc, Ph.D.	OWERRI, ENUGU, FUTO RSUST	Professor	International Public Relation & Management
4	Asiegbu, I.F.	B.Sc, MBA, Ph.D.	RSUST, IMSU, UPH	Professor	Marketing Communication & Promotion
5	Ogbuji, C.N.	B.Sc, MBA, M.Sc, Ph.D.	ABSU, UNHC, ABSU	Professor	Stakeholders Public Relation
6	Awa, H.O.	B.Sc, MBA, M.Sc, Ph.D.	UNICAL, UPH, ABSU, UPH	Professor	Consumer Behaviour Product Management
7	Ozuru, H. N.	BBA, MBA, Ph.D.	USA, RSUST	Professor	Electronic Marketing Marketing operations
8	Onuoha, A. O	BSc, MBA, MSc., Ph.D	ABSU, UNN	Reader	Sales Management & Marketing Communication
9	Ademe, D G.	BSc., MBA, PhD	RSUST, UPH	Reader	Consumer Behaviour & Electronic Public Relations
10	Abiye, H. L.	BSc, MBA, MSC,	UPH, ABSU	Lecturer 1	Marketing Management Supply Chain Management
11	Igwe, P	BSc., MBA, MSc. PhD	UPH	Senior Lecturer	Communication Theories & Practices
12	Eke, H.O.	BSc, MSc	UPH	Lecturer 1	Marketing Management/ Sustainable Marketing

13	Nwiepe, N.M.	BSc., MBA, MSc, Ph.D	UPH, RSUST	Lecturer 1	Marketing Psychology & Investigative/Peace Communication
14	Nnenanya, D. A.	B.Sc., M.Sc. PhD	UPH	Lecturer 1	Logistics and Distribution
15	Atuo, E.C.	B.Sc., M.Sc. PhD	RSUST; UPH	Lecturer 1	Consumer Behaviour/Social Media Communication
16	Lekue, J.	B.Sc., M.Sc. PhD	RSUST; UPH	Lecturer 1	Logistics and Distribution Management
17	Ezema-Kalu.N.B	B.Sc, M.Sc, Ph.D in view	UPH	Assistant Lecturer	Marketing Management

DEPARTMENT OF MANAGEMENT

S/N	NAME	QUALIFICATIONS	DESIGNATION	AREAS OF SPECIALIZATION
1	Omoankhanlen Joseph Akhigbe	B.Sc., M.Sc. Ph.D.	Senior Lecturer/ Ag. Head of Department	Human Resources Management, General Management, Global Business Management, Entrepreneurship and Small Business Management
2	Don Baridam M.	B.Sc., MBA, Ph.D.	Professor	Organizational Behaviour
3	Seth Accra Jaja	B.Sc., MBA, Ph.D.	Professor	Organizational Behaviour
4	B.A. Fubara	Ph.D.MA,FCIS, FCPA	Professor	Business Policy & Strategy
5	G.I. Umoh	M.Sc., Ph.D. PGD, Dip IDP (finals),	Professor	Operations Management, Quantitative, Analysis, Operations Research
6	Ukoha Ojiabo	BBA, MBA, MS, Ph.D.	Reader	Operations Management, Quantitative, Analysis
7	C.A. Nwuche (Mrs)	B.Ed., M.Sc.,Ph.D.	Reader	Human Resource Management, Industrial Relations
8	Edwinah Amah (Mrs)	B.Sc., MBA,M.Sc., Ph.D.	Reader	Organizational Behaviour, Entrepreneurship, Human Resource Management
9	C.A. Eketu	B.Sc.,M8A, Ph.D.	Reader	Research Methodology/ Organisational Behaviour
10	W.O. Olori	B.Sc., MBA, Ph.D	Senior Lecturer	Business Policy, Human Resource Management, Research Methodology
11	G.O. Worlu	B.Sc., MBA, Ph.D.	Senior Lecturer	Organizational Behaviour
12	Mrs. A.D. Alaghah	NCE, B.Sc.(Ed),	Senior Lecturer	Organizational Behaviour
13	R.S. Needom	PGD, MBA, Ph.D.	Senior Lecturer	Operations Mgt/ Quant. Analysis
14	Haliru Bala	HND, B.Sc, PGD, MBA, M.Phil, Ph.D	Senior Lecturer	International Business, Business Policy
15	Joseph Elang O. Oshi	B.Sc., MBA, PGDE	Lecturer I	Entrepreneurship/ HRM

16	Dr. K.T. Ngaage	B.Sc., MBA, Ph.D.	Lecturer I	Production and Operations Mgt.
17	Maxwell Nwinye	B.Sc., MBA, LLB	Lecturer I	Organizational Behaviour
18	Ike, Osadebe O.	B.Sc.,MBA	Lecturer I	General Management
19	Yemi Taiwo Eniola	B.Sc.,MBA	Lecturer I	Entrepreneurship
20	Matthias Okon Nkuda	B.Sc.,MBA	Lecturer I	Business Policy/ General Management
21	Macaulay E. Wegwu	B.Sc.,MBA	Lecturer I	Business Policy
22	Sylva Waribugo	B.Sc.,M.Sc, Ph.D.	Lecturer I	Operations Mgt/ Management Science
23	Wilson Ofoegbu	B.Sc, M.Sc.	Lecturer I	Operations Mgt/ Quant. Analysis
24	C.T. Jonah	B.Sc., M.Sc.	Lecturer II	Business Policy, Human Resources Management

LIST OF OTHER STAFF/INDUSTRY RESOURCE PERSONS

S/N	Name	Department	Areas of Specialization
1	Prof. Okey Onuchuku	Economics	Econometric & Economic Theory
2	Prof. Mrs. O.M. Etebum	Engineering	Quantitative Analysis
3	Dr. Jonathan Edwyn	Business and Company Law	
4	Prof. Essi Isaac D.	Statistics and Econometrics	
5	Mr. Uche Nwabuoku	Industry	Industrial Relations
6	Mr. William Park	Industry	Security Management
7	Engr. Ekpah Daniel	Industry	Information Management System
8	Dr. Peter	Industry	Information/Organisational Behaviour
9	Mrs. Michell	Industry	Human Resources Management
10	Nkem E.	Industry	Operations Management
11	Mr. Godwin O.O.	Industry	Operations Management
12	Dr. Nwokolo E.	Agriculture	Agric Business
13	Dr. Alabere I.D.	Health Science	Healthcare Management

FACULTY OF PHARMACEUTICAL SCIENCES

DEPARTMENT OF PHARMACOGNOSY & PHYTOTHERAPY

Available Programmes

- (i) Master of Pharmacy (M. Pharm) and Doctor of Philosophy (Ph. D) in Pharmacognosy and Phytotherapy with specialization in the following areas:
 - (a) Phytochemistry/ Phytotherapy Research
 - (b) Medicinal Plant Research
 - (c) Standardization of phytopharmaceuticals /herbals
 - (d) Formulation studies of herbal products
 - (e) Tissues culture

Introduction and Philosophy of Programme

Postgraduate studies in the Department of Pharmacognosy and Phytotherapy are designed to offer intensive training in specialized areas of Pharmacognosy and ethnomedicine for development of quality staff distinguished for teaching, innovation and research.

The overall philosophy of the programme is to train qualified graduates to become familiar with trends in natural product research and development; to be adequately equipped to screen our natural flora and fauna for drug development and sourcing of local raw materials for the pharmaceutical industry in pursuance of academic excellence and promotion of scholarship. The programme shall focus on advancement of knowledge of Nigerian medicinal plants and phytotherapy to address aspects of health challenges of developing countries through research into alternative medicines.

Objectives of Programme

The main objectives of the programme are:

- (a) Training in methods of scientific enquiry for those who are interested in and are capable of pursuing an academic career in research and/or teaching.
- (b) To encourage research and development of phytopharmaceuticals and phytotherapy.
- (c) Training and improvement in various pharmacognosy techniques and methods beyond first degree for those needed in the pharmaceutical industry, hospital, government and private manufacturing and research institutes.
- (d) To equip qualified graduates with research techniques to screen our abundant natural resources for alternative source of drugs and raw materials for the pharmaceutical industry.

Admission Requirements

(a) M. Pharm. Degree

- (i) Candidates for admission to the M. Pharm degree programme must possess a good first degree in Pharmacy from the University of Port-Harcourt or of other Universities recognized by Senate, not below Second Class Honours, Lower Division
- (ii) Non-pharmacy graduates in closely related subjects like Chemistry, Biochemistry and Botany may be considered for admission. Such candidates may be required to take remedial undergraduate courses in Pharmacognosy as recommended by the Departmental postgraduate committee.

(b) Ph.D Degree

- (i) Candidates who possess the M. Pharm. degree in Pharmacognosy of the University of Port-Harcourt or of other universities recognized by Senate with a CGPA of 3.5 on the 5 point scale. However, candidates with CGPA of 3.0 in their M. Pharm. or M.Sc. programmes in pharmacognosy or related disciplines may be considered for admission. Such candidates shall be required to take recommended 800 level/remedial courses which they must pass at an average score of 60% in the first year.
- (ii) Candidates with M.Sc./M.Pharm degree (minimum CGPA of 3.5); M.Phil. degrees in Pharmacognosy, Ethnomedicine, Chemistry, Biochemistry or Botany of the University of Port-Harcourt or other approved universities/Institutions.
- (iii) Final selection of candidate is by presentation of a research proposal in accordance with University regulations.
- (iv) Part-time candidates will normally be considered.

Deferment of admission

This is permitted up to the official end of late registration specified by the School of Graduate Studies.

Mode of admission

Admission into the Postgraduate programmes of the Department shall be by:

- (i) Full-time or
- (ii) Part time

Duration of Programme/Mode of Study

(i) M. Pharm. Programme

- (a) Full-time candidates will be required to spend a minimum of 18 calendar months and maximum of 24 calendar months.
- (b) Part-time candidates will be required to spend a minimum of 24 calendar months and a maximum of 36 calendar months.
- (c) Mode of study shall be by taught courses, tutorials, seminars, field trips and laboratory work. Every taught course shall be examined by a three (3) hour written examination except for PCG. 814 and PCG. 818 which shall be by continuous assessment. The pass mark shall be 50% for all courses.
- (d) Candidates admitted to the M. Pharm. programme are required to register for maximum of 36 units of taught courses comprising all core courses and two elective courses after consultations with the supervisor(s) and Head of Department. To graduate candidates are required to be credited with minimum of 32 units.

(ii) Ph.D. Programme

Candidates admitted into the Ph.D programme will require a minimum of 3 years to complete the programme. Mode of study for Ph.D degree is by research work and seminars (considered as course-work) and presentation of thesis in accordance with University of Port Harcourt regulations.

Part-time candidates

These candidates must:

- (a) Be engaged in approved employment
- (b) Submit evidence that they can devote substantial proportion of their time to their studies.
- (c) Satisfy the Departmental Graduate Studies Committee that they will be available for attendance at courses, seminars and for regular consultation with their supervisors.

Registration

Both full-time and part-time candidates must register during the time specified by the Graduate School.

Course outline for M. Pharm. degree programme

First Semester

The taught courses consist of five compulsory first semester courses namely:

Course Code	Course Title	Credit Units
PCG 813.1	Research Method	3
PCG 814.1	Separative techniques in natural product research	3

PHA 800.1	Biogenesis of natural products	3
SOS 801.1	Advanced laboratory Course	3
PCG 811.1	Biostatistics	3
PCG 812.1	ICT and research methods	3
	And any one (1) elective from any of these elective courses	2

Total credits (First Semester) 18

Second Semester

The taught courses consist of five compulsory second semester courses namely:

Course Code	Course Title	Credit units
PCG 815.2	Standardization and Quality Assurance of natural products	3
PCG 816.2	Recent Advances in Pharmacognosy	3
PCG 817.2	Medicinal Plants and Raw materials	3
PCG 818.2	Seminar & Directed Reading	3
PCG 823.2	Project	6
SGS 801.2	Entrepreneurship and Management	2

Total credits (Second Semester) 22

Total credits for the session 40

Elective courses (one for each semester)

Course Code	Course Title	Credit units
PCG 819.1	Drugs of biological Origin and phytochemical analysis	2
PCG 820.1	Phytotherapy and Alternative medicines	2
PCG 821.2	Medicinal Plant Taxonomy	2
PCG 822.2	Application of Microscopic techniques in Pharmacognosy	2

Course outline for Ph.D degree programme

First Semester

Course Code	Course Title	Credit units
PCG 901.1	Research Seminar I	3
PCG 902.1	Research Seminar II	3

Total credits (First Semester)		6
Second Semester		
Course Code	Course Title	Credit units
PCG 903.2	Dissertation	12
PCG 904.2	Research Seminar III	3
Total credits (Second Semester)		15
Total Credits for the session		21

COURSE DESCRIPTIONS

PCG811.1 Research methods (3 Units)

Trends in phytochemical medicinal plant research. Micro-method for screening for bioactive compounds. In vivo and in vitro biologically monitored phytochemical separations and relevance to drug discovery from nature. Selection of plants for bioactivity guided study of medicinal plants. Processes that lead from plants to pharmacologically active pure compounds. Targets for bioassay. Bench-Top techniques. Major areas of research and discoveries. The microscope. Advanced microscopic and anatomical techniques and relevance in plant identification and in provision of pharmacopoeial standards for vegetable drugs and herbal remedies. Advanced treatment of spectroscopy (UV, IR, NMR, MS etc.) in determination of purity of plant isolates and structure elucidation.

PCG 812.1 Separative techniques in natural product research (3 Units)

Principles and application of various separative techniques in natural product research. Adsorption and partition chromatography. Factors affecting sensitivity and resolution in chromatographic systems. Qualitative and quantitative applications of paper, TLC, Column chromatography, GLC, gel-filtration, electrophoresis, DCCC, HPLC etc. Preparative chromatography.

PCG 813.1 Biogenesis of natural products (3 Units)

Significance of study of biosynthetic pathways. Method of investigation. Mechanisms for hydroxylation, methylation, phenolic coupling and cyclisation. Shikimic acid and pathways leading to production of aromatic natural products. Biological origin of isoprene unit and pathways leading to production of plant terpenoids. Polyketides. Selected pathways of mixed biogenetic origin.

PCG 814.1 Advanced laboratory course (2 Units)

Experimental designs to illustrate advanced phytochemical research techniques aimed at improving candidate's practical ability in Pharmacognosy. Practical work to illustrate the principle underlying methods discussed in theory.

PCG 815.2 Standardization and quality assurance of natural products (3 Unit)

General methods of evaluation of vegetable, animal and microbial drugs. Commercial requirements. Basic information and standards with respect to potency, identity, purity and safety. Organoleptic, biological and physico-chemical methods. Ash and Extractive Values. Pharmacopoeias, monographs and standards. Prospects and problems of standardization of herbal remedies.

PCG 816.2 Recent advances in pharmacognosy (3 Units)

Contribution of plant/plant products in treatment of diseases. Recent developments in selected areas such as antimalarials, cancer chemotherapy, cardiovascular agents, natural laxatives and bitters, antidiabetic agents, antimicrobials, anti-oxidants, sickle cell anaemia, immunomodulators, anti-fertility agents, anti HIV/AIDS etc. Selected phytopharmaceuticals like Aloe vera, Garlic, Ginkgo and Ginseng products. Allelopathy and allelochemicals. Application to pharmacy and agriculture.

PCG 817.2 Medicinal plants and raw materials (3 Units)

Medicinal and poisonous plants (manifestations, antidote, mechanism of action, phytotoxicity) in traditional medicine. Cultivation, collection, processing and storage. Description of medicinal plants of local significance. Botanical sources, geographical distribution, habitat, ethnobotany, biological and chemical evaluation. Selected medicinal plants with scientific evidence of efficacy from various plant families. Genetics, tissue culture and chemical races. Raw materials. Sources of drug excipients/galenicals. Prospects and problems of sourcing. Factors involved in production of drugs from natural sources. Phytoterapy. Field trip.

PCG 818.2 Seminar and directed reading (3 Units)

Designed to acquaint the candidate with current and relevant research topics and developments in Pharmacognosy and Phytochemical Research.

PCG 819.1 Drugs of biological origin and phytochemical analysis (2 Units)

Plant and animal kingdoms as sources of novel bioactive natural products. Phytochemistry. Principles of phytochemical analysis of medicinal plant constituents. Advanced treatment of extraction and detection of secondary metabolites of medicinal interest. Fractionation and purification of crude extracts. (Elective)

PCG 820.1 Phytotherapy and alternative medicines (2 Units)

Historical development of phytomedicines. Ethnomedicine. Old Herbals Materia medica and pharmacopoeias. Method of preparation of phytomedicines. Concoction, decoction, tisane, herbal teas and extracts, tinctures mixtures. Formulation of pharmaceutical dosage forms: creams, ointments, suspensions and other dosage forms. Alternative medicines and methods of healing. Definition. Sources and scientific evidence of efficacy of selected phytomedicines. Aetiology and diagnosis of diseases in orthodox and traditional medical practices. Factors affecting quality of phytomedicines. Requirements for production of phytomedicines. (Elective).

PCG 821.2 Medicinal plant taxonomy (2 Units)

Classical taxonomy, units of classification. Artificial and Natural classifications. Phylogenic relationships. Chemo-taxonomy Chemo-

taxonomic markers and relevance to classification and identification of medicinal plants (Elective).

PCG 822.2 Application of microscopic techniques in pharmacognosy (2 Units)

Microscopy. Advanced histological techniques. Photomicrography. Use of flora and keys for identification. Preparation of herbarium specimens and relevance to medicinal plant research, Application of microscopic methods to vegetable drug evaluation. Examples from pharmacopoeial and Nigerian medicinal plants. (Elective)

PCG 823.2 Research project (6 Units)

Candidates will present bound research project incorporating a review of relevant literature and an account of laboratory work in a selected topic.

PHA 800. 1 Biostatistics (3 Units)

Course content as described under Department of Clinical Pharmacy and Pharmacy Management.

ACADEMIC STAFF LIST FOR THE MASTER AND DOCTOR OF PHILOSOPHY DEGREE PROGRAMME IN PHARMACOGNOSY AND PHYTOTHERAPY

NAME OF STAFF	QUALIFICATION	DESIGNATION	AREA OF SPECIALIZATION
Prof. Kio A. Abo	BPharm, PhD (Lond), <i>MNI Biol., MPSN, FNSP</i>	Professor	Medicinal plant research, Drug discovery, Standardization of phytomedicine
Prof. B.A. Ayinde	BSc, MSc, PhD	Professor (Adjunct)	Medicinal plant research, Pharmacognosy
Prof. J.S. Aprioku	B.Pharm. M.Sc, Ph.D	Professor	Reproductive Pharmacology, Immunopharmacology Toxicology
Dr. O.E. Afieroho	BSc, MSc, PhD, <i>MRSC, MICCON, MNSP</i>	Senior Lecturer/Ag. Head	Phytochemistry, Functional foods, analytical and Medicinal chemistry. Drugs and agrochemical discovery from nature
Dr. O.A. Shorinwa	B.Pharm, M.Sc, MBA, PhD, <i>FPCPharm.</i>	Senior Lecturer	Ethnopharmacology
Dr. S. Ukwueze	B.Pharm, M.Pharm, Ph.D, <i>MNSP</i>	Senior Lecturer	Medicinal chemistry, pharmaceutical Analysis
Dr. N.O Ezenobi	B.Sc., M.Sc., Ph.D	Senior Lecturer	Antimicrobial resistance, Biotechnology
Dr. M. Suleiman	BSc, MSc, PhD, <i>MNSP, MFAN, FIPMD</i>	Lecturer I	Medicinal plant research, Pharmacognosy
Dr. O.E. Biu	B.Sc, MSc, Ph.D	Lecturer I	Biostatistics
Pharm. A.N. Elechi	BPharm, MPharm <i>MPSN, MNSP</i>	Lecturer I	Medicinal plant research, Pharmacognosy
Pharm. B.A. Adewoyin	BPharm, MSc <i>MPSN, MNSP</i>	Lecturer I	Medicinal plant research, Pharmacognosy
Pharm. O. Lambert	BPharm, MPharm <i>MPSN, MNSP</i>	Lecturer I	Medicinal plant research, Pharmacognosy

DEPARTMENT OF PHARMACEUTICS AND PHARMACEUTICAL TECHNOLOGY

PROFILE OF GRADUATE PROGRAMME

Introduction and philosophy

Drugs and drug products are intellectual entities resulting from extensive research and development. The physicochemical characteristics of the drug substance, the dosage form and the route of administration are critical determinants of the performance, safety and stability of the products. The basic physicochemical and biological principles of drug product performance are introduced to the undergraduate audience but it requires an in-depth understanding of those principles to present an efficacious drug product that will not deteriorate for a reasonable length of time. The graduate programme in Pharmaceutics and Pharmaceutical Technology will provide advanced training in those specialized areas of the Pharmacy profession.

The concept of Pharmaceutics in the broad sense is a specialist field in the Pharmacy profession that encompasses a broad spectrum of interrelated physicochemical and biological principles that determine the final form of presentation of a drug in a given dosage form. Indeed it is the science of dosage form design, the “melting pot” of Pharmacy with well-defined and articulated stages of the development of a drug into a drug delivery system to consumers. The detailed elucidation the various applications of the physicochemical and biopharmaceutical considerations is the plank upon which this post-graduate programme is formulated. Each course is aimed at exploring to a great extent the principles and application to enable the student to develop the incentive and self-reliance in practical research and literary expositions in any chosen area of Pharmaceutics, physical pharmacy, Pharmaceutical technology, Bio-Pharmaceutics and the development of Pharmaceutical grade raw materials.

Objectives

The objectives of this post-graduate programme include training in the methods of scientific enquiry for those interested in and are capable of pursuing an academic career in search and/ or technology. It is also positioned to impart in-depth training in Pharmaceutics and Pharmaceutical Technology with the aim of providing expert manpower for the academic and industrial sectors of Pharmacy practice.

Available programmes

The Department of Pharmaceutics and Pharmaceutical Technology offers the following:

- (a)
 - i. Master of Pharmacy (M.Pharm) in Pharmaceutics
 - ii. Master of Pharmacy (M.Pharm) in Pharmaceutical Technology
- (b)
 - i. Doctor of Pharmacy (PhD) in Pharmaceutics
 - ii. Doctor of Pharmacy (PhD) in Pharmaceutical Technology

The following fields of specialization are available in the Department of Pharmaceutics and Pharmaceutical Technology

- i. Tableting Technology
- ii. Stability Studies
- iii. Disperse Systems drug release/controlled release studies
- iv. Bio-pharmaceutics
- v. Drug delivery Systems
- vi. Pharmaceutical excipient development

Admission requirement

- (a) M.Pharm. degree in Pharmaceutics or Pharmaceutical Technology

An applicant for the Degree of Master of Pharmacy (M.Pharm) must be:

- i. A pharmacy graduate of the University of Port Harcourt.
 - ii. A pharmacy graduate of other Universities recognized by the senate of the University of Port Harcourt, with at least a class (lower division) or a declassified approved degree programme with evidence of good performance in Pharmaceutics.
- * Candidate shall be required to satisfy the department in a selection process as put forward by the Department.

- (b) **PhD degree in Pharmaceutics or Pharmaceutical Technology**

1.1 Philosophy

The philosophy of the Department is to explore to a great extent the principles and application of the physicochemical and biopharmaceutical considerations drug entities and impact in-depth

training in Pharmaceutics and Pharmaceutical Technology.

1.3: Vision

To provide expert manpower for the academic and industrial sectors of Pharmacy practice.

1.4: Mission

The Department of Pharmaceutics and Pharmaceutical Technology aims at providing in-depth training in Pharmaceutics and Pharmaceutical Technology with the aim of providing expert manpower for the academic and industrial sectors of Pharmacy practice.

1.5: Justification

Drugs and Drug related products are intellectual entities resulting from extensive studies, research and development.

The basic Physico chemical and biological principles of drug product performance are introduced to the undergraduate audience but require an in-depth understanding of the principles to present an efficacious drug product that will not deteriorate for a reasonable length of time.

1.6: Aim

To provide advanced training in specialized areas of Pharmacy profession such as: the physicochemical and biological principles that determine the final form of drug presentation in a given dosage form.

1.7: Objectives

- i. The objectives of the Post graduaprogramme include:
 - i. Training in methods of Scientific enquiry for pursuant of academic career in research and Technology
 - ii. To impact in-depth training in Pharmaceutics and Pharmaceutical Technology through
 - (a) Knowledge on novel drug delivery systems
 - (b) Advances in validation and regulatory issues in Pharmaceutical manufacturing and distribution

However, the School of Graduate Studies on the recommendation of the Departmental and Faculty Post Graduate committee may grant an extension of time to students to allow them to graduate.

Course requirements

- (a) M.Pharm degree in Pharmaceutics or Pharmaceutical Technology.

Candidates for the M.Pharm degree in Pharmaceutics or Pharmaceutical Technology must take all the compulsory courses and some elective courses relevant to the area of specialization with a total credit load of a maximum of 36 in the entire academic session. Candidates shall be expected to give at least two seminar presentations on their projects.

Outline of Courses

First semester

The taught compulsory courses for M. Pharm in Pharmaceutics or Pharmaceutical Technology in the first semester include:

Course Code	Course Title	Credit units
PCT 801.1	Tableting and related unit of operations	4
PCT 802.1	Formulaon of drug delivery systems	4
PCT 804.1	Kinetic and drug stability studies	3
PMB 805.1	Biostatistics	2
SGS 801.1	ICT and research methods	2
Any two (2) elective courses		2
Total credits (First Semester)		19

Second semester

The taught compulsory courses for the M. Pharm in Pharmaceutics or Pharmaceutical Technology in the second

Course Code	Course Title	Credit units
PCT803.2	Dispersesystems	4
PCT 805.2	Biopharmaceutics	2
PCT806.2	Seminarand directed reading	1
PCT 807.2	Seminar (Project) (runs with the project)	2
PMB 801.2	Microbial spoilage and preservation of dosage forms	2
PCT 801.2	Project	6
SGS 801.2	Entrepreneurship and management	2
Any (1) elective course		2
Total credits (second semester)		21
Total credits for the session		40

Elective courses

The candidate is expected to select a maximum of at least 3 elective courses relevant to the area of specialization in the entire academic session:

Course Code	Course Title	Credit units
PCT 808	Powder technology	2
PCT 809	Packaging science	2
PCT 810	Current good manufacturing practice	2
PMB 807	Sterile dosage form	2

- (a) Course requirements for Ph. D. in Pharmaceutics or Pharmaceutical Technology.

Course outline for Ph.D. degree programme

- (i) A Ph. D candidate may be required to take some courses based on his/her entry qualifications and M. Pharm. degree transcript.
- (ii) A Ph.D candidate must submit a thesis according to the University of Port-Harcourt School of Graduate Studies regulations. Such a thesis shall be examined by an oral qualifying examination as specified by the University of Port Harcourt School of Graduate Studies regulations.

However, the following courses must be accomplished by a Ph.D candidate before the award of a Ph.D. degree.

First semester

Course Code	Course Title	Credit units
PCT 901.1	Research Seminar I	3
PCT 902.1	Research Seminar II	3
Total credits (First Semester)		6

Second semester

Course Code	Course Title	Credit units
PCT 903.2	Dissertation	12
PCT 904.2	Research Seminar III	3
Total credits (Second Semester)		15
Total credits for the session		21

EXAMINATIONS

- (a) M.Pharm Degrees
- (i) Written examination of three (3) hours each on each course shall be taken except for PCT 806 and PCT 807 which shall be by continuous assessment.
- (ii) The project (dissertation) PCT 801 for Pharmaceutics and Pharmaceutical Technology shall be examined as prescribed by the University of Port-

Harcourt School of Graduate Studies regulations.

Course Description

(a) Pharmaceutical microbiology

PMB 801: Microbial Spoilage and Preservation of dosage forms (3 units)

Types of Microbial Spoilage, sources of microbial contaminants, organisms involved in the biodegradation of drugs and pharmaceuticals, conditions essential for limiting the biodegradation of products. Effect of preservatives and inoculum size. A detailed study of available preservatives. Factors influencing the choice of preservatives for pharmaceutical products. Recent developments on the evaluation of preservatives and the effects of the multi-phased system in formulated products.

PMB 805: Biostatistics (2 units)

A review of basic biostatistics from measures of central tendency to paired sample hypothesis. Multi-sample hypothesis and multiple comparisons: two-factor analysis of variance, linear regression and comparison, linear correlation and multiple regressions. Bio-normal distribution; testing for randomness, inclusive of poison probabilities and serial randomness of nominal categories. Computer application in statistics.

(b) Pharmaceutical and Pharmaceutical Technology.

PCT 801: Tableting and related unit operations (4 units)

Advanced studies on (a) size reduction - physical changes (b) selection and control of raw materials (active ingredients and excipients) for tableting. Unit operations - mixing, drying, granulation - theories and mechanisms. Compaction and compression- physics of compression. Physical properties of powder, granules and tablets (including disintegration and dissolution). Instrumentation of the tablet press - processing problems. Coating of tablets. Effects of storage conditions i.e. humidity, temperature and ageing on physical properties of tablets. Sustain/control release formulations.

PCT 802: Formulation of drug delivery systems. (4 units)

Dosage form design and evaluation: physical properties of drugs and formulations; Pre-formulation studies- particle size, solubility, partition coefficient, polymorphism, salt formulation, cohesiveness, compressibility, interfacial tension and rheology. Chemical characteristics of drugs molecules and their effect on formulations. Influence of temperature,

hydrolysis, oxidation, racemization, and photolysis on drug stability. Formulation ingredients- surfactants stabilizers, hydrocolloids, etc. Drug-drug interactions, drug-excipient interactions. Modifications of the activity of drug delivery systems by physical and chemical methods, controlled release, the ranking of drugs and several formulations of one drug release and pattern. Methods of estimating in-vitro and in-vivo dissolutions and correlation. Specialized formulations related to the tropical condition.

PCT 803: Disperse Systems (4 units)

Interfacial phenomena — advanced studies on surface activity, adsorption at interfaces and solubilization. Adsorption and desorption phenomena.

Kinetic properties of colloids — including Brownian movement Sedimentation, viscosity, electrical properties - diffuse double layer, zeta potential, electrokinetic phenomena and Doman membrane equilibrium, the stability of colloids. Coarse dispersions — detailed study about wetting of particles, controlled flocculation, detailed study about emulsification, hydrophiliclipophilic balance; physical stability, phase inversion, phase equilibrium. Evaluation techniques of suspensions and emulsions. Binding complexation — protein binding etc.

Rheological properties of pharmaceuticals.

PCT 804: Kinetics and drug Stability studies (3 units)

Kinetics of drug degradation: Rates and orders of reaction, specific rate constants, half-life, determination of orders, complex reactions and steady-state approximations. Influence of temperature and other factors - light, solvent, ionic strength, dielectric constant. Acid-base catalysis, enzyme catalysis.

Decomposition of medicinal agents (dosage forms) - hydrolysis oxidation, photochemical degradation.

Stabilization of dosage forms — emulsions, suspensions, etc.; protection against adsorption and complex formation. Chemical stability — protection against hydrolysis, oxidation, photolysis. Accelerated stability studies and shelf life determination of drug products.

PCT 805: Biopharmaceutics (2 units) Advanced studies of the concept of bioavailability. Drug absorption from the gastro-intestinal tract and other routes of administration. Kinetics of drug absorption, distribution and elimination - Factors (physiological, physiochemical, formulation and dosage form) which influence drug absorption - Ranking of drug products. In vitro, insitu and in-vivo methods used to study various factors affecting drug absorption. Methods of estimating bioavailability. Dosages of drugs in infants,

children, adults and geriatrics (factors influencing). Pharmacokinetic models as they relate to standard sustained release and controlled release dosage forms.

PCT 806: Seminar and directed reading (1 unit)

Development of specific topics of interest and presentation of an up-to-date report on the topics; highlighting recent advances in chosen subjects.

PCT 807: Seminar (Project) (2 units)

Candidates shall be required to give at least two seminar presentations on the research topic under investigation indicating the objective, literature review, experimental methods, results and discussions on the results.

PCT 808: Powder Technology. (2 units)

Measurements of primary properties of powders (direct and derived), delivery properties of powders. Friction, cohesion, Shear strength etc. Flow pattern and segregation and percolation. Critical void ratio, consolidation and compaction. Powder discharge, granule discharge.

PCT 809: Packaging Science. (2 units)

Need for proper packaging; special requirements for pharmaceutical packaging; packaging materials science; closures, unit dose packaging. Biological determination of packaging materials, sterile packaging. Aerosols and packaging; tests for accurate drug delivery.

PCT 810: Current Good Manufacturing Practice (2 units)

A detailed study of the contents and requirement of the guide to Good Pharmaceutical Manufacturing Practice, components of current Good Manufacturing Practice, (organization and personal; building and facilities equipment), control of components, product and process control, packaging and labelling control records and reports etc.; additional cGMP regulatory requirements. Aspects of Total Quality Management (TQM) — control of the principles of TQM. The concept of drug quality control and assurance. Statistical aspects of quality control including sampling techniques and methods of evaluation of results.

PCT 801: Dissertation: (Research Project) (6 units)

Suitable topics shall be selected with the approval of the post-graduate school of the University in the recommendation of the Departmental and Faculty Post Graduate committees.

CONDITIONS FOR THE AWARD OF DEGREES.

- (a) To qualify for the award of Master of Pharmacy, the candidate may have earned minimum credit units of 32 for Pharmaceutics or Pharmaceutical Technology in the course work and has successfully defended the dissertation in the presence of an external examiner and the faculty post-graduate committee.
- (b) To qualify for the award of Doctor of Philosophy in Pharmaceutics or

Pharmaceutical Technology, the candidate must have given all the required number of seminars on the research topic and successfully completed and defended the research work in the presence of an external examiner and in accordance with the Faculty and the University of Port Harcourt Post Graduate School regulations.

LIST OF GRADUATE TEACHING STAFF

S/No.	Name	Status	Areas of Specialisation
1	Prof. O. Okorie	Professor	Formulation of drug delivery systems/sourcing of pharmaceutical raw materials
2	Prof. O.E. Orisakwe	Professor	Biopharmaceutics and Toxicology
3	Prof. S.I. Ofoefule	Professor	Formulation of drug delivery systems/sourcing of pharmaceutical raw materials, Pharmacokinetics
4	Dr. K.C. Ugoeze	Senior Lecturer	Formulation of drug delivery systems/sourcing of pharmaceutical raw materials, pharmaceutical particle engineering.
5	Dr. O. Chukwumerije	Senior Lecturer	Pharmaceutical quality assurance and quality control. Good manufacturing practice. Stability of pharmaceutical materials & products. Physical pharmacy.
6	Dr. N. Nwachukwu	Senior Lecturer	Powder & tablet technology. Raw material & excipient development. Formulation of drug delivery systems.
7	Dr. J.I. Ordu	Senior Lecturer	Excipient development, microsuspension, solid dosage drug formulation.

DEPARTMENT OF EXPERIMENTAL PHARMACOLOGY & TOXICOLOGY

INTRODUCTION

Toxicology is a subfield of bioscience which is engrossed with the study of toxicants and toxins which have deleterious effect on human and other living organisms. Students will comprehend about the dose and effect relationship on the exposed organisms.

Toxicology is categorized into different subject areas. Toxicology with bias in clinical/medical area (clinical/medical toxicology) involves observing and reporting symptoms, mechanisms, detection, and treatments of toxic substances, in particular relation to the poisoning in humans. Understanding the toxins, their mode of action, detection, and treatment is key. Environmental toxicology concerns study on environmental agents and chemical compounds found in nature, as well as pharmaceutical compounds that are synthesized for medical use by humans. Forensic toxicology deals with medicolegal aspect of poison and provision of evidence of poisoning in lawsuit. The postgraduate toxicology programme offers opportunity for candidates to choose any of the various available areas of specialization such as environmental toxicology, clinical toxicology, forensic toxicology, food toxicology, occupational toxicology, aquatic toxicology, etc. Generally, the postgraduate programme has two broad areas: health-related toxicology and toxicants in the environment. Good analytical and logical thinking skills are pre-requisite and graduates of this programme will have a solid foundation in both areas with a command of skills in one or the other. Graduates of the programme will have the needed skills and competencies for employment in academic research and teaching institutions, private industry, and government agencies. These are demanding jobs that may determine the fate of a product in development or affect the health of many.

The study of Toxicology is very important, as people are concerned about the potentially harmful effects of products, medications, and the chemicals they are exposed to daily in their environment. Besides the effect of these chemicals on human health, there is the concern of the impact of these substances on the environment. This has increased much interest in this study area, but our present toxicology programme in the department cannot accommodate the different categories of persons that wish to enrol into the programme. Also, there are many medicinal plants and natural products in the Niger Delta region and other areas of Nigeria that are highly potent and efficacious against several ailments. With increasing concern of cost, treatment failures and unbearable

adverse effects of many orthodox medications, there is high research interest in the discovery of drug candidates from the natural environment, like the flora and fauna of the Niger Delta. This necessitated the need for the department to review her existing postgraduate programmes in response to the needs of the society to train and produce sound and critical thinking graduates with the right knowledge in toxicology and experimental/clinical pharmacology to solve problems and develop the society and the world at large.

VISION

For the Department of Experimental Pharmacology and Toxicology and the University of Port Harcourt to be one of the leading centres in Sub Sahara Africa for the training of sound and competent toxicologists, and for the university to be recognized for her teaching, research, innovation, creativity, productivity, entrepreneurship and scholarship.

MISSION

The Mission of the department is aligned with that of University of Port Harcourt which is the pursuit of academic excellence, the advancement of knowledge and services through quality teaching, lifelong learning, social inclusion, strengthening of civil society and policy relevant research that address the challenges of contemporary society.

PHILOSOPHY

The philosophy of the programmes is to produce sound and innovative Toxicologists/ Pharmacologists of global recognition with ample knowledge, skills and competence through provision of education and laboratory training at the postgraduate level, enhancement of research with emphasis on multidisciplinary approaches and exchange of scientific information relating to toxicology and pharmacology.

1. OBJECTIVES & OUTCOMES

The objectives of the MSc Toxicology/ Pharmacology (Toxicology Option) are to:

- (i) provide students with broad and balanced foundation in all areas of toxicology.
- (ii) train qualified candidates in applied toxicology with a particular focus on the environment and protection of human health and animals.
- (iii) provide training to students to have knowledge (including the mechanism of action) of potential toxicants in the environment that can be exposed to humans and animals, which are common in many parts of Nigeria due to pollution from oil

- exploration activities and other industrial activities.
- (iv) train students evaluate and identify through fundamental and applied research (including qualitative and quantitative analysis) environmental toxicants that are potentially hazardous, which may be chemical, biological or physical in nature
 - (v) develop in the students the ability to evaluate the impact caused by such exposure on health of man, animal and environment through risk assessment.
 - (vi) develop in the students the ability to evaluate the harmful effects of pharmaceutical compounds and other chemical compounds that are poisonous to humans using systematic methods.
 - (vii) provide the needed training and skills in toxicology for students to be useful in the academics, research institution and regulatory bodies.

After completing the MSc. Toxicology/Pharmacology (Toxicology Option), the student will be able to:

- (i) have good knowledge about the different toxins, chemicals and their adverse effects on the health and environment.
- (ii) critically evaluate different advanced exposure assessment methods
- (iii) design strategies for exposure assessment
- (iv) analyse and interpret exposure measurements applying standard modelling tools
- (v) design strategies for study of dose-response relations
- (vi) apply methods for combining information from different studies to derive a dose-response relationship (meta-analysis)
- (vii) have good understanding about risk assessment process and know how exposure limits and standards are derived

The objectives of the MSc Toxicology/Pharmacology (Pharmacology Option) are to:

- (i) provide students with the opportunity to greatly enhance and expand their understanding of pharmacology and closely associated disciplines.
- (ii) enable students have a good understanding of research and development of novel pharmacological agents, as well as evaluating their safety.
- (iii) acquire knowledge and skills required for discovery of drugs in natural products from the flora and fauna of Niger Delta.
- (iv) enable students be able to evaluate pharmacoeconomics impacts upon the drug discovery and development process.

- (v) work in partnership with pharmaceutical industries to commercialize research findings by developing patentable drug products needed for treatment of tropical diseases.
- (vi) promote collaborative research and training at national and international level to acquire competence needed for the advancement of pharmacology.

By the end of the MSc. ToxPharm (Pharmacology Option) programme, student will be able to:

- (i) understand principles of pharmacology and drug discovery
- (ii) critically appraise pharmacological drugs used in major disorders
- (iii) show good understanding of the application of novel compounds in the pharmaceutical and biotechnology industries
- (iv) have in depth understanding of the molecular mechanisms of toxicology, with perspectives on drug metabolism and pharmacokinetics and how these can lead to toxicity
- (v) exhibit a high level of competence in the application and use of important research tools in the field of pharmacology.
- (vi) Plan and conduct toxicity studies and clinical trials
- (vii) develop competence, confidence and an enquiring, investigative approach.

AVAILABLE PROGRAMMES

- (i) MSc Toxicology/Pharmacology (MSc ToxPharm)

MSc TOXICOLOGY/PHARMACOLOGY PROGRAMMES

Postgraduate study in Toxicology/Pharmacology is designed to offer intensive training in specialized areas with emphasis on certain selected research programmes. For MSc ToxPharm programmes, students will be required to choose option for Toxicology or Pharmacology. The MSc students will be awarded MSc (Toxicology) or MSc (Pharmacology) degree, depending on the option.

(a) Areas of Research in MSc ToxPharm (Toxicology Option)

- (i) Clinical/Medical Toxicology
- (ii) Food Toxicology
- (iii) Molecular/Genomic Toxicology
- (iv) Environmental/Occupational Toxicology
- (v) Aquatic/Ecotoxicology
- (vi) Analytical/Forensic Toxicology
- (vii) Nanotoxicology

(b) Areas of Research in MSc ToxPharm (Pharmacology Option)

- (i) Ethnopharmacology or Pharmacology of Natural Products
- (ii) Cardiovascular Pharmacology
- (iii) Reproductive Pharmacology
- (iv) Biochemical Pharmacology
- (v) Neuropharmacology/Neurodegeneration
- (vi) Pharmacogenomics
- (vii) Immunopharmacology

(c) Target groups

For MSc toxicology option, university graduates of biological sciences, chemical sciences (chemistry, analytical chemistry), Engineering (civil, agricultural, chemical and environmental engineering), statistics, mathematics, pharmaceutical sciences, biomedical sciences, medicine, law and forensic sciences. For MSc. Pharmacology option, university graduates of biological sciences, pharmaceutical sciences, biomedical sciences and medicine.

MSc ToxPharm

Candidates for admission into the MSc ToxPharm programme must possess Bachelor's degree of University of Port Harcourt or from a recognized university with a minimum of second class lower division or its equivalent in any of the following disciplines- biological sciences, chemical sciences (chemistry, analytical chemistry), engineering (civil, agricultural, chemical and environmental engineering), pharmacy, medical sciences, statistics, law, forensic sciences, or other related disciplines. Candidates will be interviewed and assessed for their suitability before they are admitted.

Duration of Programme

LIST OF COURSES

MSc TOXICOLOGY/PHARMACOLOGY (MSc ToxPharm)

LIST OF COURSES

FIRST SEMESTER

Course Code	Course Title	Status	Credit Unit
TXP 800.1	Introduction to Biomedical Sciences	Core	3
TXP 801.1	Fundamentals of Toxicology	Core	2
TXP 802.1	Advances in Toxicology/Pharmacology Techniques and Instrumentation	Core	2
GW 800	Grant Writing/ Ethics in Research	Core	1
SGS 801.1	ICT and Research Methods	Core	2
TOX 800.1	Forensic/Analytical Toxicology	Core	2
TOX 801.1	Food Toxicology	Core	2
TOX 802.1	Aquatic and Ecotoxicology	Elective	2
TOX 803.1	Petroleum and Natural Gas Toxicology	Elective	2
PCL 800.1	Advances in Autonomic and Cardiovascular Pharmacology	Core	2

(i) MSc Toxicology/Pharmacology programme is minimum of 18 calendar months and maximum of 27 calendar months for Full-time. Minimum of 24 calendar months and maximum of 36 calendar months for Part-Time.

Mode of Study/Graduation

Students of the MSc. ToxPharm programme must meet satisfactory attendance at the course, offer and pass all the core courses listed for each semester. Attendance and the submission of the relevant reports pertaining to all laboratory courses are required. Examinations associated with each course shall be conducted mainly by means of written and or practical papers, normally taken at the end of the semester in which the candidate has registered for the courses concerned. However, oral examinations as well as performance in course work in the form of essays, in-course tests, projects, or continuous assessments of theoretical and/or practical work may contribute towards the final grade awarded in a course. The students must carry out laboratory-based research in areas of pharmacology or toxicology (depending on the student's option) specified by their supervisors and submits their dissertation before graduation.

Throughout the semester, MSc students will be provided with journal articles and expected to read and prepare for class discussions.

The pass mark for all graduate students is 50% (Grade of "C"). Any student that fails a course will be allowed to re-register for the course at the next available opportunity, but a student will not be allowed to register for a course more than twice. At the end of the first year of course work, the student is required to have a minimum CGPA of 3.0. A student who fails to meet up this minimum requirement shall be asked to withdraw.

PCL 801.1	Recent Advances in Chemotherapy	Core	2
PCL 802.1	Advances in Clinical Pharmacology and Therapeutics	Core	2
PCL 803.1	Reproductive Pharmacology.... Principles of Pharmacology & Drug Discovery	core	2
			26

N/B: “TXP”, “GW” and “SGS” are shared courses for all students. “TOX” is courses for only Toxicology Option Students. “PCL” are courses for only Pharmacology Option Students.
Total credits for either Toxicology or Pharmacology Option are 18.

SECOND SEMESTER

Course Code	Course Title	Status	Credit Unit
TXP 803.2	Special Topics/ Seminars	Core	2
SGS 801.2	Entrepreneurship and Management	Core	2
TOX 804.2	Immunotoxicology	Core	2
TOX 805.2	Systemic Toxicology	Core	2
TOX 806.2	Advances in Molecular Toxicology & Toxicogenomics	Core	2
TOX 807.2	Exposure Science and Risk Assessment	Core	2
TOX 808.2	Medical/Clinical Toxicology	Elective	2
TOX 809.2	Environmental/ Occupational Toxicology	Elective	2
PCL 803.2	Advances in Ethnopharmacology	Core	2
PCL 804.2	Advances in Molecular Pharmacology	Core	2
PCL 805.2	Advances in Pharmacokinetics	Core	2
PCL 806.2	Advances in Neuro- and Biochemical Pharmacology	Core	2
PCL 807.2	Advances in Nanopharmacology and Nanotoxicology	Elective	2
PCL 808.2	Advances in Pharmacoepidemiology	Elective	2
TXP 804.2	Research Project in Toxicology/ Pharmacology (Dissertation)	Core	6
			34

N/B: N/B: “TXP” is shared courses for all students. “TOX” is courses for only Toxicology Option Students. “PCL” is courses for only Pharmacology Option Students.
Total credits for either Toxicology or Pharmacology Option is 20.

(ii) COURSE DESCRIPTION FOR MSc TOXPHARM

FIRST SEMESTER

TXP 800.1 Introduction to Bio-medical Sciences 3 Credit Units

- (a) Definition of basic concepts in Biochemistry. Introduction to biophysical chemistry, Review of metabolic pathways, biochemistry of carbohydrate, lipid and protein.
- (b) Definition of basic concepts in Physiology of mammalian systems. Review physiology of Blood, Immune System, Liver, Kidney, Respiratory System, Nervous System, Cardiovascular System, Skin, Reproductive System, Eye, and Endocrine System.
- (c) Basic concepts in Pharmacology. Review of Pharmacokinetics and processes: definition of pharmacokinetics. Absorption: different sites of absorption, pH-partitioning, factors that affect absorption. Distribution: Plasma-protein binding and other factors that affect distribution. Entry of drugs into special tissues: the brain and the foetus. Elimination of drugs: introduction to metabolism of

drugs. Excretion in urine: glomerular filtration, tubular reabsorption, tubular secretion. Other routes of elimination.

Basic concepts in Pharmacodynamics: Review of Receptors, Neurotransmitters, the adrenergic and cholinergic nervous systems; serotonin, histamine, agonists and antagonists of each of these neurotransmitters, neuropeptides.

TXP 801.1 Fundamentals of Toxicology 2 Credit Units

Definitions and scope of toxicology, history of toxicology, concepts of toxicology; how does toxicity develop? Fields of toxicology and sub-discipline of toxicology;
Classification of toxic agents: Heavy metals, solvents and vapour; radiation and radioactive materials; dioxins/furans, pesticides; plant toxins; subcategories of toxic substances; general classification of interest to communities.
Definition of absorption, distribution, metabolism and elimination of toxicants; mechanism of drug toxicity management of acute poisoning, plant, bacteria and animals poisons including snake bites. Pesticides, herbicides, insecticides, fungicides,

rodenticides and fumigants; Radiation toxicology. Airborne poisoning. Heavy metals and chelating agents. Toxicology of food additives and chemical preservatives. Environmental toxicology, pesticides, air pollution, lead, mercury and food additives. Evaluation of drug toxicity in lower animals and in man, clinical trials; Treatment of toxicity; principles of non-specific and antidotal treatment of toxicity; Pharmaceutical toxicology; forensic approach to the study of toxicology; Entomo-toxicology; the use of advanced physical and chemical techniques and electron microscopy in toxicology.

Toxicological information sources: Agencies with toxic substances and related diseases registry: National Environmental Standards and Regulations Enforcement Agency (NESREA);

National Agency for food and drug Administration (NAFDAC), Food and Drug administration (FDA), centre of disease control and prevention (CDC&P) Nuclear regulatory commission, Federal Environmental Protection Agency (FEPA) ; National Biosafety Management Agency (NBMA); National Environmental Standards and Regulations Enforcement Agency (NESREA); National Oil Spill Detection and Response Agency (NOSDRA); Nuclear Regulatory commission (NRC); The American Conference of Governmental Industrial Hygienist; Other Electronic databases

TXP 802.1b Advances in Toxicology/ Pharmacology Techniques 2 Credit Units

Introduction; Cell Culture Techniques; Suspension Cell Culture; Monolayer Cell Culture; Indicators of Toxicity in Cultured Cells; Use of Stem Cells; Cell Culture Models as "Alternative" Toxicity Tests; Molecular Techniques

Molecular Cloning; cDNA and Genomic Libraries; Northern and Southern Blot Analysis; PCR; Evaluation of Gene Expression, Regulation, and Function, Immunochemical Techniques; Proteomics; Metabolomics; Bioinformatics and Genomics.

Use of pharmacological techniques as they applied to pharmacological problems. Practical instructions and experiences in spectrophotometry; fluorimetry; chromatographic techniques; subcellular fraction; gel eletrophoresis; electron microscopy, iontophoresis; microelectrodes techniques, ligand binding and radioactivity; radioimmunoassay techniques. Techniques in experimentally induced diseases for pharmacological investigation.

GW 800 Grant Writing/Ethics in Research 1 Credit Unit

Ethical issues of scientific investigation, including intellectual property, plagiarism,

conflict of interest, human and animal subjects, and record keeping.

Grant /Proposal Writing Terminology (RFA, RFP, PRI, PI, NOFA, LOI, IRB, NOA, Rubric, Donee, grantee, summary, see Grant select); Type of grant application (Demonstration grant, discretionary grant, entitlement grant, support grant, pass-through grant, project/program grant etc.); Writing a grant application, How to present organizational qualifications, how to write an application that win grants; how to write programme blueprints, how to submit an application on grants.Gov; Components of grant application; helpful tools and resources in grant writing; strategy for developing a proposal, how to identify potential funding sources; how to read and understand grant guidelines, request for proposals and application (RFA/RFP), writing objectives, preparation and justification of budget; Components of grant application; helpful tools and resources in grant writing; strategy for developing a proposal, how to identify potential funding sources; how to read and understand grant guidelines, request for proposals and application (RFA/RFP), writing objectives, preparation and justification of budget; protocols of use of animal or human subjects in research, cost-sharing and sub-contract; procedure of grants submission and grant start-ups, grant review process, writing cover letter, preparing curriculum vitae and the job interview process. Focused Group Discussions on recent and trending Toxicology and Pharmacology concepts. Students will be expected to identify grant opportunities and successful complete the process of grant proposal

SGS 801.1 ICT and Research Methods 2 Credit Units

ICT and research methods will cover essentials of ICT such use of Microsoft Word, Spreadsheet, Power point, Access and Project. Statistical packages such as Grappa Prism6.5®, InStat® and other packages utilised in biological research.

Introduction to project design and planning will instruct on various methods in conducting scientific research in biomedical sciences. Experimental design will be quantitative and qualitative; Conduct of clinical trials and documentation; use of computer in data analysis; operational research and functional analysis will utilize in project design and evaluation. Designing of research projects, processes and methods: planning a Research a research work; Consideration of ethical Issues in Research and ethical clearance; Various study designs in biomedical sciences; considerations of aptness of topic; Introduction (Problem Definition, Objectives); Hypothesis design and testing; review of relevant literature; Materials & Methods;

Determination of sample Size and formula used in calculation; data collection instruments; Data Collection/Management; Results presentation (Data analysis and presentation, tables and figures and legends.); Discussion, Conclusion and Recommendations; Referencing; Project assemblage. Statistics from measures of central tendency to paired sample hypothesis. Multi-sample hypothesis and multiple comparisons; Two factor analysis of variance, linear correlation and multiple regressions; Testing for randomness inclusive of Poisson probabilities and serial randomness of nominal categories; Computer application in statistics.

TOX 800.1 Forensic/Analytical Toxicology 2 Credit Units

Introduction to Forensic Toxicology; Evidentiary Requirements; Sample Type and Chemical Classes Analyzed in Forensic Toxicology; Autopsy specimens and quantities required to be submitted for toxicological examinations; Classification of Poisons; Drugs of Abuse potentials; Alcohol and related substances of abuse available today; Toxicological Investigation of Drug-Facilitated Sexual Assaults; Standard operating procedures (SOP) in the collection, handling and preservation, and documentation of toxicological evidence; An overview of analytical methods used in the analysis of drugs and toxins e.g. GC, TLC, GC/MS, LC/MS and HPLC.

TOX 802.1 Food Toxicology 2 Credit Units

Nutrition and xenobiotic metabolism (a) Phase I and II detoxification processes (b) Metabolic activation (c) Conjugation and excretion; Nutrition and Alcohol (a) Alcohol metabolism (b) Effects of alcohol on nutrient availability- folate (c) Effects of alcohol on the metabolism of other xenobiotics; Nutrients as Toxins (a) Therapeutic Index (b) Vitamin A, selenium, tryptophan, fluoride, pyridoxine; Natural Toxins in Plant Products (a) Introduction to toxic substances in plant products (b) Glucosinolates- rapeseed and canola (c) Cyanogenic glucosides - almonds, cassava, lima beans (d) Antinutrients; glucosinolates, thiaminase, trypsin inhibitors, phytate; Pesticides: Man Made and Natural (a) Risk of toxicity from commercial pesticides in human populations; Emerging areas of concern in toxicity of plant products (a) Toxicity of nutraceutical and herbal products; Toxic Factors in Animal Products (a) Seafood toxins: neural sodium gate inhibitors; Chemical Carcinogenesis and Diet (a) Introduction to chemical carcinogenesis (initiation, promotion, progression), description of interactions with diet (b) Pyrrogonic toxicants (broiling, barbecuing, protection by fruits and vegetables (c) Other carcinogenic products formed during the cooking of foods (aromatic amines, browning reaction, Maillard reaction (d) Nitrites,

Nitrites, Nitrosamines (contaminated ground water, food processing, protection by vitamin C (e) Aflatoxin (mycotoxins are synthesized by moulds during food storage (f) Influence of nutrient status on carcinogenesis (oxidant defence and cancer? (vitamins C, E, selenium, β -carotene), retinoids, differentiation and cancer, folate status, gene expression and DNA integrity (h) Influence of dietary non-nutrients on carcinogenesis

TOX 802.1 Aquatic and Ecotoxicology 2 Credit Units

General introduction and historical perspective of aquatic toxicology; Aquatic life vulnerability to toxicity; factors affecting exposures: physical, chemical and environmental (aquatic) affecting exposures; toxic agents and contaminants in aquatic environment; uptake and elimination of contaminants and toxicants; bioaccumulation and bio-concentration; Phase I metabolism: overview of molecular aspect, activation and detoxification and biomarkers; CYP450's regulation and inducibility; phase I biotransformation in aquatic life; phase II biotransformation and sequestration; oxidative stress and antioxidant response; aquatic life and substrate pool shift; stress proteins and DNA modification; effects on cells tissues and organs; contaminants-induced sub-lethal effects; organisms of aquatic toxicity testing; toxicity testing: introduction, test, design; exposure system; factors affecting quantitative response/ sediments; quantitative estimator of effects; effect on population, community and ecosystem. Application of toxicity data for ecological risk assessment: ecological risk assessment, case studies. Ecotoxicology and biochemical effects of pesticides and carcinogens.

TOX 803.1 Petroleum and Natural Gas Toxicology 2 Credit Units

Petroleum exploration and exploitation in Niger Delta; Petroleum based products high complexity of chemical mixtures; Kinetics and metabolism; Toxicity of aromatic hydrocarbons, including the so-called BTEX group (benzene, toluene, ethyl benzene and xylenes) to microorganisms and plants; Petroleum products toxicosis; Acute and chronic exposure effects; Sources and routes of exposure; Clinical signs of petroleum toxicity; petroleum products as carriers for insecticides and implication for toxicity; Physical properties of petroleum (volatility increases at lower molecular weight and lower saturation or aromaticity) of petroleum prompting toxicity; extent of toxicity to the population, community and ecosystem; Local Communities activity sustaining petroleum toxicity- Pipeline breaks, vandalization of storage facility, tank-car accidents, and open or leaky containers are potential sources. Petroleum businesses (tank farm, haulage in truck and underground pipes; petroleum

dispensing stations) and potentials for toxicity; Petroleum products and additives (crude oil, gasoline, diesel, kerosene, lubricant) toxicity; petrochemicals products and additives toxicity. Comparative toxicity of petroleum hydrocarbons; poisoning to animals; Diagnosis of petroleum product poisoning in man and animals; treatment of petroleum product poisoning; effects of oil and gas field on health of humans and animal. Gas flaring and air pollution; Heavy metals impurities in natural gas.

PCL 800.1 Advances in Autonomic & Cardiovascular Pharmacology 2Credit Units

The autonomic Nervous System: neurochemical transmission; smooth muscle; receptor mechanism and neurochemical interaction; Peripheral Autonomics Cholinergic mechanisms; structural Activity relationship with cholinomimetic drugs; Peripheral Autonomic Adrenergic mechanism; The heart and drugs affecting cardiac functions; the blood and drugs affecting coagulation, fibrinolysis, hematopoiesis and the functioning of blood cells; the CVS drugs affecting the circulation. Drug used in hypertension and myocardial infarction.

PCL 801.1 Recent Advances in Chemotherapy 2 Credit Units

Mechanism of action of selected chemotherapeutic agents; host-parasite interactions. Life cycle of parasites in relation to chemotherapeutic action. Antimalarials, antiamoebics, giardiocidal, toxoplasmodicidal and trichomonocidal drugs; chemotherapy of African trypanosomiasis, leishmaniasis, ascariasis, trichuriasis, enterobiasis, taeniasis, fascioliasis,; chemotherapy of filariasis and loiasis, schistosomiasis. Chemotherapy of fungal diseases. Chemotherapy of rickettsial diseases, murine typhus and African tick typhus. Chemotherapy of HIV/AIDS, Ebola, SARS and Covid 19 and emerging variants.

PCL 802.1 Advances in Clinical Pharmacology and Therapeutics 2 Credit Units

Introduction and definition of scope of clinical pharmacology in drugs developments; Effects of drugs following administration; Preclinical and clinical evaluation of drugs; Elements of clinical investigations; Use and misuse of plasma concentrations of drugs; Variation in disposition and action of drugs in pregnancy, childhood and old age; pathologic and psychological factors in drug action; Pharmacological basis of therapeutics of communicable and non-communicable diseases.

PCL 803.1 Reproductive Pharmacology; Principles of Pharmacology & Drug Discovery

Reproductive Pharmacology: Life Cycle of the Ovary: Puberty, The Menstrual Cycle, and Menopause; Male Reproduction; Contraception; Menstrual Disorders and Other Common

Gynecology Problems; Normal Maternal Physiology: Implications for Prenatal Care; Physiology of Normal Labor and Delivery; preeclampsia induced hypertension (PIH) /Obstetrical Hemorrhage; Infertility; Pharmacology of Estrogens & Progestins; Sexually Transmitted Disease; Fertilization, Early Pregnancy and its Disorders. Assisted reproductive technology (ART). *Principles of Pharmacology:* Pharmacodynamics principles of receptor theory, drug-receptor interactions; ligand-receptor interactions, agonist and antagonist mechanisms of action (MOA), analysis of drug concentration-effect curves, types of receptors involved in signal transduction and signal transduction pathways as targets for drug action, functional selectivity/“biased signaling”, allosteric modulation of endogenous ligand-receptor interactions, regulation of receptors (e.g.,receptor desensitization, up- and downregulation), and general mechanisms that account for the toxic effects of drugs; pharmacokinetic principles of ADME processes; Endogenous signaling systems – *histaminergic* and *eicosanoids* (autacoids); Autonomic pharmacology

Drug Discovery: High throughput target pathway selection, Biologics, Pre-clinical animal testing, Species differences in responses to drugs, Translational pharmacology, Development of clinical proof of concept, Clinical trials– Phases 1 to 4 (safety, safety/efficacy, effectiveness, efficiency, treatment decisions, policy decisions, Post-market surveillance, Patient-reported outcomes (PROs),

SECOND SEMESTER

TXP 803.2 Special Topics/Seminars

2 Credits Units

The various special topics shall be topics contributed by all the lecturers on postgraduate programme. The students will present seminars on recent advances in their various specialties and shall be evaluated by all the lecturers on postgraduate programme present during the seminar presentation.

SGS 801.2 Entrepreneurship and Management 2 Credit Units

Covers concepts, history and development of entrepreneurship, the entrepreneur, qualities and characteristics. The Entrepreneur and Business Environment, Identifying Business Ownership and Registration, starting and developing business ventures, Legal forms of business ownership and registration. Types of business ownership, feasibility studies, Role of Small and Scale Enterprise (SME) in the economy, Role of Government in Entrepreneurship, Business location and layout. Accounting for SME, Financing, SME, managing of SME, Risk Management of SME, success and failure factors of SME, prospects, and challenges of Entrepreneurship in Nigeria

Entrepreneurship in Nigeria Entrepreneurship. This course would expose the students to the practice of applied management and entrepreneurship. The students would learn how to enhance their entrepreneurship skills and manage their own business. Business prospects for students in higher institution would be taught and the student would learn how to get into the right business

TOX 804.2 Immunotoxicology Credits Units

General course information and immunology survey; Innate vs Adaptive/Tissues & Organs/ Haematopoiesis; Cellular players, secreted molecules & their functions; Cell surface molecules Intercellular signalling & Immune networks; Intracellular interactions and signalling; Inflammation /Immunity; Tolerance; mucosal immunology (skin, lungs, gut); Chemicals Related to Autoimmunity; Chemicals Related to Hypersensitivity; Immunosuppression I: Benzene; Immunosuppression II: Dioxin; Immunogenetics & Immunotox. Susceptibility; Immuno-toxicology in Non-mammalian Models

TOX 805.2 Systemic Toxicology Credits Units

Organ Toxicity: Blood Immune System; Liver; Kidney; Respiratory System; Nervous System Cardiovascular System; Skin; Reproductive System; Eye; Endocrine System

TOX 806.2 Advances in Molecular Toxicology & Toxicogenomics 2 Credits Units

Principles of pharmacogenomics and pharmacogenetics.; Interaction between drugs and DNA; Motivation (Rapid advances in molecular biology and computation); Definitions (Ecogenetics, Toxicogenomics, etc); Molecular Biology Techniques; Experimental measurement methods organized along the central dogma of molecular biology; (DNA, RNA, Protein); Genetics/Genomics (Sequencing, SNP chips); Transcriptomics/Toxicogenomics (expression microarrays); Proteomics (protein arrays, HTP MS) ; Testing for genotoxicity; Recombinant DNA technology, protein chemistry, and in situ hybridization.

TOX 807.2 Exposure Science & Risk Assessment 2 Credits Units

1. Exposure Science

What are the key goals of exposure assessment and potential uses of the results of an exposure assessment? Types of data that are used in exposure assessment (the hierarchy of exposure data – from personal monitoring data, biomonitoring to proximity types of data), including pros and cons of each type of data; biomarkers of effect and biomarkers of exposure, etc.

Key questions in exposure assessment – type of exposure – acute, chronic or intermittent, route of

exposure (inhalation, oral, dermal, injection), exposure pathways, duration of exposure, frequency of exposure, characteristics of receptor population that are pertinent for exposure, exposure rates (inhalation and ingestion rates), etc.

Measuring exposure data in a variety of settings – epi study, environmental monitoring, modelling (use example of National-Scale Air Toxics Assessment for the US)

Calculating exposure in a risk assessment – illustrative case studies – using simple exposure formulae $((IR * Conc * EF * ED) / (BW * AT))$

Illustrative case study using made up scenario for maybe benzene; Dose-Response Assessment

What is the goal and utility of a dose-response assessment; Evaluating dose-response relationships in animal tox studies and epi studies; Understanding d-r information – shape and slope of the curve, background exposures, baseline susceptibility, linearity and non-linearity and issues with assumptions; Case Study - “Dose maketh the poison” – A re-evaluation using emerging data on Pb and endocrine disruptors

Risk Characterization: Tools for estimating risk – hazard quotient, hazard index, risk per population count using inhalation unit risk estimates for cancer; Summarizing the data from your risk assessment – Assuring that key information is included; Preparing a risk report for a decision maker; Case study maybe using benzene.

Risk management: Types of risk management decisions; Informing your decision using your data; Considerations in risk management – social, political, scientific, economic, equity, sustainability, etc.

Risk Assessment

Background: of risk assessment and exposure science. What is risk? What is risk assessment?

History of the evolution of risk assessment; Utility of risk assessment in decision making – Risk based decision making, development of reference concentrations, reference doses and cancer slope factors, use of the latter types of information to manage environmental hazards. Overview of the framework for risk assessment; Framework for Risk Based Decision Making:

(a) Planning and Scoping Relevance of designing a risk assessment to address risk management decisions. Setting up your risk assessment to be responsive to your risk management needs.

(b) Hazard Identification

What is hazard identification

What are the key questions (information outputs) of a hazard identification exercise

Assuring a thorough evaluation of toxicity – key concepts to consider and understand – direct effects, interactions and effect modification, vulnerability and susceptibility, cumulative effects and cumulative exposure.

Types of data used in hazard identification – animal toxicology studies, Toxicokinetic (TK) studies, Toxicodynamic (TD) studies, human studies (limited because of ethical issues but when available can be useful), epidemiological studies.

Evaluating mechanisms of toxicity – biotransformation, key xenobiotic pathways e.g. Cyp2E1, Phase 1 and Phase 2 metabolism basics, role of the liver, excretory mechanisms, etc

Weighting the evidence to support toxicity – Applying Hill's criteria

Case Study Review using an example from the USEPA's Integrated Risk Information System – benzene is rich in human epi data and cis 1,3-Dichloroethylene is not data rich. Another good source of data is the EPA "Integrated Science Assessment" documents for National Ambient Air Quality Standards pollutants using Pb as a good example.

TOX 808.2 Medical/Clinical Toxicology

2 Credits Units

Poisoning (drug & non-drug), Identification, detection, management and prevention. Principles and methods used in poison management. Vomiting, oral binders, Gastrointestinal dialysis, Antidotes, Poison information Centres. Poisoning Hospitalization. Poisoning induced hypotension. Toxicology: Snake venom. Spider and insect venoms. Plant poisons and management.

TOX 809.2 Environmental Toxicology/ Pharmacology 2 Credits Units

General introduction to environmental toxicology; National and International regulatory agencies and their roles. Dose-response relationships, Toxicity testing; Bio-accumulation; Major classes of Pollutants: fate and transport, bioavailability, and modifying factors; Metals and Metalloids: source, mode of action, and toxicity; Hydrocarbons and halogenated hydrocarbons: source, mode of action and toxicity; Pesticides: types, mode of action, and toxicity ;Endocrine Disruptors: source, mode of action, and toxicity; Radionuclides: source, mode of action, and toxicity; Gaseous pollutants: source, types, and toxicity; Nutrient pollution in natural waters; Toxicology of industrial effluents: an aquatic perspective; Assessment of pollutant effects at organism level: biochemical and molecular biomarkers, physiological, reproductive and behavioural indicators; Assessment of pollutant effects at population and community level; Pollution in the Niger Delta; Pharmaceuticals in the Environment ; Global Warming and Climate Change

PCL 803.2 Advances in Ethnopharmacology

2 Credit Units

The concepts of disease causation in tradition medicinal system, review of plants with medicinal properties, role of ethno-medicinal to public health delivery, pharmacological studies of ethno-

botanicals, herb-drug interaction. Definitions, historical and religious basis of ethnomedicine –The medicine of Avicenna, Esculapius and Galen. Traditional medicine in folklore (Calabar bean, South American arrow poison, Coca chewing and opium poppy smoking of the American Indians etc.). Race and cultural influences on traditional medicine, Herbal medicine and orthodox medicine – Homeopath Naturepath, Chinese acupuncture, African Medicine. Socio-economic, politico-religious and technological influence on drug development and medical practice. Important plant and animal sources of modern medicine from Belladonna to digitalis, from cinchona bark to opium poppy. Scientific methods of evaluation of herbal preparations. Desirability or not of merging orthodox and traditional medical practices. Indigenous pharmacopeoea (African, West African and Nigerian). Historical outlook of traditional medical practice.

PCL 804.2 Advances in Molecular Pharmacology

2 Credit Units

Introduction to molecular biology and biotechnological tools e.g. recombinant DNA technology, etc. Molecular basis of the pharmacology of genetically engineered drugs; molecular mechanism of drug actions. Binding forces in drug receptor interactions. Structural Activity Relationship study and the conformation of the receptor surface. Receptor types; Analysis of drug induced- Dose-Response Relationship, and characterization of Drug -Receptor interactions.

PCL 805.2 Advanced Pharmacokinetics

2 Credit Units

Review of concepts and application of pharmacokinetics. Linear- and non-linear pharmacokinetics models; dosage regimen design and pharmacokinetics; Pharmacokinetics and Pharmacodynamics; Pathophysiological factors in pharmacokinetics.

PCL 806.2 Advances in Neuro- and Biochemical Pharmacology 2 Credit Units

Neurotransmitters: physiology of noradrenalin, adrenalin, dopamine, histamine, serotonin, glutamate, aspartate, and GABA; synthesis, releases, uptake and metabolism of neurotransmitters. Methods of studying neurotransmitter (biochemical, histochemicals and autoradiologicals). Neurotransmitters in sleep mechanisms; diseases of central nervous system and drug therapy; Cyclic nucleotides and their importance in drug action. Radioisotopes in Pharmacology. Endocannabinoids-cannabinoids physiological control (CPCS); endocannabinoids and regulation of neurotransmission (retrograde neurotransmitters); therapeutic potentials of CPCS.

PCL 807.1 Advances in Nanopharmacology and Nanotoxicology 2 Credit Units

Nanotechnology in Pharmacology; History of Nanopharmacology. Drug delivery systems: liposomes, Noisome, emulsion, polymers, ceramics, metallic, gold shell, carbon nanomaterials and quantum dots, nanotherapy and nanomedicines in cancers. Nanotoxicology: toxicity of nanoparticles: allergy, fibrosis, organ failure, inflammation, cytotoxicity, tissue damage, ROS generation, DNA damage; diseases associated with nanoparticle exposure; classification of nanotoxicity- biological and environmental toxicity. Discussion current reviews and advances of latest journal articles.

PCL 808.1 Advances in Pharmacoepidemiology 2 Credit Units

Definition; Pharmacoepidemiological research, Aim, sources of data, types of data, epidemiological studies, design, observational and intervention studies, descriptive epidemiology, case control, case series, trend analyses (ecological studies), cross-sectional studies, case control study, cohort study, application of pharmacoepedmiology. Recent advances in current journal articles.

TXP 804.2 Research Project (Dissertation) 6 Credits Units

At the end of course work the students shall undertake a research work. Departmental and Faculty defense of the proposal shall be presented before the students proceed on the project work. After the project is conducted, the students shall present a dissertation to the departmental and faculty before final defense at the School of Graduate Studies.

PhD DEGREE PROGRAMMES IN EXPERIMENTAL TOXICOLOGY & PHARMACOLOGY

The objectives of the PhD Toxicology /Pharmacology (Toxicology Option) are to:

- i. provide students with sound foundation in all areas of toxicology.
- ii. train qualified candidates in applied toxicology and environmental health.
- iii. provide training to students on toxicokinetics, toxicodynamics and mechanism of actions of toxicants in the environment that can be exposed to humans and animals, which are common in many parts of Nigeria due to pollution from oil exploration activities and other industrial activities.
- iv. train students to evaluate and identify through fundamental and applied research (including qualitative and quantitative analysis) environmental toxicants that are potentially hazardous, whether chemical, biological or physical in nature

- v. develop in the students the skills to evaluate the impact caused by such exposure on health of man, animal and environment through risk assessment.
- vi. develop in the students the ability to evaluate the harmful effects of pharmaceutical compounds and other chemical compounds that are poisonous to humans using systematic approach.
- vii. provide the all-round training and skills in toxicology for students to be useful in the academics, research institution and regulatory bodies.

After completing the PhD Toxicology/ Pharmacology (Toxicology Option), the student will be able to:

- i. have in-depth knowledge about the different toxins, chemicals and their adverse effects on the health and environment.
- ii. Have skills in different advanced exposure assessment methods
- iii. design mitigation strategies for exposure assessment
- iv. analyse and interpret exposure measurements applying standard modelling tools
- v. design strategies for study of dose-response relations
- vi. apply methods for combining information from different studies to derive a dose-response relationship (meta-analysis)
- vii. have good understanding of risk assessment process and know how exposure limits and standards are derived

The objectives of the Ph.D. Toxicology/ Pharmacology (Pharmacology Option) are to:

- i. provide students with the opportunity to greatly enhance and expand their understanding of pharmacology and closely associated disciplines.
- ii. enable students have a good understanding of research and development of novel pharmacological agents, as well as evaluating their safety.
- iii. acquire knowledge and skills required for discovery of drugs in natural products from the flora and fauna of Niger Delta.
- iv. enable students be able to evaluate pharmacoeconomics impacts upon the drug discovery and development process.
- v. work in partnership with pharmaceutical industries to commercialize research findings by developing patentable drug products needed for treatment of tropical diseases.
- vi. promote collaborative research and training at national and international level to acquire competence needed for the advancement of pharmacology.

By the end of the ToxPharm (Pharmacology Option) programme, student will be able to:

- i. understand principles of pharmacology and drug discovery
- ii. critically appraise pharmacological drugs used in major disorders
- iii. show good understanding of the application of novel compounds in the pharmaceutical and biotechnology industries
- iv. have in depth understanding of the molecular mechanisms of toxicology, with perspectives on drug metabolism and pharmacokinetics and how these can lead to toxicity
- v. exhibit a high level of competence in the application and use of important research tools in the field of pharmacology.
- vi. Plan and conduct toxicity studies and clinical trials
- vii. develop competence, confidence and an enquiring, investigative approach.

2. AVAILABLE PROGRAMME

- (i) PhD Toxicology/Pharmacology (PhD ToxPharm)

3. PhD TOXICOLOGY/PHARMACOLOGY (PhD ToxPharm)

(a) Areas of Research in Toxicology

- (i) Clinical/Medical Toxicology
- (ii) Food Toxicology
- (iii) Molecular/Genomic Toxicology
- (iv) Environmental /Occupational Toxicology

(b) Areas of Research in Pharmacology

- (i) Ethnopharmacology or Pharmacology of Natural Products
- (ii) Cardiovascular Pharmacology
- (iii) Reproductive Pharmacology
- (iv) Biochemical Pharmacology
- (v) Neuropharmacology/Neurodegeneration
- (vi) Pharmacogenomics
- (vii) Immunopharmacology

(c) Target groups

University postgraduates of toxicology or pharmacology with good analytical and critical thinking capacity who have high interest in research.

(d) Entry Requirements

Admission to the PhD ToxPharm programme shall be opened to candidates who possess a minimum CGPA of 3.5 (on a scale of 5.0) in MSc Toxicology or Pharmacology degree of the University of Port Harcourt or of other Universities recognized by the University of Port Harcourt Senate. Candidates are expected to have independent learning ability. Candidates without MSc in Toxicology or Pharmacology but have a minimum CGPA of 3.5 out of 5.0 in other cognate biomedical disciplines shall be expected to audit MSc Courses in Toxicology or Pharmacology in two semesters and pass all examinations before proceeding on the PhD Toxicology or Pharmacology programme. This one year shall not be part of the eighteen (36) months required for the Doctor of Philosophy (PhD) programme. Until the candidate completes such requirement, he or she shall not commence the advanced courses in Toxicology or Pharmacology.

(e) Duration of Programme

Full-time candidates will be required to spend a minimum of 36 calendar months and a maximum of 48 calendar months. Part-time candidates will be required to spend a minimum of 48 calendar months and a maximum of 60 calendar months.

(f) Mode of Study/Graduation

The PhD programme will be based on independent but comprehensive research work embodied in a thesis. Students will be encouraged to engage largely in self-learning, and there will be less preponderance of didactic teaching. The students are expected to actively seek knowledge and skills on their own initiative. The study method during the programme is systematically fashioned to involve Lectures, Seminars and Journal Club, as well practical exercises. Students shall be expected to present periodic seminars to the Department/Faculty as part of progress reports on their research work. Each PhD student shall be expected to present at least 4 seminars every year on selected topics of interest. The course work system for the PhD programme applies. Thesis re to be orally defended. In addition, they are expected to satisfy all other requirements as stipulated in the University of Port Harcourt Graduate School regulations for graduate students. Summary mode of study will be by course work and research.

4. LIST OF COURSES

FIRST SEMESTER

Course Code	Course Title	Status	Credit Unit
TXP 900.1	Research Seminar I	Core	3

GW 900.1	Grant Writing	Core	1
TOX 900.1	Epidemiology/Public Health	Core	2
TOX 901.1	Exposure Science & Risk Assessment	Core	2
TOX 902.1	Advanced Nanotoxicology	Core	2
PCL 900.1	Advances in Pharmacogenomics	Core	2
PCL 901.1	Advances in Pharmacogenetics	Core	2
PCL 902.1	Advances in Drug Discovery	Core	2
			16

N/B: "TOX" is courses for only Toxicology Option Students. "PCL" is courses for only Pharmacology Option Students.

Total credits for either Toxicology or Pharmacology Option is 10.

SECOND SEMESTER

Course Code	Course Title	Status	Credit Unit
TXP 901.2	Research Seminar II	Core	3
TXP 902.2	Thesis in Toxicology/Pharmacology	Core	12
			15

N/B: "TXP" is shared courses for all students.

Total credits for either Toxicology or Pharmacology Option is 15.

(ii) COURSE OUTLINE

FIRST SEMESTER

TXP 900.1 Research Seminar I 3 Credit Units

Writing a seminar paper on a topic aligned with research focussed area. The seminar will be evaluated by oral defence.

GW 900.1 Grant Writing 1 Credit Unit

Writing a grant application, write an application that win grants; how to write programme blueprints, how to submit an application on grants. Gov; Components of grant application; helpful tools and resources in grant writing; strategy for developing a proposal, how to identify potential funding sources; how to read and understand grant guidelines, request for proposals and application (RFA/RFP), writing objectives, preparation and justification of budget. *Applying for a grant and winning a grant is prerequisite of passing the course with A grade.*

TOX 900.1 Epidemiology/Public Health

2 Credit Units

Epidemiology: Definition of terms; types of epidemiology e.g. Environmental / occupational epidemiology, Clinical epidemiology, epidemiology of cardiovascular diseases, environmental epidemiology, epidemiology of methods; epidemiology of infectious disease. Genetic Epidemiology and Statistical Genetics; nutritional epidemiology, pharmacoepidemiology, genetic epidemiology and statistical genetics, reproductive, perinatal and pediatrics epidemiology, biomonitoring epidemiology etc.

Public Health (PH): Definition of Public health, role of PH, PH as system, PH approaches, core functions, activities, achievements of PH, problems and diseases PH deal with; PH institutions and

organizations and PH professions. The intersection of PH with Epidemiology. One Health: Concept and application; One Health approach in the surveillance of zoonoses and foodborne diseases. The governance of One Health: as a science assisting the society in the translation of the environmental component of One Health. The institutionalization of One Health in risk assessment and biomonitoring and surveillance. The environment-farm interface: Animal Feeds, environment, One Health and sustainability; Farm to fork toxicology. From environment to human diet: the case study of perfluoroalkyl substances (PFAS).

Surveillance: Definition, steps in establishing and sustaining surveillance system and its application in mitigating toxicological hazards; Core functions of surveillance of any health event: case detection, reporting, investigation and confirmation, analysis and action (control, response and feedback); surveillance system. The role of Continental, regional or National Public Health Reference Laboratories in assessment and surveillance of Toxicological hazards in the environment, food, water, air, vector etc. Application of epidemiology in risk assessment of environmental contaminants in food based on surveillance and monitoring data. Epidemiology approach in risk assessment of pesticides in the environment and human health benefits. Use of epidemiology in risk assessment of highly contaminated sites

TOX 901.1 Exposure Science & Risk Assessment 2 Credit Units

Global climate change and human health; Weather and climate: changing human exposures Impacts on health of climate extremes; Climate change and infectious diseases; How much disease could climate change cause; Stratospheric ozone depletion, ultraviolet radiation; assessments of

health impacts of climate change: Monitoring the health effects of climate change; Adaptation and adaptive capacity in the public health context; developing responses to climate change. Climate change in animal Health; E-waste Exposure and management; The concept of Biomonitoring and safer environment and better management; Pollution and circular economy: advantages and drawbacks; Pollution and circular economy: advantages and drawbacks ; Environmental chemical and biological transport and transformation, exposure to environmental contaminants, and environmental risk assessment.

TOX 902.1 Nano-toxicology 2 Credit Units

Nanotoxicology: toxicity of nanoparticles: allergy, fibrosis, organ failure, inflammation, cytotoxicity, tissue damage, ROS generation, DNA damage; diseases associated with nanoparticle exposure; classification of nanotoxicity- biological and environmental toxicity. Discussion current reviews and advances of latest journal articles.

PCL 900.1 Advances in Pharmacogenomics 2 Credits Units

Introduction to pharmaceutical biotechnology and pharmacogenomics; Pharmacological and pharmacogenomics approaches to improve drug delivery; clinical Outcomes Genetic polymorphism of CYP isoenzymes and drug transporters. Advancements in molecular pharmacology, informatics, nanotechnology and genomics for the new drug development era New pharmacological classes of drugs (antibodies, antisense RNAs, siRNAs, aptamers); Personalized medicine and drug prescription; Pharmacology and pharmacogenomics of cardiovascular system; Clinical pharmacogenomics and drug interactions; Practical utility of various pharmacogenomics resources in the clinical setting. Protein drugs and the development of biotherapeutics. Pharmaceutical biotechnology of monoclonal antibodies (mAbs); Pharmacodynamics and pharmacokinetics of mAbs;

Pharmacogenomics of mAbs; Development of new innovative molecularly-targeted cancer therapeutics; Cancer pharmacogenomics and biotherapeutics; Recombinant Coagulation Factors and Thrombolytic Agents, Recombinant Human Deoxyribonuclease I, Hematopoietic Growth Factors: Focus on Erythropoiesis-Stimulating Agents, Interferons and Interleukins, Vaccines, Gene Therapy, Stem Cell Technology

PCL 901.1 Advances Pharmacogenetics 2 Credit Units

Pattern of transmission of single gene trait. Hardy-Weinberg Law Conditions for its Validity, application. On concepts of continuous and discontinuous variation. Pharmacogenetics (drug metabolism, tissue metabolism and receptor alterations).

PCL 902.1 Advances in Drug Discovery 2 Credit Units

High throughput target pathway selection, Biologics, Pre-clinical animal testing, Species differences in responses to drugs, Translational pharmacology, Development of clinical proof of concept, Clinical trials– Phases 1 to 4 (safety, safety/efficacy, effectiveness, efficiency, treatment decisions, policy decisions, Post-market surveillance, Patient-reported outcomes (PROs),

SECOND SEMESTER

TXP 900.2 Research Seminar II 3 Credit Units
Student will write a seminar on the progress of his work. This will be evaluated by oral examination

TXP 902.2 PhD Thesis 12 Credit Units
Students will be expected to write PhD thesis on their project work in their specialty either toxicology or pharmacology. This will be defended by oral examination.

LIST OF ACADEMIC STAFF

S/N	Name	Qualification	Specialization	Discipline	Rank
1	Dr C.N Obasi	B.Pharm (UNN) MSc (UPH) PhD (Manchester)	Pharmacokinetics Toxicology	Pharmacology/Toxicology	Senior Lecturer /HOD
2	Prof O.E Orisakwe	BSc (UNN) MSc, PhD (Lagos)	Toxicology Biochemistry Pharmacology	Toxicology	Professor
3	Prof J.S Aprioku	B.Pharm (Benin) MSc, PhD (UPH)	Reproductive Pharmacology/Toxicology	Pharmacology/Toxicology	Professor
4	Prof L.L Nwidu	B.Pharm (OAU, Ife) MSc (UPH) PhD (Uyo) Dip Public Health FPCPharm (WA)	Hepatology Natural product Drug Discovery Neurodegeneration Neuropharmacology	Pharmacology/Toxicology	Professor
5	*Prof V Idemyor	Bsc, Pharm D (Minnesota)	Clinical Pharmacology	Pharmacology	Professor
6	Prof A.N Ezejiiofor	BSc (Abraka) MSc, PhD	Toxicology Natural antidotes Pharmacology	Pharmacology/Toxicology	Professor
7.	Prof P.A Nwafor	B.Med Sc (UPH) MSc (UNN) PhD (Jos)	Reproductive Pharmacology/Toxicology	Pharmacology/Toxicology	Professor
8.	Dr O.A Shorinwa	B.Pharm (OAU, Ife) MSc, PhD (UPH) MBA (OSU) FPCPharm (WA)	Ethnopharmacology Pharmacology Inflammation	Pharmacology/Toxicology	Senior Lecturer
9	Dr B.D Dooka	B.Pharm (Uyo) MSc, PhD (UPH)	Environmental Toxicology, Pharmacology Natural products	Pharmacology/Toxicology	Lecturer I
10	Dr D.N Ajibo	B.Pharm (UNN) MSc, PhD (UPH)	Ethnopharmacology Pharmacology Neuropharmacology	Pharmacology/Toxicology	Lecturer II
11	*Dr O.E Afierofo	BSc (MOUAU) MSc (UNN) PhD (UI)	Natural Product chemistry	Phytomedicine	Associate Professor
12	*Dr K.M Ezealisiji	B.Pharm (Jos) MSc (UNN), PhD (UI)	Nanopharmacology and Nanotoxicology	Nanomedicine	Associate Professor
13	*Prof Franklin Banakuna Godson Tanee	BSc (Botany) MSc(Ecology) PhD Ecology (UPH)	Pollution & Restoration Ecology, Biodiversity&Conservation; Ecosystem Ecology, Waste management & Environmental Biotechnology	Ecology/Plant science Biotechnology	Professor

*Associate Lecturers

DEPARTMENT OF PHARMACEUTICAL & MEDICINAL CHEMISTRY

1. Introduction

Postgraduate study in the Department of Pharmaceutical and Medicinal Chemistry is designed to offer intensive training in special areas with emphasis on certain selected research programmes. The main objectives of this postgraduate programme are:

- (a) Training in the methods of scientific enquiry for candidates interested in and are capable of pursuing academic career in research and/or teaching.
- (b) To produce high calibre professionals via entrepreneurial research, innovative teaching and assessment methods; who will play leading roles in pharmaceutical and allied industries in solving practical problems in drug discovery and development (DDD), drug quality control and assurance (DQCA) and drug efficacy and action.
- (c) To provide postgraduate students with advanced knowledge and skills needed to meet the ever increasing national and international manpower need in pharmaceutical education and research.

2. Degrees Available

- (a) Master of Science (M.Sc.) in Pharmaceutical and Medicinal Chemistry with *options* in
 - i. Medicinal Chemistry
 - ii. Pharmaceutical Analysis
- (b) Doctor of Philosophy (Ph.D.)

3. Areas of Research

- iii. Drug Design and Synthesis
- iv. Pharmacokinetics, Drug Metabolism and Bioequivalence
- v. Natural Products Chemistry
- vi. Pharmaceutical Analysis and Drug Quality Evaluation

4.0 Specific Regulations

Master of Science (M.Sc.) Degree

4.1 Entry Requirements

A candidate for admission into the M.Sc. Programme should hold a B.Pharm or PharmD Degree of this University or any other approved university. Such a candidate shall also satisfy the general requirements for admission into the postgraduate study programme of the University of Port Harcourt.

Non-Pharmacist applicants in Chemistry, Biochemistry, Forensics, Pharmacology, and

Environmental Science may be considered for admission into the M.Sc. Degree Programme. Such candidate shall be a graduate of this University or any other approved university holding a Bachelor of Science (B.Sc.) degree or its equivalent with at least Second Class lower Division having a cumulative grade point average. Such candidate will be required to register and pass the following undergraduate courses in Pharmaceutical and Medicinal Chemistry:

- PCH 324.2: Medicinal Chemistry I (Introduction to Medicinal Chemistry)
 PCH421.1: Pharmaceutical Analysis II (Instrumental Methods of Analysis)
 PCH 423.2: Medicinal Chemistry II (Chemistry of the Pharmacodynamic Agents)
 PCH 521.1: Medicinal Chemistry III (Chemotherapeutic Agents and Drug Design)

4.2 Duration of Programme

The duration of the M.Sc. programme is a minimum of eighteen (18) months or three academic semesters. The maximum duration is thirty-six (36) or six academic semesters.

4.3 Courses

Candidate must register and take courses totalling not less than 28 units and not more than 32 units including a project. One unit is equivalent to a one-hour lecture or three hours of laboratory practical, per week per semester.

4.3.1 CORE COURSES

(M.Sc. Pharmaceutical and Medicinal Chemistry)

Candidates admitted for both Pharmaceutical Analysis and Medicinal Chemistry options shall be required to complete the following core courses.

First Semester

Course Code	Course title		Credit Unit
PCH 821.1	Advanced Organic Chemistry		2
PCH 822.1	Advanced Medicinal Chemistry		3
PCH 823.1	Modern Analytical Techniques		2
PCH 825.1	Biostatistics and Research Methodology		3
SGS 801.1	ICT and Research Methods		2
TOTAL			14

Second Semester

Course Code	Course title	Credit Unit
PCH 826.2	Pharmaceutical Analysis and Drug Quality Evaluation	2
PCH 828.2	Advanced Pharmacokinetics & Metabolic Chemistry	2
PCH 829.2	Advanced Pharmaceutical and Medicinal Chemistry Laboratory Practice	2
PCH 831.2	Seminar and Directed Reading	2
PCH 832.2	Dissertation	6
SGS 801.2	Entrepreneurship and Management	2
TOTAL		16
GRAND TOTAL		32

4.3.2 Electives
M.Sc. (Pharmaceutical Analysis Option)

Candidates admitted to the M.Sc. programme (Pharmaceutical Analysis Option) shall, in addition to the core courses, be required to take at least two from the following elective courses (one in each semester):

First Semester

Course Code	Course title	Credit Unit
PCH 833.1	Isolation Techniques in Natural Product Research	2
PCH 834.1	Metabolic Analysis and Toxicology of Drugs and Drug Metabolites.	2
TOTAL		2

Second Semester

Course Code	Course title	Credit Unit
PCH 835.2	Experimental Design in Drug Analysis	2
PCH 836.2	Nanochemistry in Drug Development.	2
TOTAL		2
GRAND TOTAL		4

Note: Students shall only choose a course per semester in the electives.

M.Sc. (Medicinal Chemistry Option)

Candidates admitted to the M.Sc. programme (Medicinal Chemistry Option) shall, in addition to the core courses, be required to take at least two from the following elective courses (one in each semester):

First Semester

Course Code	Course title	Credit Unit
PCH 833.1	Isolation Techniques in Natural Product Research	2
PCH 824.1	Chemistry of Natural Products	2
TOTAL		2

Second Semester

Course Code	Course title	Credit Unit
PCH 835.2	Experimental Design in Drug Analysis	2
PCH 827.2	Drug Design and Synthesis	2
TOTAL		2
GRAND TOTAL		4

Note: Students shall only choose a course per semester in the electives.

4.4. Mode of Study/Graduation

The Master's Degree Programme shall be prosecuted through coursework and dissertation. To graduate, a candidate is expected to pass all the relevant courses and dissertation with a minimum score of 50% each, in not more than two sittings.

Doctor of Philosophy (PhD) Degree
4.5. Admission to PhD graduate programme:

Admission is open to candidates who attained a minimum CGPA of 4.0 (Grade B or 60%) in the relevant written examinations and dissertation of the M.Sc. Course in Pharmaceutical and Medicinal Chemistry of the University of Port Harcourt, or of other Universities/Institutions recognized by the University Senate.

4.6. PhD Courses

Candidates admitted to this programme shall be required to complete the following core activities.

First Semester

Course Code	Course title	Credit Unit
PCH 921.1	Forensic Chemistry	4
PCH 922.1	Seminars and Directed Readings	4
TOTAL		8

Second Semester

Course Code	Course title	Credit Unit
PCH 923.2	Recent Advances in Pharmaceutical Analysis, drug Quality Evaluation and Drug Quality Assurance and	4

	Control (for Pharmaceutical Analysis Option)	
PCH 924.2	Recent Advances in Medicinal Chemistry, Drug design and Drug Synthesis (for Medicinal Chemistry Option)	4
PCH 925.2	Thesis	12
	TOTAL	20
	GRAND TOTAL	28

4.7. Duration of PhD Programme

Full-time candidates will be required to spend a minimum of 24 calendar months and a maximum of 60 calendar months.

Part-time candidates will be required to spend a minimum of 36 calendar months and a maximum of 84 calendar months.

4.8. Mode of Study/Graduation

The PhD Programme will be based mainly on independent but comprehensive research work embodied in a thesis. The thesis is to be defended by an oral examination.

Candidates shall, however, be expected to present periodic seminars to the Department and the Faculty as part of progress reports on their research work. In addition, they are expected to pass all the relevant courses with a minimum score of 50 % each, in not more than two sittings. They must satisfy all other requirements as stipulated in the Graduate School Regulations for graduate students.

5.0. Description of Courses

PCH 821.1: Advanced Organic Chemistry (2 Units)

Advanced mechanism of nucleophilic substitution reactions and factors affecting them; Elimination reactions: mechanism and factors affecting them; Organometallic compounds: Grignard synthesis, organo-aluminium, organo-zinc, organo-lithium compounds, preparation and uses. Synthetic uses of Free Radicals, Main types of radical reactions: Forming reactions; radical destroying processes, Radical transfer processes; new reduction methods: Electrochemical reduction, photochemical reduction; New oxidation methods: Electrochemical oxidation; Organic peroxide. Photochemical methods: Photo-addition reactions; Photocyclization reactions, photochemical rearrangement; Aromatic substitution reactions. New Synthesis of Aromatic Compounds, Ring syntheses; Syntheses was reactive, intermediates; Functional groups. Some specific organic reactions, Michael addition; Walden inversion; Woodward-Hoffmann-rule.

Recent methods for forming Heterocyclic Rings Syntheses using intermediates; 1,3-dipolar cyclo-addition reactions; Diels-Alder syntheses; Photochemical ring closures; Ring expansion reactions; Miscellaneous ring syntheses.

PCH 822.1: Advanced Medicinal Chemistry (3 Units)

Physico-chemical Properties of Medicinal Compounds: pKa, solubility and partition coefficient (Hanzsch's constant), surface activity, functional groups and electronic factors (Hammett constant) affecting biological action (isosterism and bioisosterism), oxidation/reduction potential, hydrogen bonding, polymorphism and stereochemistry.

Chemotherapeutic Agents: Recent advances, developments and review of the chemistry of antibiotics, antimalarials, sulphonamides, anticancer, antiviral, anthelmintic, antilepral and antiprotozoal agents and drug for tuberculosis HIV/AIDS.

Pharmacodynamic Agents: Recent advances and developments in the chemistry of analgesics, anti-asthmatics, oxytocic's, hypoglycaemic, prostaglandins, psychotherapeutics, steroids, drugs acting on the peripheral nervous system, vitamins and proteins of pharmaceutical and medicinal importance.

PCH 823.1: Modern Analytical Techniques (2 Units)

Principles of absorption and emission spectrophotometry and spectroscopy (flame emission spectrophotometry, atomic absorption spectroscopy, Fluorimetric, inductive coupled plasma spectroscopy, ultraviolet/visible light spectroscopy/spectrophotometry, infrared spectroscopy, nuclear magnetic resonance spectroscopy – $^1\text{H-NMR}$ & $^{13}\text{C-NMR}$ – and their applications in chemical structure elucidation and confirmation, and quantification of compounds/drugs (where applicable) in Pharmaceutical and Medicinal Chemistry. Mass spectroscopy in elucidation and confirmation of organic structures; and application of chromatographic methods (*e.g.* TLC, GC, LC-MS, VLC, GFC, FCC, PC, *etc.*) in the determination, purification and analysis of drugs and organic compounds. Electrochemical methods of analysis: Potentiometry, Conductimetry, Polarography, Amperometric and Coulometry and their applications in drug analysis. Applications of optical methods (polarimetry, spectropolarimetry and refractometry) in drug identification and quantification. Tracer Techniques, use of Geiger-Muller and scintillation counters and their application to various fields in Pharmaceutical Chemistry; and X-ray Diffraction Analysis.

PCH 824.1: Chemistry of Natural Drug Products (2 Units)

Study of drug development from natural sources: including study of the general characteristics, detection, assay, extraction, isolation and purification of important medicinal compounds of natural origin. Chemistry (physical and chemical Properties, isolation, structure elucidation, structure activity relationship and synthesis, where applicable), biological action and pharmaceutical applications of selected examples of secondary metabolites obtained from natural sources (plant or animal sources or microorganisms). The important naturally occurring medicinal compounds includes: polyketides, alkaloids, steroids, terpenes and terpenoids, flavonoids, isoflavonoids, anthocyanidins, quinones, anthraquinones, fatty acids and lipids, phenolics (simple phenols, phenylpropanoids and phenylpropenes and their derivatives), tannins, carbohydrates, proteins, glycosides (saponins, cardiac glycosides, cyanogenetic glycosides, flavonoid glycosides, anthracene glycosides, *et c.*),*etc.*

PCH 825.1: Biostatistics and Research Methodology (3 Units)

Study of the role and applications of statistics in Human Biology and Medicine. Data: Description, Types, and Presentation (Normal distribution, *etc.*). Descriptive statistics: Measures of convergence and variance. Inferential statistics: *Student t-Test*, Analysis of variance (ANOVA), Chi-square, F-Test, *etc.* and application in analysis and interpretation of biological, pharmaceutical and medicinal research. Elements of probability: Theory and Applications. Elements of Distribution: Theory and Application. Tests of hypothesis, multiple groups, comparison, basic Sampling procedures including estimation of sample size; construction of basic experimental designs. Design of Clinical and Preventive trials. Design of studies to evaluate effect of health programmes or control measures. Data editing, standardization, procedures, relative risks; errors and misclassification and observed variability; Analysis of vital statistical and demographic data; Survey of data processing.

PCH 826.2: Pharmaceutical Analysis and Drug Quality Evaluation (2 Units)

Importance of analysis and quality control of Drugs and Pharmaceuticals. Facilities, personnel and records needed to establish a quality control laboratory. Regulatory aspects of drug quality control and good manufacturing practices. Statistics in drug analysis and its importance in evaluation of results. Quality Control system and principles of Drug Quality Control. Design of Monographs and Specifications; The role of WHO, BP and USP Commissions and other

International and National (*e.g.* NAFDAC, FDA, *etc.*) Organizations in the Quality Control of Medicines. System (process) validation in Pharmaceutical Analysis. Statistical quality control and process validation, including a study of the applications of Control Charts in pharmaceutical quality assurance. Applications of selected official and non-official methods in the analysis of drugs and related compounds. Biological methods in the assay of drugs and medicinal agents as applied to antimicrobials, pharmacological and radiopharmaceuticals. Analysis and assay of biopharmaceuticals. Standardisation and evaluation of crude drugs. Determination of chemical and bioequivalence of pharmaceutical products. Development and validation of analytical methods for drug quality assurance and metabolic studies.

PCH 827.2: Drug Design and Synthesis (2 Units)

Principles of drug discovery and development. Approaches to rational drug design. Drug targets: Identification, Characteristics, Modulation and relationship with disease state. Estimation of drug-likeness using models such as Lipinski's Rule of Five, Lipophilic Efficiency, *etc.* Prediction of drug properties by Multi-Objective Optimization Methods. Virtual Screening. Molecular Docking. Recent advances in Quantitative Structure Activity Relationship (QSAR), Combinatorial Chemistry, and Chemoinformatics. Review of selected synthetic reactions for synthesis of drugs and other pharmaceuticals and related compounds.

PCH 828.2: Advance Pharmacokinetics & Metabolic Chemistry (2 Units)

Recent advances in drug metabolism: Protocols for *in vivo* and *in vitro* studies of drug and drug metabolites. Preparation of tissue homogenates and "pure oxidases". Specific examples of isolation, identification and characterisation of metabolites and/or their derivatives. Analytical metabolic chemistry of specific groups of drugs. Metabolic kinetics, biotransformation, use of specific inhibitors and indicators. Dosage regimen Design and evaluation of pharmacokinetic parameters. Compartmental and non-compartmental analysis. Time-course of drugs and their metabolites concentration in the body. Application of pharmacokinetics in Clinical settings.

PCH 829.2: Advanced Pharmaceutical & Medicinal Chemistry Laboratory Practice Course (2 Units)

The practical works are designed to illustrate the principles underlying the methods discussed in the theory syllabus, in order to increase the candidates' practical skills and improve the presentation of

reports. The students are expected to make use of modern instrumental and chemical methods in the synthesis, analysis and quality control of chemicals and pharmaceuticals. Important specific experiments to demonstrate the various facets of Metabolic Chemistry; will be performed by students.

PCH 831.2: Seminar and Directed Reading (2 Units)

Seminar and directed reading is designed to acquaint the candidate with current and relevant research topics and developments in Pharmaceutical and Medicinal Chemistry. Each candidate is expected to deliver at least three seminars, one of which being on his/her independent research work or area of interest.

PCH 832.2: Dissertation (6 Units)

Candidates will present a report incorporating a review of relevant literatures and an account of research work on a supervised topic. It will include research seminars and project defence.

PCH 833.1: Extraction & Isolation Techniques in Natural Product Research (2 Units)

Introduction to Natural Products Extraction and Isolation. Initial and Bulk Extraction of Natural Products. Extraction of Plant Secondary Metabolites, Isolation, Supercritical Fluid Extraction in Natural Products Analyses, Accelerated Solvent Extraction for Natural Products Isolation, Microwave-Assisted Extraction in Natural Products Isolation, Extraction and Isolation of Saponins, Extraction and Isolation of Phenolic Compound, An Introduction to Planar Chromatography and Its Application to Natural Products Isolation, Isolation of Natural Products by Low-Pressure Column Chromatography, Isolation of Natural Products by Ion-Exchange Method, Separation of Natural Products by Countercurrent Chromatography, Isolation of Natural Products by Preparative High Performance Liquid Chromatography (Prep-HPLC), Isolation of Natural Products by Preparative Gas Chromatography, Hyphenated Techniques and Their Applications in Natural Products Analysis, Isolation of Marine Natural Product, Isolation of Microbial Natural Products,. Scaling-Up of Natural Products Isolation, Follow-Up of Natural Products Isolation and Natural Products Isolation in Modern Drug Discovery Programs

PCH 834.1: Metabolic Analysis and Toxicology of Drugs and their Metabolites (2 Units)

Review of the role of enzymes in drug metabolic reactions; Drug metabolism & toxicity and the factors affecting them; Stereochemical aspects of

drug metabolism; Genetic polymorphism and the importance in drug development and use; Introduction to pharmacogenomics, etc.

PCH 835.2: Experimental Design in Drug Analysis (2 Units)

Importance of analysis from drug discovery to development; Analytical method selection for research and routine assays; Validation in Pharmaceutical analysis; Signals, measurements and data generations by analytical instruments; Principle of computing-automated analytical systems, information retrieval and data presentation; Statistics in drug analysis; Handling of body fluids and other matrices for drug analysis, forensics, sport, stability, bio-hazards etc.; Review of principles, scope and methods of bioassay for specific example of drug products (pharmacological bioassays, microbiological methods, immunoassays, nucleic acid-based assays (PCR detection methods) enzymatic analysis.

PCH 836.2: Nanochemistry in Drug Development (2 Units)

Introduction to Nano-science and Nano-technology; Concept of Nanochemistry and nanomaterials; conjugation chemistry and applications; Nanopharmacy: Concept, scope and applications; Design, synthesis, forms, variants, properties and application of organic and inorganic nanomaterials of pharmaceutical relevance: Fluorescent, magnetic, novel metal nanoparticles; Synthesis, characterization and development of novel Nano-biodegradable polymers and copolymers for pharmaceutical industries.

PCH 921.1: Forensic Chemistry (4 Units)

Introduction to forensic science; Forensic Chemistry: Theory and Principles; Techniques of forensic analysis; Toxicokinetics and molecular mechanism of toxicity; Criminalistics: Collection and analysis of crime-scene evidence (Blood spatter analysis, trace evidence, impression evidence, presumptive drug identification); Detection, determination and toxicity of metals and other inorganic substances; Detection, determination and toxicity of natural products of toxicological significance; Detection, determination and toxicity of illicit drugs, drugs of abuse and drugs of toxicological significance; Biological evidence and serology: Collection and storage of biological evidence; Chemical and microscopic analysis of biological stains; Biological markers of forensic significance; Introduction to blood spatter; Introduction to DNA analysis and Screening evidence for biological stains in forensic casework; Method development and quality control; Doping control

PCH 922.1: Seminars and Directed Readings (4 Units)

Doctoral seminars and directed readings is designed to acquaint the candidate with current and relevant research topics and developments in Pharmaceutical and Medicinal Chemistry. Each candidate is expected to deliver at least four seminars, three of which being on his/her independent research work or area of interest.

PCH 923.2: Recent Advances in Pharmaceutical Analysis, Drug Quality Evaluation and Drug Quality Assurance and Control (4 Units)

Review of recent advances in pharmaceutical analysis; Review of recent advances in drug

quality evaluation; Review of recent advances in quality assurance and quality control

PCH 924.2: Recent Advances in Medicinal Chemistry, Drug Design and Drug Synthesis (4 Units)

Review of recent advances in medicinal chemistry; Review of recent advances in drug design e.g. Computer-aided drug design; Review of recent advances in drug synthesis

PCH 925.2: Thesis (12 Units)

Candidates will present a report incorporating a review of relevant literatures and an account of research work on a supervised topic. It will include research seminars and project defence.

6.0. Summary of M.Sc. Courses Available

COURSE CODE [†]	COURSE TITLE	COURSE UNIT	REMARKS
SGS 801.1	ICT and Research Method	2	Compulsory
SGS 801.2	Entrepreneurship and Management	2	Compulsory
PHA 821.1	Advanced Organic Chemistry	2	Core
PCH 822.1	Advanced Medicinal Chemistry	3	Core
PCH 823.1	Modern Analytical Techniques	2	Core
PCH 824.1	Chemistry of Natural Products	2	Elective
PCH 825.1	Biostatistics and Research Methodology	3	Core
PCH 826.2	Pharmaceutical Analysis and Quality Evaluation	2	Core
PCH 827.2	Drug Design and Synthesis	2	Elective
PCH 828.2	Advance Pharmacokinetics & Metabolic Chemistry	2	Core
PCH 829.2	Advanced Pharmaceutical and Medicinal Chemistry Laboratory Practice	2	Core
PCH 831.2	Seminar and Directed Reading	2	Core
PCH 832.2	Dissertation	6	Core
PCH 833.1	Extraction & Isolation Techniques in Natural Product Research	2	Elective
PCH 834.1	Metabolic Analysis & Toxicology of Drugs and their metabolites	2	Elective
PCH 835.2	Experimental Design in Drug Analysis	2	Elective
PCH 836.2	Nanochemistry in Drug Development	2	Elective
TOTAL		40	

7.0 Summary of PhD Courses Available

COURSE CODE [†]	COURSE TITLE	COURSE UNIT	REMARKS
PCH 921.1	Forensic Chemistry	4	Core Course
PCH 922.1	Seminars and Directed Readings	4	Core Course
PCH 923.2	Recent Advances in Pharmaceutical Analysis, drug Quality Evaluation and Drug Quality Assurance and Control	4	Core course (Pharmaceutical Analysis Option)
PCH 924.2	Recent Advances in Medicinal Chemistry, Drug design and Drug Synthesis	4	Core course (Medicinal Chemistry Option)
PCH 925.2	Thesis	12	Core Course
TOTAL		28	

LIST OF ACADEMIC STAFF AND THEIR AREAS OF SPECIALIZATION

S/N	Name	Qualifications	Designation	Specialisation
1*	Usifoh, Cyril O.	B.Pharm; M.Sc.; Ph.D.	Professor	Organic Synthesis & Medicinal Plant Research
2*	Eseyin Olorunfemi A	B.Sc.; M.Sc.; Ph.D.	Professor	Pharmacokinetics & Drug Metabolism, Natural Products Chemistry & Diabetology
3*	Obonga, Wilfred O.	B.Sc.; M.Sc.; Ph.D.	Professor	Medicinal & Natural Product Chemistry
4	Ukwueze, Stanley E.	B.Pharm; M. Pharm; Ph.D.	Professor	Natural Products Chemistry & Pharmaceutical Analysis
5	Johnson-Ajinwo Okiemute R.	B.Sc.; M.Sc.; Ph.D.	Reader	Natural Products Chemistry
6	Ezealisiji, Kenneth M.	B.Pharm; M.Pharm., PhD	Reader	Pharmaceutical Analysis & Drug Design
7	Afierofo, Ozadheoghene E.	B.Sc.; M.Sc.; Ph.D.	Reader	Phytomedicinal Chemistry & Standardisation
8	Omotoso, Abayomi E.	B.Pharm; M.Sc.; Ph.D.	Senior Lecturer	Pharmaceutical Analysis, & Natural Products Chemistry
9	Obasi, Cecilia	B.Pharm; M.Sc.; Ph.D.	Senior Lecturer	Pharmacokinetics

*Adjunct Lecturer:

DEPARTMENT OF PHARMACEUTICAL MICROBIOLOGY AND BIOTECHNOLOGY

MASTERS DEGREE PROGRAM IN PHARMACEUTICAL MICROBIOLOGY AND BIOTECHNOLOGY

A. Introduction and philosophy of the program

Postgraduate study in the Department of Pharmaceutical Microbiology and Biotechnology is designed to offer intensive training in these special areas with emphasis on selected research programs that incorporate various applications of molecular microbiology, biotechnology and immunology into Pharmacy practice. Pharmaceutical microbiology is an applied microbiological research area in pharmacy practice and industries dealing with microbial characterization, design, manufacture and quality control of pharmaceutical products. It covers detailed studies of current and advanced antimicrobial drugs: classes, synthesis, mechanisms of action, and applications. Pharmaceutical biotechnology on the other hand involves the design, evaluation and delivery of biopharmaceutical products and their applications in disease management.

B. Vision and Mission:

Vision: To build first class human capacity in Pharmaceutical Microbiology and Biotechnology in Africa

Mission: To impart cutting-edge skills in Pharmaceutical Microbiology and Biotechnology to our students, preparing them to make a difference as scientists to their societies

C. Objectives of the program

The aims of postgraduate program in Pharmaceutical Microbiology and Biotechnology are as follows:

- i. To train postgraduate students in relevant techniques in Pharmaceutical Microbiology and Biotechnology
- ii. To prepare graduates to serve as pharmaceutical, microbiological and biotechnological scientists and/or educators, to provide significant contributions in any chosen pharmaceutical or biotechnological career in the pharmaceutical/food industry, academia, research institutes, hospitals and related federal and state ministries.

Specific Objective: To produce Master's degree graduates with specialized training in Pharmaceutical Microbiology and Biotechnology

D. Available program

The Department will run the following postgraduate programs of study:

- i. Master of Science (M.Sc.) in Pharmaceutical Microbiology and Biotechnology (area of specialization).

E. Areas of Research Specialization

- i. Pharmaceutical Microbiology and Infectious Disease Chemotherapy
- ii. Pharmaceutical Biotechnology, Immunology and Vaccinology
- iii. Formulation Microbiology and Evaluation of Antimicrobial agents

F. Admission requirement

All candidates seeking admission into any of our postgraduate degree program must possess a minimum entry requirement of five ordinary level credits in English Language, Mathematics, Chemistry, Biology and Physics obtained from the West African School Certificate (WASC), Senior Secondary Certificate Examination (SSCE) or its equivalent in not more than two sittings.

a. M.Sc. Program

The following requirements shall qualify a candidate for the M.Sc. admission:

- i. Graduates of the Faculty of Pharmaceutical Sciences, University of Port Harcourt or other recognized universities offering a minimum of Bachelor's degree in Pharmacy with a B. Pharm. Qualification.
- ii. Graduates of related disciplines who have obtained a Bachelor's degree with at least a second-class honours, lower division or its equivalent from recognized universities offering Bachelor's degree in Microbiology, Biochemistry, Biological Sciences, Biotechnology, Medical Laboratory Science, Medicine, Parasitology, Veterinary Medicine, Zoology or other related disciplines.

G. Mode of admission

Admission into the graduate programs of the department shall be by:

- a. Part Time (PT)
- b. Full Time (FT)

H. Duration of M.Sc. Program

- a. Part time students will be required to spend a minimum of 24 calendar months or a maximum of 36 calendar months.

- b. Full time students will be required to spend a minimum of 18 calendar months or a maximum of 24 calendar months.

K. Mode of Study of M.Sc. Program

M.Sc. program shall be by taught courses, tutorials, seminars and laboratory work. Each taught course will be examined by a three (3) hour written examination. The pass mark shall be 50% for all courses.

L. Course requirements

a. M.Sc. in Pharmaceutical Microbiology and Biotechnology

Candidates for the M.Sc. degree must take all the compulsory courses and some electives relevant to their area of specialization over 2 semesters with a total credit load of a maximum of 36 in the entire academic session. Candidates shall be expected to give at least 2 seminar presentations on current topical literature review and laboratory skill assessment.

First semester core courses:

- PHA 800.1: Biostatistics
- SGS 801.1: ICT and Research Methodology
- PMB 801.1: Public Health Pharmacy I (Bacteriology & Mycology)
- PMB 802.1: Advanced Biotechnology I (Microbial and human genetics; recombinant DNA and RNA technology)
- PMB 806.1: Seminar I

First semester optional/elective courses:

- PMB 803.1: Immunology
- PMB 804.1: Formulation Microbiology

PMB 805.1 Microbiological Quality Control of Pharmaceuticals

Second Semester core courses

- SGS 802.2: Management and Entrepreneurship
- PMB 807.2: Basic Bioinformatics
- PMB 808.2: Public Health Pharmacy II (Virology & Parasitology)
- PMB 809.2: Advanced Biotechnology II (Diagnostics and Bio-therapeutics)
- PMB 813.2: Seminar II
- PMB 814.2: Dissertation

Second Semester optional/elective courses

- PMB 810.2: Vaccinology
- PMB 811.2: Advanced Antimicrobial Chemotherapy
- PMB 812.2: Advanced Evaluation Methods for Antimicrobial Agents

NOTE: Candidates must take all the core courses for each semester. They are expected to choose at least one optional/elective course for each semester.

M. Outline of courses

1. Master of Science (M.Sc.) in Pharmaceutical Microbiology and Biotechnology

Area of specialization:

- i. Pharmaceutical Microbiology and Infectious Disease Chemotherapy
- ii. Pharmaceutical Biotechnology, Immunology and Vaccinology
- iii. Formulation Microbiology and Evaluation of Antimicrobial agent

First Semester of M.Sc. Program

Course Code	Course Title	Credit Units	Areas of Specialization		
			Pharmaceutical Microbiology and Infectious Disease Chemotherapy	Pharmaceutical Biotechnology, Immunology and Vaccinology	Formulation Microbiology and Evaluation of Antimicrobial agents
PHA 800.1	Biostatistics	3	Core	Core	Core
SGS 801.1	ICT and Research Methodology	2	Core	Core	Core
PMB 801.1	Public Health Pharmacy I (Bacteriology & Mycology)	3	Core	Core	Core
PMB 802.1	Advanced Biotechnology I (Microbial and human genetics; recombinant DNA and RNA technology)	3	Core	Core	Core
PMB 803.1	Immunology	2	Optional	Core	Optional
PMB 804.1	Formulation Microbiology	2	Optional	Optional	Core

PMB 805.1	Microbiological Quality Control of Pharmaceuticals	2	Core	Optional	Optional
PMB 806.1	Seminar I	1	Core	Core	Core
	Total		16	16	16

NOTE: Students are to choose one (1) optional course

Second Semester of M.Sc. Program

Course Code	Course Title	Credit Units	Areas of Specialization		
			Pharmaceutical Microbiology and Infectious Disease Chemotherapy	Pharmaceutical Biotechnology, Immunology and Vaccinology	Formulation and Evaluation of Antimicrobial agents
SGS 801.2	Management and Entrepreneurship	2	Core	Core	Core
PMB 807.2	Basic Bioinformatics	2	Core	Core	Core
PMB 808.2	Public Health Pharmacy II (Virology & Parasitology)	3	Core	Core	Core
PMB 809.2	Advanced Biotechnology II (Diagnostics and Bio-therapeutics)	2	Core	Core	Core
PMB 810.2	Vaccinology	2	Optional	Core	Optional
PMB 811.2	Advanced Antimicrobial Chemotherapy	2	Core	Optional	Optional
PMB 812.2	Advanced Evaluation Methods for Antimicrobial Agents	2	Optional	Optional	Core
PMB 813.2	Seminar II	1	Core	Core	Core
PMB 814.2	Dissertation	6	Core	Core	Core
	Total		20	20	20
	Total credits for the program		36	36	36

NOTE: Students are to choose one (1) optional course

N. COURSE DESCRIPTION

PHA 800.1 Biostatistics (3 credits)

Study of the role and applications of statistics in Human Biology and Medicine. Data: Description, Types, and Presentation (Normal Distribution; Confidence Limits; Meaning and uses of statistics; Frequency distribution). Descriptive statistics: Measures of convergence and variance. Inferential statistics: *Student t-Test*, Analysis of variance (ANOVA), Chi-square, F-Test, etc. and application in analysis and interpretation of biological, pharmaceutical and medicinal research. Elements of probability: Theory and Applications. Elements of Distribution: Theory and Application. Tests of hypothesis, multiple groups, comparison, basic Sampling procedures including estimation of sample size; construction of basic experimental

designs and questionnaire design. Simple non-parametric and parametric tests, estimation, Point and interval estimation, Test of hypothesis, Regression and correlation. Design of Clinical and Preventive trials. Design of studies to evaluate effect of health programmes or control measures. Data editing, standardization, procedures, relative risks; errors and misclassification and observed variability; Analysis of vital statistical and demographic data; Survey of data processing. Study of various computer packages relevant in solving pharmaceutical and biomedical problems.

SGS 801.1 ICT and Research Methodology (2 credits)

- This course should cover essentials of spreadsheets, internet technology, statistical packages, precision and accuracy of estimates,

principles of scientific research, concept of hypothesis, formulation and testing, organization of research and report writing.

PMB 801.1 Public Health Pharmacy I (3 credits)

- Biology of various infectious diseases caused by **bacteria and fungi**: Pathophysiology of the disease, symptoms, complications, epidemiology, diagnosis, prevention, treatment, management and socio-economic impacts of the different infectious diseases studied.
- Different infectious diseases to be studied include those associated with various organs e.g., ear, nose and throat; central nervous system, gastro-intestinal tract, respiratory tract; uro-genital tract; nail, skin and soft tissue etc.

PMB 802.1 Advanced Biotechnology I (3 credits)

- A study of the current status of microbial genetics and genomics; biochemical bases for antimicrobial action, biochemical and genetic basis of microbial resistance to antimicrobial agents; strategies for combating microbial resistance to antimicrobial agents. The structure, properties, functions and biosynthesis of DNA, RNA and proteins. The genetic code and its relationship to cellular function. Elements of genetic engineering such as cloning strategies and bacterial transformation. Applications of recombinant DNA technology in the production of pharmaceuticals, biomedical and agricultural products.

PMB 803.1 Immunology (2 credits)

- Immunology – Lines of defense, cells of the human immune system, innate and adaptive immune system, complement system, MHC molecules
- Components of human immune system. Host's defense mechanisms against infections and the microbial evasive mechanisms. Innate and adaptive immunity. T-cell and B-cell-mediated immune responses. A detailed treatise of immunoglobulins and antibody systems; antibody structure; complement system; blood groups; hypersensitivity reactions; tissue Transplantation and immune response to tumours; prophylactic and therapeutic applications of immunological products.
- The concept of immunogenicity and immunomodulation and their relationship to immunology. Evaluation of potential immunomodulators. Adjuvants-their nature, properties and mechanisms of action.

Medicinal plants as sources of potential adjuvants, immunomodulators and adaptogens.

- Polyclonal and monoclonal antibody technology, production and uses.

PMB 804.1 Formulation Microbiology and process validation (2 credits)

- Microbial contamination of pharmaceutical products. Design of clean areas, surfaces, pipes and ducts, drains and sinks, provision of clean air; air samples clothing; changing facilities, disinfectants, frequency of cleaning and disinfection of equipment and operation.
- Physico-chemical, biopharmaceutical and therapeutic considerations in the design of dosage forms. Control methods to ensure standardization of antimicrobial agents in oral, topical and rectal dosage forms. Detailed studies of formulation, production and technology of parenteral products (injections and non-injectable sterile fluids), water for injections, Ophthalmic preparation, contact lens solutions, sterile dressings, implants and absorbable haemostats etc. Quality of water, pyrogen and pyrogenic requirements. Preservation of Pharmaceuticals, including multiphase systems.
- Formulation of antimicrobial agents and probiotics from natural products into pharmaceutical dosage forms. Evaluation, quality control and quality assurance of formulated products.

PMB 805.1 Microbiological Quality Control of Pharmaceuticals (2 credits)

- Disinfection, sterilization, preservation and aseptic techniques
- Types of autoclaves: the steam autoclave, vacuum pump autoclaves and ballasted autoclaves, spray-cooled autoclaves. Continuous versus discontinuous autoclaving; the economics of continuous autoclaving. The hydromantic sterilizer. Advanced studies on Ethylene Oxide, B-propiolactone, Formaldehyde, Ozone, Peracetic acid, methyl bromide, propylene glycol. Inactivation by ionizing radiation; sterilization of biotechnological products. A review of various sterilization protocols. Kinetics of thermal destruction or inactivation. Time-survivor curves. D-value, Z-value, F-value, Inactivation factor.
- Microbiological quality of sterile and non-sterile pharmaceuticals including evaluation of microbial load, sterility tests, pyrogen tests, assay of drug potency; microbiological quality of cell culture and other biotechnological media; Quality control in industrial fermentation processes; Review of various

official and non-official microbiological regulatory standards for pharmaceuticals; quality control of laminar flow cabinet;

- Sources and types of contamination in factories and hospitals, available preservatives and mechanisms of preservation; Current Good Manufacturing Practices (cGMP) that enhance microbiological quality of pharmaceuticals; Design of clean areas: Surfaces, Pipes and ducts, Drains and Sinks. Provision of clean air; Air samplers. Clothing, changing facilities. Disinfectant policy in hospitals and factories.

PMB 806.1 Seminar I: (1 credit)

- Presentation of a seminar on a selected topic after the approval of the supervisor and/or the Departmental PG Coordinator.
- This should also include attendance and contributions to all Departmental and Faculty Seminars.

SGS 801.2 Management and Entrepreneurship (2 credits)

- The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

PMB 807.2 Basic Bioinformatics (2 credits)

- What is bioinformatics? History and origin of bioinformatics. Definitions and scope of bioinformatics. Glossary of terms. Overview of bioinformatics and applications in biomedical research. Primer design; DNA sequence analysis; Protein sequence analysis
- Visualization of biomolecules using PyMol etc. History of the human genome project and important tropical pathogens such as plasmodium. Students should prepare an updated table of important genome projects. Basic skills in using the Web in bioinformatics. Definition and discussion of the 'omics', gene annotation, genome association studies. Pharmaceutical significance of bioinformatics. Examples of their application in the pharmaceutical sciences e.g., DNA barcodes. Gene annotation, Protein structure prediction, sequence analysis and alignment using TCoffee, DaliLiteetc, evolutionary and phylogenetic analysis, algorithms in protein analysis. Introduction to biological and chemical databases, molecular modeling and bioinformatics-based drug design (*in silico* drug design).

PMB 808.2 Public Health Pharmacy II (3 credits)

- Biology of various infectious diseases caused by **viruses and protozoa**: Pathophysiology of the disease, symptoms, complications, epidemiology, diagnosis, prevention, treatment, management and socio-economic impacts of the different infectious diseases studied.
- Different infectious diseases to be studied include those associated with various organs e.g., ear, nose and throat; central nervous system, gastro-intestinal tract, respiratory tract; uro-genital tract; nail, skin and soft tissue etc

PMB 809.2 Advanced Biotechnology II (2 credits)

- Application of biotechnology in diagnostics, biotherapeutics and gene therapy
- Recombinant DNA technology, Polymerase Chain Reaction (PCR), gene sequencing, reporter gene-based assay techniques, ELISA, flow cytometry, Western, Southern and Northern blotting, agarose- and SDS-gel electrophoresis-based methods, microarray techniques; protein purification, bioinformatics, proteomic and genomic tools used in disease diagnosis or detection of microbial infection.
- Principle of Gene therapy; Historical perspectives and current status; viral and non-viral vectors used in gene therapy; applications of gene therapy in the treatment of various diseases; suicide gene therapy; regulatory aspects in the applications of gene therapy technology.
- Introduction into biotherapeutics and bioprocessing. Examples of biotherapeutics/ biotech / biologics and biopharmaceuticals. Biotherapeutics discovery and development. Application of advanced biotechnological processes such as immune therapeutics, recombinant gene and genetic engineering to achieve specific and targeted therapy. Application of biotechnology in biotherapeutics.

PMB 810.2 Vaccinology (2 credits)

- Vaccinology – antigens, antibodies, T cells, vaccines, adjuvants, vaccine development, immunotherapy
- The history of vaccination, the concept of vaccination, Description of various classes of vaccines including live-attenuated, inactivated, sub-unit vaccines and recombinant DNA/RNA vaccines. Recombinant subunit vaccine design, and development. New techniques for vaccine development. In vitro methods of evaluating vaccines such as gene expression studies, protein expression studies via Western

blotting, ELISA, flow cytometry; evaluation of immunogenicity in vitro and in animal models; preclinical evaluation of vaccines (safety and efficacy studies in animals); clinical trials of vaccines. Prophylactic and therapeutic applications of vaccines and immunological products.

- A concise review of various immunological products such as vaccines, immunosera, human immunoglobulins, adjuvants and monoclonal antibodies including techniques for their manufacture. Quality control of immunological products-in-process and final product control including identity tests, potency assay, safety tests, sterility tests, pyrogen tests and other tests of general application.

PMB 811.2 Advanced Antimicrobial Chemotherapy (2 credits)

- Antimicrobial chemotherapy for infectious diseases caused by bacteria, fungi, viruses and protozoa
- Structure, physiology and biochemistry of microorganisms (bacteria, fungi, viruses, protozoa) of biomedical importance with particular emphases on microbial targets of conventional and novel antimicrobials and possible economic importance of the microbes; Microbial isolation and characterization; classification and evaluation of antimicrobial agents; Sterile pharmaceuticals; immunity and immune responses; antigen-antibody reactions.
- Molecular basis of antimicrobial resistance. The genes and proteins that are involved in various antimicrobial resistance patterns. Consequences of antimicrobial resistance, prevention strategies, diagnosis, treatment and management of antimicrobial resistance. Stewardship programs in hospital and out-patient settings to monitor and control antimicrobial resistance.

PMB 812.2 Advanced Evaluation Methods for Antimicrobial Agents

- Evaluation of antimicrobial agents from microbes, synthetic compounds and natural products
- Evaluation of biotherapeutic agents e.g., probiotics, bacteriocins etc.
- A review of various sterilization protocols. Kinetics of thermal destruction or inactivation. Time-survivor curves. D-value, Z-value, F-value, Inactivation factor.
- A detailed discussion of the various diverse sources of antimicrobial agents including microorganisms, lower plants, higher plants, vertebrates, invertebrates and other miscellaneous sources such as chemical

synthesis, examples and properties/spectrum of antimicrobial agents from these sources would be highlighted. Properties of the ideal antimicrobial agent. In vitro methods of evaluating Disinfectants, Antiseptics, Preservatives, Antibiotics including (but not limited to) the phenol coefficient tests, Kelsey-Sykes and improved Kelsey-Sykes tests, Microbial Challenge Tests, MIC, MBC; evaluation of antimicrobial interactions using various methods- checkerboard, Decimal Assay for Additivity (DAA), Time kill, overlay inoculum susceptibility disc test method; Principles and applications of antibiotic bioassay; culture and sensitivity test. Animal models for evaluating the efficacy of various antibacterial and antifungal drugs.

- A survey of basic laboratory equipment; Preparation of buffers and culture media for bacteriological, mycological, virological and protozoal studies; Modern techniques for identification of microorganisms; A detailed study of theories and applications of various microbiological and biotechnological research techniques including agar diffusion assay, broth dilution assay, kill kinetics, etc.

PMB 813.2 Seminar II: Laboratory Skill Assessment (1 Credit)

- This involves participation in the preparation and instruction of undergraduate practical classes in Pharmaceutical Microbiology and Biotechnology as a teaching assistant followed by the submission of a written report in the form of a log book or term paper. Principles, practice, modes and methods of scientific communication, communicating scientific findings to the public, Manuscript preparation for scientific journal – philosophy and principles, multimedia presentations
- This should also include attendance and contributions to all Departmental and Faculty Seminars.

PMB 814.2 Dissertation (6 credits)

- Submission of a thesis after carrying out a research project. The review of literature, methods, results, discussions and relevance of the project must contribute to the overall knowledge and insight of Pharmaceutical Microbiology and Biotechnology.

Minimum Credits for Graduation

- a. Candidates for M.Sc. must complete and pass a minimum of 36 credits that includes a total of 28 credits of course work, 2 credits of seminar, and 6 credits of research work to be embodied in a written thesis.

- b. Minimum pass mark for all courses shall be 50%.
- c. Assessment for each course shall be via continuous assessment (which shall constitute 30%) and a final examination (which shall constitute 70%).

ACADEMIC STAFF

Name	Qualification	Ranks	Area of Specialization
Prof. C. N. Stanley	B. Pharm. (UNN), M.Sc. (Uniport), Ph. D. (UNN)	Professor	Pharmaceutical Biotechnology, Antimicrobial Resistance and Chemotherapy
Dr. N. E. Ezenobi	B.Sc. (Uniport), M.Sc. (Uniport), Ph. D. (Uniport)	Senior Lecturer	Microbiology
Dr. C. N. E. Ibezim	B.Sc. (Benin), B. Pharm (Benin), M. Pharm. (UNN), Ph. D (NAU, Awka).	Lecturer I	Pharmaceutical Biotechnology, Metagenomics and Probiotics
Dr. A. M. Awanye	B. Pharm. (UNN), M.Sc. (Sheffield-Hallam University, UK), Ph. D. (University of Manchester,UK)	Lecturer I	Immunology, Vaccinology, Biotechnology and Molecular Biology
*Prof. H. O. Stanley	B.Sc. (Uniport), M.Sc. (AAU, Akungba, Ondo State, Ph. D. (RSU, Port Harcourt)	Professor	Mushroom Biotechnology, Pollution studies, Bioremediation and waste management
*Dr. I. O. Okonko	B.Sc. Microbiology (FUNAAB), M.Sc. (Ibadan), Ph. D (EBSU).	Reader	Microbiology, Virology, Immunology
*Prof. K. C. Ugoeze	B. Pharm. (UNN), M. Pharm. (UNN), Ph. D. (UNN).	Professor	Pharmaceutics, Excipient Development and Formulation Science
*Prof. I. Chijioke-Nwuche	B. Pharm. (UNN), M.Sc. (Uniport), Ph. D (University of London). PharmD (Benin)	Professor	Clinical Pharmacy, Public Health Pharmacy
*Dr. K. Ezealisiji	B. Pharm. (Unijos), M. Pharm. (UNN), Ph. D. (UNN)	Reader	Nano-Biotechnology

* External facilitators

INSTITUTE OF NATURAL MEDICINE (INM) FACULTY OF PHARMACEUTICAL SCIENCES

INTRODUCTION OF POST GRADUATE DIPLOMA PROGRAMME IN NATURAL MEDICINE TECHNOLOGY

Background

The Senate of the University of Port Harcourt at its 396th meeting held in February, 2014 approved the establishment of the Institute of Natural Medicine (INM) to be coordinated by the Faculty of Pharmaceutical Sciences (See attached: UPH/REG.178). The core mandate of the institute is to undertake research and training of requisite manpower to tackle some of the diseases that either currently defy orthodox clinical approaches or could be well managed using alternative medical practices, INM was therefore established to coordinate research in various faculties and departments that have to do with natural medicines.

The institute is to actualize this core mandate by providing operational structure for collaboration that would offer opportunity for the University to be involved in the training, developing, grading and certifying of Traditional Medicine Practitioners (TMPs) and other health care providers involved in the science and art of herbal and other forms of alternative and complementary medicines as well as serve as a hub for documenting, systematizing and rationalizing the use of African traditional medicine in tackling emergent diseases that seem to defy orthodox treatment.

In pursuance of the mandate of the institute (which is still at the formative state), the Faculty of Pharmaceutical Sciences, through her Department of Pharmacognosy and Phytotherapy's collaboration initiatives with some private partners, have established a Central Research Laboratory for Phytomedicines which will be made available and accessible for use in this collaboration with the INM for the take-off of the Post-Graduate Diploma programme in Natural Medicine Technology (PGDNMT) when approved by the University Senate. The Laboratory would be made accessible to the institute for the practical aspect of the taught PGDNMT programme. Other laboratories include Drug Quality Control, as well as Microbiology and Biotechnology and the animal housing facility in the faculty of Pharmaceutical Sciences.

Considering the multi-disciplinary nature of this PGDNMT programme, the manpower would be drawn from the existing academic staff from the various departments and faculties in the University of Port Harcourt that have course related to natural

and alternative medicines sourcing, cultivation, propagation, production, standardization, drug design, dosing and administration. Registered Traditional medicine Practitioners in Nigeria would also be involved in the training of candidates enlisted for the programme. A memorandum of Understanding initiative is currently on-going through the office of the Deputy Vice Chancellor (Academic).

COURSE REQUIREMENTS FOR THE POST-GRADUATE DIPLOMA IN NATURAL MEDICINE TECHNOLOGY (PGDNMT) PROGRAMME

OVERVIEW, PURPOSE AND JUSTIFICATION FOR THE PROGRAMME

This program is designed for individuals with degree and Higher National Diploma in life, chemical, agricultural, health and pharmaceutical sciences or those with other equivalent degrees with at least 5 years of verifiable experience in traditional medicine practice who are interested in public health education, alternative/traditional medicine practice and herbal product production and sales.

The use of plants as source of relief from pain or illness is doubtless an art that is as old as mankind. Virtually all the drugs (synthetic and semi-synthetic) in clinical use today have their ancestry from plants or other natural sources. Notable among them are the antibacterial penicillin analogues, antimalarial quinine and artemisinin analogues, the anticoagulant warfarin analogues, and the anticancer podophyllotoxin and taxol analogues just to mention a few.

In recent decades, there is an increased demand for alternative medicines. The efficacy of a number of herbal recipes used in traditional medicine practice for the treatment of diseases, have been partly responsible for this renewed interest in the use of herbal medicines.

Herbal medicine is one of the most popular aspect of traditional and alternative medicine. Though an integral part of cultural practice, it is the most accessible and amenable to scientific research. However, the main limitation to its incorporation as an integral part of mainstream health care in Nigeria is the problem of acceptability, standardization of products, appropriate dosing and apparent absence of good manufacturing practices.

Pharmacy has many disciplines and specializations that deal with drugs from natural sources (plants, animals, micro-organisms, inorganic matter).

Pharmacognosy and Phytotherapy is one of such and has the teaching of herbal and other natural/alternative medicine as the bulk of its curriculum. Other disciplines and specializations like: Pharmaceutical and Medicinal Chemistry, Pharmacology/Toxicology, Pharmaceutics/Pharmaceutical Technology, Pharmaceutical Microbiology & Biotechnology, and Clinical Pharmacy Administration/Management extensively covered and routinely taught under pharmacy, are equally involved in the integral science and technology involved in the sourcing, processing, manufacturing, packaging, distribution, quality assessment and standardization, safety, stability on storage, and administration of natural and alternative medicines. Thus the Faculty of Pharmaceutical Sciences qualifies as the most appropriate host to coordinate the programme.

The philosophy of the programme is to produce alternative healthcare professionals who provide health care using locally available resources. The programme will equip participants with the necessary tools on how to apply the knowledge of science and technology for sustainable development of natural medicines in Nigeria. The curriculum will emphasize on the sourcing, and standardization of natural medicines in addition to the introduction of good manufacturing, formulation and dosing practices to practitioners. This is in a bid to achieve the “Health for all” Millennium development goal (MDG) by the World Health Organisation (WHO) which is geared towards bringing health care services closer to the grassroot by the introduction of standardized alternative medicines alongside orthodox medicines.

Objectives of the programme

The main objectives of the programme are:

1. To modernize the practice of natural/alternative medicines in Nigeria through the introduction of science and technology
2. To provide a platform for the training of alternative health care providers in Nigeria in good manufacturing practice, standardization, safe and efficacious use of natural medicinal products and dietary supplements in Nigeria

GOALS/LEARNING OUTCOMES

Individuals who complete the Postgraduate Diploma in Natural Medicine Technology will be able to:

1. Describe the safe and appropriate use of a limited number of natural medicinal products such as herbs, products from animals, and nutraceutical/dietary supplements within the framework of a wellness-based model of healthcare.

2. Identify local herbs in the field for harvesting and manufacturing of herbal and food preparations.
3. Determine safety concerns of herb-herb and herb-drug interactions for herbal product users.
4. To identify other natural products in the environment used for the management of diseases.
5. To develop techniques and skills used for the formulation of natural products as medicines

PROGRAM FORMAT

This program shall be taught in semester modules. Each of the two semester modules contains required credits courses aggregating to 39 **Required Credits**. It can be completed in twelve (12) calendar months.

MODULE I- FIRST SEMESTER

Course Code	Course Title	Credit Units
ING 700.1	Introduction to Traditional and Alternative Medicine	3.0
ING 701.1	Fundamentals of Botany (Plant taxonomy, physiology and Sustainability strategies)	3.0
ING 702.1	Fundamentals of Clinical Nutrition	3.0
ING 703.1	Basic Human Biology (Anatomy and Physiology)	3.0
ING 704.1	Ethics and Regulation in Traditional medicine Practice	2.0
ING 705.1	Alternative Medicine Financing	2.0
ING 706.1	Fundamentals of Research methods, ICT and Biostatistics	3.0
ING 707.1	Introduction to Public Health	2.0

MODULE II- SECOND SEMESTER

Course Code	Course Title	Credit Units
ING 708.2	Natural Medicinal Products Formulation and Manufacturing	3.0
ING 709.2	Standardization and Toxicological evaluation of Natural Medicines	3.0
ING 710.2	Natural Medicinal Products Chemistry	3.0
ING 711.2	Ethnomedicines: Symptoms evaluation and treatments	3.0
ING 712.2	Research Project	6.0

Total Credits Units for the Post-Graduate Diploma in Natural Medicines Technology -39.0

ADMISSION REQUIREMENTS

To be considered for admission to the professional post graduate diploma in Natural Medicine Technology, applicants must have a Bachelor's degree or HND from a recognized institution in life, chemical, agricultural, health and pharmaceutical sciences. Also to be considered for admission is a candidate with any other Bachelor or equivalent degrees who must have had at least 5 years of verifiable experience in traditional medicine and showing verifiable interest in public health education, alternative/traditional medicine practice and herbal medicines production and sales.

COURSE CONTENT/DESCRIPTION

ING 700.1: Introduction to Traditional and Alternative Medicine (3.0 Credit Units)

Introduction to traditional medicines. Definitions; incantation, medicinal plants, herbalist traditional medical practitioners. Advantages and limitations of traditional medicines. Methods and techniques. Definition of terms, Traditional Medicine: Past and Present. Role of traditional medicine in health care delivery in Africa. African Traditional Healer, The Categorization of Traditional Healers: The Diviner, The Herbalist, Spiritual or Faith Healers, Traditional Birth Attendants. Specialists. General Features Common to all Categories: The Healer's Fee, The Traditional Healer's Medicines.

Herbal Medicine Practice: History & Background, Some Terminologies used in Herbal Medicine such as: Abortifacient, Acrid, Adaptogen, Alexeritic, Alterative, Antibilious, Anticatarrhal, Antidote, Antifungal, Antiemetic, Antihelmintic, Antihydrotic, Anti-inflammatory, Antibiotic/antimicrobial, Materia medica/Therapeutic herbalism. Traditional medicine as a veritable source of new drugs, lead compounds and new methods of treatment.

Faith healing: Various Belief System such as 1. Christianity: Overview, New testament, Pentecostalism/Christianity movement, Catholicism, Christian science, The church of Jesus Christ of latter day saints. Criticism of faith healing, Negative impact of faith healing on public health • Christian theological criticism of faith healing. Islam, Scientology and Scientific investigation

Hands-on practical/skill exposure on topics covered in ING 700.1 shall be undertaken through collaborative field-trips visitations to registered

traditional/alternative and complementary medicine centres.

ING 701.1: Fundamentals of Botany (Plant taxonomy, physiology and Sustainability strategies) (3.0 Credit Units)

Historical background of taxonomy: the natural system and the value of character. Phonetic and phylogenetic concept in taxonomy including rules and nomenclature, the categories in taxonomy. Evolution, identification of flowering plants. Taxonomic data processing and presentation which will include collection of plants; preparation of herbarium specimens. Geographical and morphological methods in presentation of data, literature mapping, tabulation, symbolic and graphical methods. Identification: keys, comparison with named materials, nomenclature. Use of methods of numerical taxonomy in construction of taxonomic groups. Relevance of taxonomy in plant identification and usage.

The microscope and its use. Optical principles and techniques; macroscopy, microscopy and chemomicroscopy. Basic plant histology, micromorphology and anatomy of barks, roots, herbs, leaves, fruits, flowers, seeds and rhizomes. Examples from Nigerian flora. The cell and cell wall structure. Cell inclusions.

Laboratory exposure on topics covered in ING 701.1 such as use of microscope, techniques in microscopy and chemomicroscopy of organized vegetable drugs.

ING 702.1: Fundamentals of Clinical Nutrition (3.0 Credit Units)

Nutrients: Macro and Micro nutrients. Essential and Non-essential nutrients. Carbohydrates foods, Proteins foods, Vitamins-rich foods, Water-rich foods, Fats (saturated and unsaturated fats) containing foods. History of human Nutrition and the concept of nutritional Medicine. Overview and strategies of Nutritional medicine in the tropics. Anthropometric measurement. Diets and Nutritional medicine: Nutritional reversal of chronic low grade inflammation, Nutritional therapy for Diabetes, Nutritional therapy for Hypertension, Nutritional therapy Auto immune disease, Nutritional therapy for Cancer, Principles of therapeutic juicing, clinical Nutrition Therapy, Clinical Nutrition Ethics. Alkaline therapy, Mineral therapy, Vitamin therapy, Water therapy, Relevant exercises and Nutritional Therapy, Acid-Base balance in the body, detoxification using foods, Gut science, pre-biotics and probiotics, Antioxidants, Concept of super foods, Immunity and immune boosters.

Laboratory investigation and interpretation on topics covered in ING 702.1

ING 703.1: Basic Human Biology (Anatomy and Physiology) (3.0 Credit Units)

Introduction to anatomy, basic organization of the human body; a study of human biological structure at various levels of complexity, from sub-cellular to gross and microscope structure of individual organ systems; structure-function correlations are emphasized. Integument system, circulatory system, lymphoid system, alimentary system, musculoskeletal system, respiratory system, genital system, endocrine system, organs of special senses.

Introduction and Blood Physiology; body fluids, Cell Physiology, Transport system, Excitable cells, Contractile tissues; Homeostasis, Control system; Introduction to Autonomic Nervous system. Cardiovascular and Respiratory Physiology; cardiac muscle, ECG, Homodynamic. Systemic circulations; Events in cardiac cycle; Heart rate and its control; Blood pressure; Cardiac output. Respiratory Physiology; introduction to mechanics of respiration; lung volume; Gas tensions; oxygen transport; oxygen dissociation curve; carbon dioxide transport; carbon dioxide dissociation curve; Nervous regulation of respiration; Chemoreceptor; Hypoxia; Hyperpnoea; Periodic respiration; Dyspnoea; Cyanosis.

ING 704.1: Ethics and Regulation in Traditional medicine Practice (2.0 Credit Units)

Regulatory requirements for standardization of natural medicinal products (WHO, NAFDAC and other regulatory bodies). The role of the alternative medicine practitioner in health care. Concepts of clinical practice. Inter-professional relationship; medical terms abbreviations, laboratory values and interpretations as related to disease. Patient education and counseling, rational use of drugs. The alternative and complimentary medicine Practitioner and the Law. Code of Ethics and Rules of Practice in relation to biodiversity prospecting and conservation on medicinal plants and other sources of natural medicines.

ING 705.1: Alternative Medicine Practice Financing (2.0 Credit Units)

Management Essentials for Alternative and Complimentary Health Practitioners: Fundamental principles of business management, managerial skills required for effective and sustainable traditional and natural medicine practice. Creating and managing Health Care Value by Alternative Medicine practitioners.

Marketing and Promotion: Essential Principles of marketing, marketing strategies in health care, the Four "Ps" of marketing, Market segmentation, Branding and relationship marketing. Purchasing and inventory management.

Finance: Basic principles of organizational budget planning, funding and financial management as applicable to sustainable alternative and natural medicine practice. Basic accounting principles. Understanding income statements and balance sheets for financial reporting. Cost control strategies, record keeping and ratio analysis.

Entrepreneurship and intrapreneurship: Entrepreneurship success indicators, micro and macro views of entrepreneurship, process approaches, starting a new enterprise; venture routes, financing and plans, venture idea generation and evaluation. Creating and developing the venture. Business plan development.

ING 706.1: Fundamentals of Research methods, ICT and Biostatistics (3.0 Credit Units)

Basic computing skill (MS Office), Literature search, and surveys, Basic principles of statistics and their application in public health research. Data collection and analysis, measure of central tendencies (Mean mode, median), measures of dispersion (variance, standard deviation). Pictorial statistics (Histogram, bar chart, pie chart), Probability testing, student test, ANOVA, Chi square, regression analysis. Use of statistical softwares and packages

ING 707.1. Introduction to Public Health

Principles and concept of Primary Health Care (PHC); Drug use and abuse of alternative medicines, public health concerns about the abuse of complementary and alternative medicines.

Integrated and well-articulated Information, Education and Communication in Primary Health Care.

Family planning management; contraception and infertility.

Preventive Medicine: Communicable and non-communicable diseases including: malaria, HIV/AIDS; STIs; Tuberculosis etc. with emphasis on the roles of Complementary and alternative Medicines practitioners in their effective management.

New Drug development: Pre-clinical and clinical stages of new drug development. Design and development of clinical trials. Post marketing surveillance and adverse drug reaction reporting

ING 708.2: Natural Medicinal Products Formulation and Manufacturing (3.0 Credit Units)

Parts of a prescription. Common pharmaceutical Latin phrases. Some fundamental measurement and calculations of doses, dilution and concentrations, density, specific gravity and

volumes. The concepts of solution and their types: Isotonic solutions, electrolyte solutions, constituted solutions etc.

Classes of pharmaceutical preparations, liquid-aromatic waters, aqueous and non-aqueous solutions, infusions, liquid extracts, lotions, gargles, douches, flavours, tinctures, adjuvants, colours, astringents, stock solutions and dilution techniques. Suspensions, emulsions, aerosols, solid and semi-solid, powders, granules, tablets, capsules, creams, gels, ointments, paste and suppositories.

Sterilization - Principles and processes; sterilization methods, etc. Sterile preparations - Types of sterile products; quality control and quality assurance of sterile products (bioburden, sterility, pyrogen,

The principles and practical aspects of pilot scale preparation/manufacturing of herbal lotions/creams, infusions, decoctions, suppositories, pessaries, solid dosage formulation like: tablets, hard/soft gelatin capsules (emphasis on granulations, direct compression, description of types of tablets available as dosage forms etc) and inhalation products. Packaging- (glass, plastic, metallic and paper). Importance of packaging-protection transportation and friability testing and stability. Packaging determined by product type and mode of administration on packages. Kinetics and stability studies of drug products. Shelf life of drugs. Pharmacokinetic principles in dosage form design and evaluation: Dissolution and disintegration of drug products in-vitro, in-vivo correlation. Dosage calculations based on age, surface area and weight.

Laboratory/practical exposure for topics covered in ING 708.2

ING 709.2: Standardization and Toxicological Evaluation of Natural Medicines (3.0 Credit Units)

Evaluation and standardization of vegetable drugs and herbal remedies. Biomarker identification. Quality assurance with respect to identity, purity and potency. Ash determinations Extractive values. Determination of residual moisture in dried vegetable drugs using Dean-Stark apparatus, Karl-Fischer titrimetric methods. Microbiological safety evaluation such as coliform count. Biological and physico-chemical assays of herbal products. Toxicological safety evaluation: Introduction; origin and scope of toxicology. Toxicological Evaluation; Purpose and value of LD₅₀ determination. Evaluation of some environmental toxic substances; Pesticides residues; cyanides etc. Monograph compilation. The Traditional medicine pharmacopoeia.

Prospects and problems of standardization of herbal remedies. Chemical races and variations Laboratory/practical exposure for topics covered in ING 709.2

ING 710.2: Natural Medicinal Products Chemistry (3.0 Credit Units)

Introduction to basic natural products chemistry: review of indigenous methods of extraction of chemical components from natural products in the form of infusions, decoctions and other extraction methods such as steam extraction of volatile oils for therapeutic inhalation.

Chemical nature, classification, sources, biogenesis and therapeutic relevance of chemicals (metabolites) produced by medicinal plants and other organisms such as: alkaloids, essential oils, resins, triterpenoids, phenolics, cardenolides, saponins etc.

Modern methods of extraction, detection and separation of natural products constituents using basic instruments.

Laboratory exposure on the application of the methods taught in ING 710.2 in the chemical analysis of drugs of natural origin.

ING 711.2: Ethnomedicines, Symptoms evaluation and treatments (3.0 Credit Units)

Ethnomedicinal uses of natural products such as plants, animals, etc in Africa and other continents. Some common medicinal plants of local importance. Methods of obtaining information on medicinal plants. Scientific evidence supporting some remedies. Common poisonous plants and fungi in Nigeria.

Diagnostics Methods: physical Inspection, mental status, Skin colour, General appearance, Tongue, Inspection of infants finger venules, Chills/ fever, Perspiration, Excretion and secretion, Auscultation and Olfaction: Auscultation, Voice, Respiratory sounds, Cough, Olfaction, Pulse taking and palpation. • Inquiry: General approach, Contents of inquiry, Major complain, Present illness, Past history, Personal life style and preferences, Family history etc.

Clinical diagnosis and application of phytotherapy in endocrine and hormonal disorders, GIT disorders, inflammation and diseases of Nervous system, degeneration and ageing, cardiovascular, respiratory and renal health, Infectious diseases-bacterial, fungal and viral, Gynaecology, Pediatric and fertility disorders, malaria, haematological and dermatological disorders, ENT, Eye and mental health.

Clinical Laboratory exposure/field trips to alternative medicine homes to acquire practical

skills on the application of the methods taught in ING 711.2

ING 712.2: Research Project (6.0 Credit Units)

Each student is expected to carry out an individual research project supervised by an academic staff.

Such project **which must be product development based**, will be assigned after successful completion of module I (First Semester).

ACADEMIC STAFF LIST FOR THE PGDNMT PROGRAMME

S/N	Name	Degree	Area of Specialization	Designation
1	Prof. Jonah Sydney Aprioku	B.Pharm. M.Sc, Ph.D, MPSN	Pharmacology and Toxicology	Professor (Dean Faculty of Pharmaceutical Sc.)
2	Prof. Buniyaminu A. Ayinde	B.Sc, M.Sc, Ph.D	Medicinal plant research, drug discovery from nature and standardization of phytomedicines	Professor
3	Prof. Ogbonna Okorie	B.Pharm, M.Pharm. Ph.D, MPSN	Drug formulation and delivery	Professor
4	Prof. Vincent Idemyor	Pharm.D	Clinical pharmacy	Professor
5	Prof. L. Nwidu	B.Pharm. M.Sc, Ph.D MPSN,	Ethnopharmacology	Professor
6	Prof. A.R.O Kilani	B.A, M.A, Ph.D	Islamic studies and contemporary issues	Professor
7	Prof. K. Owete	B.A, M.A, Ph.D	African Traditional Religion and contemporary issues	Professor
8	Prof. A. Oladele	B.Sc., M.Sc. Ph.D	Ethnobotany	Professor
9	Prof. (Mrs) C.N Stanley	B.Pharm, M.Pharm. Ph.D, MPSN	Microbiology and Biotechnology	Professor
10	Prof. K.C. Ugoeze	B.Pharm, M.Pharm. Ph.D, MPSN	Pharmaceutical Raw materials Development/Drug/Phytopharmaceutical/nutraceuticals formulation & delivery	Professor
11	Prof. I.N. Chijioke-Nwauche	B.Pharm, M.Sc. PGD. MI, Ph.D,	Clinical Pharmacy/Management	Professor
12	Prof. Stanley E. Ukwueze	B.Pharm, M.Pharm. Ph.D, MPSN	Natural Medicinal Product Chemistry, Drug Quality Control & Analysis	Professor
13	Prof. B. Ordinioha	MB.BS, FMCPh, MD	Environmental Health, History of Medicine	Professor
14	Dr Ozadheoghene E. Aferoho	B.Sc, MSc, Ph.D, MRSC, MNSP, MICCON	Natural Products/Phytomedicinal/ functional foods Chemistry and Pharmaceutical Analysis	Reader
15	Dr. K.M. Ezealisiji	B.Pharm, M.Pharm. Ph.D, MPSN	Nanodrug formulation	Reader
16	Dr Nkechi Ezenobi	B.Sc, MSc, Ph.D	Microbiology and Biotechnology	Senior Lecturer
17	Dr. Chimezie Ekeke	B.Sc., M.Sc. Ph.D	Plant Taxonomy and Biosystematics	Senior Lecturer
18	Dr. O.E. Bui	B.Sc, MSc, Ph.D	Biostatistics	Senior Lecturer
19	Dr. M. Suleiman	B.Sc, MSc, Ph.D, MNSP,	Medicinal plant research, drug discovery from nature, standardization of herbal and alternative medicine practice	Lecturer I
20	Dr Blessing A. Odogwu	B.Sc., M.Sc. Ph.D	Plant Science and Biotechnology	Lecturer I
21	Dr M. Alagala	Pharm.D, MBA, Ph.D, MPSN	Clinical Pharmacy and Management	Lecturer I
22	Mr. N.A. Elechi	B.Pharm, M.Sc. MPSN	Pharmacognosy and Phytotherapy	Lecturer I
23	Mr. B.A. Adewoyin	B.Pharm, M.Sc MPSN	Pharmacognosy and Phytotherapy	Lecturer I

24	Mr. L. Okwubie	B.Pharm, M.Pharm. MPSN	Pharmacognosy Phytotherapy	and	Lecturer 1
25	*Registered Traditional/Altern ative medicine practitioners				

*Seasoned practitioners registered with the Rivers State traditional medicine board shall be incorporated to provide hands on practical and mentoring skills. A MOU initiative is currently on-going through the office of the Deputy Vice Chancellor (Academic).

FACULTY OF AGRICULTURE

DEPARTMENT OF CROP AND SOIL SCIENCE

A. M.SC PROGRAMME IN CROP SCIENCE

Introduction

The programme is designed for students wishing to pursue a higher degree in Crop Science with specializations in Crop Breeding and Genetics, Field Crop Production/Farming Systems, Crop Physiology, Horticulture and Weed Science. Consequently, the degree shall be awarded in the five broad areas or options thus:

Crop Breeding and Genetics
Crop Physiology
Field Crops Production and Farming Systems
Horticulture and Landscaping)
Weed Science

Philosophy

The philosophy of Academic Master's Degree programmes in Crop Science in the University of Port Harcourt; is to produce quality and competent graduates with broad-based skills and capacity to contribute in developing practical solution to the problems of Agriculture, as it relates to crop production and food security .

Vision/Mission

A graduate from this programme would have acquired sufficient knowledge and practical skills to enable him to:

- Engage in teaching, research and community outreach activities in the field of Crop Production at various levels (private sector, ministries of agriculture, research organizations, universities, NGOs, etc.)
- Work as professionals in farms, research institutes and other governmental and nongovernmental organizations
- Advise decision makers in formulating agricultural policies
- Generate appropriate technologies for crop production through research

Rationale/Justification

The Niger Delta region hosts a number of Higher Education Institutions (HEIs) and many of these have agriculture as a major discipline. In addition, agriculture is the main occupation of the inhabitants of the region. However, there is a dearth of experts to promote agripreneurship and train the manpower required in the region. Also, the HEIs currently offering agriculture in the region lack the necessary curriculum that would

provide trainees with specialized skills and knowledge that are relevant in today's technology-driven society. This is why this programme is apt.

Objectives of the programme

The objectives of postgraduate training in Crop Science are to:

- Produce well qualified and competent graduates having strong theoretical knowledge and practical skills in Crop Production for providing service to farmers and industry in crop management and to conduct quality research in agriculture, rangeland, forestry and biodiversity.
- Generate highly skilled manpower that is capable of developing appropriate technologies in different aspects of crop production and management through problem-oriented and need-driven research work.
- Improve national food security through the availability of adequate number of crop production and management experts that will provide efficient crop improvement options to increase food security conserve populations of beneficial species and improve biodiversity.

Admission requirement

Candidates seeking admission into the programme must:

- Have a Bachelor of Agriculture or a Bachelor of Science in Crop Science, Horticulture, Agronomy and Forestry or in related fields from a recognized University with at least a second class lower division.
- Have a Bachelor degree in any of the agricultural disciplines listed above with a CGPA of less than 3.00 on a 5-point scale or Bachelor degree in a related science with a CGPA of 3.00 plus a PGD in Crop and Soil science with a minimum CGPA of 3.50 or HND (Upper credit) in a relevant agricultural discipline plus PGD in Crop and Soil science with a minimum CGPA of 3.50.
- Fulfill the general requirements as contained in the brochure of the College of Graduate Studies

Programme duration

Candidate may register for full-time or part-time studies.

- **Full time students:** -12 calendar months minimum and 24 months max.

- **Part-time students:** 24 calendar months minimum and 48 months max.

Graduation requirement

The student is expected to pass the prescribed courses and defend the thesis.

Requirements for Graduation

Students must have fulfilled the following conditions to be awarded the Academic Master's Degree in Crop Science:

- a) Pass a minimum of 36 Credits made up of the following

Course	Units
Core	12
Electives	12
Project	10
Special topics	2
Total	36

However, Students may register for additional courses from any option, as elective, to meet research needs

- b) Carried out a research project relevant to the area of specialization and submitted an acceptable project report.

Option 1: Crop Breeding and Genetics

First Semester

Course Code	Course Title	Units
Compulsory Courses		
SGS 801.1	ICT and Research method	2
CSS 802.1	Biometrics and Experimental Design	2
Core Courses		
CPS 801.1	Biometrical genetics	2
CPS 803.1	Breeding for pests and diseases resistance	2
CPS 804.1	Advanced plant breeding	2
*Electives		
CSS 801.1	Research and Communication in Agriculture	2
CPS 802.1	Crop Plant Evolution	2
CPS 805.1	Advanced genetics/cytogenetics	2
CPS 806.1	Tissue culture techniques in relation to Plant Breeding	2
Total		18

*Note: Students are to select a minimum of two (2) electives per semester

Second Semester

NEW COURSE STRUCTURE

CODE	Course Title-NEW	Units
Compulsory Courses		
CSS 800.2	Seminars	2
SGS 801.2	Entrepreneurship and Management	2
CPS 899	Thesis/Dissertation	10
*Electives		
CPS 807.2	Physiological Genetics in Plant Breeding	2
CPS 808.2	Seed science and technology	2
CPS 809.2	Plant genetic resource conservation	2
CPS 810.2	Crop modeling	2
TOTAL		22

*Note: Students are to select a minimum of two (2) electives per semester

Option 2: Crop Physiology

First Semester

Course code	Course title	Units
Compulsory Courses		
SGS 801.1	ICT and Research method	2
CSS 802.1	Biometrics and Experimental Design	2
Core Courses		
CPS 812.1	Crop Physiology	2
CPS 813.1	Plant nutrition	2
Electives		
CSS 801.1	Research and Communication in Agriculture	2
CPS 814.1	Plant Metabolism and Bioenergetics	2
CPS 815.1	Crop Ecology	2
CPS 816.1	Seed Physiology	2
TOTAL		18

Note: Students do not have to take all Crop Physiology electives. Also, students may select course from other options or programme where necessary. For molecular basis of physiology, elective(s) may be picked from Genetics and Breeding option.

SECOND SEMESTER COURSES

NEW COURSE STRUCTURE

Code	Course Title	Units
Compulsory Courses		
CPS 800.2	Seminars	2
SGS 801.2	Entrepreneurship and Management	2
CPS 899	Thesis/Dissertation	10
Core Courses		
CPS 819.2	Instrumentation and Methods in Agronomy	2

Electives		
CPS 817.2	Post-harvest Physiology	2
CPS 818.2	Impact Assessment in Agroecosystem	2
CPS 820.2	Crop Growth and Yield Analysis	2
Total		22

CPS 820.2	Crop Growth and Yield Analysis	2
CPP 820.2	Advanced Crop Disease Management	2
Total		22

*Students are expected to choose electives not less than 6 units in consultation with their supervisors

Note. Students do not have to take all Crop Physiology electives. Also, students may select course from other options or programmes where necessary. For molecular basis of physiology, elective(s) may be picked from Genetics and Breeding option.

Option 3: Field Crops Production and Farming Systems

COURSES CODE AND TITLE

First Semester

Course Code	Course Title	Units
Compulsory Courses		
SGS 801.1	ICT and Research Method	2
CSS 802.1	Biometrics And Experimental Design	2
Core Courses		
CPS 811.1	Advance Farming Systems	2
CPS 812.1	Crop Physiology	2
Electives		
CSS 801.1	Research and Communication in Agriculture	2
SOS 808.1	Soil Fertility and Plant Nutrition	2
CPS 829.1	Weed Systems and Management	2
CPS 804.1	Advanced plant breeding	2
CPS 823.1	Advanced Fruit Production	2
Total		18

*Students are expected to choose electives not less than 6 units in consultation with their supervisors Considering specialty.

Second Semester

Course code	Course Title	Units
Compulsory Courses		
CSS 800.2	Seminars	2
SGS 801.2	Entrepreneurship and Management	2
CPS 899	Thesis/Dissertation	10
Core Courses		
CPS 821.2	Advanced Crop Production	2
Electives Courses		
CPS 808.2	Seed Science and Technology	2

Option 4: Horticulture and Landscaping

First Semester

Course code	Course Title-New	Credit units
Compulsory Courses		
SGS 801.1	ICT and Research methods	2
CSS 802.1	Biometrics and Experimental Design	2
Core Courses		
CPS 822.1	Advanced Olericulture	2
CPS 823.1	Advanced Fruit Production	2
Electives		
CSS 801.1	Research and communication in Agriculture	2
CPS 824.1	Floral Arrangement and Post-Harvest Handling of Cut Flowers	2
CPS 811.1	Advanced Farming Systems	2
CPS 813.1	Plant Nutrition	2
CPS 829.1	Weed Systems and Management	2
Total		19

*Students are expected to choose electives not less than 6 units in consultation with their supervisors considering specialty.

Second Semester

Course code	Course Title	Credit units
Compulsory Courses		
CSS 800.2	Seminar	2
CPS 899	Thesis	10
SGS 801.2	Entrepreneurship and management	2
Core Courses		
CPS 826.2	Advanced Floriculture and Landscaping	2
Electives		
CPS 817.2	Postharvest Physiology	2
CPS 825.2	Horticulture Enterprise Development	2
CPS 827.2	Production Technology of Spices, Aromatic and Medicinal crops	2

Total **22**

Option 5: Weed Science

First Semester

Course code	Course Title	Units
Compulsory Courses		
SGS 801.1	ICT and Research Method	2
CSS 802.1	Biometrics And Experimental Design	2
Core Courses		
CPS 828.1	Weed Biology and Ecology	2
CPS 829.1	Weed Systems and Management	2
Electives		
CSS 801.1	Research and Communication in Agriculture	2
CPP 801.1	Pesticides in Agriculture and Environment	2
CPS 811.1	Advanced Farming Systems	2
SOS 808.1	Advanced Soil Fertility and Plant Nutrition	2
Total		16

*Students are expected to choose electives not less than 6 units per semester in consultation with their supervisors considering specialty.

SECOND SEMESTER

Course code	Course Title	Units
Compulsory Courses		
CSS 800.2	Seminar	2
SGS 801.2	Entrepreneurship and Management	2
CPS 899	Thesis /Dissertation	10
Core Courses		
CPS 830.2	Herbicide Application and Mechanism of Action	2
Electives		
CPS 831.2	Weed Research Techniques	2
CPS 806.2	Pests and Beneficial Organisms in Agriculture	2
CPS 820.2	Crop Growth and Yield Analysis	2
SOS 818.2	Pesticides in Soils	2
Total		24

*Students are expected to choose electives not less than 6 units per semester in consultation with their supervisors considering specialty.

COURSE AND DESCRIPTION

SGS 801.1 ICT and Research Method (2 units)

CSS 801.1 Research and Communication in Agriculture (2 units)

Over-view of Agricultural Research for Development – types of research (basic and applied). The Research – Development Nexus. The challenges of Agricultural Research and Technology Development in Nigeria. Key considerations for Agricultural Research. . Presentation of research results – types of experimental design data and type of presentation – tabular, line graph, bar chart, etc. Communication channels in Agricultural Research (Journals, proceedings, technical or annual reports, book chapters, etc.). Oral presentation-power point, slide presentation etc. Nature of communication - research articles, review, bulletins, functions of the components of a typical scientific communication (title, author and address, abstract/ summary, introduction, materials and methods, results, results/ discussion, references). Reference styles in agricultural research. Participatory Research and Extension Approach (PREA)?

CSS 802.1. Biometrics and Experimental Design (2 units)

The scientific method of research-Observations, and characteristics of well-planned experiments. Steps and technical considerations in Experimentation. Experimental designs Data transformation. Data analysis- the Analysis of variance: one-factor and two-factor (ANOVA). Simple linear regression, comparing simple linear regression equations, simple linear correlation. One-sample and two-sample hypotheses (student's t test). Indices for evaluation of multiple cropping systems- LER, Relative crowding coefficient and Aggressivity. Test of significance and mean comparison- The least significant difference test; multiple, Comparison– Duncan's Multiple Range Test (DMRT) and others. The Tukey test; The Newman – Keuls Test. Non-parametric tests- Mann–Whitney test, Wilcoxon paired-sample test; Kruskal–Wallis test. Toxicological statistics; probity analysis. On-farm Experimentation

CPS 801.1 Biometrical genetics (2 units)

Biometrical genetics and use of biometrical methods in plant breeding research. Study and analysis of quantitative variation components of heritable variation. Heritability, heterosis, epistasis and correlated responses. Design and analysis of diallel experiments. Maternal inheritance. Other

statistical concepts used for the analysis of polygenic variation.

CPS 802.1 Crop plant evolution (3 units)

Origin of cultivated plants; centers of diversity, sources of variability mutation/hybridization; changes in chromosome number, polyploidy and aneuploidy. Breeding systems. The role of the environment.

CPS 803.1 Breeding for pest and diseases resistance (2 units)

Breeding methodologies for horizontal and vertical resistance, Gene-by-gene concept, Van der Plank concept. Screening methodologies, Boom-bust concept.

CPS 804.1 Advanced plant breeding (2 units)

Aims and procedure for improvement. Genetic basis for selection; breeding system, concepts of heterosis and heritability. Conventional strategies for improvement of quantitative inheritance and evidence in support, in – breeding, out- breeding and vegetatively propagated crops. Specialized techniques, Polyploidy, hybridization and mutation breeding, chromosomes addition and substitution, lines, breeding for disease resistance. Multiplication, evaluation, registration and maintenance of improved varieties. Breeder's right. Biotechnology applied to crop improvement; plant tissue culture, Molecular strategies for crop improvement; crop genetic transformation.

CPS 805.1 Advanced genetics/cytogenetics (2 units)

Quantitative genetics, Chemistry of the nuclei and chromosomes. Chromosomes replication and cell division. Ultrastructure of cell organelles. Gene control and regulation; heterochromatization, B Chromosomes, gene amplification and DNA redundancy. Chromosome pairing rules, changes in structure and number, recent advances in cytogenetics.

CPS 806.1. Tissue culture techniques in relation to Plant Breeding (2 units)

CPS 806.2 Tissue culture techniques in relation to plant breeding (2 units)

Definition of tissue culture. The tissue culture laboratory, design, equipment and supplement, maintenance, culture media, composition, preparation, choice of media. Limitation and maintenance of callus. Choice of explants. Preparations and sterilization of explants. Callus induction, subculture and maintenance suspension cultures. Tissue culture techniques, anther and pollen culture techniques, plantlets regeneration techniques, protoplast fission. Root cultures, meristem cultures, micropropagation in the shoot

apex. Embryogenesis, organogenesis and plant regeneration. Isolation, manipulation of plant protoplast. Somatic hybridization. Selection of somatic hybrid plants. Transformation of plants using protoplast systems. Selection of plant cells for desirable characteristics. Haploid cell culture embryo rescue and uses. Secondary metabolites production by cell suspension cultures. Cryopreservation and storage of germplasm.

SGS 801.2 Entrepreneurship and Management (2 units)

CSS 800.2 Seminars (2 units)

Students will review and present topics relevant to their areas of specialization. The selection of topics shall be done in consultation with their supervisors.

CPS 807.2 Physiological Genetics in Plant Breeding (2 units)

A consideration of genetics, biochemical and molecular mechanisms influencing variation in plant physiological processes such as photosynthesis, respiration, self-incompatibility, heterosis and yield. Role of environmental factors and their mediation through biochemical and molecular processes in phenotypic expressions, emphasis through the course will be on application in plant breeding.

CPS 808.2 Seed Science and Technology (2 units)

Seed and its importance in crop production, physiology and genetic qualities of seed. Types of seed and production techniques. Breeders, Foundation and Certified seed production and their maintenance. Seed multiplication, field management and maintenance practices for crop seed production. Seed processing and quality evaluation. Seed treatments, seed storage and marketing.

CPS 809.2 Plant Genetic Resource Conservation (2 units)

Status of genetic diversity in Africa. The need to conserve PGRs. Exploration, collection, characteristics and evaluation of germplasm. In situ germplasm conservation; parks, ranges, reserves etc. Ex situ gene bank establishment. Orthodox and recalcitrant seed storage and cryopreservation of embryo seed and in vitro culture.

CPS 810.2 Crop modeling (2 units)

Crop modeling; **Concept of crop modelling**, stages of model building, types and properties of models, **limitations of models**, crop models for modeling flowering times, crop growth and development etc.

CPS 811.1. Advanced Farming systems (2 units)

Concepts of a farming system, factors determining farming systems – physical, biological, socioeconomic and technological environment. Basis for farming systems in the tropics. Shifting cultivation system, semi-permanent cultivation system, ley farming system, mixed farming system, Alley farming system, permanent cultivation system under rain-fed situation, irrigation, irrigation farming system, tropical small-scale farming – general characteristics, strength and weakness, case studies including nomadic pastoralism, fallow rotation, dairying. Effects of systems on soil productivity, development possibilities for tropical farming systems. Technique for design and analysis of on-farm experimentation; and diagnosis in farming system research and field practices. Major cropping system in the tropics: cropping systems based on spatial factors – sole cropping, intercropping; systems based on temporal factors – phased planting, crop rotation; system based on spatial/temporal factor – relay cropping. Alley – cropping, agro-forestry (taungya systems), ratoon cropping. Evaluation of mixed cropping (intercropping) and other systems. Upland cropping system, wet land cropping (fadama) system, irrigated cropping system

CPS 812.1 Crop Physiology (2 units)

Physiological processes in crop growth and development, Crop responses to internal and environmental factors, *i.e.*, light, temperature, humidity, day length etc. Crop stress physiology.

CPS 813.1 Plant Nutrition (2 units)

Mineral uptake and metabolism, deficiencies and toxicities, energetics and metabolic coupling of active transport, genetic and ecological aspects of plant nutrition. Recent advances in plant nutritional physiology and soil-root nutrient interactions in relation to plant metabolism and crop yield.

CPS 814.1 Plant Metabolism and Bioenergetics (2 units)

Biological architecture; mitochondria and chloroplast, oxidation and reduction reactions, oxidizing and reducing sugars, thermodynamics of energy in plant systems, biosynthesis of carbohydrates, fats, proteins etc., respiration and its regulation, agricultural application of bioenergetics.

CPS 815.1 Crop Ecology (2 units)

Definition, Crop ecology and its division, Different fields of ecology, plant ecology and other branches of science, Application of crop ecology. Main environmental or ecological factors -

climatic, edaphic or soil factors, physiographic factors, biotic factors, Ecosystem - components and functions of ecosystem, Energy and its flow in ecosystem. Study of communities – community compositions and classification. Plant community structure. Plant adaptations – hydrophytes, xerophytes, mesophytes, halophytes and mangrove vegetation, Environmental pollution – water pollution, Air pollution, agricultural pollution, Radiation pollution, thermal pollution, Acid Rain, air quality and air quality index.

CPS 816.1 Seed Physiology (2 units)

Physiology of seed development; seed formation, maturity. Source/sink relation and the supply of nutrients affecting seed yield, quality, tolerance, seed storage, longevity, deterioration, germination, and imbibition, and reserve mobilization, hormonal and environmental regulation. Advances in seed technology.

CPS 817.2 Post harvest physiology (2 units)

Field cultural practices in relation to the reduction of post-harvest losses. Factors that affect the postharvest life of produce. Pre-cooling, sorting, grading, packing and transit handling operations in relation to quality and storage life of produce. Respiration, heat building up and moisture loss in harvested produce. Physical and chemical indices of quality in fruits, seeds, vegetables and other crop products. Preservation methods: storage atmosphere and technology of storage. Climacteric and non-climacteric fruits. Ripening and senescence. The importance and role of ethylene and other plant hormones in fruit industries. Prolonging the shelf life and storage life of fruits, vegetables and flowers. Traditional methods of vegetables processing and storage. Storage and shelf life problems. Controlled environment for transit and long term storage. Protective treatments, design and operation of equipment for storage and preservation.

CPS 818.2 Impact assessment in agroecosystem (2 units)

Concept of sustainable crop production. Types and methods of impact assessment. Environmental impact assessment: principle, application and process. Practical: perform EIA of the conversion of arable crop land to energy crop production, use known methods, e.g. GMP-RAM to carry out EIA of a new GM crop, evaluate the impact of the introduction of a new crop or of a named natural disaster.

CPS 819.2 Instrumentation and Methods in Agronomy (2 unit)

Field and laboratory methods of soil/plant tissue analysis: sampling, sample preparation and analyses, routine and special methods of soil /plant tissue analyses. Principles of photometry,

spectrometry, microscopy, measurement of leaf chlorophyll, leaf area, leaf temperature etc., and control environment crop production techniques. Assessment of current technological introductions in crop growth evaluation- use of sensors and artificial intelligence *etc.* Crop physiological techniques in crop improvement.

CPS 820. 2 Crop Growth and Yield Analysis (2 units)

Sigmoid growth curve, Leibig law of the Minimum, Blackman optima and limiting factors, Mitscherlich law of diminishing returns, Macy critical percentage. Physiological basis of crop yield, leaf area development, concept of optimum leaf area index (LAI), leaf number, size, orientation, photosynthetic efficiency, effect of canopy architecture on crop yield, factors affecting sink capacity and strength, sink-source relationship, grain growth and development and senescence. Measurements: leaf area, LAI and seed growth rate, effective seed filling duration from linear regression, economical and biological yields. Yield analysis.

CPS 821. 2 Advanced Crop Production (2 units)

Physiological origins of crop yield. Management practices employed in crop production for crops including cereals, legumes, vegetables, roots and tubers, tree crops, ornamentals, fibre crops, forages and pastures and turf, herbs and spices. Soil and nutrient management practices for crop production. Farming systems – traditional and modern concepts. Fertiliser management in cropping systems. Research methods in cropping systems. Role of environmental factors in management practices involving crop production. . Enhancement and measurement of productivity, sustainability, stability and equitability of cropping systems.

CPS 822.1 Advanced Olericulture (2 units)

Definition of Terms; Importance of vegetables and mushroom in human diet; Vegetable regions and climatic requirements; Seed treatment, preparation of germination media; Containers and growing of nurseries of different vegetables and mushroom species; Hardening of seedlings; Soil requirement, planting and after care, manures, fertigation, irrigation, intercultural operations such as; weeding, mulching, training and pruning. Use of plant growth regulators, harvesting, post-harvest handling, curing, storage, marketing and exports of leafy, fruit, root vegetable crops and mushrooms. Types of vegetable gardening and site selection for vegetable production; Fundamentals of mycoscience. **PRACTICAL**, Identification and description of different varieties of vegetables; Planning and layout of commercial vegetable

garden; Visit to commercial vegetable gardens, identification of different species of mushrooms.

CPS 823.1 Advanced Fruit Production (2 units)

THEORY: Selection of varieties, commercial propagation methods, root stocks for different purposes, preparation of field, digging and filling of pits, role of high density planting, training and pruning, nutrient, water requirements through open as well as drip irrigation. Weed control, mulching, flowering and fruit set. Use of growth regulators of various purposes, harvest indices, harvesting techniques, pre-harvest treatments, post-harvest management, grading and packing for internal and export markets and storage of major fruit crops like mango, banana, citrus, guava, papaya and apple. **PRACTICAL:** Commercial propagation methods in Avocado Pear, mango, citrus and guava; fertilizer application and field observation of deficiency symptoms of micro nutrient in major fruit crops; irrigation and fertigation practices in fruit crops. Canopy management in Avocado Pear (pruning, training, application of paclobutrazol *etc.*); Training and pruning studies in grape; Studies on flower and fruit drop and their control in mango and citrus; papain extraction in *Papaya*; Hormonal application to improve fruit set, fruit thinning, fruit size and quality in major fruit crops; Harvest indices in selected fruits; harvesting methods in fruit crops; Desaping, pre-cooling, grading and pelletization and storage in mango; Ripening methods in mango, banana; cold storage studies for different fruits. Visits to commercial orchards, local cold storage and export units of fruits. Working out cost: benefit ratios for mango, citrus, banana and other fruit crops.

CPS 824. 1 Flower Arranging and Post-Harvest Handling of Cut/Dried Flowers (2 units)

Significance of post-harvest technology in curbing the post-harvest losses for extending the post-harvest vase of cut and dried flower; Pre-harvest and post-harvest factors in determining the post-harvest quality of cut and dried flower; Water relations, ultra-structural and biochemical changes in extending the vase life of cut and dried flowers; Ethylene and senescence; Micro-organisms and their role in water relations of cut and dried flowers; Pre-cooling and pulsing. Different holding solutions for extending vase life of cut and dried flowers; Temperature and respiration on cut flowers; Methods of transport of cut and dried flowers to domestic, long distance and international markets; Post-harvest physiological disorder and control measures in extending the post-harvest quality of cut and dried flowers; Flower arranging for different occasions and principles underlying basic floral designs.

PRACTICAL: Harvesting techniques for different cut and dried flowers to prolong the post-harvest vase life period; Preparation of different holding solutions, growth regulators, natural floral preservatives and trade products; Determination of water uptake, transpiration loss of water, water balance and fresh weight change in cut and dried flowers during vase life period; Visits to commercial greenhouses / high-tech floriculture projects, local flower markets and cold storages.

CPS 825. 2 Horticulture Enterprise Development (2 units)

Concept of commercial mushroom farm; Science of bioconversion; Design of mushroom houses; Techniques in mushroom production. Value addition and advances in mushroom production. Importance of mycorium, design and planning.

CPS 826.2 Advanced Floriculture and Landscaping (2 units)

Definition and classification of plants -Botanical nomenclature and plant morphology; Classification of ornamental plants based on location/site and aesthetic parts; Urban environments and plants that grow in urban landscape; Recognition, identification of representative ornamental plants, selection and use of ornamental plants in designed landscapes and urban horticulture; planting plans, planting design, design use of major plant groups; Establishment and management of ornamental plants; Introduction to floral arrangement. General importance of flowers, economic importance of flower production; classification of flowers and ornamental plants; Planting material and seed production in flower plants, cut flower species, culture, flower arranging, dried flowers, growing of succulents, Cacti – propagation, growth requirements, care; Growing potted plants; Growing bedding plants; Growing cut flowers: Roses; Importance of ornamental gardens; Planning of ornamental gardens; Types and styles of ornamental gardens; Use of trees, shrubs, climbers, palms, house plants and seasonal flowers in the gardens; Package of practices for propagation of major commercial flowers:- Rose, Jasmine, Chrysanthemum, gladiolus, gerbera, marigold and tuberose; Home care of cut flowers.

CPS 827. 2. Production Technology of Spices, Aromatic and Medicinal Crops (2 units)

Importance and cultivation technology of spices – ginger, turmeric, pepper, garlic, cardanion, coriander, cumin, black pepper; Aromatic crops - lemon grass, *Ocimum*, Aidon tree, *Gongronima latifolium*; Medicinal plants – *Ocimum*, periwinkle, aloe. **Practical:** Botanical description and identification of aromatic plants, varieties in spices and medicinal crops; propagation

techniques in aromatic and spice crops. Distillation procedures for aromatic crops. Propagation and planting methods in turmeric and ginger. Harvesting procedures in aromatic plants; Processing and curing of spices (ginger, turmeric and black pepper); Procedures for oleoresin extraction. Visit to local and commercial plantations. Aromatic and medicinal plant nurseries and seed spices field.

CPS 828.1 Weed Biology and Ecology (2 units)

Reproduction and dispersal of weeds. Principles of weed ecology and physiology. The physio-chemical and biotic factors affecting weeds and plant community in nature and ecological method. Persistence and survival mechanisms of weeds. Competition between crops and major weeds. Crop losses due to critical periods and densities of weeds. Weed Taxonomy and identification. Description of major weeds prevalent in Nigeria agro-ecological systems and other weed systems. Weed population dynamics

CPS 829.1 Weed Systems and Management (2 units)

Importance of weed in the ecosystem. Environmental weeds, Aquatic weeds, Rangeland weeds, and cropping weeds. Principles and practices of weed management in field, horticultural and plantation crops; wasteland and waterways. Strategies and tools of weed management, Influence of climatic, biotic and abiotic factors on the effectiveness of different weed management strategies. Management of invasive weeds.

CPS 830.2: Herbicides: Application and Mechanism of Action (2 units)

Classification and characteristics of herbicides, herbicide formulations and scope of use; and mode of action, herbicide metabolism and translocation (plant system (Organ, tissue and cell) and development). Herbicides, chemical structures, properties and methods of synthesis of the major groups of herbicides, herbicide selectivity and mechanism of herbicides activity (including plant response to herbicide combinations) .Methods of estimation of herbicides fate, residue and ecological problems of persistence. Toxicity, persistence, resistance, limitations in the use of herbicides, hazards, precautions and effect on environment (soil and plant interaction and movement). Application equipment, principles, use and maintenance. Field application of herbicides and safety requirement.

CPP 831.2 Weed Research Techniques (2 units)

Techniques in laboratory, greenhouse, and field experimentation in weed science. Experimental designs, data collection and measurement of plant

response, data processing, analysis and reporting. Modern techniques in herbicide absorption, translocation and sorption, metabolism and degradation studies. Herbicide assay and formulation experiments.

CPP 801.1 Pesticides in Agriculture and Environment (2 units)

The different kinds of pesticides and pests, historical development of chemical pesticides - the growth in global use and the shape of the industry. Application equipment, principles, use and maintenance. Physico-chemical factors – The design of a pesticide, formulation, selectivity. Method of application – Dusting, seed treatment, spraying, fumigation. Translocation of pesticides in plants. Behavior of pesticides in soil. Important biochemical reactions in pesticides. The cell and its components; Respiration; Photosynthesis. Transmission of nervous impulses. Transport and biological processes in plants. Biosynthesis of nucleic acids and protein, some pesticides acting by interference with biosynthesis. Classes of pesticides – Insecticides, Herbicides, fungicides, their chemical structure and characteristics, mode of action, methods of application. Pesticides in the environment - Effects on non-target organisms (mammals, birds, fish). Effect on natural enemies, wildlife; Induction of resistance in pests. Accumulation in food chain and biomagnifications. Pesticide residue and hazard to ecosystems; contamination of air, soil and water. Method of estimation of herbicide residues. Field application of pesticides and safety requirement. Application equipment, principles, use and maintenance.

CPP 821.2 Advanced Crop Disease Management (2 units)

Principles of plant disease control. The disease triangle. Epidemiology. Phytotoxicity. How plants defend themselves. A review of the various methods of plant disease control. Merits and demerits of the various methods

SOS 808.1 Advanced Soil Fertility and Plant Nutrition (2 units)

Description of soil-plant continuum. Plant system: root-uptake-translocation of nutrients. Mechanism of nutrient absorption and translocation. Absorption (osmosis, diffusion, mass flow, cation exchange). The carrier hypothesis, solute transport at the cellular level, energy sources for active transport. Role of organic matter in soil-fertility. Evaluation of soil nutrient supply (Laboratory, Green house and Field methods). Fertilizers: their use, environmental effect and evaluation, cropping systems, and soil management.

SOS 818.2 Pesticides in soil (2 units)

Major groups of pesticides, processes affecting pesticides in soil including sorption. Degradation and elimination; transport of pesticides in soil and uptake by plants; pesticides persistence; effects on soil organisms and crop damage, techniques involving analysis of pesticides residue in soils.

CPS 899: Thesis/Dissertation (10 units)

B. M. SC PROGRAMME IN CROP PROTECTION

Introduction

The programme is designed for students wishing to pursue a higher degree in crop protection with specializations in Agricultural Entomology, Crop Pathology, Plant Nematology and Weed Science. Consequently, the degree shall be awarded in the three broad areas namely:

Agricultural Entomology
Crop Pathology
Plant Nematology

Philosophy

To train students with broad-based skills and capacity to utilize scientific knowledge in developing practical solutions to the problems of agricultural pests and diseases.

Vision/ Mission

A graduate from this programme would have acquired sufficient knowledge and practical skills to enable him to:

- Engage in teaching, research and community outreach activities in the field of Crop Protection and general pest management at various levels [private sector, ministries of agriculture, research organizations, universities, Non-Governmental Organizations (NGO) etc.]
- Work as professionals in farms, research institutes and other NGOs
- Advise decision makers in formulating agricultural policies
- Generate appropriate technologies for crop protection through research

Rationale/justification

The Niger Delta region hosts a number of Higher Education Institutions (HEIs) and many of these have agriculture as a major discipline. In addition, agriculture remains the main occupation of the inhabitants of the region. There is dearth of experts who can promote agripreneurship and train required manpower in the region. The HEIs currently offering agriculture in the region lack the necessary curriculum that would provide trainees with a specialized skills and knowledge that are

relevant in today's technology-driven society. This is why the proposed programme is apt.

Objectives of the Programme

The objectives of postgraduate training in Crop Protection are to:

- Produce well qualified and competent graduates having strong theoretical knowledge and practical skills in Crop Protection for providing service to farmers and industry in pest management and to conduct quality research in agriculture, rangeland, forestry and biodiversity.
- Generate highly skilled manpower that are capable of developing appropriate technologies in different aspects of pest management through problem-oriented and need-driven research work.
- Improve national food security through the availability of adequate number of pest management experts that will provide efficient control of crop pests, conserve populations of beneficial species and protect the environment and biodiversity.

Admission requirements

Candidates seeking admission into the programme must:

- Have a Bachelor of Agriculture or a Bachelor of Science in Crop Science, Horticulture, Agronomy and Forestry or in related fields from a recognized University with at least a second class lower division.
- Have a Bachelor degree in any of the agricultural disciplines listed above with a CGPA of not less than 3.00 on a 5-point scale or Bachelor degree in a related science with a CGPA of 3.00 plus a PGD in Crop and Soil science with a minimum CGPA of 3.50 or HND (Upper credit) in a relevant agricultural discipline plus PGD in Crop and Soil science with a minimum CGPD of 3.50.
- Fulfill the general requirements as contained in the brochure of the College of Graduate Studies

Programme duration

The programme is available on both full-time and part-time basis. For full-time studies, the programme shall last for a minimum of 12 calendar months and a maximum of 24 calendar months; while the part-time programme shall last for a minimum of 24 calendar months and a maximum of 48 calendar months.

Graduation requirements

The student is expected to pass the prescribed courses and defend the research project

Requirements for Graduation

A candidate must have fulfilled the following conditions to be awarded the MSc in Crop Protection Degree:

- a) Pass a minimum of 36 Credits made up of the following

Course	Units
Core	12
Electives	12
Project	10
Special topics	2
Total	36

- b) Carried out a research project relevant to the area of specialization and submitted an acceptable project report.

OPTION 1: Agricultural Entomology

First Semester

NEW COURSE STRUCTURE

Course Code	Course title	Units
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Compulsory Courses

SGS 801.1	ICT and Research Method	2
CSS 802.1	Biometrics And Experimental Design	2

Core Courses

CPP 802.1	Insect Morphology	2
CPP 803.1	Insect Physiology and Biochemistry	2

Electives

CSS 801.1	Research and Communication in Agriculture	2
CPP 801.1	Pesticides in Agriculture and Environment	2
CPP 804.1	Insect Ecology	2
CPP 805.1	Agricultural Soil Biology	2

Total **16**

Second Semester

Course Code	Course title	Units
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Compulsory Courses

CPP 800.2	Seminar	2
SGS 801.2	Entrepreneurship and Management	2
CPP 899	Thesis	10

Core Courses

CPP 809.2	Insect Pests of Cultivated Crops	2
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Elective

CPP 806.2	Pests and Beneficial Organisms in Agriculture	2	Total	24
CPP 807.2	Insect Systematics and Bio-informatics	2	OPTION 3: Crop Pathology	
CPP 808.2	Insect Pest Management	2	First Semester	
Total		22	Course Code	Course title
OPTION 2: Plant Nematology				Units
First Semester			Compulsory Courses	
Course Code	Course title	Units	SGS 801.1	ICT and Research Method
			CSS 802.1	Biometrics And Experimental Design
SGS801.1	ICT and Research Method	2	Core Courses	
CSS 802.1	Biometrics and Experimental Design	2	CPP 817.1	Plant Mycology and Fungal Diseases.
Core Courses			CPP 818.1	Plant Bacteriology and Bacterial Diseases.
CPP 810.1	Morphology, Anatomy and Physiology of Nematodes	2	Electives	
CPP 812.1	Nematode Ecology	2	CSS 801.1	Research and Communication in Agriculture
Electives			CPP 801.1	Pesticides in Agriculture and Environment
CSS 801.1	Research and Communication in Agriculture	2	CPP 805.1	Agricultural Soil Biology
CPP 801.1	Pesticides in Agriculture and Environment	2	CPP 819.1	Plant Virology and Viral Diseases
CPP 805.1	Agricultural Soil Biology	2	Total	16
CPP 811.1	Nematode Systematics and Taxonomy	2	Second Semester	
Total		16	Course Code	Course title
Second Semester				Units
Course Code	Course title	Units	Compulsory Courses	
CPP 800.2	Seminar	2	CPP 800.2	Seminar
SGS 801.2	Entrepreneurship and Management	2	SGS 801.2	Entrepreneurship and Management
CPP 899	Thesis	10	CPP 899	Thesis
Core Courses			Core Courses	
CPP 813.2	Techniques in Nematology	2	CPP 820.2	Advanced Crop Disease Management
Electives			Electives	
CPP 806.2	Pests and Beneficial Organisms in Agriculture	2	CPP 806.2	Pests and Beneficial Organisms in Agriculture
CPP 814.2	Advanced Nematode Management	2	CPP 821.2	Fundamentals of Seed Pathology
CPP 815.2	Nematodes of Cultivated Crops	2	CPP 822.2	Plant Nematology and Nematode Diseases
CPP 816.2	Non-Nematode pathogens of Crops	2	CPP 823.2	Molecular Plant Pathology
			Total	24
COURSE TITLES AND DESCRIPTION				
Students will review and present topics relevant to their areas of specialization. The selection of topics shall be done in consultation with their supervisors.				

SGS 801.1 ICT and Research Method (2 units)

CSS 801.1 Research and Communication in Agriculture (2 units)

Over-view of Agricultural Research for Development – types of research (basic and applied). The Research – Development Nexus. The challenges of Agricultural Research and Technology Development in Nigeria. Key considerations for Agricultural Research. . Presentation of research results – types of experimental design data and type of presentation – tabular, line graph, bar chart, etc. Communication channels in Agricultural Research (Journals, proceedings, technical or annual reports, book chapters, etc). Oral presentation-power point, slide presentation etc. Nature of communication - research articles, review, bulletins, functions of the components of a typical scientific communication (title, author and address, abstract/ summary, introduction, materials and methods, results, results/ discussion, references). Reference styles in agricultural research. Participatory Research and Extension Approach (PREA)?

CSS 802.1. Biometrics and Experimental Design (2 units)

The scientific method of research-Observations, and characteristics of well-planned experiments. Steps and technical considerations in Experimentation. Experimental designs Data transformation. Data analysis- the Analysis of variance: one-factor and two-factor (ANOVA). Simple linear regression, comparing simple linear regression equations, simple linear correlation. One-sample and two-sample hypotheses (student's t test). Indices for evaluation of multiple cropping systems-LER, Relative crowding coefficient and aggressivity. Test of significance and mean comparison- The least significant difference test; multiple, Comparison– Duncan's Multiple Range Test (DMRT) and others. The Tukey test; The Newman – Keuls Test. Non-parametric tests- Mann–Whitney test, Wilcoxon paired-sample test; Kruskal–Wallis test. Toxicological statistics; probity analysis. On-farm Experimentation

CPP 801.1 Pesticides in Agriculture and Environment (2 units)

The different kinds of pesticides and pests, historical development of chemical pesticides - the growth in global use and the shape of the industry. Application equipment, principles, use and maintenance. Physico-chemical factors – The design of a pesticide, formulation, selectivity. Method of application – Dusting, seed treatment, spraying, fumigation. Translocation of pesticides in plants. Behavior of pesticides in soil. Important

biochemical reactions in pesticides. The cell and its components; Respiration; Photosynthesis. Transmission of nervous impulses. Transport and biological processes in plants. Biosynthesis of nucleic acids and protein, some pesticides acting by interference with biosynthesis. Classes of pesticides – Insecticides, Herbicides, fungicides, their chemical structure and characteristics, mode of action, methods of application. Pesticides in the environment - Effects on non-target organisms (mammals, birds, fish). Effect on natural enemies, wildlife; Induction of resistance in pests. Accumulation in food chain and biomagnifications. Pesticide residue and hazard to ecosystems; contamination of air, soil and water. Method of estimation of herbicide residues. Field application of pesticides and safety requirement. Application equipment, principles, use and maintenance.

CPP 802.1 Insect Morphology (2 units)

Basic organization and evolution of the insect head and mouthparts, antenna, other appendages and their functions. Modifications of the insect neck and thorax including adaptations of legs and wings; major modifications of spiracles and tracheae. Appendages and processes of the abdomen, including detailed treatment of the genitalia. Stridulation. Morphological modification of the alimentary, respiratory, reproductive and nervous system in insects.

CPP 803.1 Insect Physiology and Biochemistry (2 units)

Embryonic and post-embryonic development. The insect integument; the molting process and development. Locomotion with emphasis on flight. Feeding in insects. Excretion, circulation, respiration and reproduction. Nervous system and its integration with the endocrine system. Perception in insects. Bioluminescence. Colours in insects, with emphasis on mimicry and camouflage. Other defense mechanisms. General introduction to insect metabolism: Production of energy from carbohydrates, lipids and amino acids. Energy utilization in biosynthesis, flight (flight muscle) and light generation. Metabolism of nitrogenous compounds including purines, pteridines, pyrroles, proteins and nucleic acids. Insect hormones, their structure and modes of action and their biochemical activities: moulting hormones e.g ecdysone, juvenile hormones. Pheromones, use of pheromones in pest management. Mode of action of insecticides, with emphasis on the biochemistry of nerve impulse conduction. Biochemistry of insecticide resistance mechanisms.

CPP 804.1 Insect Ecology (2 units)

Practical and theoretical aspects of ecology. Properties of populations; methods of estimating population size and population dispersion. Sampling techniques. Measurement and description of factors regulating populations. Construction and analysis of life tables and their application. Biotic associations and community structure. Intra and inter - specific competition, prey-predator, and host-parasite relations as applied to pest management. Insect-plant interactions, multilevel interactions and their underlying theories. Social systems and behaviour in insects. Seasonal phenomena in tropical insects: Pest migrations and over seasoning. Impact of pesticides on the environment and community: environmental impact assessment, environmental laws. Ecological foundations of the analysis of biological control. Population modeling and systems analysis, climate change and insect populations and communities.

CPP 805.1 Agricultural Soil Biology (2 units)

The role of soil biota in agriculture. Organisms composing the soil biota - microbes (bacteria, fungi actinomycetes, etc.), algae, arthropods, earthworms, etc. The physiology and biochemistry of soil microbial population; the general ecology of the soil biota. The association between plants and microorganisms: rhizosphere, hydrosphere, mycorrhiza. Influence of agriculture on soil biota activity; strategies for the management of beneficial and noxious soil biota. Assessment and monitoring of soil biota population, pesticides and soil biota. Remediation of polluted soils by soil biota; soil biota as bio-indicators.

CSS 800.2 Seminar (2 units)

SGS 802.2 Entrepreneurship and Management (2 units)

CPP 806.2 Pests and Beneficial Organisms in Urban Agriculture (2 units)

Characteristics and practice of urban and peri-urban agriculture – vegetable, fruit and fruit-tree cultivation market, gardening, etc, Pests (insects, disease organisms and weeds) associated with urban agriculture with emphasis on biology, damage and management; conservation of natural enemies and pollinators. Pollination biology. Social insects (honey bee, termite and ant) their organization and economic importance. Identification, biology and management of household, structural, stored product and processed food pests and their natural enemies.

CPP 807.2 Insect Systematics and Bioinformatics (2 units)

Taxonomy, Classification and Nomenclature. The species concept and its application, speciation. Taxonomic hierarchy and higher systematics of

insects. Phylogenetic. Sources of published taxonomic data. Taxonomic research and nature of taxonomic data. Taxonomic characters and techniques: biosystematics, cytotaxonomy, bioacoustics, numerical taxonomy, chemical taxonomy and molecular taxonomy. New trends in taxonomic methods and techniques. Automated taxonomic tools and information system. Construction and uses of taxonomic keys. Classification and identification of major orders of insects of agricultural importance. International conventions and biodiversity. Importance of taxonomy and curatorial techniques.

CPP 808.2 Insect Pest Management (2 units)

The concept of pest; pest status and appreciation of pest situation; the concept of damage (action) threshold and economic injury level. Categories of pest; yield loss assessment. Origin of pest problems. Seasonal cycles in insects, seasonal survival among insects. Insect pest forecasting and surveillance, tackling insect pest problems. Insect pest and vector management options – Plant Quarantine, Plant varietal resistance, Cultural control, Mechanical control, Physical control; Biological control, Case studies in biological control, Bio-technical control. Novel methods farming systems, use of insect growth regulators, repellents, and attractants including pheromones. Uses of computers in pest management.

The rationale, philosophy and history of IPM. Definition, principles, design and challenges of implementation of IPM in the management of insect pests in different environments. Modeling and Systems Analysis. Social Aspects and Farming Systems. Decision-making Behaviour. Decision Tools and Technique, Implementation and Adoption. IPM- Research, Needs and future prospects. Case studies.

CPP 809.2 Insect Pests of Cultivated Crops (2 units)

Survey of major insect pests of selected cultivated crops from the following: cereal, legumes, vegetable, fruit root and tuber, tree crops, etc. biology, ecology, damage and management of such pests. Study of pests of major economic importance that are pandemic in Africa, locusts, grasshoppers, armyworms, etc. Transmission of plant viruses, phytopathogenic fungi, bacteria and mycoplasma like organisms by insect and mite vectors.

CPP 810.1 Morphology, Anatomy and Physiology of Nematodes (2 units)

General nematode morphology (structure and function), external cylinder-the external morphology, body wall (cuticle, epidermis, somatic musculature).The internal cylinder-stomodaeum, mesenteron and rectum, cuticular

structures, nematode hydrostatic skeleton, nematode movement, ontogeny, moulting, organs and systems (digestive, excretory, nervous and reproductive). Morphological characters of major nematode orders.

CPP 811.1. Nematode Systematics and Taxonomy (2 units)

Morphological characters and nematode taxonomy, nematode relationships and classification, taxonomic methods in nematology (morphological, biochemical, cytogenetic, evolutionary and experimental), taxonomic trends in nematology, molecular phylogeny of nematodes, use of taxonomic keys, molecular characterization of nematodes, biosystematics, nomenclature and classification of major nematode orders and genera

CPP 812.1. Nematode Ecology (2 units)

Ecological studies in nematology, Nematode associations and relationships, Nematode interactions, types and mechanisms of interaction, Nematode adaptation and survival, dispersal and distribution (geographical, local and temporal). Population dynamics, population parameters, population structure strategies (K and R), population genetics, population indices, nematode population densities and crop response. Modeling: types and classification of models, model construction and application, sampling methods, Ecology computer software.

CPP 813.2. Techniques in Nematology (2 units)

Diagnosing nematode problems, sampling for nematodes - consideration (diagnostic and predictive assays), procedure, tools, handling and storage of samples. Extraction methods and tools, extraction efficiency. Counting of nematodes, killing, identification, and handling, fixing, staining and mounting of nematodes. Interpreting results of nematode assays. Culturing of nematodes, crop loss assessment, pathogenicity and histopathology studies, host differential tests, molecular aids to nematode identification (Protein electrophoresis, DNA-based technologies (Dot-blot assays), Restriction Fragment Length Polymorphism (RFLP), AFLP; Polymerase Chain Reaction (PCR), molecular diagnostic services.

CPP 814.2. Advanced Nematology Management (2 units)

Economic importance of nematodes in agriculture, nematode orders and genera of agricultural importance, agricultural practices and nematode distribution, general management of plant-parasitic nematodes (prevention, physical, resistance, cultural practices, organic amendments, improved crop husbandry, chemical, biological), uses of nematodes

CPP 815.2. Nematodes of Cultivated Crops (2 units)

Nematode genera of importance on crops, host range and distribution, symptoms and damage, crop loss estimate, management decisions and options.

CPP 816.2. Non-Nematode Pathogens of Crops (2 units)

Fungi- Fungal structure, modification and organization of the mycelium. Growth, reproduction, inoculum production and dissemination in fungi. Infection - the infection court, mode of infection, penetration etc. Fungal diseases of national and international importance. Management and control of fungal diseases. Bacteria - Classification and properties of plant pathogenic bacteria; host range, dissemination, mode of infection, and symptomatology. Identification of phytopathogenic bacteria. Management and control of bacterial diseases. Bacterial diseases of national and international importance. Viruses - The nature, growth and reproduction of viruses. Purification, characterization and classification of viruses. Structural organization of RNA and DNA viruses. Transmission of plant viruses; vector-host relationships. Management and control of viral diseases.

CPP 817.1 Plant Mycology and Fungal Diseases (2 units)

Importance of fungi to man. Fungal structure, modification and organization of the mycelium. Growth and reproduction in fungi. A general survey of pathogenic fungi – their genetics and inoculum production and dissemination. Infection – the infection court, mode of infection, penetration etc. Fungal diseases of national and international importance. Management and control of fungal diseases.

CPP 818.1 Plant Bacteriology and Bacterial Diseases (2 units)

Classification and properties of plant pathogenic bacteria; geographical distribution of phytopathogenic bacteria, host range, dissemination, mode of infection, and symptomatology. Identification of phytopathogenic bacteria. Management and control of bacterial diseases. Bacterial diseases of national and international importance.

CPP 819.1 Plant Virology and Viral Diseases (2 units)

The nature, growth and reproduction of viruses. Purification, characterization and classification of viruses. Structural organization of RNA and DNA viruses. Transmission of plant viruses; vector-host

relationships. Management and control of viral diseases. Viral diseases of national and international importance.

CPP 820.2 Advanced Crop Disease Management (2 units)

Principles of plant disease control. The disease triangle. Epidemiology. Phytotoxicity. How plants defend themselves. A review of the various methods of plant disease control. Merits and demerits of the various methods.

CPP 821.2 Fundamentals of Seed Pathology (2 units)

Seed-borne pathogens. Plant diseases caused by seed-borne pathogens. Seed diseases of some national and international crops. Transmission of seed disease agents and disease development. Seed health, mycotoxins and human health. Control and management of field and storage diseases of seeds

CPP 822.2 Plant Nematology and Nematode Diseases (2 units)

History of phytonematology, and distribution of phytonematodes. Morphology. Life cycle and types of reproduction. Survival mechanisms in adverse conditions. Classification. Spread of nematodes. Survival mechanisms. Response of plants to nematode attack and symptomology. Host-parasite relationship. Management and control of nematode diseases. Nematode diseases of national and international importance.

CPP 823.2 Molecular Plant Pathology (2 units)

Molecular basis of pathogen manipulation. Introduction of cloned DNA into plants. RFLP and AFLP analysis and gene tagging for pathogen identification. Gene transformation in plant pathogens. Nucleic acid isolation and hybridization techniques. Analysis of defense mechanisms.

CPS 899: Thesis/Dissertation 10 units

C. M. SC PROGRAMME IN SOIL SCIENCE

(a) Philosophy

The philosophy of the Master of Soil Science Degree Programme is to provide advanced professional training for upgrading knowledge and skills of Bachelors (Honours) degree holders employed in industry, the Public Service or those on self-employment.

(b) Objectives

The Masters programme in Soil Science is structured in line with the UN "3 Rio Convention" and the millennium Goals to produce graduates with knowledge and skills in solving practical and

theoretical problems in the field of Soil Science for modern agriculture, climate change, loss of biodiversity and land degradation, The knowledge and skills gained will enable the graduates to understand and solve agronomic, environmental and engineering problems relating to soil water resources, drainage, land degradation and pollution in regional, national and international levels.

(c) Areas of Specialization

The areas of specialization are:

- i. Soil Physics and Conservation
- ii. Soil Survey and Land-use Planning
- iii. Soil Chemistry and Mineralogy
- iv. Soil Fertility and Plant Nutrition
- v. Soil Microbiology
- vi. Environmental Soil Science

(d) Admission Requirements

- i. Graduates of the University of Port Harcourt or any other recognized Universities who have obtained the approved Degree of Bachelor in related fields with at least Second Class Honours Degree, with CGPA of 3.0 on 5-point scale or 2.50 on 4-point scale.
- ii. Higher National Diploma in Agriculture with a Postgraduate Diploma of the University of Port Harcourt or other recognized Universities with at least a Credit Pass of 3.0 CGPA on a 5-point scale.
- iii. 3rd Class degree with PGD passed at Credit level

(e) Duration

- Full- Time: 2 Semesters Minimum
6 Semesters Maximum
Part- Time: 4 Semesters Minimum
8 semesters Maximum

(f) Requirements for Graduation

The Masters of Soil Science Programme consists of course work, seminars and Research work to be embodied in a Thesis.

To be awarded the Master of Soil Science Degree, a candidate must have fulfilled the following conditions:

- (a) Passed a minimum of 36 Credit Units, as follows: Core Courses 18, Electives 6, Project 10, and Seminar 2.
- (b) Carried out a research project relevant to the area of specialization and submitted an acceptable thesis/dissertation.

(f) Course Structure

Option 1: Soil Physics and Conservation

First Semester

Course Code	Course Title	Units	Course Code	Course Title	Units
			SOS 801.1	Advanced Soil and Water Conservation	2
Compulsory Courses			SOS 804.1	Advanced Soil Genesis and Classification	2
SGS 801.1	ICT and Research Methods	2	SOS 805.1	Advanced Soil Survey and Land Use Planning	2
CSS 802.1	Biometric and Experimental Design	2	SOS 810.1	Advanced Agro-Climatology	2
Core Courses			Electives		
SOS 801.1	Advanced Soil and Water Conservation	2	CSS 801.1	Research and Communication in Agriculture	2
SOS 802.1	Advanced Soil Physics	2	SOS 802.1	Advanced Soil Physics	2
SOS 803.1	Advanced Soil-Water-Plant Relations	2	SOS 803.1	Advanced Soil-Water-Plant Relation	2
SOS 810.1	Advanced Agro-Climatology	2	Total		18
Elective			Second Semester		
CSS 801.1	Research and Communication in Agriculture	2	Course Code	Course Title	Units
SOS 804.1	Advanced Soil Genesis and Classification	2	Compulsory Courses		
SOS 805.1	Advanced Soil Survey and Land Use Planning	2	CSS 800.2	Seminar	2
SOS 806.1	Advanced Soil Microbiology	2	SGS 801.2	Entrepreneurship and Management	2
Total		20	SOS 899	Thesis	10
Second Semester			Core Courses		
Course code	Course Title	Units	SOS 812.2	Advanced Irrigation and Drainage	2
Compulsory Courses			SOS 814.2	Advanced Remote Sensing and GIS	2
CSS 800.2	Seminar	2	Electives		
SGS 801.2	Entrepreneurship and Management	2	SOS 816.2	Soil Pollution and Remediation	2
SOS 899	Thesis	10	SOS 817.2	Soil Resources and Climate Change	2
Core Courses			SOS 811.2	Advanced Soil and Plant Analysis	2
SOS 811.2	Advanced Soil and Plant Analysis	2	SOS 813.2	Soil Erosion and Reclamation	2
SOS 812.2	Advanced irrigation and Drainage	2	Total		26
Electives			Option 3: Soil Chemistry and Mineralogy		
SOS 813.2	Soil Erosion and Reclamation	3	First Semester		
SOS 816.2	Soil Pollution and Remediation	2	NEW COURSE STRUCTURE		
SOS818.2	Pesticides in Soils	2	Course Code	Course Title	Units
Total		23	Compulsory Courses		
Option 2: Soil Survey and Land Use Planning			SGS 801.1	ICT and Research Methods	2
First Semester			CSS 802.1	Biometric and Experimental Design	2
Course code	Course Title	Units	Core Courses		
Compulsory Courses			SOS 801.1	Advanced Soil and Water Conservation	2
SGS 801.1	ICT and Research Methods	2	SOS 804.1	Advanced Soil Genesis and Classification	2
CSS 802.1	Biometric and Experimental Design	2	SOS 807.1	Advanced Soil Chemistry	2
Core Courses					

SOS 810.1	Advanced Agro- Climatology	2	Course Code	Course Title	Units
Elective			Compulsory Courses		
CSS 801.1	Research and Communication in Agriculture	2	CSS 800.2	Seminar	2
SOS 803.1	Advanced Soil-Water- Plant Relations	2	SGS 801.2	Entrepreneurship and Management	2
SOS 806.1	Advanced Soil Microbiology	2	SOS 899	Thesis	10
Total		18	Core Courses		
Second Semester			SOS 811.2	Advanced Soil and Plant Analysis	2
Course Code	Course Title	Units	SOS 812.2	Advanced Irrigation and Drainage	2
Compulsory Courses			Electives		
CSS 800.2	Seminar	2	SOS 815.2	Soil Mineralogy	2
SGS 801.2	Entrepreneurship and Management	2	SOS 818.2	Pesticides in Soils	2
SOS 899	Thesis	10	Total		22
Core Courses			Option 5: Soil Microbiology Option		
SOS 811.2	Advanced Soil and Plant Analysis	2	First Semester		
SOS 813.3	Soil Mineralogy	2	Course Code	Course Title	Units
Electives			Compulsory Courses		
SOS 816.2	Soil Pollution and Remediation	2	SGS 801.1	ICT and Research Methods	2
SOS 818.2	Pesticides in Soils	2	CSS 802.1	Biometric and Experimental Design	2
SOS 812.2	Advanced Irrigation and Drainage	2	Core Courses		
Total		24	SOS 801.1	Advanced Soil and Water Conservation	2
Option 4: Soil Fertility and Plant Nutrition			SOS 806.1	Advanced Soil Microbiology	2
First Semester			SOS 809.1	Soil Biochemistry	2
Course Code	Course Title	Units	SOS 810.1	Advanced Agro- Climatology	2
Compulsory Courses			Electives		
SGS 801.1	ICT and Research Methods	2	CSS 801.1	Research and Communication in Agriculture	2
CSS 802.1	Biometric and Experimental Design	2	SOS 807.1	Advanced Soil Chemistry	2
Core Courses			SOS 808.1	Advanced Soil Fertility and Plant Nutrition	2
SOS 801.1	Advanced Soil and Water Conservation	2	Total		18
SOS 803.1	Advanced Soil-Water- Plant Relation	2	Second Semester		
SOS 808.1	Advanced Soil fertility and Plant Nutrition	2	Course Code	Course Title	Units
SOS 810.1	Agro-Climatology	2	Compulsory Courses		
Electives			CSS 800.2	Seminar	2
CSS 801.1	Research and Communication in Agriculture	2	SGS 801.2	Entrepreneurship and Management	2
SOS 804.1	Advanced Soil Genesis and Classification	2	SOS 899	Thesis	10
SOS 806.1	Advanced Soil Microbiology	2	Core Courses		
Total		18	SOS 811.2	Advanced Soil and Plant Analysis	2
Second Semester			SOS 816.2	Soil Pollution and Remediation	2
			Electives		
			SOS 812.2	Advanced Irrigation and Drainage	2

SOS 813.2	Soil Erosion and Reclamation	2
SOS 818.2	Pesticides in Soils	2
Total		24

Option 6: Environmental Soil Science Option

First Semester

Course Code	Course Title	Units
Compulsory Courses		
SGS 801.1	ICT and Research Methods	2
CSS 802.1	Biometric and Experimental Design	2
Core Courses		
SOS 801.1	Advanced Soil and Water Conservation	2
SOS 806.1	Advanced Soil Microbiology	2
SOS 807.1	Advanced Soil Chemistry	2
SOS 810.1	Advanced Agro-Climatology	2
Electives		
CSS 801.1	Research and Communication in Agriculture	2
CPP 801.1	Pesticide in Agriculture and Environment	2
SOS 802.1	Advanced Soil Physics	2
Total		18

Second Semester

Course Code	Course Title	Units
Compulsory Courses		
CSS 800.2	Seminar	2
SGS 801.2	Entrepreneurship and Management	2
SOS 899	Thesis	10
Core Courses		
SOS 811.2	Advanced Soil and Plant Analysis and	2
SOS 816.2	Soil Pollution and Remediation	2
Electives		
SOS 818.2	Pesticides in Soil	2
SOS 813.2	Soil Erosion and Reclamation	2
SOS 817.2	Soil Resources and Climate Change	2
Total		24

Over-view of Agricultural Research for Development – types of research (basic and applied). The Research – Development Nexus. The challenges of Agricultural Research and Technology Development in Nigeria. Key considerations for Agricultural Research. . Presentation of research results – types of experimental design data and type of presentation – tabular, line graph, bar chart, etc. Communication channels in Agricultural Research (Journals, proceedings, technical or annual reports, book chapters, etc). Oral presentation-power point, slide presentation etc. Nature of communication - research articles, review, bulletins, functions of the components of a typical scientific communication (title, author and address, abstract/ summary, introduction, materials and methods, results, results/ discussion, references). Reference styles in agricultural research. Participatory Research and Extension Approach (PREA)?

CSS 802.1. Biometrics and Experimental Design (2 units)

The scientific method of research-Observations, and characteristics of well-planned experiments. Steps and technical considerations in Experimentation. Experimental designs Data transformation. Data analysis- the Analysis of variance: one-factor and two-factor (ANOVA). Simple linear regression, comparing simple linear regression equations, simple linear correlation. One-sample and two-sample hypotheses (student's t test). Indices for evaluation of multiple cropping systems- LER, Relative crowding coefficient and Aggressivity. Test of significance and mean comparison- The least significant difference test; multiple, Comparison- Duncan's Multiple Range Test (DMRT) and others. The Tukey test; The Newman – Keuls Test. Non-parametric tests- Mann-Whitney test, Wilcoxon paired-sample test; Kruskal-Wallis test. Toxicological statistics; probity analysis. On-farm Experimentation

CPP 801.1 Pesticides in Agriculture and Environment (2 units)

The different kinds of pesticides and pests, historical development of chemical pesticides - the growth in global use and the shape of the industry. Application equipment, principles, use and maintenance. Physico-chemical factors – The design of a pesticide, formulation, selectivity. Method of application – Dusting, seed treatment, spraying, fumigation. Translocation of pesticides in plants. Behavior of pesticides in soil. Important biochemical reactions in pesticides. The cell and its components; Respiration; Photosynthesis. Transmission of nervous impulses. Transport and biological processes in plants. Biosynthesis of

COURSE DESCRIPTIONS

SGS 801.1 ICT and research Methods

CSS 801.1 Research and Communication in Agriculture (2 units)

nucleic acids and protein, some pesticides acting by interference with biosynthesis. Classes of pesticides – Insecticides, Herbicides, fungicides, their chemical structure and characteristics, mode of action, methods of application. Pesticides in the environment - Effects on non-target organisms (mammals, birds, fish). Effect on natural enemies, wildlife; Induction of resistance in pests. Accumulation in food chain and biomagnifications. Pesticide residue and hazard to ecosystems; contamination of air, soil and water. Method of estimation of herbicide residues. Field application of pesticides and safety requirement. Application equipment, principles, use and maintenance.

SOS 801.1 Advanced Soil and Water Conservation (2 units)

Soil structure, soil strength and aggregate stability: methods of assessment, physics of rainfall: rainfall intensity, rainfall prediction and rainfall erodibility. Infiltration and runoff. Soil erosion processes: soil detachment by raindrop impact, soil erodibility, sediment transport and deposition. Types of erosion and methods of control. Water conservation methods.

SOS 802.1 Advanced Soil Physics (2 units)

Review of soil as a dispersed system. Soil water consistency, plasticity and puddling. Thermodynamic basis of soil moisture potential concept. The application of Darcy's law of saturated hydraulic conductivity. Water infiltration and the application of Philips equation in the analysis of infiltration rate. Soil aeration, Gas exchange, mass flow and diffusion. Soil temperature, heat capacity, heat transfer and soil temperature profiles.

SOS 803.1 Advanced Soil – Water- Plant Relations (2 units)

Review of physics of soil water, water uptake by plants; water movement through the plant, water loss from the leaven, water stress and plant growth; soil water availability to plants; soil temperature and plant growth, soil aeration and plant growth; nutrient transfer in the soil-plant systems; root development, distribution and density

SOS 804.1 Advanced Soil Genesis and Classification

Geologic weathering as a prelude to soil formation, Geomorphology in pedology; soil relationships with drainage basins; criteria for characterizing and evaluating soil development, soil development in various geo-climatic regions of Nigeria and the world system of soil classification.

SOS 805.1 Advanced Soil Survey and Land-Use Planning (2 units)

Principles of soil survey, soil survey methods, remote sensing and GIS techniques in soil survey; land systems mapping, soil survey interpretations; concept of land use planning/land evaluation; land use planning and management of nonagricultural projects; land use land cover change and Impacts of climate change; field and practical project.

SOS 806.1 Advanced Soil Microbiology (2 units)

The study of soil microorganisms, their environment, form and functions. Organic matter decomposition and the Carbon cycle; organic nitrogen transformation and the carbon cycle; organic nitrogen transformations and the nitrogen cycle. Microbial transformation of P, S, Fe and other mineral elements. Transformations of hydrocarbon and pesticides in soils.

SOS 807.1 Advanced Soil Chemistry (2 units)

Soil formation, soil minerals, the structure, properties and classification of silicate minerals. Formation, structure and classification of clay minerals. Ion exchange in soils, exchange materials; cation exchange principles. The chemistry of nutrient fixation in soils; K and P fixation, soil acidity and liming. Soil salinity, humic substances in soils.

SOS 808.1 Advanced Soil Fertility and Plant Nutrition (2 units)

Description of soil-plant continuum. Plant system: root-uptake-translocation of nutrients. Mechanism of nutrient absorption and translocation. Absorption (osmosis, diffusion, mass flow, cation exchange). The carrier hypothesis, solute transport at the cellular level, energy sources for active transport. Role of organic matter in soil-fertility. Evaluation of soil nutrient supply (Laboratory, Green house and Field methods). Fertilizers: their use, environmental effect and evaluation, cropping systems, and soil management.

SOS 809.1.1 Soil Biochemistry (2 units)

Source of soil organic matter. Biological mediators of soil organic transformation. Humification and organic matter stability. Biochemistry of lignin decomposition, formation and decomposition of humic substance. Soil organic matter as plant nutrient reservoir: organic matter and soil physical structure, concern of organic matter management. Sources of soil pollution. Agricultural sector-pesticides and chemical fertilizers. Heavy metal pollution in soil, urban and domestic waste management.

SOS 810.1 Advanced Agro-Climatology (2 units)

Precipitation process; spatial and temporal variations; duration of extreme precipitation; river

regimes, ground water, open channels flows and soil moisture in relation to evaporation and transpiration evaporation boundary layer climate and growth of particular crops. Growing seasons and trends in the food production.

SGS 801.2 Entrepreneurship and Management (2 units)

CSS 800. 2 Seminar (2 units)

Each Student is expected to attend all seminars specified and make presentation on selected topics relevant to current research needs. Each student is expected to make at least one presentation and also present a full write-up of the presentation for another assessment.

SOS 811.2. Advanced Soil and Plant Analysis (2 units)

Soil sampling techniques and handling of samples; Extraction and determination of parameters pertinent in soil characterization; Plant sampling techniques for fertility studies. Determination of nutrient content in plant samples; Principles and instrument used in the analysis of soils and plant, spectrophotometers, flame photometer, atomic absorption spectrophotometer. GC and infra-red instruments, pH and electrical conductivity meters. Soil fertility evaluation based on laboratory data. Interpretation of critical levels of available nutrients.

SOS 812.2. Advanced Irrigation and Drainage (2 units)

Selection of land for irrigation, basic principles and physical factors; selection of irrigation systems; soil determinants of irrigation needs; quality of irrigation water, water and salt balance; irrigation with saline water; effect of irrigation and drainage on soils; land preparation, problems associated with irrigation; management of problem soils under irrigation

SOS 813.2 Soil Erosion and Reclamation (2 units)

Principles, types, forms and causes of soil erosion. Analysis and measurements of water and wind erosion. The universal soil loss equation, predicting water and wind erosion. Cropping systems and residue management. Conservation tillage systems and their effects, the physical, chemical and biological properties of the soil, ameliorating soil acidity. Salinity and drainage problems.

SOS 814.2 Advanced Remote Sensing and GIS (2 units)

Development of remote sensing from air photography to sophisticated sensor systems. Techniques of remote sensing, use of

panchromatic infrared black and white, infrared false and true colored films, Image enhancement, multispectral photography, use of side looking radar and satellite imagery.

SOS 815.2 Soil Mineralogy (2 units)

The mineralogy of sand, silt and clay fractions. The principle and use of X-ray. Differential thermal analysis, electron microscopy and Nicol prism in the study of minerals in soils. Extraction of soil clays and preparation of clay samples for X-ray diffraction and fluorescence analysis, quantitative estimation of clay minerals.

SOS 816.2 Soil Pollution and Remediation (2 units)

Heavy metals and radio-nuclides in soils and sediments: definition of heavy metals, hazardous elements in soils and sediments, (cadmium, lead, zinc and iron); mining and smelting sites, landfill sites, sewage sludge; Accumulation of hazardous elements in plants.

SOS 817.2 Soil Resources and Climate Change (2 units)

Basic soil and geologic processes; impact climate change and are impacted by it. Soil processes that address climate change issues. Soil carbon(c) stock: Determinant of global warming. The Carbon cycle, land use and soil carbon stock (e.g., current afforestation efforts). The effects of climate change on soil. Soil moisture and temperature. Desertification. Application of soil properties to: (i) Greenhouse effect, geologic climate changes, and abrupt climate change, (ii) Global carbon cycle (geologic, current), (iii) Gaseous emissions (CO₂, CH₄, N₂O), (iv) Biogeochemical cycles, Carbon cycles, Nitrogen cycle, Phosphorous cycle, Sulphur cycle and H₂O cycle (v) Carbon sequestration, processes. Measurement of soil Carbon pool and fluxes. Soil Quality and Carbon sequestration. Biofuels. Trading of Carbon credits and the Kyoto Treaty.

SOS 818.2 Pesticides in soil (2 units)

Major groups of pesticides, processes affecting pesticides in soil including sorption. Degradation and elimination; transport of pesticides in soil and uptake by plants; pesticides persistence; effects on soil organisms and crop damage, techniques involving analysis of pesticides residue in soils.

DOCTOR OF PHILOSOPHY (Ph.D) IN CROP PRODUCTION

Introduction:

The Ph.D programme in the Department of Crop and Soil Science consists of course work, seminar and research project. The seminar courses will require students to critically review and present

topical issues that are relevant to their areas of specialization.

Philosophy:

The Ph.D programme is aimed at producing world-class graduates skilled in research, creativity and innovation and vested with great problem-solving abilities in the key areas of Agronomy, Crop Physiology, Horticulture and Landscaping, Plant Breeding and Genetics and Weed Science.

Vision: To be globally rated among the top in training, research and community outreach in the fields of Crop and Soil Sciences.

Mission: To provide competent manpower with adequate knowledge and skills to enable them undertake leadership roles in the fields of Crop and Soil Sciences.

Objectives:

The various skills imparted should enable graduates of the programme to fill critical niches in both public and private institutions and corporations to provide high quality service as teachers, researchers, policy makers, crop production and management experts, environmental and agricultural consultants in national and international organizations.

Admission requirements:

Candidates seeking admission into the Ph.D programme in the Department of Crop and Soil Science must meet the following requirements:

- i. Hold M.Agric or M.Sc or M.Phil in Agronomy, Crop Physiology, Horticulture/Landscaping, Plant Breeding/Genetics, Crop Protection, Entomology, Nematology, Plant Pathology or Weed Science of an approved University.
- ii. Passed the masters' degree in the specialized areas specified with a minimum CGPA of 3.50 on a 5.00 point scale or 2.80 on a 4.00 point scale.
- iii. Comply with the general regulations, conditions and policies guiding graduate studies as specified by the School of Graduate Studies of the University of Port Harcourt.
- iv. Candidates must submit a short research proposal to the Head of Department, at least 2, weeks to the date of interview and present themselves at the interview. Only candidates who score a minimum of 60% on average at the interview will be recommended for admission.

Duration:

The Ph.D programme in Crop Production is available on full-time and part-time bases. The

minimum duration for full-time students is 36 months and a maximum of 60 months; corresponding durations for part-time students are 60 and 84 months years, respectively.

Graduation requirements

The student is expected to pass all the prescribed courses, make seminar presentations and defend the research thesis.

Areas of Specialization:

Successful candidates in the admission exercise will specialize in one of the following areas of Crop Production:

- i. Crop Physiology
- ii. Farming Systems/Field Crops Production
- iii. Horticulture and Landscaping
- iv. Plant Breeding and Genetics
- v. Weed Science

Eligibility:

Admission is open to candidates who have obtained a M.Sc. degree in Crop Production, Agronomy, Agriculture with a CGPA of, at least, 3.50 or 2.80 on a 5.00 or 4.00 point scale, respectively. Candidates may specialize in various fields of Crop Production.

Candidates must submit no more than a three page concept note along with the application for admission into this programme.

Selection procedure:

Admission will be based on the recommendation of the Department's Graduate Studies Committee.

Duration:

Candidate may register for full-time or part-time studies.

Full time students: -minimum of 36 months and maximum of 60 months.

Part-time students: minimum of 60 months and maximum of 84 months.

- To undertake research (i.e. CPS 999.2) a student must have passed all prescribed taught and seminar courses.
- In the second semester of years two and three, each student must submit a progress report to the Department for assessment.
- Every student must present research proposal and post-field seminar to the Department. This shall precede the research presentation in the School of Graduate Studies of the University of Port Harcourt.

**CROP PHYSIOLOGY SPECIALTY
COURSE CODES AND TITLES**

FIRST SEMESTER CORE COURSES

Course Code	Course Title	Units
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CPP 901.1	Pesticide Biochemistry and Toxicology	3
CPS 901.1	Crop Physiology	3
CPS 902.1	Crop Ecology	3
CPS 903.1	Seed Physiology	3
CSS 901.1	Biometrics and Experimental Design	3
CPS 904.1	Plant Nutrition	3
CPS 900.1	Seminar I	1
Total		19

Definition, Crop ecology and its division, Different fields of ecology, plant ecology and other branches of science, Application of crop ecology. Main environmental or ecological factors - climatic, edaphic or soil factors, physiographic factors, biotic factors, Ecosystem - components and functions of ecosystem, Energy and its flow in ecosystem. Study of communities – community compositions and classification. Plant community structure. Plant adaptations – hydrophytes, xerophytes, neophytes, halophytes, mangrove vegetation, etc. Environmental pollution – water pollution, Air pollution, agricultural pollution, Radiation pollution, thermal pollution, Acid Rain, air quality and air quality index.

SECOND SEMESTER CORE COURSES

Course Code	Course Title	Units
CPS 905.2	Instrumentation and Methods in Physiology	3
CPS 906.2	Impact Assessment in Agroecosystem	3
CPS 907.2	Biometry and Crop Modeling	3
CPS 908.2	Crop Growth and Yield Analysis	3
CPS 900.2	Seminar II	1
CPS 999.2	Thesis	16
Total		29

CPS 903.1 Seed Physiology

Physiology of seed development; seed formation, maturity. Source/sink relation and the supply of nutrients affecting seed yield, quality, tolerance, seed storage, longevity, deterioration, germination, imbibition, and reserve mobilization, hormonal and environmental regulation. Advances in seed technology.

CSS 901.1 Biometrics and Experimental Design

The scientific method of research-Observations, characteristics of well-planned experiments. Field experimentation and layout. Data transformation and analysis. Indices for evaluation of multiple cropping systems-*LER*, Relative crowding coefficient and Aggressivity. Test of significance and mean comparison, Parametric and Non-parametric tests. Probit analysis. On-farm Experimentation – Technology-generation experiments and technology-verification experiments.

COURSE TITLES AND DESCRIPTION

CPP 901.1 Pesticide Biochemistry and Toxicology

Important biochemical reactions in pesticides. Transmission of nervous impulse. Transport and biological processes in plants. Biosynthesis of nucleic acids and proteins. Some pesticides acting by interference with biosynthesis. Structure-activity relationships, mode of action, metabolism of different pesticide groups (insecticides, herbicides, fungicides, etc.). Resistance to pesticides. Detoxication mechanisms. Chemical genetics and evolution. Toxicology of pesticides.

CPS 901.1 Crop Physiology

Internal and Environmental factors affecting crop growth and yield, Crop responses to light, temperature, humidity, day length etc, including stress levels. Physiological processes in crop growth and development.

CPS 902.1 Crop Ecology

CPS 904.1 Plant Nutrition

Mineral uptake and metabolism, deficiencies and toxicities, energetics and metabolic coupling of active transport, genetic and ecological aspects of plant nutrition. Recent advances in plant nutritional physiology and soil-root nutrient interactions in relation to plant metabolism and crop yield.

CPS 905.2 Instrumentation and Methods in Agronomy

Field and laboratory methods of soil/plant tissue analysis: sampling, sample preparation and analyses, routine and special methods of soil /plant tissue analyses. Basic understanding of principles of photometry, spectrometry, microscopy; measurement of leaf chlorophyll, leaf area, leaf temperature etc. Glasshouses crop production.

CPS 906.2 Impact Assessment in Agroecosystem

Concept of sustainable crop production. Types and methods of impact assessment. Environmental impact assessment: principle, application and process. Practical: perform EIA of the conversion of arable crop land to energy crop production, use known methods, e.g. GMP-RAM to carry out EIA of a new GM crop, evaluate the impact of the introduction of a new crop or of a named natural disaster.

CPS 907.2 Biometry and Crop Modeling

Crop modeling; Concept of crop modeling, stages of model building, types and properties of models, limitations of models, crop models for modeling flowering times, crop growth and development etc.

CPS 908.2 Crop Growth and Yield Analysis

Sigmoid growth curve, Leibig law of the Minimum, Blackman optima and limiting factors, Mitscherlich law of diminishing returns, Macy critical percentage. Physiological basis of crop yield, leaf area development, concept of optimum leaf area index (LAI), leaf number, size, orientation, photosynthetic efficiency, effect of canopy architecture on crop yield, factors affecting sink capacity and strength, sink-source relationship, grain growth and development and senescence. Measurements: leaf area, LAI and seed growth rate, effective seed filling duration from linear regression, economical and biological yields, photosynthate partitioning and contribution of various plant parts to economic yield – Phloem loading and unloading, growth analysis, yield analysis- Harvest index.

CPS 900.1 Seminar I

Students will review and make presentation on contemporary issues in Crop Physiology.

CPS 900.2 Seminar II

Research findings and challenges in the area of specialization.

CPS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

FARMING SYSTEMS AND FIELD CROPS PRODUCTION SPECIALTY COURSE CODES AND TITLES

FIRST SEMESTER COURSES

Course Code	Course Title	Units
CPS 901.1	Crop Physiology	3
CPS 904.1	Pest Management in Urban Agriculture	3

CPS 911.1	Advanced Farming System	3
CSS 901.1	Biometrics and Experimental Design	3
SOS 912.1	Advanced Soil Fertility and Plant Nutrition	3
CPS 900.1	Seminar I	
Total		16

SECOND SEMESTER COURSES

Course Code	Course Title	Units
CPP 906.2	Advances in Crop Loss Assessment	3
CPP 914.2	Principles and Practices of Plant Disease Control	3
SOS 908.2	Advanced Soil-Water-Plant Relations	3
CPS 908.2	Crop Growth and Yield Analysis	3
CPS 919.2	Advanced Weed Systems and Management	3
CPS 900.2	Seminar II	1
CPS 999.2	Thesis	16
Total		32

COURSE TITLES AND DESCRIPTION

CPP 901.1 Pesticide Biochemistry and Toxicology

Important biochemical reactions in pesticides. Transmission of nervous impulse. Transport and biological processes in plants. Biosynthesis of nucleic acids and proteins. Some pesticides acting by interference with biosynthesis. Structure-activity relationships, mode of action, metabolism of different pesticide groups (insecticides, herbicides, fungicides, etc.). Resistance to pesticides. Detoxification mechanisms. Chemical genetics and evolution. Toxicology of pesticides.

CPS 901.1 Crop Physiology

Internal and Environmental factors affecting crop growth and yield, Crop responses to light, temperature, humidity, day length etc, including stress levels. Physiological processes in crop growth and development.

CPP 904.1 Pest Management in Urban Agriculture

Students will review and present selected topics on the development and application of pest management technologies in urban agriculture.

CPS 911.1 Advanced Farming Systems

Concepts of farming systems, factors determining farming systems: physical, biological, socioeconomic and technological environment. Basis for farming systems in the tropics. Tropical small scale farming – general characteristics, strength and weakness. Technique for design and analysis of on farm experimentation, and diagnosis in farming systems research. Major cropping systems in the tropics: Cropping systems based on spatial factors – sole cropping, intercropping; systems based on temporal factors – phased planting, crop rotation; systems based on spatial/temporal factors – relay cropping, shifting cultivation, alley cropping, and agroforestry. Evaluation of mixed cropping and other systems. Concept, Principle and modalities of different cropping systems. Measurement and analysis of multiple-cropping systems and crop yield indices and its importance. Sustainable Crop production in different agro-ecosystems and cropping systems.

CSS 901.1 Biometrics and Experimental Design

The scientific method of research-Observations, characteristics of well-planned experiments. Field experimentation and layout. Data transformation and analysis. Indices for evaluation of multiple cropping systems-*LER*, Relative crowding coefficient and Aggressivity. Test of significance and mean comparison, Parametric and Non-parametric tests. Probit analysis. On-farm Experimentation – Technology-generation experiments and technology-verification experiments.

SOS 912.1 Advanced Soil Fertility and Plant Nutrition

Description of Soil-Plant Continuum, Plant System: Uptake and Translocation of Nutrient through Root. Mechanism of Nutrient Absorption (osmosis, diffusion, mass flow, cation exchange) and Translocation. Carrier hypothesis, solute transport at the cellular level, Energy sources for active transport. Role of Organic matter in soil Fertility. Evaluation of soil Nutrient supply (Laboratory: Green house and Field methods). Fertilizers, Their Uses, Environmental effect and evaluation, Cropping system and Sol Management.

CPS 900.1 Seminar I: Students will review and make presentation on contemporary issues in Farming Systems and Field Crop Production.

CPP 906.2 Advances in Crop Loss Assessment

Approaches and objectives; measurement of yield loss. Techniques in yield loss assessment; experimental field trials; infestation/infection, yield and economics.

CPP 914.2 Principles and Practices of Plant Disease Control

Basic strategies (reduce inoculum, infection rate, and duration of epidemic); basic principles-exclusion, eradication and reduction of inoculum, protection, resistance, and therapy; integrated disease management. Practices of disease control-cultural practices for reducing crop diseases; symptoms and signs of fungal, bacterial, viral and nematode diseases

SOS 908.2 Advanced Soil-Water-plant Relations

Water balance and balance components, Dependence of man on water in the context of world agriculture, Measurements of soil water, Movement of water in soils, Movement of water towards and into the root system, Movement of water out of the soil-plant system, Soil water potentials, Water loss from the soil-plant interface.

CPS 908.2 Crop Growth and Yield Analysis

Sigmoid growth curve, Leibig law of the Minimum, Blackman optima and limiting factors, Mitscherlich law of diminishing returns, Macy critical percentage. Physiological basis of crop yield, leaf area development, concept of optimum leaf area index (*LAI*), leaf number, size, orientation, photosynthetic efficiency, effect of canopy architecture on crop yield, factors affecting sink capacity and strength, sink-source relationship, grain growth and development and senescence. Measurements: leaf area, *LAI* and seed growth rate, effective seed filling duration from linear regression, economical and biological yields, photosynthate partitioning and contribution of various plant parts to economic yield – Phloem loading and unloading, growth analysis, yield analysis- Harvest index.

CPS 919.2: Advanced Weed Systems and Management

Importance of weed in the ecosystem. Environmental weeds, Aquatic weeds, Rangeland weeds, and cropping weeds. Principles and practices of weed management in field, horticultural and plantation crops with emphasis on the economics and extension of the practices; wasteland and waterways. Strategies and tools of weed management for undesirable plant species in native and agro ecosystems. Interference and allelopathy, undesirable plant invasion and spread, noxious weed eradication principles and practices, integrated plant and weed management strategies, herbicide interactions with weeds and crops. Non-

chemical innovations in weed management; Ecology of invasive weed species, their distribution, global impact and management; management and control of rangeland weeds. Influence of climatic, biotic and abiotic factors on the effectiveness of different weed management strategies. Influence and impact of climate change on weed management practices, crop-weed interaction, with reference to policies, regulations and international conventions on climate events.

CPS 900.2 Seminar II:

Research findings and challenges in the area of specialization.

CPS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

**HORTICULTURE AND LANDSCAPING
SPECIALTY COURSE CODES AND TITLES**

First Semester Courses

Course Code	Course Title	Units
CPP 901.1	Pesticide Biochemistry and Toxicology	3
CPS 909.1	Innovation in Horticulture/Landscaping	3
CPS 901.1	Crop Physiology	3
CPS 910.1	Green House Crop Production	3
CPS 911.1	Advanced Farming Systems	3
SOS 912.1	Advanced Soil Fertility and Plant Nutrition	3
CPS 900.1	Seminar I	1
Total		19

Second Semester Courses

Course Code	Course Title	Units
CPS 912.2	Bonsai- The Art of Miniature Plant Culture	3
CPS 913.2	Instrumentation and Techniques in Horticulture and Landscaping	3
CPS 914.2	Mycoscience	3

CPS 915.2	Planning and Design for Parks and Private Estate	3
CPS 900.2	Seminar II	1
CPS 999.2	Thesis	16
Total		29

COURSE TITLE AND DESCRIPTION:

CPS 901.1 Crop Physiology

Internal and Environmental factors affecting crop growth and yield, Crop responses to light, temperature, humidity, day length etc, including stress levels. Physiological processes in crop growth and development.

CPP 901.1 Pesticide Biochemistry and Toxicology

Important biochemical reactions in pesticides. Transmission of nervous impulse. Transport and biological processes in plants. Biosynthesis of nucleic acids and proteins. Some pesticides acting by interference with biosynthesis. Structure-activity relationships, mode of action, metabolism of different pesticide groups (insecticides, herbicides, fungicides, etc.). Resistance to pesticides. Detoxication mechanisms. Chemical genetics and evolution. Toxicology of pesticides.

CPS 909.1 Innovations in Horticulture/Landscape

Innovations in horticultural crop breeding, physiology, weed control, crop and soil management. Recent innovations in landscaping, newly developed ornamental plants; Equipment, implements and tools used in landscaping. Students will review and make presentations on topics relating to the course title.

CPS 910.1 Green House Crop Production

Concept of greenhouse; Types of greenhouses; Choice of crops for cultivation under greenhouse; Problems/constraint of greenhouse cultivation; Growth media and Fertilizer application, greenhouse pests and diseases; detailed production technology of vegetables. Cut flowers and Hydroponics System: Cultivation in peat moss and mixtures, rock wood and other inert media, nutrient film technique (NFT). **PRACTICAL:** Greenhouse construction, cladding materials used for covering the greenhouse; Various equipment used in the greenhouse; growing media used in raising greenhouse crops and their preparation; Nutrient requirements calculations for different crops for fertilization; fertilization requirements for various greenhouse crops; Visits to commercial greenhouses.

CPS 911.1 Advanced Farming Systems

Concepts of farming systems, factors determining farming systems: physical, biological, socioeconomic and technological environment. Basis for farming systems in the tropics. Tropical small scale farming – general characteristics, strength and weakness. Technique for design and analysis of on farm experimentation, and diagnosis in farming systems research. Major cropping systems in the tropics: Cropping systems based on spatial factors – sole cropping, intercropping; systems based on temporal factors – phased planting, crop rotation; systems based on spatial/temporal factors – relay cropping, shifting cultivation, alley cropping, and agroforestry. Evaluation of mixed cropping and other systems. Concept, Principle and modalities of different cropping systems. Measurement and analysis of multiple-cropping systems and crop yield indices and its importance. Sustainable Crop production in different agro-ecosystems and cropping systems.

SOS 912.1 Advanced Soil Fertility and Plant Nutrition

Description of Soil-Plant Continuum, Plant System: Uptake and Translocation of Nutrient through Root. Mechanism of Nutrient Absorption (osmosis, diffusion, mass flow, cation exchange) and Translocation. Carrier hypothesis, solute transport at the cellular level, Energy sources for active transport. Role of Organic matter in soil Fertility. Evaluation of soil Nutrient supply (Laboratory: Green house and Field methods). Fertilizers, Their Uses, Environmental effect and evaluation, Cropping system and Soil Management.

CPS 900.1 Seminar I: Students will review and make presentation on contemporary issues in Horticulture and Landscaping.

CPS 912.2 Bonsai: The Art of Miniature Plant Culture

Review of concept of bonsai. General principles:- plant selection, design, pruning and training, management. Management – pruning of roots and branches to maintain the shape of the bonsai, watering, fertilizing, placement under appropriate environmental conditions at all times. Tools, containers, plants selection. Plant shape and primary pruning, secondary (maintenance pruning), wiring, aging, repotting bonsai:-preparing the container, root pruning, securing the plant, watering and fertilizing. Post establishment care: pruning and repotting, sanitation, pest control, disease control, seasonal maintenance. **Practical.** Identification and selection of plant species for bonsai, selection of suitable containers for bonsai. Identification of needed tools for

bonsai. Care and maintenance of bonsai. Visits to museum or public buildings where bonsais are displayed.

CPS 913.2 Instrumentation and Techniques in Horticulture and Landscaping

Practical and extensive course lectures on the use of different equipment, instruments and tools as necessary work tools of research in horticulture and landscaping. The course will also consider literature (resources, documentation and retrieval) as useful research tools as well as preparation of scientific illustrations.

CPS 914.2 Mycoscience

Concept and importance of mycostudy; techniques of bioconversion of wastes. Mushrooms in the tropics, advances in mushroom production technology; environmental impact assessment in mushroom production. Application of remote sensing in mushroom production. Effects of Climate change in mushroom production. Review of mushroom production in Nigeria. **Practical:** Identification of indigenous and exotic mushrooms; Use of molecular tools in mushroom identification.

CPS 915.2 Planning and Design of Parks and Residential Estates

Objectives and purposes of the design; Residential Estate Assessment of the estate and the home owner's needs; Recreational facilities (e.g. golf course, park, tennis court or swimming pool) green belt, walkways and bicycle paths. Non plant materials in the landscape-benches, playground equipment and statues. Plants used to complement objects-trees and shrubs ground and spaced randomly. Information from site analysis. **Practical:** Visits to well-designed estates and residential areas such as GRAs, club houses and polo ground, parks and gardens, football pitches, game villages, golf courses etc. Identification of grasses, trees and shrubs used in the arenas and study of the maintenance culture of the arenas.

CPS 900.2 Seminar II:

Research findings and challenges in the area of specialization.

CPS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

PLANT BREEDING AND GENETICS SPECIALTY COURSE CODES AND TITLES

First Semester Core Courses

Course Code	Course Title	Units
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CPS 922.1	Biometrical Genetics	3
CPS 923.1	Crop Plant Evolution	3
CPS 924.1	Breeding for Pest and Disease Resistance	3
CPS 925.1	Advanced Plant Breeding	3
CPS 926.1	Advanced Genetics/Cytogenetics	3
CPS 927.1	Tissue Culture Techniques in Relation to Plant Breeding	3
CPS 900.1	Seminar I	1
Total		19

Second Semester Core Courses

Course Code	Course Title	Units
CPS 928.2	Physiological Genetics in Plant Breeding	3
CPS 929.2	Seed Science and Technology	3
CPS 930.2	Plant Genetic Resource Conservation	3
CPS 907.2	Biometry and Crop Modelling	3
CPS 931.2	Introduction to Molecular Breeding	2
CPS 900.2	Seminar II	1
CPS 999.2	Thesis	16
Total		31

COURSE TITLES AND DESCRIPTION

CPS 922.1 Biometrical Genetics

Biometrical genetics and use of biometrical methods in plant breeding research. Study and analysis of quantitative variation components of heritable variation. Heritability, heterosis, epistasis and correlated responses. Design and analysis of diallel experiments. Maternal inheritance. Other statistical concepts used for the analysis of polygenic variation.

CPS 923.1 Crop Plant Evolution

Origin of cultivated plants; centers of diversity, sources of variability mutation/hybridization; changes in chromosome number, polyploidy and

aneuploidy. Breeding systems. The role of the environment.

CPS 924.1 Breeding for Pest and Disease Resistance

Breeding methodologies for horizontal and vertical resistance, Gene-for-gene concept, Van der Plank concept. Screening methodologies, Boom-bust concept.

CPS 925.1 Advanced Plant Breeding

Aims and procedure for improvement. Genetic basis for selection; breeding system, concepts of heterosis and heritability. Conventional strategies for improvement of quantitative inheritance and evidence in support, in – breeding, out- breeding and vegetatively propagated crops. Specialized techniques, Polyploidy, hybridization and mutation breeding, chromosomes addition and substitution, lines, breeding for disease resistance. Multiplication, evaluation, registration and maintenance of improved varieties. Breeder’s right. Biotechnology applied to crop improvement; plant tissue culture, Molecular strategies for crop improvement; crop genetic transformation.

CPS 926.1 Advanced Genetics/Cytogenetics

Quantitative genetics, Chemistry of the nuclei and chromosomes. Chromosomes replication and cell division, ultrastructure of cell organelles. Gene control and regulation; heterochromatinization, B Chromosomes, gene amplification and DNA redundancy. Chromosome pairing rules, changes in structure and number, recent advances in cytogenetics.

CPS 927.1 Tissue Culture Techniques in Relation to Plant Breeding

Definition of tissue culture. The tissue culture laboratory, design, equipment and supplement, maintenance, culture media, composition, preparation, choice of media. Limitation and maintenance of callus. Choice of explants. Preparations and sterilization of explants. Callus induction, subculture and maintenance suspension cultures. Tissue culture techniques, anther and pollen culture techniques, plantlets regeneration techniques, protoplast fission. Root cultures, meristem cultures, micropropagation in the shoot apex. Embryogenesis, organogenesis and plant regeneration. Isolation, manipulation of plant protoplast. Somatic hybridization. Selection of somatic hybrid plants. Transformation of plants using protoplast systems. Selection of plant cells for desirable characteristics. Haploid cell culture embryo rescue and uses. Secondary metabolites production by cell suspension cultures. Cryopreservation and storage of germplasm.

CPS 900.1 Seminar I

Students will review and make presentation on contemporary issues in Crop Physiology.

CPS 907.2 Biometry and Crop Modeling

Parametric and non-parametric statistical methods commonly used in agricultural research and experimental biology. Hypothesis testing. Principles of experimental designs. Crop modeling: stages of model building, types and properties of models, crop models for modeling flowering times, crop growth and development etc.

CPS 928.2 Physiological Genetics in Plant Breeding

A consideration of genetics, biochemical and molecular mechanisms influencing variation in plant physiological processes such as photosynthesis, respiration, self-incompatibility, heterosis and yield. Role of environmental factors and their mediation through biochemical and molecular processes in phenotypic expressions, emphasis through the course will be on application in plant breeding.

CPS 929.2 Seed Science and Technology

Seed and its importance in crop production, physiology and genetic qualities of seed. Types of seed and production techniques. Breeder's, Foundation and Certified seed production and their maintenance. Seed multiplication, field management and maintenance practices for crop seed production. Seed processing and quality evaluation. Seed treatments, seed storage and marketing.

CPS 930.2 Plant Genetic Resource Conservation

Status of genetic diversity in Africa. The need to conserve PGRs. Exploration, collection, characteristics and evaluation of germplasm. *In situ* germplasm conservation; parks, ranges, reserves etc. *Ex situ* genebank establishment. Orthodox and recalcitrant seed storage and cryo-preservation of embryo seed and *in vitro* culture.

CPS 931.2 Introduction to Molecular Breeding

Use of marker assisted and QTLs in plant breeding programme Genotyping / fingerprinting of segregating populations of crops using PCR techniques such as RAFLP, RAPD, SSR, SNPs markers.

CPS 900.2 Seminar II:

Research findings and challenges in the area of specialization.

CPS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

**WEED SCIENCE SPECIALTY
COURSE CODES AND TITLES**

FIRST SEMESTER

Course Code	Course Title	Credit Units
CPP 901.1	Pesticide Biochemistry and Toxicology	3
CPS 901.1	Crop Physiology	3
CPS 911.1	Advanced Farming Systems	3
CPS 916.1	Advanced and Applied Weed Biology and Ecology	3
CPS 917.1	Physiology and Biochemistry of Herbicide Action	3
CPS 918.1	Research Methods in Weed Science	3
CPS 900.1	Seminar I	1
Total		19

SECOND SEMESTER

Course Code	Course Title	Credit Units
CPS 919.2	Advanced Weed Systems and Management	3
CPS 920.2	Weed-Crop Interaction and Economic Threshold	3
CPS 921.2	Weed Seed Bank Methods and Analysis	3
SOS 911.2	Pesticides in Soil	3
CPS 900.2	Seminar II	1
CPS 999.2	Thesis	16
Total		29

COURSE TITLES AND DESCRIPTIONS

CPP 901.1 Pesticide Biochemistry and Toxicology

Important biochemical reactions in pesticides. Transmission of nervous impulse. Transport and biological processes in plants. Biosynthesis of

nucleic acids and proteins. Some pesticides acting by interference with biosynthesis. Structure-activity relationships, mode of action, metabolism of different pesticide groups (insecticides, herbicides, fungicides, etc.). Resistance to pesticides. Detoxication mechanisms. Chemical genetics and evolution. Toxicology of pesticides.

CPS 901.1 Crop Physiology

Internal and Environmental factors affecting crop growth and yield, Crop responses to light, temperature, humidity, day length etc, including stress levels. Physiological processes in crop growth and development.

CPS 911.1 Advanced Farming Systems

Concepts of farming systems, factors determining farming systems: physical, biological, socioeconomic and technological environment. Basis for farming systems in the tropics. Tropical small scale farming – general characteristics, strength and weakness. Technique for design and analysis of on farm experimentation, and diagnosis in farming systems research. Major cropping systems in the tropics: Cropping systems based on spatial factors – sole cropping, intercropping; systems based on temporal factors – phased planting, crop rotation; systems based on spatial/temporal factors – relay cropping, shifting cultivation, alley cropping, and agroforestry. Evaluation of mixed cropping and other systems. Concept, Principle and modalities of different cropping systems. Measurement and analysis of multiple-cropping systems and crop yield indices and its importance. Sustainable Crop production in different agro-ecosystems and cropping systems.

CPS 916.1: Advanced and Applied Weed Biology and Ecology

Ecological principles emphasizing interactions of weeds with their environment and neighbouring plants, in crop and various non-crop habitats. Weed biology and ecology in the context of weed management-covering theory, current information, investigative approaches and experimental techniques; weed population biology and dynamics, modeling, weed community ecology. Weed seed bank dynamics; invasive agricultural weeds in Nigerian environments. Climate change and weed emergence pattern. The role of weeds for supporting biodiversity. Mechanisms and impacts of herbicide resistance in weeds and crops.

CPS 917.1: Physiology and Biochemistry of Herbicide Action and Application

Herbicide chemistry, classification of herbicides, characteristics of herbicides, herbicide formulations and scope of use; and mode of action; herbicide selectivity and mechanism; herbicide

metabolism and translocation. Herbicides fate and behaviour in the air, plants, soils and water bodies Herbicide weed resistance; herbicide interactions with herbicides, Adjuvant, synergists, and safeners. Mechanism of herbicides activity. Methods of estimation of herbicides residue and ecological problems of persistence. Toxicity, persistence, resistance, limitations in the use of herbicides, hazards, precautions and effect on environment.

CPS 918.1: Research Methods in Weed Science

Techniques in laboratory, greenhouse, and field experimentation in weed science. Experimental designs, data collection and measurement of plant response, data processing, analysis and reporting. Modern techniques in herbicide absorption, translocation and sorption, metabolism and degradation studies. Herbicide assay and formulation experiments. Techniques weed cover and vegetation analysis-measurement of species abundance.

CPS 900.1: Seminar I

Students will review and make presentations on topics relating to their specialization

SOS 911.2 Pesticides in Soil

Major groups of pesticides, processes affecting pesticides in soil including sorption, degradation and elimination; transport of pesticides in soil and uptake by plants; pesticide persistence; effects on soil organisms and crop damage techniques involving analysis of pesticides residue in soils.

CPS 919.2: Advanced Weed Systems and Management

Environmental weeds, aquatic weeds and rangeland weeds management. Principles and practices of weed management in field, horticultural and plantation crops wasteland and waterways with emphasis on the economics and extension of the practices. Non-chemical innovations in weed management. Ecology of invasive weed species, their distribution, global impact and management. Influence of climatic, biotic and abiotic factors on the effectiveness of different weed management strategies. Influence and impact of climate change on weed management practices, crop-weed interaction, with reference to policies, regulations and international conventions on climate events.

CPS 920.2: Weed-Crop Interaction and Economic Threshold

Methods of studying weed-crop interaction; Resource competition in weed-crop mixture. Understanding mechanism of interspecific and intraspecific in plants. Concept and application of critical period of weed competition. Response of

crops and weeds to competition. Principles and application of threshold of weed competition. Economics of weed control, and methods of economic assessment. Approaches to weed-crop yield loss measurement. Techniques in weed weed-crop yield loss assessment experimentation.

CPS 921.2: Weed Seed-bank Methods and Analysis

Methods of weed seed bank analysis: field sampling, sample preparation, germination (laboratory and screen house) and analyses. Viability and longevity studies of weed soil seed bank. Students will review and make presentations on topics relating to the course title.

CPS 900.2 Seminar II

Research findings and challenges in the area of specialization.

CPS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

DOCTOR OF PHILOSOPHY (PhD) DEGREE IN CROP PROTECTION

Introduction:

The Ph.D programme in Crop Protection consists of course work, seminar and research project. In seminar courses, students will critically review and present topical issues that are relevant to their areas of specialization.

Philosophy:

The Ph.D programme in Crop Protection aims at producing world-class graduates skilled in research, creativity and innovation and invested with great problem-solving abilities in the key areas of agricultural entomology, plant pathology and applied nematology.

Vision: To be globally rated among the top in training, research and community outreach in the fields of Crop and Soil Sciences.

Mission: To provide competent manpower with adequate knowledge and skills to enable them undertake leadership roles in the fields of Crop and Soil Sciences.

Objectives:

The various skills imparted should enable graduates of the programme to fill critical niches in both public and private institutions and corporations to provide high quality service as teachers, researchers, policy makers, pest management experts, environmental and agricultural consultants in national and international organizations.

Admission requirements:

Candidates seeking admission into the Ph.D programme in Crop Protection must meet the following requirements:

- i. Hold M.Agric or M.Sc or M.Phil in crop protection, entomology, nematology, plant pathology or weed science of an approved university
- ii. Passed the master's degree in the specialized areas specified with a minimum CGPA of 3.50 on a 5.00 point scale or 2.80 on a 4.00 point scale.
- iii. Comply with the general regulations, conditions and policies guiding graduate studies as specified by the College of Graduate Studies of the University of Port Harcourt
- iv. Candidates must submit a short research proposal to the Head of Department at least 2 weeks to the date of interview and present themselves at the interview. Only candidates who score a minimum of 60% on average at the interview will be recommended for admission

Duration:

The Ph.D programme in Crop Protection is available on full-time and part-time basis. The minimum duration for full-time students is 36 months and a maximum of 60 months; corresponding durations for part-time students are 60 and 84 months, respectively.

Graduation requirements

The student is expected to pass the prescribed courses, make seminar presentations and defend the research thesis

Areas of Specialization:

Successful candidates in the admission exercise will specialize in one of the following areas of Crop Protection.

- i. Agricultural Entomology
- ii. Plant Pathology
- iii. Applied Nematology

AGRICULTURAL ENTOMOLOGY SPECIALTY COURSE CODES AND TITLES

FIRST SEMESTER

Course codes	Course title	Units
CPP 901.1	Pesticide Biochemistry and Toxicology	3
CPP 902.1	Ecological Processes and Pest Management	3

CPS 917.1	Physiology and Biochemistry of Herbicide Action	3
CPP 904.1	Pest Management in Urban Agriculture	3
CPP 905.1	Advances in Field and Storage Pest Control Technique	3
CPS 924.1	Breeding for Pest and Disease Resistance	3
CPP 900.1	Seminar I	1
Total credit units		19

Natural processes of pest regulation and improve agricultural production; ecologically based pest management concept and economics. Management of ecological problems and pest management; Selected topics on the intricate relationship between the practice of pest management and ecological processes in their areas of specialization. Environmental imbalance due to human activities and pest management; social issues and the environment in pests management; pesticide regulations and implementation in Nigeria; Selected topics on pesticides and environmental sustainability, laws, regulations, EIAs, etc.

SECOND SEMESTER

Course codes	Course title	Units
CPP 906.2	Advances in Crop Loss Assessment	3
CPP 907.2	Biotechnology and Pest Management	3
CPP 908.2	Climate Change and Pest Management	3
CPP 909.2	Extension in Pest Management	3
CPP 914.2	Principles and Practices of Plant Disease Control	3
CPP 900.2	Seminar II	1
CPP 999.2	Thesis	16
Total Credit		32

CPP 904.1 Pest Management in Urban Agriculture

Organic agriculture pest management; urban ecology and integrated pest management; negative concept interactions between people, pests and pesticides in urban areas. Other selected topics on the development and application of pest management technologies in urban agriculture.

CPP 905.1 Advances in Field and Storage Pest Control Technique

Latest innovations in field and storage pest control techniques; biorational control and challenges of pest control for the twenty-first century. Insecticides by cell-based; novel biotechnology control strategies (the genetic approach). Utilization of nanotechnology for development of potent insecticides.

CPS 917.1: Physiology and Biochemistry of Herbicide Action and Application

Herbicide chemistry, classification of herbicides, characteristics of herbicides, herbicide formulations and scope of use; and mode of action; herbicide selectivity and mechanism; herbicide metabolism and translocation. Herbicides fate and behaviour in the air, plants, soils and water bodies Herbicide weed resistance; herbicide interactions with herbicides, Adjuvant, synergists, and safeners. Mechanism of herbicides activity. Methods of estimation of herbicides residue and ecological problems of persistence. Toxicity, persistence, resistance, limitations in the use of herbicides, hazards, precautions and effect on environment.

CPS 900.1 Seminar I

Students will review and make presentation on contemporary issues in Entomology.

CPP 906.2 Advances in Crop Loss Assessment

Approaches and objectives; measurement of yield loss. Techniques in yield loss assessment; experimental field trials; infestation/infection, yield and economics.

COURSE TITLES AND DESCRIPTION

CPP 901.1 Pesticide Biochemistry and Toxicology

Important biochemical reactions in pesticides. Transmission of nervous impulse. Transport and biological processes in plants. Biosynthesis of nucleic acids and proteins. Some pesticides acting by interference with biosynthesis. Structure-activity relationships, mode of action, metabolism of different pesticide groups (insecticides, herbicides, fungicides, etc.). Resistance to pesticides. Detoxication mechanisms. Chemical genetics and evolution. Toxicology of pesticides.

CPP 902.1 Ecological Processes and Pest Management

CPP 907.2 Biotechnology and Pest Management

New biological and genetic approaches in agricultural pest control; Naturally occurring biological control agents; plant-derived target-specific insecticides, and pest-resistant plants, pest-specific compounds and resistant crops. Advances in biotechnology as a tool for environment-friendly pest management.

CPP 908.2 Climate Change and Pest Management

Current knowledge of the impact of climate change on pest management. Biologically based methods with reference to ecological, physiological and behavioural responses of pests. Insect responses to climate changes (temperature, solar radiation, precipitations, relative humidity and CO₂) and other ecological processes important for plant protection; IPM approaches and climate change; influence of climate change on pest management practices, policies, regulations and international conventions.

CPP 909.2 Extension in Pest Management

Students will review and present selected topics on development in the critical linkage between extension and pest management knowledge, technologies and adoption by farmers and other end-users such as produce merchants, store managers, produce distributors, etc.

CPS 924.1 Breeding for Pest and Disease Resistance

Breeding methodologies for horizontal and vertical resistance, Gene-by-gene concept, Van der Plank concept. Screening methodologies, Boom-bust concept.

CPP 914.2 Principles and Practices of Plant Disease Control

Basic strategies (reduce inoculum, infection rate, and duration of epidemic); basic principles-exclusion, eradication and reduction of inoculum, protection, resistance, and therapy; integrated disease management. Practices of disease control-cultural practices for reducing crop diseases; symptoms and signs of fungal, bacterial, viral and nematode diseases

CPS 900.2 Seminar II

Research findings and challenges in the area of specialization.

CPS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

PLANT PATHOLOGY SPECIALTY

DURATION

Candidates may register for full-time or part-time studies only for PhD programme for a normal duration of not less than six semesters after initial registration or nine semesters in the case of part-time registration. The registration of a candidate shall normally lapse if he has not submitted his thesis for examination after ten-semesters of full-time twelve semesters in the case of part-time registration or an equivalent period pro-rata for an examination of part-time and full-time registration.

Admission Requirements

To be eligible for admission to the Doctor of Philosophy degree programme, a student must have obtained a Masters' degree from this University or its equivalent from any other University recognized by Senate. For holders of one year degree of Master's the minimum duration on the Ph.D. programme shall be three years and candidates will need to take M.Sc courses on the advice of the supervisors or supervisory committee, in addition to oral interview.

Examination

External Examiners are recommended to the Postgraduate Committee based on the advice of the Supervisor or Supervisory Committee.

COURSE CODES AND TITLES

First Semester

Course Code	Course Title	Unit
CPP 901.1	Pesticide Biochemistry and Toxicology	3
CSS 901.1	Biometrics and Experimental Design	3
CPP 910.1	Computer Application in Agricultural Research	3
CPP 911.1	Fungal Physiology and Genetics of Parasitism	3
CPP 912.1	Plant- Bacteria Interaction	3
CPP 913.1	Methods and Techniques in Plant Pathology	3
CPP 900.1	Seminar 1	1
Total		19

Second Semester

Course Code	Course Title	Units
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CPP 906.2	Advances in Crop Loss Assessment	3
CPP 914.2	Principles and Practices of Plant Disease Control	3
CPP 915.2	Advanced Mycology	3
CPP 916.2	Ecology and Epidemiology of Plant Diseases	3
CPS 919.2	Advanced Weed Systems and Management	2
CPP 918.2	Extension and Practicum in Crop Protection	2
CPP 900.2	Seminar 11	1
CPP 999.2	Thesis	16
	Total	33

Genetics, genomics; Physiology and parasitism of fungal plant pathogens; genetic models *Aspergillus nidulans* and *Neurospora crassa*. Current knowledge of fungal genetic and sexuality; plant-fungal interactions; physiology of the nutrition, growth, and reproduction of fungi; analysis of physiological and biochemical processes associated with penetration, development of host-parasite relations and disease development; plant-fungal interactions at the molecular level, molecular basis for disease resistance.

CPP 912.1 Plant-Bacterial Interactions

Interactions between bacteria and plants; physiology; genetics and ecology of bacterial pathogens, epiphytes and symbionts of plants; Representatives of bacterial plant diseases and factors affecting their control severity, distribution and economic importance, methods used in studying plant pathogenic bacteria.

COURSE DESCRIPTION

CPP 901.1 Pesticide Biochemistry and Toxicology

Important biochemical reactions in pesticides. Transmission of nervous impulse. Transport and biological processes in plants. Biosynthesis of nucleic acids and proteins. Some pesticides acting by interference with biosynthesis. Structure-activity relationships, mode of action, metabolism of different pesticide groups (insecticides, herbicides, fungicides, etc.). Resistance to pesticides. Detoxication mechanisms. Chemical genetics and evolution. Toxicology of pesticides.

CSS 901.1 Biometrics and Experimental Design

The scientific method of research-Observations, characteristics of well-planned experiments. Field experimentation and layout. Data transformation and analysis. Indices for evaluation of multiple cropping systems-*LER*, Relative crowding coefficient and Aggressivity. Test of significance and mean comparison, Parametric and Non-parametric tests. Probit analysis. On-farm Experimentation – Technology-generation experiments and technology-verification experiments.

CPP 910.1 Computer Applications in Agriculture

Introduction to computer hardware, software and operating systems. Microsoft office, data management and analysis packages. Internet connectivity, browsing, virtual libraries. Computer-based modeling packages in agricultural science.

CPP 911.1 Fungal Physiology and Genetics of Parasitism

CPP 913.1 Methods and Techniques in Phytopathology

Identification, isolation, culture and inoculation of susceptes with fungi, bacteria, viruses and nematodes; bioassays, advanced research techniques.

CPS 900.1 Seminar I: Students will review and make presentation on contemporary issues in Crop Pathology.

CPP 906.2 Advances in Crop Loss Assessment

Approaches and objectives; measurement of yield loss. Techniques in yield loss assessment; experimental field trials; infestation/infection, yield and economics.

CPP 914.2 Principles and Practices of Plant Disease Control

Basic strategies (reduce inoculum, infection rate, and duration of epidemic); basic principles-exclusion, eradication and reduction of inoculum, protection, resistance, and therapy; integrated disease management. Practices of disease control-cultural practices for reducing crop diseases; symptoms and signs of fungal, bacterial, viral and nematode diseases

CPP 915.2 Advanced Mycology

General introduction, historical development and advances in mycology; Recent taxonomic criteria, morphological criteria for classification; Chemotaxonomy, molecular and numerical taxonomy; Interaction between groups; morphology and reproduction of representative plant pathogenic genera from different groups of fungi; Sexual reproduction in different groups of fungi; Population biology, pathogenic variability/vegetative compatibility; Heterokaryosis and

parasexual cycle. Sex hormones in fungi. Mechanism of nuclear and extra-nuclear inheritance

CPP 916.2 Ecology and Epidemiology of Plant Diseases

Disease development in populations, monitoring, modeling, and predicting rates of development. Environmental factors in the development and spread of diseases, pathogen variability, and genetics of disease resistance and principles of disease control.

CPP 918. 2 Advanced Extension and Practicum in Crop Protection

Course focuses on diseases of economic importance in Rivers state and issues faced in the home landscape; diagnose and properly treat plant diseases; provide educational and diagnostic resources for clientele; train extension agent and detectors to identify, monitor and respond to invasive pests; ,rapid detection, diagnosis and communication about pests outbreaks to protect our agricultural bio-security. Instructional orientation to teaching at the higher educational level in agriculture; direct teaching experience under academic staff supervision, experience in evaluating students and analysis of teaching performance.

CPS 919.2: Advanced Weed Systems and Management

Environmental weeds, aquatic weeds and rangeland weeds management. Principles and practices of weed management in field, horticultural and plantation crops wasteland and waterways with emphasis on the economics and extension of the practices. Non-chemical innovations in weed management. Ecology of invasive weed species, their distribution, global impact and management. Influence of climatic, biotic and abiotic factors on the effectiveness of different weed management strategies. Influence and impact of climate change on weed management practices, crop-weed interaction, with reference to policies, regulations and international conventions on climate events.

CPS 900.2 Seminar II

Research findings and challenges in the area of specialization.

CPS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

APPLIEDNEMATOTOLOGY SPECIALTY

Introduction:

The PhD programme in Applied Nematology consists of course work, seminar and research project. In each of the seminar courses, students will critically review and present topical issues that are relevant to Applied Nematology.

Philosophy:

The Ph.D programme in Applied Nematology aims at producing high level resourceful manpower and world-class graduates skilled in teaching, research, creativity and innovation and invested with great problem-solving abilities. The programme aims at providing the highest degree of specialization in nematology in the context of expanding knowledge globally.

Vision: To be globally rated among the top in training, research and community outreach in the fields of Crop and Soil Sciences.

Mission: To provide competent manpower with adequate knowledge and skills to enable them undertake leadership roles in the fields of Crop and Soil Sciences.

Objectives:

The various skills imparted should enable graduates of the programme to fill critical niches in both public and private institutions and corporations to provide high quality service as teachers, researchers, policy makers, pest management experts, environmental and agricultural consultants in national and international organizations.

Admission requirements:

Candidates seeking admission into the Ph.D programme in Applied Nematology must meet the following requirements:

- i. Hold M.Agric or M.Sc or M.Phil in crop protection, entomology, nematology, plant pathology of an approved university
- ii. Passed the master's degree in the specialized areas specified with a minimum CGPA of 3.50 on a 5.00 point scale or 2.80 on a 4.00 point scale.
- iii. Comply with the general regulations, conditions and policies guiding graduate studies as specified by the College of Graduate Studies of the University of Port Harcourt
- iv. Candidates must submit a short research proposal to the Head of Department at least 2 weeks to the date of interview and present themselves at the interview. Only candidates who score a minimum of 60% on average at the interview will be recommended for admission

Duration:

The Ph.D programme in Applied Nematology is available on full-time and part-time basis. The minimum duration for full-time students is 36 months and a maximum of 60 months; corresponding durations for part-time students are 60 and 84 months, respectively.

Graduation requirements

The student is expected to pass the prescribed courses, make seminar presentations and defend the research thesis

Requirement for research

Each student will have a major supervisor and also three members of supervisory committee. Every student is expected to present the Ph.D research proposal and subsequently progress report at the beginning of each session to supervisory committee. Presentations to the Department Graduate Committee and for examination will be hinged on the advice of the supervisory committee and supervisor.

COURSE CODES AND TITLES

FIRST SEMESTER

Course codes	Course title	Units
CPP 901.1	Pesticide Biochemistry and Toxicology	3
CPP 903.1	Environment and Pest Management	3
CPP 919.1	Nematodes and Ecosystem Services	3
CPP 920.1	Molecular Plant Nematology	3
CPP 921.1	Phytonematodes threat of Horticulture and Forestry	3
CPP 922.1	Techniques in Nematological Research	3
CPP 900.1	Seminar I	1
Total		19

SECOND SEMESTER

Course codes	Course title	Units
CPP 906.2	Advances in Crop Loss Assessment	3
CPP 923.2	Agronematology	3

CPP 924.2	Economics Management of Phytonematodes	3
CPP 925.2	Population Dynamics of Nematodes	3
CPP 900.2	Seminar II	1
CPP 999.2	Thesis	16
Total		29

COURSE CODES AND DESCRIPTION

CPP 919.1 Nematodes and Ecosystem services

Importance of nematodes in the ecosystem, Ecosystem services by nematodes, Important genera of free living nematodes in the ecosystem and their functions, Environmental nematology, Nematodes as bioindicators of environmental pollution, Important non plant-parasitic nematode genera in man, animals and other organisms, Application of nematodes for diverse ecosystem services such as bioremediation and biotechnology e.t.c.

CPP 920.1 Molecular Plant Nematology

Molecular techniques and diagnostic tools in plant nematology, molecular biology of nematode resistance, molecular characterization, biochemical and molecular basis of plant nematode interaction, molecular diagnosis of phytonematodes, Genetic analysis, Genetic variation among nematode species, Genetically engineered antibodies for nematode identification, Nucleotide sequences in nematode systematic and major plant parasitic nematodes in molecular nematology.

CPP 921.1 Phytonematodes: Threat to Horticulture and Forestry

Economic importance of phytonematodes on horticultural crops and trees, Major phytonematodes associated with horticultural crops, forest trees and soils, Management of phytonematodes of horticultural crops and trees.

CPP 922.1 Techniques in Nematological Research

Sampling and population assessment methods for nematodes, extraction of nematodes from soil and plant parts, Specimen preparation. Stain technology. Theory and use of microscope and microtomes. Photography and photomicrography. Greenhouse experimentation for pathogens, Diagnostic programmes in nematology. Experimental designs, Statistical analyses with softwares such as Statistical Analysis System, Genstat, e.t.c.

CPP 900.1 Seminar I

Students will review present selected topics on the recent advances in Nematology topics

CPP 923.2 Agronematology

Description of the agro-ecological differences between temperate and tropical agricultural systems and the effects of these differences on the occurrence of plant-parasitic nematodes. Importance of injury and disease caused by plant-parasitic nematodes to agricultural Crops in the (sub) tropics. Geographical distribution, reproductive and damage potential, host plant interactions and economic importance of the most important nematode species associated with: cereals (rice, maize, sorghum, millets), root and tuber crops (cassava, sweet potato, yam), food legumes (bean, cowpea, chickpea, pigeon pea, groundnut soybean), fruit crops (banana and plantain, pineapple, citrus), oil palm, coconut, cotton, rubber, tobacco, sugarcane, coffee, cocoa, tea, vegetables and spices. Emerging diseases caused by plant-parasitic nematodes in the (sub) tropics and Challenges facing tropical nematology.

CPP 924.2 Economics of Nematode Pests Management

Importance of nematode diseases in crop production, Biological and cultural management, nematode resistance in crops, Challenges in application of botanical pesticides, chemical control of nematodes, biosafety, food contamination, nematicides and residues, economically important plant parasitic nematodes of cereals, legumes, fibre crops, Cost/benefit analysis of nematode management options, application of sensitivity analysis in profitability assessment of nematode management etc

CPP 925.2 Population Dynamics of Phytonematodes

Distribution patterns for phytonematodes, plant growth and population dynamics of phytonematodes, Phytonematodes population dynamics and other soil fauna, soil fertility and phytonematode population, Modelling population dynamics of Phytonematodes on crops, Climatic conditions and population dynamics of phytonematodes, Influence of nematicides on nematode population

CPS 900.2 Seminar II

Research findings and challenges in the area of specialization.

CPS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

DOCTOR OF PHILOSOPHY DEGREE (Ph.D) IN SOIL SCIENCE

Philosophy

The philosophy is to develop high level manpower to pursue careers in academics and research. It is to provide the highest degree of specialization in a particular field in the context of expanding knowledge globally and solving real life problems.

Vision: To be globally rated among the top in training, research and community outreach in the fields of Crop and Soil Sciences.

Mission: To provide competent manpower with adequate knowledge and skills to enable them undertake leadership roles in the fields of Crop and Soil Sciences.

Objectives:

The Ph.D programme in Soil Science is structured in line with the UN “3 Rio Convention” and the Millennium Goals to:

- (i) To equip students with research skills through the conduct of supervised research, seminar presentations and thesis preparation.
- (ii) Produce training for those whose future careers lie in teaching and research.
- (iii) Produce graduates with knowledge and skills in solving practical and theoretical problems in soil science for modern agriculture, climate change, loss of biodiversity and land degradation. The knowledge and skills gained will enable the graduates to understand and solve agronomic, environmental and engineering problems relating to soil water resources, drainage, land degradation and pollution at the national regional and global levels.

Admission Requirements

1. Graduates of the University of Port Harcourt or of other recognized Universities who have obtained an appropriate Master’s degree for the proposed area of study with a minimum of 3.50 Grade Point Average on a 5-Point Scale or 2.80 on the old 4-point scale, provided that satisfactory research work formed part of the Master’s Degree.
2. Candidates who hold qualifications other than the above, and are acceptable to the Senate of the University of Port Harcourt.
3. Candidates from recognized Universities where grade point average (CGPA) is not given would be required to have average Master’s Degree score of 60% or above
4. Qualified candidates shall present themselves for interview and score at least

60% at the interview to be recommended for admission.

(a) Requirements for Graduation

The programme consist of course work, thesis and seminars or special topics

To be awarded the Doctor of Philosophy Degree in Soil Science, *a candidate must have passed a minimum of 48 Credit Units of which not more than 21 credit units may be transferred from Masters.*

Carried out a research relevant to the area of specialization and submitted an *acceptable and approved thesis.*

Duration:

The Ph.D programme in Soil Science is available on full-time and part-time basis. The minimum duration for full-time students is 36 months and a maximum of 60 months; corresponding durations for part-time students are 60 and 84 months, respectively.

Areas of Specialization

- i. Soil Physics and Conservation
- ii. Soil Survey and Land-Use Planning
- iii. Soil Chemistry, Fertility and Mineralogy

SOIL PHYSICS AND CONSERVATION SPECIALTY

COURSE CODES AND TITLES

FIRST SEMESTER

Course Code	Course Title	Units
SOS 900.1	Seminar I	1
SOS 901.1	Advanced Soil Physics	3
SOS 902.1	Advanced Soil and Water Conservation	3
SOS 903.1	Crop Weather Relations	3
SOS 904.1	Remote Sensing Techniques	3
SOS 905.1	Advanced Soil Survey and Land Use Planning	3
SOS 913.1	Advanced Soil Microbiology	3
Total		19

SECOND SEMESTER

Course Code	Course Title	Units
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SOS 900.2	Seminar II	1
SOS 906.2	Advanced Soil Mineralogy	3
SOS 907.2	Soil Erosion Control	3
SOS 908.2	Advanced Soil-Water-plant Relations	3
SOS 911.2	Pesticides in Soil	3
SOS 999.2	Thesis	16
Total		29

COURSE CODES AND DESCRIPTION

SOS 901.1 Advanced Soil Physics

Soil-water Balance factors: Rainfall characteristics, infiltration and runoff, water storage, evaporation and evapotranspiration, energy and mass balances, saturated and unsaturated flow in porous media.

SOS 902.1 Advanced Soil and Water Conservation

Review of Soil Physical Properties and their place in Water Conservation (Soil structure, soil strength and aggregate stability, etc); Methods of assessment, physics of rainfall: rainfall intensity, rainfall prediction and rainfall erodibility. Infiltration and runoff. Soil erosion processes: soil detachment by raindrop impact, soil erodibility, sediment transport and deposition. Types of erosion and methods of control. Water conservation methods; Advances in Soil and Water Conservation.

SOS 903.1 Crop-Weather Relations

Climate and Crop Production, energy and water balance. Penological stages of some tropical crops. Weather influence on phenological stages and crop yields. Models for protecting these relationships for selected crops. Application of growth degree days and heat units in crop production.

SOS 904.1 Remote Sensing Techniques

Development of remote sensing from air photography to sophisticated sensor systems. Techniques of remote sensing, use of panchromatic infra-red black and white, infra-red false and true colour films, image enhancement, multispectral photography, use of side-looking radar and satellite imagery.

SOS 905.1 Advanced Soil Survey and Land-Use Planning

Review Soil survey methods; Applications of Remote sensing and GIS techniques in soil survey; land systems mapping, soil survey interpretations;

concept of land use planning/land evaluation; land use planning and management of nonagricultural projects; land use land cover change analysis; Impacts of climate change; Field Exercise in Soil Survey and Land Evaluation; Advances and Recent developments in Soil Survey and Land use Planning.

SOS 913.1 Advanced Soil Microbiology

Review of the study of soil microorganisms, their environment, form and functions. Organic matter decomposition and the Carbon cycle; organic nitrogen transformation and the carbon cycle; organic nitrogen transformations and the nitrogen cycle. Microbial transformation of P, S, Fe and other mineral elements. Transformations of hydrocarbon and pesticides in soils. Practical Exercise in Soil Micro-biology

SOS 906.2 Advanced Soil Mineralogy

Mineralogy of sand, silt and clay fractions. Principles and use of X-ray. Differential thermal analysis, Electron microscopy and Nicol prism in the study of mineral in soils. Extraction of soil clays and preparation of clay samples for X-ray diffraction and fluorescence analysis. Quantitative estimation of clay minerals.

SOS 907.2 Soil Erosion Control

Principles, types and causes of soil erosion, Measurements of water erosion, Measurements on wind erosion, Analysis of water and wind erosion in the field, Soil loss equation and soil erosion calculator, Measurement of soil loss, Soil erosion control measures vis a-viz: biological and engineering structures. Soil erosion mapping;

SOS 908.2 Advanced Soil-Water-Plant Relations

Water balance and balance components, Dependence of man on water in the context of world agriculture, Measurements of soil water, Movement of water in soils, Movement of water towards and into the root system, Movement of water out of the soil-plant system, Soil water potentials, Water loss from the soil-plant interface.

SOS 911.2 Pesticides in Soil

Major groups of pesticides, processes affecting pesticides in soil including sorption, degradation and elimination; transport of pesticides in soil and uptake by plants; pesticide persistence; effects on soil organisms and crop damage techniques involving analysis of pesticides residue in soils.

SOS 900.1 Seminar I

Students will review and make presentation on contemporary issues in Soil Science.

SOS 900.2 Seminar II

Research findings and challenges in the area of specialization.

SOS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

SOIL SURVEY AND LAND-USE PLANNING SPECIALTY COURSE CODES AND TITLES

FIRST SEMESTER

Course Code	Course Title	Units
SOS 900.1	Seminar I	1
SOS 904.1	Remote Sensing Techniques	3
SOS 905.1	Advanced Soil Survey and Land use Planning	3
SOS 903.1	Crop Weather Relations	3
SOS 909.1	Advanced Soil Chemistry	3
SOS 902.1	Advanced Soil and Water Conservation	3
SOS 913.1	Advanced Soil Microbiology	3
Total		19

SECOND SEMESTER

Course Code	Course Title	Units
SOS 900.2	Seminar II	1
SOS 906.2	Advanced Soil Mineralogy	3
SOS 910.2	Advanced Soil Genesis and Classification	3
SOS 907.2	Soil Erosion Control	3
SOS 908.2	Advanced Soil-Water-Plant Relations	3
SOS 999.2	Thesis	16
Total		29

COURSE TITLE AND DESCRIPTION

SOS 904.1 Remote Sensing Techniques

Development of remote sensing from air photography to sophisticated sensor systems. Techniques of remote sensing, use of panchromatic infra-red black and white, infra-red false and true colour films, image enhancement, multispectral photography, use of side-looking radar and satellite imagery.

SOS 905.1 Advanced Soil Survey and Land-Use Planning

Review Soil survey methods; Applications of Remote sensing and GIS techniques in soil survey; land systems mapping, soil survey interpretations; concept of land use planning/land evaluation; land use planning and management of nonagricultural projects; land use land cover change analysis; Impacts of climate change; Field Exercise in Soil Survey and Land Evaluation; Advances and Recent developments in Soil Survey and Land use Planning.

SOS 903.1 Crop-Weather Relations

Climate and Crop Production, energy and water balance. Phenological stages of some tropical crops. Weather influence on phenological stages and crop yields. Models for protecting these relationships for selected crops. Application of growth degree days and heat units in crop production.

SOS 909.1 Advanced Soil chemistry:

Chemistry of Soil Formation, Soil Minerals, Structure, properties and classification of Silicate Clay Minerals. Ion Exchange in Soils, Exchange Materials, Principles of Cation Exchange. Chemistry of Nutrient Fixation in Soils: Phosphorus and Potassium Fixation, Soil Acidity and Liming. Humic substances in soil, Evaluation of soil nutrient supply and Soil Salinity. Applications of Soil Chemistry in every day agriculture; Recent developments in Soil Chemistry.

SOS 902.1 Advanced Soil and Water Conservation

Review of Soil Physical Properties and their place in Water Conservation (Soil structure, soil strength and aggregate stability, etc); Methods of assessment, physics of rainfall: rainfall intensity, rainfall prediction and rainfall erodibility. Infiltration and runoff. Soil erosion processes: soil detachment by raindrop impact, soil erodibility, sediment transport and deposition. Types of erosion and methods of control. Water conservation methods; Advances in Soil and Water Conservation.

SOS 913.1 Advanced Soil Microbiology

Review of the study of soil microorganisms, their environment, form and functions. Organic matter decomposition and the Carbon cycle; organic nitrogen transformation and the carbon cycle; organic nitrogen transformations and the nitrogen cycle. Microbial transformation of P, S, Fe and other mineral elements. Transformations of hydrocarbon and pesticides in soils. Practical Exercise in Soil Micro-biology.

SOS 906.2 Advanced Soil Mineralogy

Mineralogy of sand, silt and clay fractions. Principles and use of X-ray. Differential thermal analysis, Electron microscopy and Nicol prism in the study of mineral in soils. Extraction of soil clays and preparation of clay samples for X-ray diffraction and fluorescence analysis. Quantitative estimation of clay minerals.

SOS 907.2 Soil Erosion Control

Principles, types and causes of soil erosion, Measurements of water erosion, Measurements on wind erosion, Analysis of water and wind erosion in the field, Soil loss equation and soil erosion calculator, Measurement of soil loss, Soil erosion control measures vis a-viz: biological and engineering structures. Soil erosion mapping;

SOS 908.2 Advanced Soil-Water-plant Relations

Water balance and balance components, Dependence of man on water in the context of world agriculture, Measurements of soil water, Movement of water in soils, Movement of water towards and into the root system, Movement of water out of the soil-plant system, Soil water potentials, Water loss from the soil-plant interface.

SOS 910.2 Advanced Soil Genesis and Classification

Review Soil Formation; Geologic weathering as a prelude to soil formation, Geomorphology in pedology; soil relationships with drainage basins; criteria for characterizing and evaluating soil development, soil development in various geoclimatic regions of Nigeria and the world system of soil classification. Non-agricultural applications of Soil Classification; Advances in Soil Classification.

SOS 900.1 Seminar I

Students will review and make presentation on contemporary issues in Soil Science.

SOS 900.2 Seminar II

Research findings and challenges in the area of specialization.

SOS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

SOIL CHEMISTRY, FERTILITY AND MINERALOGY SPECIALTY COURSE CODES AND TITLES

FIRST SEMESTER

Course Code	Course Title	Units
SOS 900.1	Seminar I	1
SOS 903.1	Crop Weather Relations	3
CSS 901.1	Biometrics and Experimental Design	3
SOS 909.1	Advanced Soil Chemistry	3
SOS 905.1	Advanced Soil Survey and Land Use Planning	3
SOS 912.1	Advanced Soil Fertility and Plant Nutrition	3
SOS 913.1	Advanced Soil Microbiology	3
Total		19

SECOND SEMESTER

Course Code	Course Title	Units
SOS 900.2	Seminar II	1
SOS 906.2	Advanced Soil Mineralogy	3
SOS 915.2	Advanced Soil Pollution and Remediation	3
SOS 911.2	Pesticides in Soil	3
SOS 914.2	Advances in Fertilizer Technology and Use	3
SOS 999.2	Thesis	16
Total		29

COURSE TITLE AND DESCRIPTION

SOS 903.1 Crop-Weather Relations

Climate and Crop Production, energy and water balance. Penological stages of some tropical crops. Weather influence on phenological stages and crop yields. Models for protecting these relationships

for selected crops. Application of growth degree days and heat units in crop production.

SOS 909.1 Advanced Soil chemistry:

Chemistry of Soil Formation, Soil Minerals, Structure, properties and classification of Silicate Clay Minerals. Ion Exchange in Soils, Exchange Materials, Principles of Cation Exchange. Chemistry of Nutrient Fixation in Soils: Phosphorus and Potassium Fixation, Soil Acidity and Liming. Humic substances in soil, Evaluation of soil nutrient supply and Soil Salinity. Applications of Soil Chemistry in every day agriculture; recent developments in Soil Chemistry.

CSS 901.1 Biometrics and Experimental Design

The scientific method of research-Observations, characteristics of well-planned experiments. Field experimentation and layout. Data transformation and analysis. Indices for evaluation of multiple cropping systems-LER, Relative crowding coefficient and Aggressivity. Test of significance and mean comparison, Parametric and Non-parametric tests. Probit analysis. On-farm Experimentation – Technology-generation experiments and technology-verification experiments.

SOS 905.1 Advanced Soil Survey and Land-Use Planning

Review Soil survey methods; Applications of Remote sensing and GIS techniques in soil survey; land systems mapping, soil survey interpretations; concept of land use planning/land evaluation; land use planning and management of nonagricultural projects; land use land cover change analysis; Impacts of climate change; Field Exercise in Soil Survey and Land Evaluation; Advances and Recent developments in Soil Survey and Land use Planning.

SOS 912.1 Advanced Soil Fertility and Plant Nutrition

Description of Soil-Plant Continuum, Plant System: Uptake and Translocation of Nutrient through Root. Mechanism of Nutrient Absorption (osmosis, diffusion, mass flow, cation exchange) and Translocation. Carrier hypothesis, solute transport at the cellular level, Energy sources for active transport. Role of Organic matter in soil Fertility. Evaluation of soil Nutrient supply (Laboratory: Green house and Field methods). Fertilizers, Their Uses, Environmental effect and evaluation, Cropping system and Soil Management.

SOS 913.1 Advanced Soil Microbiology

Review of the study of soil microorganisms, their environment, form and functions. Organic matter

decomposition and the Carbon cycle; organic nitrogen transformation and the carbon cycle; organic nitrogen transformations and the nitrogen cycle. Microbial transformation of P, S, Fe and other mineral elements. Transformations of hydrocarbon and pesticides in soils. Practical Exercise in Soil Micro-biology

SOS 906.2 Advanced Soil Mineralogy

Mineralogy of sand, silt and clay fractions. Principles and use of X-ray. Differential thermal analysis, Electron microscopy and Nicol prism in the study of mineral in soils. Extraction of soil clays and preparation of clay samples for X-ray diffraction and fluorescence analysis. Quantitative estimation of clay minerals.

SOS 915.2 Soil Pollution and Remediation

Heavy metals and radio-nuclides in soils and sediments; hazardous elements in soils and sediments, (cadmium, lead, zinc and iron): mining and smelting sites, landfill sites, sewage sludge; Accumulation of hazardous elements in plants; Treatment of contaminated land, radio-nuclides in the soil and the environment. Hydrocarbons in soils

SOS 911.2 Pesticides in Soil

Major groups of pesticides, processes affecting pesticides in soil including sorption. degradation

and elimination; transport of pesticides in soil and uptake by plants; pesticide persistence; effects on soil organisms and crop damage techniques involving analysis of pesticides residue in soils.

SOS 914.2 Advances in Fertilizer Technology and Use

Review of fertilizer use locally and globally. Physical and chemical properties of various fertilizers, types. Principles of manufacture of nitrogen, phosphorus, potassium, fertilizer handling and storage. Residual effects of various fertilizer types. Use of fertilizers on varying soil types. The economics of fertilizer use. Comparative analysis of fertilizer and non-fertilizer types of farming.

SOS 900.1 Seminar I

Students will review and make presentation on contemporary issues in Soil Science.

SOS 900.2 Seminar II

Research findings and challenges in the area of specialization.

SOS 999.2 Thesis

Students are expected to meet the Departmental, Faculty and Graduate School requirements for research and thesis.

**LIST OF ACADEMIC STAFF ON THE GRADUATE PROGRAMMES
IN CROP AND SOIL SCIENCE DEPARTMENT**

S/No.	Name	Rank	Qualifications	Specialization
1.	Prof. A. A. Tanimola	Professor/Head of Department	PhD 2014 Nematology (Ibadan); MSc. 2003 Crop Protection and Environmental Biology (Ibadan); BSc.2000 (Agriculture, Crop Protection and Environmental Biology) (Ibadan)	Plant Nematology
2.	Prof. N. E. S. Lale	Professor	PhD 1987 Agricultural Entomology (Newcastle UponTyne, UK), B.Sc 1981 (Hons) Agriculture (Crop Science) (Unimaid, Nigeria)	Agric. Entomology
3.	Prof. E. C. Wokoma	Professor	PhD 1986 Plant Pathology, (Ohio State); M.Sc 1982 Plant Pathology (Wash State); B.Sc Ed/Biology 1976 (ABU Zaria)	Plant Pathology
4.	Prof. M. I. Godwin-Egein	Professor	PhD 1999 Plant Science and Biotechnology (Plant Pathology and Mycology) (Uniport); MSc. 1991 Plant pathology and Mycology (Uniport); B. Ed 1988 Biology (Educational Mgt and Planning) (Uniport); NCE 1979 (RIVCO, Port Harcourt)	Plant Pathology
5	Prof. D. F. Uwah	Professor (Adjunct)	PhD Agronomy (ABU, Zaria); MSc Crop Science (Ibadan); B. Agric. (Calabar)	Crop Science
6.	Prof. D. A. Okpara	Professor (Adjunct)	PhD UNN; MSc 1985 UNN; B. Sc. 1982 (Uniport)	Crop Science/ Crop Physiology
7.	Prof. U. E. Udensi	Professor	PhD. 2006 Weed-Crop Ecology & Mgt (Ibadan); PGD. 1994 Agric. Dev. (Wye College, London); MSc. 1994 Agronomy, Crop Science (Ibadan); BSc. 1985 Botany (Uniport)	Weed Science (Weed-Crop Ecology& Mgt.)
8.	Prof. A. O. Asimiea	Professor	PhD 2009 Environmental Management (RSUST); MSc Applied Nematology (UGent Belgium); MSc. 1988 Hydrobiology and Fisheries, (Uniport); B.Sc. 1981, Zoology (Uniport)	Agro-Nematology

9.	Prof. E. I. Hamadina	Professor	PhD. 2004 (Reading, UK); MSc. 1998 Environmental Biology (Physiology) (Ibadan); BSc. 1995 Crop Science (RSUST)	Crop Physiology/Environmental
10.	Prof. O. M. Adedokun	Professor	PhD. 2008 Mycology and Plant Pathology (Uniport); MSc. 1997 Agronomy (Horticulture) (Ibadan); BSc. 1994, Botany (UNILAG)	Horticulture/ Mycology Science
11.	Prof. U. Zakka	Professor	PhD. 2012 Entomology (Uniport); MPhil 2005 Entomology (Legon, Ghana); BSc Agric. 2002 (Unimaid); Nigeria, NCE Agric. DM 1994 (KICOE, Maiduguri)	Agricultural Entomology
12.	Prof. C. C. Wokocho	Professor	PhD 2015 Soil Survey and land use planning & GIS/Remote Sensing (FUTO); MSc 2004 Soil Survey and Land Use (MOUAU); B. Tech. Geography/ Remote Sensing (FUT Minna)	Soil Survey and Land Use Planning
13.	Prof. J. A. Orluchukwu	Professor	PhD 2010 Plant Breeding (RSUST); MSc. 2005 Crop Science (RSUST); BSc. 1987 Crop Science (RSUST)	Plant Breeding/Agronomy
14.	Dr. O. J. Kamalu	Reader	PhD 2015 Pedo-Environmental Mgt. (RSUST); M.Phil 1989 Soil Science (Pedology) (RSUST); HND 1983 Agronomy (RSUST)	Soil Pedology
15.	Dr. B. E. Udom	Reader	PhD 2008 Soil Physics/Conservation (UNN); MSc. 2000 Soil Physics/ Conservation (UNN) PGD, 1998 Land/Water Res. Mgt. (UNN); HND 1992 Soil Fertility (Fed Soil Cons, Kuru Jos)	Soil Physics and Conservation
16.	Dr. A. A. Efisue	Reader	PhD. 2007 Plant Breeding (UKZN, South Africa); MSc. 1994 Plant Breeding (Ibadan); BSc. 1987 Crop Science (Ibadan)	Crop Breeding and Genetics

17.	Dr. J. A. Chukwumati	Senior Lecturer	PhD. Soil Chemistry and Environmental Mgt. (RSUST) MSc. Soil Conservation & Fertility (Wye College, London) BSc. Soil Sci. (RSUST),	Soil Chemistry/Fertility and Environment
18.	Dr. L. C. Nwosu	Senior Lecturer	PhD 2015, Storage Entomology (FUTA); MSc. 2007 Entomology (MOUAAU); B.Sc. 2002 Zoology (MOUAAU)	Agricultural Entomology
19.	Dr. O. M. Azeez	Senior Lecturer	PhD 2012 Agricultural Entomology (FUNAAB); MSc 2006 Crop Science (Uniben); B. Agric. (Univ. Ilorin)	Agricultural Entomology
20.	Dr. V. C. Okereke	Reader	PhD 2015 Plant Pathology (Reading, UK.); MSc. 2004 Plant Pathology (MOUAAU); B. Agric. 2000 Crop Protection (MOUAAU)	Plant Pathology
21.	Dr. P. O. Abam	Senior Lecturer	PhD 2019 Soil Chemistry and Mineralogy (RSU); MSc. 2008 Soil Fertility and Fertilizer Technology (MOUAAU); B. Agric. 2000 Soil Science (Unical)	Soil Chemistry and Fertility
22.	Dr. S. R. Atijegbe	Senior Lecturer	PhD 2019 (Lincoln University New Zealand); M. Phil. 2004 Entomology (Legon, Ghana); BSc. Agriculture 1998 (Crop Science) (Unimaid)	Agricultural Entomology
23.	Dr. A. O. Nengi-Benwari	Senior Lecturer	PhD 2020 Soil Microbiology (RSUST); MSc. 2008 Soil Science (RSUST); BSc. Soil Science 1994 (Calabar).	Soil Microbiology
24.	Dr. H. I. Anozie	Lecturer 1	PhD 2023 (Calabar); MSc 2007 Soil Science (Ibadan); B. Agric Tech. 2004 (FUTO)	Soil Microbiology
25.	Engr. Dr. B. F. Sasanya	Lecturer I	Ph.D. 2022 Water Resources and Environmental Engineering (Ibadan); MSc 2015 Agricultural and Environmental Engineering (Ibadan); B. Tech. 2011 (Hons) Agricultural and Engineering (LAUTECH)	Agricultural, Water Resources and Environmental Engineering

DEPARTMENT OF FORESTRY & WILDLIFE MANAGEMENT

POSTGRADUATE PROGRAMMES IN FORESTRY AND WILDLIFE MANAGEMENT

INTRODUCTION

Philosophy

This is a form of in-service training for personnel, working at the Federal, State and Local Governments' Forestry Departments/Sector and those with Non-Governmental organizations involved in the conservation of forest resources. This is to enable them meet the forest products needs of the society.

Mission

To address the knowledge gap of personnel who are employed to manage the forest resources, without previous training in Forestry and Wildlife Resources Management. Such include; Botanists, Geographers, Crop Scientists, Microbiologists, Biologists, Agriculturists, etc.

Rationale/Justification

The programme will provide opportunity to professionals from other related disciplines who may wish to have training in Forestry and Wildlife Management.

Objective

To engender sustainable capacity building in the forestry sub-sector, which would invariably translate into sustainable management of forest resources and maintenance of healthy environment.

Admission Requirements

Without prejudice to the University minimum requirements, the prospective candidate must possess at least a second class (Lower Division) Bachelors' degree in Forestry or Botany, Biology, Agriculture, Biochemistry, Geology and other related disciplines earned from any recognized University. In addition, candidates must have the matriculation requirements of the Faculty of Agriculture, University of Port Harcourt. Candidates with third class degree may be admitted for a terminal diploma programme (i.e.), they will not be considered for admission to pursue Master's degree thereafter.

Programme Duration

A minimum of two semesters and maximum of four semesters are required to complete the full-time programme.

Graduation Requirements

The student is expected to pass the prescribed courses and successfully defend the research project.

List of Courses, Codes and Credit units

FIRST SEMESTER

Core Courses

Course Code	Course Title	Units
FWL 701.1	Forest Economics and Management	3
FWL 702.1	Advanced Measurements and Biometrics	3
FWL 703.1	Forest and Wildlife Policy, Law and Administration	3
FWL 704.1	Natural Ecosystems and Forest Regeneration	3
FWL 705.1	Silviculture	3
FWL 706.1	Environmental Impact Assessment	3 (E)
FWL 707.1	Seminar	2
Total		17

SECOND SEMESTER

Course Code	Course Title	Units
FWL 708.2	Agroforestry	3
FWL 709.2	Wood Formation and Properties	3
FWL 710.2	Wildlife Ecology, Management and Utilization	3
FWL 711.2	Forestry and Wildlife Extension	3
FWL 712.2	Landscape Practices	3 (E)
FWL 713.2	Field Study and Report Writing	3
FWL 799.2	Research Project	6
Total		21

(E) Elective

COURSE DESCRIPTION

FWL 701.1 Forest Economics and Management (3 Units)

Growth models and growth curves. Estimation of stand structure, density. Site quality and yield. Construction of volume table. Goods and services in forestry, value system in conservation, forest management. Application of economic principles to forest resources, planning and decision making in resource use, cost-benefit analysis as applied to forest operations, budget and financial analysis.

FWL 702.1 Advanced Measurements and Forest Biometrics (3 Units)

Measurements (linear, time weight, area volume), measurement of form, forest inventory/design field measurements/planning, forest resources sampling and enumeration techniques, methods of data collection and sampling techniques methods of data analysis using forestry examples CRD, RCBD, Poission Model, principal component analysis, cluster analysis. Data Interpretation.

FWL 703.1 Forest and Wildlife Policy, Law and Administration (3 Units)

Forest and wildlife related natural resources: planning effective use of natural resources; structure of wildlife administration; problems of forests conservation and endangered species. Review of Nigerian Forest and Wildlife laws and policies. Administration of Forest and wildlife Laws in Nigeria. Effectiveness of forest and Wildlife laws in conservation of species. Laws and policies on economic and recreational uses of Forest and Wildlife Resources. Problems of forest and wildlife conservation in Nigeria.

FWL 704.1 Natural Ecosystems and Forest Regenerations (3 Units)

Types of ecosystems: aquatic, coastal, rainforest, savanna and desert. Disturbances in forest ecosystem, competition, succession, nutrient cycling, energy flow, vegetation survey and analysis; forest regeneration methods; cultural operations.

FWL 705.1 Silviculture (3 Units)

Tree growth and development, regeneration methods: natural/ artificial, thinning, multiplication methods, tending techniques and cutting methods.

FWL 706.1 Environmental Impact Assessment (3 Units) - Elective

Definition, concepts and objectives of Environmental Impact Assessment; development of Environmental Impact Statement, structure and basic contents; project rating; adequacy of documents, communication of Impact statements; review of documents.

FWL 707.1 Seminar (3 Units)

Seminar presentation on the project methodology, results and conclusion.

FWL 708.2 Agroforestry (3 Units)

Definition, importance of Agroforestry in land management, soil fertility and other aspects of

environmental protection. Major Agroforestry practices including compound farming, alley farming, agrisilviculture, silvopastoral, agro-silvopastoral.

FWL 709.2 Wood Formation and Properties (3 Units)

Sources of wood, primary and secondary growth and their derivatives, cell development in wood, multiplication, division of the cambium, thickening of the wall, lignifications, formation of growth rings, wood density and specific gravity, anatomy, wood chemistry, mechanical properties, wood conductivity (thermal/electrical).

FWL 710.2 Wildlife Ecology, Management and Utilization (3 Units)

Different wildlife resources, wildlife and environment, management of wildlife resources, species distribution and abundance as affected by environmental factors, food and feeding habits of wildlife, population and reproductive characteristics. Utilisation of wildlife resources. Methods of population studies and age tables. Wildlife and its conservation. Range management and assessment, classification, structure and economic importance of birds of Africa. Distribution and identification of game birds and management techniques.

FWL 711.2 Forest and Wildlife Extension (3 Units)

Communication for forestry and wildlife extension; Methods of forestry and wildlife Extension: extension approaches; information and education; changing attitude; extension administration; Managing forestry and wildlife extension organization.

FWL 712.2 Landscape Practice (3 Units) - Elective

Importance of landscaping, elements of design selection of landscape plants, lawn making, ornamental trees and shrubs, pruning system, landscaping in homes, offices, road sides, parks, airports, etc. maintenance of techniques.

FWL 713.2 Field Study and Report Writing (3 Units)

Study visits to forestry project sites and forest-based industries.

FWL 799.2 Research Project (6 Units)

A practical research work, with orientation in forestry and wildlife management.

POSTGRADUATE PROGRAMME FOR THE DEGREE OF MASTER OF SCIENCE (M.Sc.) FORESTRY

Philosophy

To conduct outstanding researches and develop excellent human resources in the areas of Silviculture and Forest Biology, Forest Economics and Management, Wood Science, Biometrics and Measurement, Wildlife Management and Ecotourism, the Department of Forestry and Wildlife Management intends to offer postgraduate programmes leading to the award of Master of Science (M.Sc.) degree.

Mission

The mission of the programme is to train and equip students in learning and research to manage and utilize forest resources in a manner that is ecologically and environmentally sound; with high ethical conduct in line with modern conservation practices.

Objectives

The programme is designed to equip students academically for improved professional research work in forest resources and to develop capacity for biodiversity conservation.

Admission Requirement

A candidate for admission into the M.Sc. Programme must have a good Bachelor Degree in Forestry/Forest Resources Management/Wood Science or Wildlife Management. The prospective candidate must possess at least a second class (Lower Division) Bachelors' degree in Forestry/Forest Resources Management/Wood Science, Wildlife Management or Agriculture, and other equivalent fields earned from any University recognized by the Senate of the University of Port Harcourt. Candidates must have full ordinary level certificate with a credit level pass in English Language. In exceptional cases, candidates with Bachelor's degree in Environmental/Biological Science or related field who meet the above stated requirements, but have minimal deficiencies in Forestry, may be admitted. Such deficiencies through approved courses recommended by the Departmental Board of Postgraduate Studies will be remedied.

Areas of Specialization

- i. Silviculture and Forest Biology
- ii. Forest Economics and Management
- iii. Biometrics and Measurement
- iv. Wood Science

Programme Duration: A minimum of three semesters and maximum of six semesters are required to complete the full-time programme.

M.Sc. Forestry (Silviculture and Forest Biology)

FIRST SEMESTER

General (Compulsory) courses

Course Code	Course Title	Units
SGS 801.1	ICT and Research Method	2
FWL 801.1	Ecological Principles for Economic Development	3
FWL 802.1	Principles and strategies of Environmental Impact Assessment	3
FWL 803.1	Statistical Techniques in Renewable Resources Mgt.	3
FWL 804.1	Research Methodology	3
Core courses		
FWL 805.1	Advanced Silviculture	2
FWL 806.1	Forest Nutrient Relations	2
FWL 807.1	Advanced Landscaping	2 (E)
FWL 808.1	Forests in Environmental Protection	2
Total		22

SECOND SEMESTER

SGS 801.2	Entrepreneurship and Management	2
FWL 809.2	Seminar	1
FWL 810.2	Biotechnology	2
FWL 811.2	Advanced Forest Genetics	2
FWL 812.2	Quantitative Plant Ecology	2
FWL 813.2	Agroforestry: Concept, systems and practices	2
FWL 814.2	Forest Micro Meteorology and Hydrology	2 (E)
FWL 898.2	Field Trip and Report Writing	2
FWL 899.2	Research Dissertation	6
Total		21

M.Sc. Forestry (Forest Economics and Management)

FIRST SEMESTER

General (Compulsory) courses

Course Code	Course Title	Units
SGS 801.1	ICT and Research Method	2
FWL 801.1	Ecological Principles for Economic Development	3

FWL 802.1	Principles and strategies of Environmental Impact Assessment	3 (E)
FWL 803.1	Statistical Techniques in Renewable Resources Mgt.	3
FWL 804.1	Research Methodology	3
Core Courses		
FWL 815.1	Social forestry	3
FWL 816.1	Advanced Forest Policy Law and Administration	3
FWL 817.1	Advanced Urban Forestry	2
Total		19

SECOND SEMESTER

SGS 802.2	Entrepreneurship and Management	2
FWL 818.2	Advanced Forest Management	2
FWL 819.2	Advanced Marketing	1(E)
FWL 820.2	Advanced Forest Resources Economics	2
FWL 821.2	Valuation of Forest Resources & Project	2
FWL 822.2	Economic Analysis & Control of Forest Operation	1(E)
FWL 823.2	Forest Enterprises Development	2
FWL 809.2	Seminar	1
FWL 898.2	Field Trip and Report Writing	2
FWL 899.2	Research Dissertation	10
Total		23

M.Sc. Forestry (Biometrics and Measurement)
FIRST SEMESTER

General (Compulsory) courses		
Course Code	Course Title	Units
SGS 801.1	ICT and Research Method	2
FWL 802.1	Principles and strategies of Environmental Impact Assessment	3
FWL 803.1	Statistical Techniques in Renewable Resources Management	3
FWL 804.1	Research Methodology	3
Core Courses		
FWL 824.1	Advanced Mensuration and Modelling	3
FWL 825.1	Remote Sensing /GIS Applications in Forest Resources Management	3

FWL 826.1	Advanced Sampling Techniques	3
Total		20

SECOND SEMESTER

SGS 801.2	Entrepreneurship and Management	2
FWL 827.2	Advance Resources Inventory Analysis	3
FWL 828.2	Multivariate Analysis	3(E)
FWL 829.2	Advanced Experimental Designs	3
FWL 809.2	Seminar	1
FWL 898.2	Field Trip and Report Writing	2
FWL 899.2	Research Dissertation	10
Total		21

M.Sc. Forestry (Wood Science)
FIRST SEMESTER
General (Compulsory) courses

Course Code	Course Title	Units
SGS 801.1	ICT and Research Method	2
FWL 802.1	Principles and strategies of Environmental Impact Assessment	3 (E)
FWL 803.1	Statistical Techniques in Renewable Resources Management	3
FWL 804.1	Research Methodology	3
Core Courses		
FWL 830.1	Anatomy and Properties of Wood	3
FWL 831.1	Wood quality	3
FWL 832.1	Wood in Relation to Moisture	2(E)
FWL 833.1	Advanced Mechanical Wood Processing	3
Total		17

SECOND SEMESTER

SGS 801.2	Entrepreneurship and Management	2
FWL 834.2	Wood Degradation and Protection	3
FWL 835.2	Advanced Forest Operations	3
FWL 836.2	Pulp and Paper Production	2
FWL 837.2	Adhesion and wood products	1(E)
FWL 809.2	Seminar	1
FWL 898.2	Field Trip and Report Writing	2

FWL 899.2	Research Dissertation	10
Total		23

COURSE DESCRIPTION

FWL 801.1 Ecological Principles for Economic Development (3 Units)

Development and environment; advanced analyses of ecological processes in natural ecosystems; energy production and productivity estimates in the ecosystem. Relationship between farming systems and the environment; ecological services and forest resources for sustainable economic development.

FWL 802.1 Principles and Strategies of Environmental Impact Assessment (3 Units)

Concepts and objectives of EIA; Principles and theory of environmental impact assessment and statements of impacts required by law, sources and means of obtaining authoritative information. Development of Environmental Impact Statement, structure and basic contents; project rating; adequacy of documents, communication of Impact statements; review of documents. Sources of impact; Project activities and actions. Linking impacts to system intervention – direct and indirect, Impact and their key considerations; E.I.A. procedure and Problems Associated with EIA and how to overcome them. Methods of evaluating and analyzing ecosystems for environmental management applications.

FWL 803.1. Statistical Techniques in Renewable Resources Management (3 Units)

Basic parametric and non-parametric statistics; probability theory; common experimental designs (CRD, RCBD, Latin-Square, Factorial Experiments and Split plot); Correlation and regression analyses. Analysis of covariance (ANCOVA).

FWL 804.1 Research Method (3 Units)

Principles, philosophy and types of scientific research; planning and conducting research; data collection strategies and analysis; forest project planning, administration, monitoring and evaluation; common ethical issues in research; scientific report writing and research funding.

FWL 805.1 Advanced Silviculture (2 Units)

Tree growth and development, regeneration methods: natural/ artificial, thinning, multiplication methods, tending techniques and cutting methods. Current issues covering the broad areas of Silviculture

FWL 806.1 Forest Nutrient Relations (2 Units)

Mineral nutrient cycling; gains and losses of mineral nutrient in systems; topics and the mineral nutrition of trees; maintenance of soil fertility

FWL 807.1 Advanced Landscaping (2 Units)

Relationship between land aesthetics and environmental concerns. Identification and use of plant materials for environmental aesthetics; use and maintenance of urban trees including ecological basis for their selection and planting, production, maintenance and management.

FWL 808.1 Forests in Environmental Protection (2 Units)

Features and ecological components of forests with emphasis on tropical rainforest, biological mechanism for controlling environmental menace e.g. erosion, flood, desertification, the phenomena of atmosphere purification and climate amelioration by the forest. Pest and Diseases.

FWL 809.2 Seminar (2 Units)

Students are to present seminars in their areas of specialization and assessed accordingly

FWL 810.2 Biotechnology (2 Units)

Principles and management techniques of biotechnology. Issues and scope of environmental biotechnology. Genetic engineering practices. Biotechnology in biodiversity conservation. Genetically modified organisms (GMOs). The goals of bio-safety. Moral and legal implications of genetically modified products.

FWL 811.2 Advanced Forest Genetics (2 Units)

Current issues covering the broad areas of forest genetics

FWL 812.2 Quantitative Plant Ecology (2 Units)

Methods of vegetation assessment and description, Computation of species frequency, measurement of species abundance, cover, importance value, alpha and beta diversities, etc.

FWL 813.2 Agroforestry: Concepts, systems and practices (2 Units)

Definitions of agroforestry components (Viz: woody perennials; agronomic crops; animals); system sustainability; multidisciplinary. Identification of agroforestry systems. Criteria for Agroforestry system classification (Viz: - structural criteria; functional criteria; socio-economic criteria Agroforestry system performance and management. Identification/ classification of agroforestry practices; e.g. taungya, multilayer tree gardens; multipurpose tree on farmlands; crop; combination role of trees in soil conservation.

FWL 814.2 Forest Micro Meteorology and Hydrology (2 Units)

Physical processes of the atmosphere as they relate to the exchange of energy and moisture; the components of the water budget exudation in relation to watershed management.

FWL 815.1 Social Forestry (3 Units)

The involvement of socio-cultural groups such as religious organizations, schools, NGOs, CBOs and traditional institutions in forest resources conservation Eco-Development practices; application of indigenous/traditional knowledge in sustainable forest management. Utilisation patterns of forest resources in specific socio-cultural settings and their effects on forests conservation. Establishment and management of community nurseries and woodlots. Tenure (ownership) issues in forest resources: legal and policy implications. Self-employment in forestry. Ethical standards in exploitation and urbanization of forest resources.

FWL 816.1 Advanced Forest Administration and Policy (3 Units)

Theoretical concepts in forest resources policy making and administration; their application in the analyses and appraisal of alternative government strategies for regulating use of resources. Case studies of Forest Administration and Policy challenges in African Countries.

FWL 817.2 Advanced Urban Forestry (2 Units)

Concepts relevant to increasing use of natural environments for leisure needs; identification, functions and ecological basis for selecting, planting and management of urban trees, protection, maintenance and utilization; interaction of urban trees with the environment. A case study if urban forestry structure.

FWL 818.2 Advanced Forest Resources Management (2 Units)

Principles and practice of forest resources management; case studies of forest management challenges in specific forest resources and multiple use forests as applicable in public forests.

FWL 819.2 Advanced Forest Products Marketing (2 Units)

Forest product identification; Analysis of forest product market system; Types of market and implications on marketing of forest product; Government policies and forest product marketing; Pricing mechanism for forest products; Strategies for forest product market development and impacts on job creation/poverty reduction; Planning marketing programmes; Marketing information system in forestry; Analyses of forest products marketing problems; and International

conventions and their impacts on forest products marketing.

FWL 820.2 Advanced Forest Resource Economics (2 Units)

Advanced lessons on forest resources decisions, allocation of resources and use of produce; analysis of challenges of forest products marketing, and solutions.

FOR 821.2 Valuation of Forests Resources and Projects (2 Units)

Theory of valuation and application to forest, land, timber stand, stumpage and non-market goods; project appraisal methods and application to forestry; problems in project appraisals in development countries.

FWL 822.2 Economic Analysis and Control of Forestry Operation (2 Units)

Model building techniques; production theory; simple maximization models-marginal analysis, break even analysis; constrained maximization models Lagrangian multiplier, linear programming, simulation, inventory control, costing.

FWL 823.2 Forestry Enterprises Development (2 Units)

Classifications of Forest enterprises, forest enterprises-entrepreneurship nexus; establishment of small scale forest based enterprises with practical examples from Nigeria.

FWL 824.1. Advanced Mensuration and Modelling (3 Units)

Units and scale of measurement; measurement of tree growth variables; growth and yield increment of individual trees and stands; concept of stand structure and site quality assessment ; growth and yield modeling and prediction; matrix algebra for predictive yield and growth models.

FWL 825.1. Remote Sensing /GIS Applications Resources Management (3 Units)

Remote sensing; biophysical consideration; the aerial camera and film-filter combinations; geometrical characteristics of serial photographs; thermal characteristics of aerial photo-graphs; thermal scanning, SLAR, remote sensing by satellites; GIS Applications to forest resources management.

FWL 826.1 Advanced Sampling Techniques (3 Units)

Application of specialized sampling techniques in natural resources studies, holistic view of pertinent probability and non-probability sampling techniques.

FWL 827.2 Advance Resources Inventory Analysis (3 Units)

Manual and electronic data processing, application common software for inventory data analysis, introduction to computer programming for forestry and wildlife applications.

FWL 828.2 Multivariate Analysis (3 Units)

Common multivariate statistical distributions; component analysis; factor analysis, canonical analysis; discriminant analysis; multiple regression; path analysis and multiple analysis of variance (MANOVA) with special consideration of SAS, Strata and SPSS.

FWL 829.2 Advanced Experimental Designs (3 Units)

Compounding and fractional replication in factorial experiments; incomplete block design, response surface analysis; split-split design and nested design

FWL 830.1 Anatomy and Properties of Wood (3 Units)

Advanced wood structural analysis; anomalous structure; secretory minerals; ecological anatomy and morphology chemotaxonomy; application of statistics and computing in wood anatomy; Physical, mechanical chemical and anatomical properties of wood including variation within and between trees. Classification of wood into end use categories based on micro structural analysis

FWL 831.1 Wood quality (3 Units)

Advanced anatomy and ultra structure; wood quality variations; influence of growth conditions on wood properties; factors affecting wood quality; techniques of wood quality evaluation; wood quality and end user requirements. Ways of improving wood quality.

FWL 832.1 Wood in Relation to Moisture (2 Units)

Moisture in wood; processes of moisture exchange; movement of water and vapour; advanced wood drying, Drying defects and

correction devices; preservation of wood.

FWL 833.1 Advanced Mechanical Wood Processing (3 Units)

Theory and practice of mechanical wood processing; theory of wood cutting in various operations; factors influencing cutting operations; analysis of cutting tool behaviour; Applications in major mechanical processing industries; Small diameter wood utilization, time management, energy utilization and efficiency; Lumber recovery and correlates; integrated operation in wood processing

FWL 834.2 Wood Degradation and Protection (3 Units)

Natural degradation of wood by fungi and insects, types of decay organisms, decay conditions, mechanisms and consequences, alternatives for wood protection against deterioration, chemicals used for wood preservation and techniques employed for applying wood preservatives. Challenges encountered in the use of chemical preservatives.

FWL 835.2 Advanced Forest Operations (3 Units)

Harvesting and transportation systems; labour in the preparation of plans and work study; ergonomics and economics of forest operations. Challenges in logging operations

FWL 836.2 Pulp and Paper Production (2 Units)

Manufacturing of pulp; raw materials; Principles and processes; theory, practice and processes involved in Paper manufacturing; environmental pollution, inclusive

FWL 837.2 Adhesion and wood products (2 Units)

Physical and chemical principles of adhesion; factors influencing gluing stresses in glued joints; Testing failure patterns. Application of Adhesives in major wood-based Industries.

POSTGRADUATE PROGRAMME FOR THE DEGREE OF MASTER OF SCIENCE (M.Sc.) - Wildlife and Ecotourism Management

Philosophy

To conduct outstanding researches and develop excellent human resources in the areas of Wildlife Management and Ecotourism, the Department of Forestry and Wildlife Management intends to offer postgraduate programmes leading to the award of

Master of Science (M.Sc.) degree in Wildlife and Ecotourism Management

Mission

The mission of the programme is to train and equip students in learning and research to manage and utilize forest resources in a manner that is ecologically and environmentally sound; with high ethical conduct in line with modern conservation practices.

Objectives

The programme is designed to equip student academically for improved professional research work in forest resources and to develop capacity for biodiversity conservation.

Admission Requirement

A candidate for admission into M.Sc. Programme must have a good Bachelor Degree in Forestry/Forest Resources Management/Wood Science or Wildlife Management, the prospective candidate must possess at least a second class (Lower Division) Bachelors’ degree in Forestry/Forest Resources Management/Wood Science, Wildlife Management or Agriculture, and other equivalent fields earned from any University recognized by the senate of the University of Port Harcourt. Candidates must have full ordinary level certificate with a credit level pass in English Language. In exceptional cases, candidates with Bachelor’s degree in Environmental/Biological Science or related field who meet the above stated requirements, but have minimal deficiencies in Forestry, may be admitted. Such deficiencies through approved courses recommended by the Departmental Board of Post Graduate Studies will be audited.

Programme Duration: A minimum of three semesters and maximum of six semesters are required to complete the full-time programme

M.Sc. Wildlife and Ecotourism Management

FIRST SEMESTER

General (Compulsory) courses

Course Code	Course Title	Units
SGS 801.1	ICT and Research Method	2
FWL 802.1	Principles and strategies of Environmental Impact Assessment	3
FWL 803.1	Statistical Techniques in Renewable Resources Management	3
FWL 804.1	Research Methodology	3
Core Courses		
FWL 838.1	Advanced Wildlife Management and Conservation	3 (E)
FWL 839.1	Advanced Biodiversity Science	2 (E)
FWL 840.1	Park, Zoo and Museum Design Management and Administration	3
FWL 841.1	Ecotourism	3
FWL 842.1	Participatory Management and	2

Conservation of Wildlife Resources

Total **19**

SECOND SEMESTER

SGS 801.2	Entrepreneurship and Management	2
FWL 843.2	Advanced Ranching and Domestication Techniques	2
FWL 844.2	Ecosystem Approach to Range and Tourism Management	2
FWL 845.2	Animal Ethology	1 (E)
FWL 846.2	Ornithology and Herpetology	2
FWL 847.2	Fire and wetland Ecology	2
FWL 848.2	Physiological Adaptations of Wild Animals	1(E)
FWL 809.2	Seminar	1
FWL 898.2	Field Trip and Report Writing	2
FWL 899.2	Research Dissertation	10
Total		23

COURSE DESCRIPTION

FWL 801.1 Ecological Principles for Economic Development (3 Units)

Development and environment; advanced analyses of ecological processes in natural ecosystems; energy production and productivity estimates in the ecosystem. Relationship between farming systems and the environment; ecological services and forest resources for sustainable economic development.

FWL 802.1 Principles and Strategies of Environmental Impact Assessment (3 Units)

Concepts and objectives of EIA; Principles and theory of environmental impact assessment and statements of impacts required by law, sources and means of obtaining authoritative information. Development of Environmental Impact Statement, structure and basic contents; project rating; adequacy of documents, communication of Impact statements; review of documents. Sources of impact; Project activities and actions. Linking impacts to system intervention – direct and indirect, Impact and their key considerations; E.I.A. procedure and Problems Associated with EIA and how to overcome them. Methods of evaluating and analyzing ecosystems for environmental management applications.

FWL 803.1. Statistical Techniques in Renewable Resources Management (3 Units)

Basic parametric and non-parametric statistics; probability theory; common experimental designs (CRD, RCBD, Latin-Square, Factorial Experiments and Split plot); Correlation and regression analyses. Analysis of covariance (ANCOVA).

FWL 804.1 Research Method (3 Units)

Principles, philosophy and types of scientific research; planning and conducting research; data collection strategies and analysis; forest project planning, administration, monitoring and evaluation; common ethical issues in research; scientific report writing and research funding.

FWL 809.2 Seminar (1 Units)

Students are to present seminars in their areas of specialization and will be assessed accordingly.

FWL 838.1 Advanced Wildlife Management and Conservation (3 Units)

Design, surveys and siting of conservation areas in compliance with IUCN criteria. Construction of roads, camping sites and trails, ecotourism facilities, jeep tracks; protection patrols. Management of parks, games reserves, wildlife sanctuaries, strict nature reserves, etc. Marine wildlife forms, factors affecting sustainable marine ecosystem; prospects of effective marine conservation in the tropics with emphasis on Nigeria.

FWL 839.1 Advanced Biodiversity Science (2 Units)

Principles of bioresources and environments; biodiversity monitor corridors and hotspots; global distribution of species with reference to the Amazon, Congo basin and other areas, international affiliations, co-operation research Aid Agencies, International donors and granting techniques

FWL 840.1 Park, Zoo and Museum Design Management and Administration (3 Units)

Park survey, Park resources, citing and construction of roads and tourist facilities, supervision of patrol. Environmental studies, political set-up, legislation and local institutional management. Range of grazing ecology. Zoo design and layout technique for museum. Health and Welfare requirements of wild species in captivity, principle of collecting, preserving animal specimens in museum for educational purposes.

FWL 841.1 Ecotourism (3 Units)

Definition of Tourism, Types of tourism, Concept of Ecotourism, Identification of ecotourism assets; community-based ecotourism; factors militating against the tourism industry; criteria for effective development of ecotourism in Nigeria (to include field tours, case studies), Ecotourism Resources and management; Interrelationship between Tourism and natural resources management. Ecotourism planning and development, Ecotourism and Rural development; Economic costing of tourism; Tourism global growth trend. National park zonation and utilization by tourists. Coastal tourism, Cost benefit analysis of tourism in protected areas; Gross Domestic Products (GDP) and Foreign Interest (FI) on Tourism Management, Multiplier effect of tourism management, Regulation and monitoring of Ecotourism projects.

FWL 842.2 Participatory Management and Conservation of Wildlife Resources (2 Units)

Causes of conflicts in protected areas. Conflict resolution strategies. Advanced analyses of Stakeholders in protected areas. Participation of host communities in management of protected areas and eco-developmental projects. Various ways of involving local households in management of renewable resources. Monitoring performance of host communities, Indigenous knowledge approach in resource utilization and conservation information dissemination. Ethics and moral issues in Resource conservation. Learning outreach methods in Rural Africa. Methods of changing the attitude of host communities in favour of wildlife resources conservation. Case studies of conflicts in protected areas around the globe and resolution strategies.

FWL 843.2 Advanced Game Ranching and Domestication Techniques (2 Units)

Various wildlife resources and their exploitation, uses and sustainability. Wildlife domestication and problems and prospects. Strategies for sustainable use. Captive breeding, domestication and husbandry techniques. Ranching techniques; wildlife species as a source of protein, domestication of African rodents, birds and large mammals; husbandry techniques; problems and prospects

FWL 844.2 Ecosystem Approach to Range and Tourism Management (2 Units)

The niche concept, principles, populations, communities and energy systems in a natural ecosystem. Nutrients cycling mechanisms, natural regulation of animal abundance. Wildlife adaptation to habitats; the role of prey/predators; involvement of man in biology communities; Nigerian plants and animals.

FWL 845.2 Animal Ethology (1 Unit)

Social organization; breeding seasons and social behaviour; food habits and territorialism of some principal wildlife species (Emphasis should be laid on managerial problems and solutions). Social behaviour of species such as elephant, lion and buffalo.

FWL 846.2 Ornithology and Herpetology (2 Units)

Identification, Principles of classifications, importance, ecology, distribution, biology and life history of birds, reptiles and amphibians, their migration; counts; survey and potentials.

FWL 847.2 Fire and Wetland Ecology (2 Units)

Fire and natural phenomenon and its significance in the evolution of vegetation, fire as a tool in range management; causes and control. Ecology of wetlands, structure and functions of wetland ecosystems, their importance and management. Biodiversity of wetlands with emphasis on the biology and adaptations of the organisms. Monitoring and conservation, management goals, methods and problems.

FWL 848.2 Physiological Adaptations of wild Animals (1 Unit)

Physiological adaptations of species in various habitats. Brief discussion of the physiology of growth, reproduction and lactation. Changes in body metabolites, hepatic enzymes of wild animals in captivity. Issues in physiological adaptation of animals in captivity. Adaptations.

POSTGRADUATE PROGRAMME FOR DOCTOR OF PHILOSOPHY (Ph. D.)

Philosophy

To carry out ground breaking researches and produce excellent human resources in the areas of Silviculture and Forest Biology, Forest Economics and Management, Wildlife Management and Ecotourism, Biometrics and Measurement and Wood Science. The Department of Forestry and Wildlife Management intends to offer postgraduate programmes leading to the award of Doctor of Philosophy (Ph. D) degree.

Mission

The mission of the programme is to train and equip graduate students in learning and research to manage and rationally utilize forest resources in a manner that is ecologically sustainable and environmentally friendly; with high ethical conduct in line with modern conservation best practices.

Objectives

The programme is designed to equip graduate students academically for improved professional research work in forest resources and to develop capacity for biodiversity conservation.

Admission Requirement

A candidate for admission into Ph.D. Programme must have a good Mater's Degree in Forestry/Forest Resources Management/Wood Science or Wildlife Management, with a minimum CGPA of 3.5 in the M.Sc. from the University of Port Harcourt or any other approved University. In exceptional cases, candidates with Master's degree in Environmental or Biological Science who meet

the above stated requirements, but have minimal deficiencies in Forestry, may be admitted. Such candidates will audit approved courses recommended by the Departmental Board of Studies to remedy the deficiencies. In addition, the candidate must have obtained a second class lower degree and have the matriculation requirements of the Faculty of Agriculture, University of Port Harcourt

Areas of Specialization

- i. Silviculture and Forest Biology
- ii. Forest Economics and Management
- iii. Wildlife Management and Ecotourism
- iv. Biometrics and Measurement
- v. Wood Science

Duration of Study

A minimum of six semesters and maximum of ten semesters are required to complete the full-time programme

Degree Requirements

To qualify for the award of the Ph.D in any of the above stated areas of specialization, a minimum of six semesters of full-time graduate work is required. The programme involves an intensive independent research work and submission of a thesis. In addition, candidates will be expected to take some approved courses recommended by the Departmental Postgraduate Board of Studies.

Ph.D. Silviculture and Forest Biology

FIRST SEMESTER

Course Code	Course Title	Units
FWL 901.1	Scientific Writing	3

FWL 902.1	Advanced Agroforestry System	3
FWL 903.1	Ecological Interactions in Agroforestry	3
FWL 904.1	Mineral Cycling and Vegetation Productivity	3
Total		12

SECOND SEMESTER

FWL 905.2	Topical Issues in Forest and Wildlife Resources Management	3
FWL 906.2	Field Course	1
FWL 907.2	Advanced Forest Protection	2 (E)
FWL 908.2	Forest Watershed Management	2 (E)
FWL 999.2	Thesis	16
Total		20

Ph.D. Forest Economics and Management

FIRST SEMESTER

Course Code	Course Title	Units
FWL 901.1	Scientific Report Writing	3
FWL 909.1	Indigenous Conservation Techniques	3
FWL 910.1	Economics of Forest Services	3 (E)
FWL 911.1	International Trade in Forest and Wildlife Products	3
FWL 912.1	Applied Forest Resources Management	3(E)
Total		9

SECOND SEMESTER

FWL 905.2	Topical Issues in Forest and Wildlife Resources Management	3
FWL 906.2	Field Course	1
FWL 913.2	Organization and Management of Wood Based Industries	3(E)
FWL 914.2	Advanced Conservation and production of Non-Timber Forest Products	3
FWL 915.2	Economic Analysis of Agroforestry projects	3(E)
FWL 999.2	Thesis	16
Total		23

Ph.D. Wildlife Management and Ecotourism

FIRST SEMESTER

Course Code	Course Title	Units
FWL 901.1	Scientific Report Writing	3
FWL 916.1	Biodiversity Conservation and Ecotourism	3
FWL 917.1	Indigenous Wildlife Conservation Approaches and Coastal Tourism	3 (E)
FWL 918.1	Herpetology and Primatology	3 (E)
Total		6

SECOND SEMESTER

FWL 905.2	Topical Issues in Forest and Wildlife Resources Management	3
FWL 906.2	Field Course	1
FWL 911.2	International trade in Forest and Wildlife Products	1 (E)
FWL 919.2	Conservation of Migratory and Marine Wildlife Resources	1 (E)
FWL 920.2	Wildlife Habitat Analysis and Anti-Poaching Strategies	2
FWL 999.2	Thesis	16
Total		22

Ph.D. Biometrics and Measurement

FIRST SEMESTER

Course Code	Course Title	Units
FWL 901.1	Scientific Report Writing	3
FWL 921.1	Forest System and Information Analysis	3
FWL 922.1	Ecological modeling and Programming	3
FWL 923.1	Advanced Biometrics	3
Total		12

SECOND SEMESTER

FWL 905.2	Topical Issues in Forest and Wildlife Resources Management	3
FWL 906.2	Field Course	1
FWL 924.2	Optimization Models in Forest Resources Management	3 (E)
FWL 999.2	Thesis	16
Total		20

Ph.D. Wood Science

FIRST SEMESTER

General (Compulsory) courses

Course Code	Course Title	Units
FWL 901.1	Scientific Report Writing	3
FWL 913.2	Organization and Management of Wood Based Industries	3
FWL 925.1	Wood Energy Development	3(E)
FWL 926.1	Ecology and Management of Wood in Nigeria	3(E)
FWL 927.1	Wood Craftsmanship	2
Total		8

SECOND SEMESTER

FWL 905.2	Topical Issues in Forest and Wildlife Resources Management	3
FWL 906.2	Field Course	1
FWL 913.2	Organization and Management of Wood Based Industries	2(E)
FWL 928.2	Advanced Wood Anatomy and Properties	2
FWL 929.2	Advanced Wood Machinery and Saw-Milling	2 (E)
FWL 999.2	Thesis	16
Total		22

COURSE SYNOPSES

FWL 901.1 Scientific Report (3 Units)

Processes in writing journal papers, conference papers and proposal for grants, Ethical issues in report writings.

FWL 902.1 Advanced Agroforestry system (3 Units)

Agroforestry systems, designs and practices- alley farming, farm trees, shelterbelts, homegardens (agrisilvisculture, silvopastoral, agrosilvopastoral). Case studies. Ethno-agroforestry.

FWL 903.1 Ecological Interactions in Agroforestry (3 Units)

Agroforestry systems. Indigenous environmental knowledge in the formulation of sustainable agroforestry systems. Interactions between species, interactions of limited resources, classification of interactions in agroforestry. Key issues in agroforestry; overyielding, reduction in yield variance, maintenance of resources.

FWL 904.1 Mineral Cycling and Vegetation Productivity (3 Units)

Review of principles and processes of biomass production, accumulation and biogeochemical cycling as affected by environmental conditions; measurement and analysis of production.

FWL 905.2 Topical Issues in Forest resources Management (3 Units)

Special investigation and analysis of forest resources management problems arising from multiple use of forestlands e.g. agro forestry, management of natural forests, plantation establishment, forest revenue sources, pricing and ethics. Emphasis should be placed on identification and application of relevant concepts and theories to specific forest resources problems with proposals for investigating and solving such problems.

FWL 906.2 Field Course (1 Units)

Students are expected to visit places of significant importance to their field of study and submit a report.

FWL 907.2 Advanced Forest Protection (2 Units)

Principles and concepts of forest plants protection. Survey of major pests and diseases of plants: ornamental plants, vegetable crops, fruit trees, forest trees and their control, with emphasis on Nigerian species and prevailing cases (should entail field laboratory studies on diagnosis and infection biology).

FWL 908.2 Forest Watershed management (2 Units)

Role of forest in water cycle, effects of logging, mining and other forest land uses on water resources

FWL 909.1 Indigenous conservation techniques (3 Units)

Importance of tradition/culture in the development of forests and environment. Sacred forests and indigenous management practices. Roles of culture (taboos and totems) in conservation of plants and animals. Application of indigenous technical knowledge in sustainable management of forests. Effects of demographic characteristics and traditional land use practices on forests conservation programmes. Impacts of religion on environmental conservation

FWL 910.1 Economics of Forest Services (3 Units)

Theories of valuation and application to forest services; cost analysis of forest services; measurement of regional impacts, (should include

group studies and student reports on the economic aspects of erosion control and outdoor recreation).

FWL 911.1 International Trade in Forest and Wildlife Products (1 Unit)

Theory of international trade; items of trade, e.g timber and related products, wildlife and related products; trade growth; commercial policy; analysis of marketing problems (should include group discussions).

FWL 912.1 Applied Forest Resources management (3 Units)

Principles and practices of forest resources management as applied to specific forest properties. Field studies of forest conditions, organizations, operation and problems to acquaint students with the latest and most efficient forest management practices in office and forest.

FWL 913.2 Organization and Management of Wood Based Industries (1 Unit)

Application of communication theories in wood manufacturing industries. General modern human resources management techniques e.g. motivation theory, personnel safety, etc. analysis of production management as applied to wood-based industries.

FWL 914.2 Advanced Conservation and production of Non-Timber Forest products (3 Units)

Importance of non-timber forest products (NTFPs) such as canes (Rattans) medicinal plants, dyes, silk, Chemical and extractives, gum Arabic and tannin. Some wildlife products. Processing of forest food plant species for production. Edible land snails and mushroom production. Management of apiculture in integrated agroforestry systems.

FWL 915.2 Economic Analysis of Agroforestry project (3 Units)

Farmers expectation from adoption of agroforestry; measurement of costs and benefits in agroforestry; some tools for determining costs and benefit of agroforestry models; rates of returns on investments; decision making through multi-valued choices; models for time adjustment of costs and revenues.

FWL 916.1 Biodiversity Conservation and Ecotourism (3 Units)

Identification of eco-tourism assets; Ecotourism assets in different parts of Nigeria; community-based eco-tourism; Management of ecotourism destinations; current state of ecotourism in Nigeria; factors militating against the tourism industry; criteria for effective development of ecotourism in Nigeria.

FWL 917.1 Indigenous wildlife conservation approaches and Coastal Tourism (3 Units)

The role of tradition/culture on the development of forests and environment and maintenance of wildlife habitats. Sacred forests and their management practices. Conservation functions of culture (taboos and totems) on plants and animals. Capturing indigenous technical knowledge for the sustainable management of forests and wildlife species. Effects of demographic characteristics and traditional land use practices on forests conservation programmes. Impacts of religion on environmental conservation. Tourism in coastal areas; Modes of operation, development and marketing. Growth and Challenges of tourism in coastal areas (Emphasis should be in Niger Delta region).

FWL 918 Herpetology and Primatology (3 Units)

Principles for classifying amphibians and reptiles; social and organizational structure, distribution, migration and population ecology of amphibians and reptiles; life history of frogs, toads and snakes. Herpetofauna and environmental monitoring; safety and community health, with introduction to anti-venom therapy. Principles for classification of primates; organizational structure distribution and ecology; migration and life history of primates.

FWL 919.2 Conservation of Migratory and Marine Wildlife Resources (1 Unit)

Marine wildlife forms, factors affecting sustainable marine ecosystem; prospects of effective marine conservation in the tropics with emphasis on Nigeria. Review of international conventions on biodiversity conservation and trade in endangered species. Essence of migratory species in conservation; species and habitats involved; biological and ecological basis for migratory behaviour and its value in the natural ecosystem balance. The Nigerian experience and efforts aimed at migratory species conservation.

FWL 920.2 Wildlife Habitat Analysis and Anti-Poaching Strategies (2 Units)

Animal evolution and ecological succession, climax vegetation and associated wildlife forms, wildlife habitat types and research approaches. Different forms of poaching in protected areas. Consequences of poaching in protected areas. Strategies for controlling poachings. Causes of poaching.

FWL 921.1 Forest system and information analysis (3 Units)

Advanced forest inventory, evaluation and monitoring for future forest development patterns and flow of benefits

FWL 922.1 Ecological modeling and programming (3 Units)

Application of the principle of linear and goal programming in decision making, Advance approach to ecological models in solving current issues in forestry

FWL 923.1 Advanced Biometrics (3 Units)

Computer programming and more advanced topics on multivariate analysis

FWL 924.2 Optimisation Models in Forest Resources Management (3 Units)

Application of quantitative methods in forestry and wildlife management, management planning models, operation research

FWL 925.1 Wood Energy Development (3 Units)

Conversion of wood into energy, processing methods, determination of calorific values and other properties, comparison of different biofuels, environmental aspects, emissions.

FWL 926.1 Ecology and Management of Wood in Nigeria (3 Units)

Knowledge about wood in external and internal environmental conditions, Interaction of biotic and abiotic factors with wood under indoor and outdoor applications, Role of wood in ecosystem management

FWL 927.1 Wood Craftsmanship (2 Units)

Skills acquisition in; carving, turning, weaving and joinery.

FWL 928.2 Advanced wood anatomy and properties (2 Units)

Growth in trees. Primary and secondary growth of trees and their derivations. Anatomy and division of cambium. Formation of normal wood. Cell development in cambium; division of the vascular cambium to produce xylem and phloem. Formation of heartwood, growth rings in monocotyledonous and dicotyledonous trees.

FWL 929.2 Advanced wood Machinery and Sawmilling (2 Units)

Small, medium and larger-scale sawmills. Sawmill machines. Movement of lumber yield and sawmilling waste. Lumber grading. Methods of seasoning sawn timber. Utilization of timber waste. Saw milling industries as sources of environmental pollution. Saw doctoring. Advanced concepts on theory of wood cutting. Waste collection and its equipment. Pollution and methods of control. Working principles of wood processing machines, cinematic diagrams and working parameters determination e.g. cutting spade, feeding speed, etc. automation and mechanization of wood products transportation in production lines. Essential and elements of wood manufacturing flow processes.

ACADEMIC STAFF LIST

S/No.	Name	Rank	Qualifications	Specialization
1	Dr U.D. Chima	Reader/Ag. HoD	B.For (Makurdi); MF, PhD (Abeokuta)	Forest Ecology and Conservation

2	Prof. A.A. Aiyeloja	Professor	NCE (Ilesa); B.Agric (Benin); M.Sc, PhD (Ibadan)	Forest Economics and Management. Forest Enterprises Development
3	Prof. G.E. Omokhua	Professor	B.Sc (RSUST); M.Sc (Ibadan); PhD (RSUST)	Silviculture and Tree Improvement
4	Prof. H.M. Ijeomah	Professor	DPA, B.Agric (Uyo); M.Sc, (IMSU); MSc, PhD (Ibadan)	Biodiversity Utilization, Wildlife Management and Ecotourism
5	Prof. S.L. Larinde	Professor	OND, B.Sc, M.Sc, PhD (Ibadan)	Forest Economics and Management, Forest Industry development
6	Prof. B.A. Oyebade	Professor	B.Agric Tech (Akure); MSc, PhD (Ibadan)	Forest Biometrics and Measurement
7	Prof. A.T. Oladele	Professor	B.Sc, M.Sc, PhD (Ibadan)	Forest Economics and Management (Forest Taxonomy and NTFPs utilization)
8	Dr. S.S. Odunlami	Senior Lecturer	B.Sc, M.Sc, PhD (Ibadan), MSc (Netherlands)	Wildlife Management, Biodiversity Conservation and Tourism
9	Dr F.S. Eguakun	Senior Lecturer	B.Agric (UniBen), M.Sc, PhD (Ibadan)	Forest Biometrics and Measurement
10	Dr G.A. Adedeji	Senior Lecturer	NCE (Ijebu-Ode), B.Sc, M.Sc, PhD (Ibadan)	Wood and Fibre Science, Wood Utilization
11	Ms. E.A.U. Ofodile	Research Fellow I	B.Sc (UNN), M.Sc (Ibadan)	Agroforestry and Forest Biology
12	Dr C. Fredrick	Lecturer I	B.Sc (UniPort), M.Sc (Kenya) PhD (RSU)	Research Methodology, Silviculture and Forest Biology
13	Mr A. Amininim	Lecturer I	BFor & Wild (UPH), MSc (Ibadan)	Silviculture and Forest Biology
14	Dr O.D. Efenakpo	Lecturer I	B.Sc (UniPort), M.Sc, PhD (Ibadan)	Wildlife Management and Herpetology
15	Ms Q. Aguma	Lecturer II	B.Sc (UniPort), M.Sc (Ibadan)	Wood and Fibre Science
16	Mr O.P. Choko	Assistant Lecturer	B.Sc, M.Sc (UniPort)	Forest Economics and Management
S/No.	Name	Rank	Qualifications	Specialization
1	Dr U.D. Chima	Reader/Ag. HoD	B.For (Makurdi); MF, PhD (Abeokuta)	Forest Ecology and Conservation
2	Prof. A.A. Aiyeloja	Professor	NCE (Ilesa); B.Agric (Benin); M.Sc, PhD (Ibadan)	Forest Economics and Management. Forest Enterprises Development
3	Prof. G.E. Omokhua	Professor	B.Sc (RSUST); M.Sc (Ibadan); PhD (RSUST)	Silviculture and Tree Improvement
4	Prof. H.M. Ijeomah	Professor	DPA, B.Agric (Uyo); M.Sc, (IMSU); MSc, PhD (Ibadan)	Biodiversity Utilization, Wildlife Management and Ecotourism
5	Prof. S.L. Larinde	Professor	OND, B.Sc, M.Sc, PhD (Ibadan)	Forest Economics and Management, Forest Industry development

6	Prof. B.A. Oyebade	Professor	B.Agric Tech (Akure); MSc, PhD (Ibadan)	Forest Biometrics and Measurement
7	Prof. A.T. Oladele	Professor	B.Sc, M.Sc, PhD (Ibadan)	Forest Economics and Management (Forest Taxonomy and NTFPs utilization)
8	Dr. S.S. Odunlami	Senior Lecturer	B.Sc, M.Sc, PhD (Ibadan), MSc (Netherlands)	Wildlife Management, Biodiversity Conservation and Tourism
9	Dr F.S. Eguakun	Senior Lecturer	B.Agric (UniBen), M.Sc, PhD (Ibadan)	Forest Biometrics and Measurement
10	Dr G.A. Adedeji	Senior Lecturer	NCE (Ijebu-Ode), B.Sc, M.Sc, PhD (Ibadan)	Wood and Fibre Science, Wood Utilization
11	Ms. E.A.U. Ofodile	Research Fellow I	B.Sc (UNN), M.Sc (Ibadan)	Agroforestry and Forest Biology
12	Dr C. Fredrick	Lecturer I	B.Sc (UniPort), M.Sc (Kenya) PhD (RSU)	Research Methodology, Silviculture and Forest Biology
13	Mr A. Amininim	Lecturer I	BFor & Wild (UPH), MSc (Ibadan)	Silviculture and Forest Biology
14	Dr O.D. Efenakpo	Lecturer I	B.Sc (UniPort), M.Sc, PhD (Ibadan)	Wildlife Management and Herpetology
15	Ms Q. Aguma	Lecturer II	B.Sc (UniPort), M.Sc (Ibadan)	Wood and Fibre Science
16	Mr O.P. Choko	Assistant Lecturer	B.Sc, M.Sc (UniPort)	Forest Economics and Management

DEPARTMENT OF ANIMAL SCIENCE

POSTGRADUATE DIPLOMA IN ANIMAL SCIENCE

INTRODUCTION/PREAMBLE

The Faculty of Agriculture with its diverse disciplines was created about fifteen (15) years ago (2005), with mandates to produce high level manpower needed for achieving food sufficiency and related activities. The Department of Animal Science, as an intrinsic component of the Faculty, addresses the vital aspects of manpower development through teaching, research and extension with the aim of improving the Animal Industry and contributing to food security.

i. Philosophy

The philosophy of the postgraduate diploma (PGD) in Animal Science is to provide postgraduate training for Bachelor of Science (B.Sc) /Bachelor of Agric (B.Agric) and Higher National Diploma (HND) graduates in Animal Science, professionals in related disciplines acceptable to the department, who otherwise would not qualify for admission into the Masters Degree Programmes in the Department. The purpose is to develop skilled manpower for the agricultural and relevant sectors of the economy.

ii. Vision

To produce world class graduates in the discipline targeted at actualizing the ideals of higher education in shaping the perception, thinking, emotional and intellectual dimensions and capacity of the graduates. The candidate will, therefore, be adequately armed with requisite intuition and originality of thought to achieve the extension of the frontiers of knowledge in the Animal Science discipline.

iii. Mission

The programme is designed to address the training needs of the personnel who will address the extant problems of animal malnutrition along with many other challenges impacting the Animal Production Industry in Nigeria. The coursework and research-based training are to guide the candidates in developing appropriate academic skills needed to delve into the unknown to seek and elicit suitable and befitting responses to the various questions encountered in the animal production process.

iv. Rational/Justification

The animal production industry in Nigeria is confronted with a maze of production puzzles militating against the effective discharge of its mandates. Among these are high cost of production (caused mainly by high cost of feeds), alternative feed resources, policy instability,

animal welfare, production environment and poor genetic stock. The postgraduate programmes are designed to address these challenges, through the provision of clear understanding and appreciation of the implications of such problems.

v. Aim

To train Animal Scientists that will be competent in all aspects of their job as it relates to the Animal industry.

vi. Programme Objectives

- To provide advanced professional training in Animal Science/Animal Production for industry personnel, public service or self-employment with relevant skills and knowledge in basic and applied Animal Science and related aspects of the discipline.
- To offer opportunity for the acquisition of appropriate skills in the conduct of supervised research for seminar and workshop presentations as well as preparing a research project.

viii. Admission Requirements

Generally, candidates seeking admission into graduate programmes in Animal Science in the University of Port Harcourt shall, normally, be graduates of the University or any other similar Institutions recognized by the University for the purposes. They must possess a first degree, preferably, Bachelor of Agriculture (B.Agric, Animal Science option), Bachelor of Science (B.Sc, Animal Science) or in a related area. The degrees must, ordinarily, be registrable with the Nigerian Institute of Animal Science (NIAS).

To qualify for admission into the Postgraduate Diploma programme, a candidate must satisfy the following requirements:

- i. Matriculation requirements for admission into the Animal Science programme for the University of Port Harcourt including credits in Mathematics, English Language, Chemistry, Biology or Agricultural Science and any one of Physics, Economics or Geography at not more than two sittings.
- ii. Minimum of 3rd Class honours degree in Animal Science/Animal Production or related discipline
- iii. Pass degree in Animal Science/Animal Production with a minimum of 5 years cognate post-qualification experience in a managerial position in an Animal Science or related establishment
- iv. HND (Upper Credit) in Animal Science/Animal Production or HND (Lower Credit) with 5 years cognate post-qualification experience.

vm. Programme Duration

The PGD programme is full-time with a minimum duration of two (2) semesters and a maximum of four (4) semesters

iv. Graduation Requirements

To be awarded the PGD in Animal Science, the student is expected to pass the prescribed courses and defend the research project.

Prescribed Courses, Codes and Credit Units

First Semester

Course Code	Course Title	Credit Units
ANS 701.1	Computer Application in Animal Production	3
ANS 702.1	Livestock Farming Systems	3
ANS 703.1	Applied Animal Physiology	3
ANS 704.1	Applied Animal Breeding	3
ANS 705.1	Forage Science	3
ANS 706.1	Applied Animal Nutrition	3
ANS 707.1	Statistics and Research Techniques in Animal Science	3
Total		21

Second Semester

Course Code	Course Title	Credit Units
ANS 708.2	Micro Livestock Production	3
ANS 709.2	Non-Ruminant Animal Production	3
ANS 710.2	Ruminant Animal Production	3
ANS 711.2	Entrepreneurship and Management in Animal Science	3
ANS 700.2	Special Topics! Seminar	2
ANS 799.2	Project	6
Total		20

**Given 6 Units as specified in the NUC minimum benchmark for PGD in Animal Science (and Agriculture in general)*

COURSE DESCRIPTION

ANS 701.1 Computer Application in Animal Production 3 Units

Introduction to the computer; Hardware, Software, Peripherals, Operating Systems. Microsoft Office Suite. Statistical and Database Packages. Introduction to the Internet: Wired LAN, Wireless

LAN, Browsers, Virtual Libraries. Other on-line Resources and their uses. Livestock Farm Management Software. World trade in Animal Products and Services.

ANS 702.1 Livestock Farming Systems 3 Units

Analysis of Livestock Production Systems for different non-ruminant and ruminant animal species. Mixed Crop-Livestock Production Systems and Technologies. Appropriate enterprise mix in livestock production. Management of livestock farms. Regional policy levels. Traditional Technologies in Animal Production.

ANS 703.1 Applied Animal Physiology 3 Units

Haematology and blood biochemistry. Oestrus detection and synchronization. Artificial insemination. Pregnancy diagnosis. Introduction to embryo transfer. Principles of controlled breeding.

ANS 704.1 Applied Animal Breeding 3 Units

Characters of concern to the animal breeder. Variation and co-variation. Statistical tools for studying inheritance, genetic parameters and their estimation. Selection principles and methods. Breeding systems. Foundation stock establishment. Lethality.

ANS 705.1 Forage Science 3 Units

Pasture productivity indices; herbage yield measurement. Quality indices and evaluation techniques; measuring dry matter yields of shrubs and trees used as forage. Range ecology, range conditions, rangeland productivity, rangeland resources; influence of man on rangeland productivity. Forage conservation methods, problems and methods of enhancing feed quality in the dry season, Intensive feed garden, fodder bank and their uses. Strategic utilization of pasture, forage conservation and agro-industrial by-products.

ANS 706.1 Applied Animal Nutrition 3 Units

Feed nutrients. Water in relation to nutrition. Nutrient requirements and feeding standards. Feed formulation. Measurement of nutrient utilization; growth trials, digestion trials, balance trial, rumen digestion techniques. Microbiology of the rumen, physiology of rumen action. Non-protein nitrogen (NPN) utilization. Nutritional disorders.

ANS 707. 1 Statistics and Research Techniques in Animal Science 3 Units

Summary of statistical data; mean, variance, standard deviation, coefficient of variation. Presentation of data; tabulation, graphs. Attributes of population and samples. Sampling techniques. Experimental designs. Analysis of data; analysis of variance, F- and t-tests; correlation and regression, Techniques for studying physiology of

reproduction and nutritive value of feeds. Instrumentation in nutrition research.

ANS 708.2 Micro-Livestock Production 3 Units

Definition and scope of micro-livestock (including other lesser known species) production. Development of micro-livestock industries in Nigeria. Benefits of micro-livestock, Description of breeds of rabbits and other micro-livestock (like snail; quail; grasscutter; guinea pig). Feeding, management, breeding, housing, healthcare. Housing and equipment. Record keeping. Establishing and managing commercial micro-livestock enterprises, processing and marketing.

ANS 709.2 Non-Ruminant Animal Production 3 Units

The poultry and pig industries in Nigeria: Problems and prospects. Production systems for poultry and pigs. Breeds of poultry and pigs and their performance. Breeding, feeding and general management of animals of different ages. Building and equipment. Diseases and disease control. Incubation and hatchery management for poultry. Record keeping, judging and selection.

MASTER OF SCIENCE (M.Sc) DEGREE IN ANIMAL SCIENCE

Areas of Specialization

1. M.Sc Animal Nutrition and Agricultural Biochemistry
2. M.Sc Animal Breeding, Genetics and Biotechnology
3. M.Sc Livestock Production, Pasture and Range Management

Options: (a) Livestock Production and Management (b) Pasture and Range Management

INTRODUCTION/PREAMBLE

The Department of Animal Science, as an intrinsic component of the Faculty of Agriculture (established August 2005) in the University of Port Harcourt. The Department is one of six departments in the Faculty of Agriculture and the only one with the mandate to address the vital aspects of manpower development through teaching and research with the aim of improving the Animal Industry and ensuring animal-source protein supplies for food and nutrition sufficiency.

i) Philosophy

The M.Sc programmes are designed to provide advanced training in specialized areas of Animal Science aimed at developing high level manpower to pursue careers in academics, research and development both in the public, private and non-formal sectors.

ANS 710.2 Ruminant Animal Production 3 Units

The large and small ruminant industries in Nigeria; problems and prospects. Production systems for different ruminant animal species. Feeding and management, breeding, housing, health care. Record keeping, judging, selection. Establish and manage large and small ruminant enterprises.

ANS 711.2 entrepreneurship and Management in Animal Science 3 Units

Farming as a business, general management, financial management, entrepreneurship development, feasibility studies and business plan, marketing and managerial problem solving.

ANS 700.2 Special Topics/Seminar 2 Units

Special topics and modern trends in Animal Science.

ANS 799.2 Project 6 Units

A practical research work, with focus on any aspect of Animal Science.

ii) Vision

Graduates from the programmes shall be trained to acquire sufficient theoretical and practical skills to engage in teaching, research, extension and other agricultural development activities in the Animal and related Industry, which will enable them work as competent professionals in the areas of breeding, nutrition, production and management of different farm animals.

iii) Mission

The programmes are designed to address the training needs of high cadre personnel who will address the extant problems of Animal Agriculture vis-a-vis the many challenges impacting the Animal and related Industry in Nigeria. The course work and research-based trainings are to guide the candidates in developing appropriate academic skills needed to delve into the unknown to seek and elicit suitable and befitting responses to the various questions encountered in the animal production process.

iv) Rationale/Justification

The M.Sc curriculum in Animal Science is designed to address the several challenges in the Animal and related Industry and provide sound academic and research knowledge required to develop Animal Agriculture competences that,

will enable the graduates contribute to food and nutrition security in Nigeria and beyond.

v) Aim

To train Animal Scientists that, will be competent in all aspects of their job as it relates to the Animal Industry and especially, in their chosen areas of specialization.

vi) Programme Objectives

- To expose candidates to advanced courses in various areas of Animal Science and related academic disciplines that, will produce qualified and competent graduates with advanced theoretical knowledge and practical skills in Animal Agriculture.
- To equip candidates with research for development (R4D) skills through supervised research activities, seminar presentations, industry-based internships and reports embodied in project reports for their dissertation(s).

vii) Admission Requirements

Generally, candidates seeking admission into graduate programmes in Animal Science in the University of Port Harcourt shall normally be graduates of the University or any other similar accredited institution recognized by the University for the purposes. They must possess a first degree, preferably, Bachelor of Agriculture (B.Agric, Animal Science option), Bachelor of Science (B.Sc, Animal Science) or in related area. The degrees must, ordinarily, be registrable with the Nigerian Institute of Animal Science (NIAS).

To qualify for admission into the Master of Science (M.Sc) programme, a candidate must possess the following requirements:

- (i) A good honours degree in Animal Science or related discipline (of the University of Port Harcourt or similar accredited recognized institution) with a minimum of Second Class Lower division.
- (ii) Higher National Diploma (HND) Upper Credit in Animal Science/Animal Production plus Post Graduate Diploma (PGD) at Upper Credit in Animal Science/Animal Production. In addition, satisfy the matriculation requirements of the University of Port Harcourt and make a minimum CGPA of 3.5 points or at Credit Level.

viii) Programme Duration

The programmes shall run on full time with minimum of twenty-four (24) calendar months and maximum of thirty-six (36) calendar months, as specified in the NUC Benchmark Minimum Academic Standards (BMAS) for Post Graduate

Programmes in Animal Science and Agriculture in Nigerian Universities.

ix) Graduation Requirements

To qualify for an award of the Masters Degree in Animal Science, a student must pass all prescribed courses and defend his/her dissertation. The candidate must pass a total of 43 Credit Units.

x) Areas of Specialization

1. Animal Nutrition and Agricultural Biochemistry
2. Animal Breeding, Genetics and Biotechnology
3. Livestock Production, Pasture and Range Management

Options: (a) Livestock Production and Management (b) Pasture and Range Management

Tables with course codes and titles with credit units for specialized areas are shown below.

1. M.Sc Animal Nutrition and Agricultural Biochemistry

First Semester

Course Code	Course Title	Credit Units
ANS 802.1	ICT and Research Methods	2
ANS 803.1	Statistical Methods and Experimental Design	3
ANS 804.1	Livestock Farming Systems	3
ANS 806.1	Research Techniques in Animal Science	3
SGS 801.1	Advanced Nutritional Biochemistry	3
ANS 801.1	Energy and Bioenergetics	3
ANS ???1	<i>Elective (to be chosen from Electives listed below)</i>	3
Total		20

Second Semester

Course Code	Course Title	Credit Units
ANS 805.2	Entrepreneurship and Management	2
SGS 801.2	Feeds, Feed Production, Feedmill Design and Management	3
ANS 807.2	Pasture and Range Management	3
ANS 808.2	Instrumentation in Animal Nutrition	3
ANS 800.2	Seminar I Special Topics	3
ANS 899.2	Dissertation	10
Total		23

*Specified in the NUC BMAS for M.Sc in Animal Science (and Agriculture, in general)			ANS 815.1	Production and Management Radioactive Tracers in Metabolism and Radioactive Pollution	3
Electives for Animal Nutrition and Agricultural Biochemistry			ANS 810.2	Feed Quality, Feed Additives and Supplements	3
Course Code	Course Title	Credit Units	ANS 813.2	Ruminology	3
ANS 811.1	Advanced Poultry Production and Feeding Standards	3	ANS 816.2	Principles and Practice of Ruminant Animal Production and Management	3
ANS 812.1	Principles and Practice of Micro-Livestock Production and Management	3	ANS 809.1	Livestock Products, Processing and Marketing	3
ANS 814.1	Principles and Practice of Monogastric Animal	3			

2. M.Sc Animal Breeding, Genetics and Biotechnology

First Semester

Course Code	Course Title	Credit Units
ANS 801.1	ICT and Research Methods	2
ANS 803.1	Statistical Methods and Experimental Design	3
ANS 821.1	Livestock Farming Systems	3
ANS 822.1	Research Techniques in Animal Science	3
ANS ???1	Methods in Quantitative Genetics and Animal Breeding Research	3
SOS 801.1	Advanced Animal Biotechnology	3
ANS 801.1	Elective (to be chosen from Electives listed below)	3
Total		20

Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Entrepreneurship and Management	2

ANS 820.2	Molecular and Biochemical Genetics	3
ANS 823.2	Immunogenetics	3
ANS 824.2	Population Genetics	3
ANS 800.2	Seminar / Special Topics	3
ANS 899.2	Dissertation	10*
Total		23

**Specified in the NUC BMAS for M.Sc in Animal Science (and Agriculture, in general)*

Electives for M.Sc Animal Breeding, Genetics and Biotechnology

Course Code	Course Title	Credit Units
ANS 827.1	Animal and Avian Genetics	3
ANS 828.2	Genetic Engineering of Domestic Animals	3
ANS 829.2	Animal Breeding Theory and Programme Design	3
ANS 830.2	Evolution, Heredity and Stock Improvement	3
ANS 825.1	Applied Animal Breeding	3
ANS 826.1	Principles of Animal Improvement through Breeding	3

3. M.Sc Livestock Production, Pasture and Range Management

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
ANS 801.1	Statistical Methods and Experimental Design	3
ANS 802.1	Livestock Farming Systems	3
ANS 803.1	Research Techniques in Animal Science	3
ANS 811.1	Principles and Practice of Micro-Livestock Production and Management	3
ANS 833.1	Pasture Breeding and Genetics	3
ANS ???1	Elective (to be chosen from Electives listed below)	3

Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Entrepreneurship and Management	2
ANS 831.2	Animal Health and Disease Control	3
ANS 835.2	Forage Production and Conservation	3
ANS ???2	Elective (to be chosen from Electives listed below)	3
ANS 800.2	Seminar/Special Topics	3
ANS 899.2	Dissertation	10*
Total		23

**Specified in the NUC BMAS for M.Sc in Animal Science (and Agriculture, in general)*

Electives for M.Sc Livestock Production, Pasture and Range Management (Livestock Production and Management Option)

Total 20

Course Code	Course Title	Credit Units	Course Code	Course Title	Credit Units
ANS 812.1	Principles and Practice of Monogastric Animal Production and Management	3	ANS 806.1	Energy and Bioenergetics	3
ANS 815.1	Feed Quality, Feed Additives and Supplements	3	ANS 815.1	Feed Quality, Feed Additives and Supplements	3
ANS 810.2	Ruminology	3	ANS 832.1	Advanced Pasture and Range Management	3
ANS 816.2	Livestock Products, Processing and Marketing	3	ANS 810.2	Ruminology	3
ANS 813.2	Principles and Practice of Ruminant Animal Production and Management	3	ANS 816.2	Livestock Products, Processing and Marketing	3
			ANS 834.2	Pasture?Forage Resources and Utilization	3

Electives for M.Sc Livestock Production, Pasture and Range Management (Pasture and Range Management Option)

COURSE SYNOPSIS

SGS 801.1 ICT and Research Methods (2 Units)

ANS 801.1 Statistical Methods and Experimental Design (3 Units)

Planning of experiments and increasing accuracy of experiments such as: Comparing means; t-test. Analysis of Variance and F-test. Means separation. Analysis of covariance. Correlation and Regression. Analysis of categorical data; Chi-square. Importance of designing experiments. Design elements; randomization, replication, blocking, local control. Experimental designs. Completely Randomized, Randomized Complete Block, Incomplete block, Latin Square, Fractional Experiments, split-plot, split-split plot, lattice. Missing data, confounding effects.

ANS 802.1 Livestock Farming Systems (3 Units)

Analysis of Livestock Production systems for different non-ruminant and ruminant animal species. Mixed Crop-Livestock Production Systems and Technologies. Appropriate enterprise mix in livestock production. Management at Farm. Regional and Policy Levels. Traditional Technologies in Animal Production. Crop-Livestock Technologies.

ANS 803.1 Research Techniques in Animal Science (3 Units)

Techniques in physiology experiments, breeding and biotechnology, nutrition experiments. Use of various instruments in the analysis of feeds, feeding stuffs and animal products. Principles and techniques of chromatography, electrophoretic

methods calorimeters, thiorimeters, fermentation vats, etc. Recent advances instrumentation.

ANS 804.1 Advanced Nutritional Biochemistry (3 Units)

Advanced treatment of biological processes, enzyme, vitamin, mineral, protein, amino acid, lipid and carbohydrate metabolism; Integration of metabolic pathways: coenzyme, nucleic acid, control of cells and organisms, biochemistry of genetic information transfer, biochemistry of membrane transportation, oxidative phosphorylation and metabolism control, biochemistry of blood, muscles, liver and kidney; Trends biochemistry of animal feeds and nutrition.

ANS 806.1 Energy and Bioenergetics (3 Units)

Intermediary metabolism of carbohydrates, minerals, vitamins and fats as it relates to various monogastric species. Recent trends in carbohydrate and lipid research. Special techniques for metabolic studies. Importance of energy and energy efficiency; Energy systems; Estimation and prediction of energy values of feeds. Partitioning of energy and utilization for body functions. Physiology and biochemical aspects of energy metabolism.

ANS 809.1 Advanced Poultry Production and Feeding Standards (3 Units)

The origin and genetic improvement of different poultry species (the domestic fowl, guinea fowl, duck, goose, quail, dove, ostrich, emu); maximizing their performance through application of indigenous knowledge and modern technology. Planning and execution of modern poultry enterprises. Feeding standards for different species of poultry.

ANS 811.1 Principles and Practice of Micro-Livestock Production and Management (3 Units)

Establishment of rabbit and other micro-livestock enterprises. Production systems, Management, feeding and health care of different types of micro-livestock. Housing and equipment. Record keeping, judging selection and breeding. Reproductive and environmental physiology of micro-livestock production. Advances in micro-livestock production and management.

ANS 812.1 Principles and Practice of Monogastric Animal Production and Management (3 Units)

Establishment of poultry enterprises. Production systems. Parent and grandparent production. Management. Feeding and health care of day-old chicks, growers, Pullets cockerels, broilers and layers. Housing and equipment. Record keeping, judging selection and breeding, incubation and hatchery management. Handling and marketing of poultry products. Turkey, duck and guinea fowl production. Establishment of Swine enterprise Production Systems. Management, feeding and health care of different classes of pigs. Farrowing and litter management. Housing and equipment. Records keeping, judging selection and breeding. Pig handling, slaughter and processing.

ANS 814.1 Radioactive Tracers in Metabolism and Radioactive Pollution (3 Units)

Techniques of using radioactive tracers to study animal and plant metabolic pathways; Experimental methods, physiology and mathematical basis to interpretation of tracer experiments. Safe handling of radioisotopes for application to research problems, emphasizing radioactive samples preparation for accurate calibration and counting.

ANS 815.1 Feed Quality, Feed Additives and Supplements (3 Units)

Feed microscopy, identification, characteristics and properties; Storage quality control of feedstuffs and feeds; Commercial feed production; Proximate analysis and mineral analysis, Fibre characterization; Biochemical evaluation of feed ingredients; Toxic substances in feed ingredients. Historical development and classification of feed additives, supplements and antibiotics. Formulation of additives, natural and synthetic feed additives. Role of national and regional organizations in feed regulation, standards and coordination (FAO CODEX Alimentarius and Hazard Analysis and Critical Control Points, HACCP).

ANS 821.1 Methods in Quantitative Genetics and Animal Breeding Research (3 Units)

Frequencies of Genes and Genotypes; quantitative treatment of changes of gene frequencies, sampling from small population; values and means, variances. Resemblance between relatives; heritability, selection response and its prediction. Inbreeding and cross breeding. Threshold and correlated characters. Linear models: Statistical principles behind the use of mixed models - least squares, maximum likelihood, breeding value prediction BLUP, REML; Variance component estimation; introduction to computers and computer programming.

ANS 822.1 Advanced Animal Biotechnology (3 Units)

Animal cell and tissue culture, Maturation of oocytes. In Vitro oocytes fusion, Cloning, species hybridization interspecies embryo transfer DNA sequences, blood group analysis and genetic polymorphism, electrophoretic techniques, Genes and genetic markers. Linkage mapping by recombination. Mapping and map distances, Chi-square test, mitotic segregation and recombination, analysis of single meiosis, sex chromosome and sex linkages.

ANS 825.1 Animal and Avian Genetics (3 Units) Mode of inheritance of common traits in farm animals and their utilization in the development of a framework of theory for the study of genetics of populations; Recombination DNA and genetic engineering.

ANS 826.1 Genetic Engineering of Domestic Animals (3 Units)

Aspects of Recombinant DNA Technology. Identification of trait genes, cleavage of DNA. Cloning, selection of recombinant clones, insertion and regulation of inserted DNA or gene. Production of transgenics. Problems associated with genetic engineering of domestic animals.

ANS 827.1 Animal Breeding Theory and Programme Design (3 Units)

Theoretical basis of animal improvement programmes, population structure, design of breeding programmes and repeated measurements. (Variance components, Heritability and Repeatability estimates), Performance and progeny testing, Generation intervals, Dissemination of improvement, Genes and genotype x environmental interaction. Prediction and evaluation of genetic changes, Prediction of breeding values, selection indices, BLUP), Breed evaluation, Problems and applications.

ANS 832.1 Advanced Pasture and Range Management (3 Units)

Pasture productivity indices; herbage yield measurement, sampling techniques, relationship between herbage yield and animal productivity. Quality indices and evaluation techniques;

measuring dry matter yields of shrubs and tress used as forage. Range ecology, range conditions, range land productivity, range land resources; influence of man on range land productivity.

ANS 833.1 Pasture Breeding and Genetics (3 Units)

Characters of concern to the pasture breeder. Selection principles and methods for plants and forage. Establishment and production of pasture plants. Pasture improvement techniques; proper uses of tropical pastures; methods of enhancing quality and utilization.

SGS 801.2 Entrepreneurship and Management (2 Units)

ANS 800.2 Seminar (2 Units)

Students will present, at least, one review related to the area of specialization. The selection of such topic shall be done in consultation with their supervisors.

ANS 805.2 Feeds, Feed Production, Feedmill Design and Management (3 Units)

Classification of feeds, feeding stuffs and feed supplements. Chemistry and nutritive value of feeding stuffs. Concentrate feeds, cereals, legumes and oil seeds. Conventional, alternative and novel feed resources. General aspects of livestock feed formulation. Methods of formulation for various classes of livestock. Computers in ration formulation and least-cost diets. Design of feedmill equipment, machines and buildings, feedmill engineering principles, grains storage and handling: Feed production and flow processes; Milling, batching, mixing, bagging and sales, pelleting, drying, weighing; Economics of feedmill operations; Quality assessment and standardization.

ANS 807.2 Pasture and Range Management (3 Units)

Establishment of dairy and beef cattle, sheep and goat enterprises. Production systems for the different ruminant animal species. Breeding, feeding, housing and health care. Record keeping, judging and selection.

ANS 808.2 instrumentation in Animal Nutrition (3 Units)

Use of various instruments in the analysis of feeds, feeding stuffs and animal products. Principles and techniques of chromatography, electrophoretic methods, calorimeters, thiorimeters, fermentation vats, etc. Recent advances in instrumentation.

ANS 810.2 Ruminology (3 units)

Biochemical, physiological and microbial activities occurring in the rumen. Relations of rumen function to animals. Regulation of rumen

functions. Methanogenesis and its control measures.

ANS 813.2 Principles and Practice of Ruminant Animal Production and Management (3 Units)

Establishment of sheep, goat, beef and dairy industries. Production systems. Management of lambs, kids and calves. Housing and equipment. Record keeping, judging, selection, breeding and health management practices. Dairy goat production, ram fattening, feed lot fattening of beef, milk parlour, milking, milk handling and processing.

ANS 816.2 Livestock Products, Processing and Marketing (3 Units)

Preparation for slaughtering, evisceration and dressing care of carcass and its cuts; processing and care of hides, skin and wool. Vrocessing and storage of meat and milk; milk processing and microbiology; milk hygiene. Egg quality and grading; chemistry and nutritive quality of meat and eggs. Illnesses traced to animal products and preventive/control measures. Hazard Analysis and Critical Control Points (HACCP) in animal processing. Advances in livestock products Agencies, functions and trends pertaining to the marketing of livestock products, types of markets, agents in livestock markets. Marketing and distribution of animal products. The effects of market on animal production.

ANS 820.2 Molecular and Biochemical Genetics (3 Units)

Cytology, basis of inheritance, genetic material and the gene, biochemical basis of gene action. Protein sythesis, mutation, genetic control of metabolism: genetic engineering.

ANS 823.2 Immunogenetics (3 Units)

Monoclonal antibodies, antigens, immune systems. Genetics regulation of immune systems. Genetics of disease resistance and screening of genetic diseases. Immuno-deficiencies.

ANS 824.2 Population Genetics (3 Units)

Genetics structure of populations. Drawing revolution, Variation/evolutionary changes, sources/forces of variation and evolutionary changes, Hardy-Weinberg equilibrium, Attributes of a genetic population (means, variances, gene frequencies). Changes of gene frequencies in large and small populations, inbreeding, Effects of sexual reproduction on variation, Variability among finite populations, synthesis of forces, random drift and assortative mating. Assortative mating based on phenotypic resemblance; Inbreeding; Heritability and genetic correlation; Selection indexes; Path coefficients; Biometric relationships and mating systems

ANS 828.2 Evolution, Heredity and Stock Improvement (3 Units)

Evolutionary theories; Hereditary mechanisms that are bases for variation; biological communication between generations; Genetic bases and interrelationships of ecologically important traits in the principal livestock species; Breeding objectives and development of the breeding plans; Breeding and selection programmes.

ANS 829.2 Applied Animal Breeding (3 Units)

Application of quantitative genetic principles to animal breeding; Breeding parameters; Testing of animal performance; Selection methods and breeding values; Systems of breeding different farm animal species.

ANS 830.2 Principles of Animal Improvement through Breeding (3 Units)

Economic characters in different livestock species and their inheritance. Variations in population. Genetic parameters and their estimation. Tools for genetic improvement; selection, breeding systems. Breeding strategies for different livestock species.

ANS 831.2 Animal Health and Disease Control (3 Units)

Principles of Animal Health Management. Causative agents of livestock diseases: Viruses, bacteria, fungi, mycoplasma, protozoa, endo- and ecto-parasites. Important diseases of different livestock species: causes, symptoms, prevention and control, treatment. Nutritional deficiencies; metabolic diseases.

**DOCTOR OF PHILOSOPHY (Ph.D)
DEGREE IN ANIMAL SCIENCE**

(Ph.D Animal Nutrition and Agricultural Biochemistry)

INTRODUCTION / PREAMBLE

The Department of Animal Science, as an intrinsic component of the Faculty of Agriculture (which was established in August 2005), addresses the vital aspects of manpower development through teaching, research and community service with the aim of improving the Animal Industry and ensuring food and nutrition sufficiency.

i) Philosophy

The Ph.D programme in Animal Science seeks to train high level manpower with the capacity to expand the frontiers of knowledge through the pursuit of careers in academic and research organizations. Candidates are expected to achieve the highest level of specialization in the discipline to function as consultants and experts for solving

practical problems in the Animal Production Industry and international food agencies.

ii) Vision

Graduates from this programme will acquire sufficient trainings and practical skills to engage in teaching, research and other extension activities in the Animal Industry which will enable them to work as industry- relevant graduates and professionals.

iii) Mission

The programme is designed to address the training needs of the personnel who will address the extant problems of animal malnutrition along with many other challenges impacting the Animal production industry in Nigeria. The coursework and research based training are to guide the candidates in the development of appropriate academic skills needed to delve into the unknown to seek and elicit suitable and befitting responses to the various questions encountered in the animal production process.

iv) Aim

To train Animal Scientists with entrepreneurial research skills that will be competent in all aspects of their job as it relates to advancement of the Animal Industry.

v) Objectives

- To equip candidates with research skills through the conduct of supervised research, seminar presentations, industry-based internships and thesis report.
- To provide training to develop high level manpower for national development, especially, careers in teaching, research and outreach at tertiary educational levels
- To produce highly skilled persons with entrepreneurial competence and capability to serve in the research and development space of public, private and non-formal sectors.

vi) Admission Requirements

Generally, candidates seeking admission into graduate programmes in Animal Science in the University of Port Harcourt shall normally be graduates of the University or any other similar institutions recognized by the University for the purposes. They must possess a first degree with a minimum of second class lower division, preferably Bachelor of Agriculture (B.Agric, Animal Science option), B.Agric. (Animal Production) or Bachelor of Science (B.Sc, Animal Science). Such bachelors degree must, ordinarily, be registrable with the Nigerian Institute of Animal Science (NIAS).

To qualify for admission into the Doctor of Philosophy (Ph.D) programme, the candidate must also be a holder of an academic Masters degree in Animal Science or Animal Production of the University of Port Harcourt or other recognized accredited similar institutions with a minimum CGPA of 3.50 points on a 5-point grading system.

vii) Programme Duration

The full-time Doctor of Philosophy Degree Programme in Animal Science shall run for a minimum duration of 24 calendar months and maximum of 60 calendar months.

viii) Graduation Requirements

To qualify for the award of the degree of Doctor of Philosophy (Ph.D) in Animal Science (Animal Nutrition and Agricultural Biochemistry) the candidate must have fulfilled the following conditions. The candidate must pass all prescribed courses and defend his/her thesis. The candidate must pass a total of 48 Credit Units courses as shown for each area of specialization in line with the minimum 48 Credit Units stipulated in the NUC BMAS and made up of the following:

Courses for Ph.D in Animal Nutrition and Agricultural Biochemistry

Course Code	Course Title	Credit Units
	Courses transferred from M.Sc Programme	21
	Electives in the area of specialization	9
ANS 900.2	Special Topics/Seminar	2
ANS 999.2	Thesis	2
	Total	48

**As specified in the NUC BMAS for Ph.D in Animal Science (and Agriculture in general)*

Details of Courses transferable from M.Sc Programme to make 21 units

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Method - faculty-wide course	2
ANS 801.1	Statistical Methods and Experimental Design	3
ANS 802.1	Livestock Farming Systems	3
ANS 803.1	Research Techniques in Animal Science	3
ANS 804.1	Advanced Nutritional Biochemistry	3
ANS 806.1	Energy and Bioenergetics	3

SGS 801.2	Entrepreneurship and Management - faculty-wide course	2
ANS 805.2	Feeds, Feed Production, Feedmill Design and Management	3
ANS 807.2	Pasture and Range Management	3
ANS 808.2	Instrumentation in Animal Nutrition	3
	Total	28

NB: Students are expected to have passed the above courses at MSc level.

Details of electives for Ph.D Animal Nutrition and Agricultural Biochemistry

Course Code	Course Title	Credit Units
ANS 814.1	Radioactive Tracers in Metabolism and Radioactive Pollution	3
ANS 815.1	Feed Quality, Feed Additives and Supplements	3
ANS 816.2	Livestock Products, Processing and Marketing	3
ANS 901.1	Advanced Animal Nutrition	3
ANS 902.1	Metabolism of Proteins and Nucleic Acids	3
ANS 903.1	Metabolism of Minerals and Vitamins	3
ANS 904.1	Metabolism of Energy	3
	Total	28

NB: Each Ph.D candidate is to pick three (3) electives from the above listed courses.

In addition, the candidate:

- i. Shall be required to defend his/her research proposal at the Departmental and Faculty Postgraduate Seminar.
- ii. Shall present seminars at the completion of his/her research work to the Department, Faculty and School of Graduate Studies.
- iii. The candidate must defend his/her thesis. The format and submission of thesis shall be in conformity with existing guidelines laid down by the School of Graduate Studies (SGS), University of Port Harcourt.

COURSE SYNOPSIS

SGS 801.1 ICT and Research Methods (2 Units)

ANS 801.1 Statistical Methods and Experimental Design (3 Units)

Planning of experiments and increasing accuracy of experiments such as: Comparing means; t-test. Analysis of Variance and F-test. Means separation. Analysis of covariance. Correlation and Regression. Analysis of categorical data; Chi-square. Importance of designing experiments. Design elements; randomization, replication, blocking, local control. Experimental designs. Completely Randomized, Randomized Complete Block, Incomplete block, Latin Square, Fractional Experiments, split-plot, split-split plot, lattice. Missing data, confounding effects.

ANS 802.1 Livestock Farming Systems (3 Units)

Analysis of Livestock Production systems for different non-ruminant and ruminant animal species. Mixed Crop-Livestock Production Systems and Technologies. Appropriate enterprise mix in livestock production. Management at Farm. Regional and Policy Levels. Traditional Technologies in Animal Production. Crop-Livestock Technologies.

ANS 803.1 Research Techniques in Animal Science (3 Units)

Techniques in physiology experiments, breeding and biotechnology, nutrition experiments. Use of various instruments in the analysis of feeds, feeding stuffs and animal products. Principles and techniques of chromatography, electrophoretic methods calorimeters, thiorimeters, fermentation vats, etc. Recent advances in instrumentation.

ANS 804.1 Advanced Nutritional Biochemistry (3 Units)

Advanced treatment of biological processes, enzyme, vitamin, mineral, protein, amino acid, lipid and carbohydrate metabolism; Integration of metabolic pathways: coenzyme, nucleic acid, control of cells and organisms, biochemistry of genetic information transfer, biochemistry of membrane transportation, oxidative phosphorylation and metabolism control, biochemistry of blood, muscles, liver and kidney; Trends in biochemistry of animal feeds and nutrition

ANS 806.1 Energy and Bioenergetics (3 Units)

Intermediary metabolism of carbohydrates, minerals, vitamins and fats as it relates to various monogastric species. Recent trends in carbohydrate and lipid research. Special techniques for metabolic studies. Importance of energy and energy efficiency; Energy systems; Estimation and prediction of energy values of feeds. Partitioning of energy and utilization for

body functions. Physiology and biochemical aspects of energy metabolism.

ANS 814.1 Radioactive Tracers in Metabolism and Radioactive Pollution (3 Units)

Techniques of using radioactive tracers to study animal and plant metabolic pathways; Experimental methods, physiology and mathematical basis to interpretation of tracer experiments. Safe handling of radioisotopes for application to research problems, emphasizing radioactive samples preparation for accurate calibration and counting.

ANS 815.1 Feed Quality, Feed Additives and Supplements (3 Units)

Feed microscopy, identification, characteristics and properties; Storage quality control of feedstuffs and feeds; Commercial feed production; Proximate analysis and mineral analysis, Fibre characterization; Biochemical evaluation of feed ingredients; Toxic substances in feed ingredients. Historical development and classification of feed additives, supplements and antibiotics. Formulation of additives, natural and synthetic feed additives. Role of national and regional organizations in feed regulation, standards and coordination (FAO CODEX Alimentarius and Hazard Analysis and Critical Control Points, HACCP).

SGS 801.2 Entrepreneurship and Management (2 Units)

ANS 805.2 Feeds, Feed Production, Feedmill Design and Management (3 Units)

Classification of feeds, feeding stuffs and feed supplements. Chemistry and nutritive value of feeding stuffs. Concentrate feeds, cereals, legumes and oil seeds. Conventional, alternative and novel feed resources. General aspects of livestock feed formulation. Methods of formulation for various classes of livestock. Computers in ration formulation and least-cost diets. Design of feedmill equipment, machines and buildings, feedmill engineering principles, grains storage and handling; Feed production and flow processes; Milling, batching, mixing, bagging and sales, pelleting, drying, weighing; Economics of feedmill operations; Quality assessment and standardization.

ANS 807.2 Pasture and Range Management (3 Units)

Establishment of dairy and beef cattle, sheep and goat enterprises. Production systems for the different ruminant animal species. Breeding, feeding, housing and health care. Record keeping, judging and selection.

ANS 808.2 Instrumentation in Animal Nutrition (3 Units)

Use of various instruments in the analysis of feeds, feeding stuffs and animal products. Principles and techniques of chromatography, electrophoretic methods, calorimeters, thiorimeters, fermentation vats, etc. Recent advances in instrumentation.

ANS 816.2 Livestock Products, Processing and Marketing (3 Units)

Preparation for slaughtering, evisceration and dressing care of carcass and its cuts; processing and care of hides, skin and wool. Processing and storage of meat and milk; milk processing and microbiology; milk hygiene. Egg quality and grading; chemistry and nutritive quality of meat and eggs. Illnesses traced to animal products and preventive/control measures. Hazard Analysis and Critical Control Points (HACCP) in animal processing. Advances in livestock products Agencies, functions and trends pertaining to the marketing of livestock products, types of markets, agents in livestock markets. Marketing and distribution of animal products. The effects of market on animal production.

ANS 901.1 Advanced Animal Nutrition (3 Units)

Nutrient requirements of pigs, poultry, rabbits, cattle, sheep and goats for various productive processes. Utilization of industrial by-products, farm wastes and unconventional feedstuffs in ration formulation.

ANS 902.1 Metabolism of Proteins and Nucleic Acids (3 Units)

Metabolism of proteins and nucleic acids. Amino acids, amino acid precursors and function of nucleic acids in protein synthesis. Recent trends in protein and nucleic acid research. Special techniques for protein and nucleic acid determination and identification.

ANS 903.1 Metabolism of Minerals and Vitamins (3 Units)

Chemistry of vitamins and minerals. Function of vitamins and minerals in the metabolism and physiology of farm animals and their deficiency symptoms. Interrelationships between vitamins and minerals.

ANS 904.1 Metabolism of Energy (3 Units)

Metabolism of carbohydrates and fats as it relates to various livestock species. Recent trends in carbohydrate and lipid research. Special techniques for metabolic studies relating to carbohydrates and lipids.

ANS 900.2 Special Topics I Seminar (2 Units)

Students will present, at least, two reviews related to the area of specialization. The selection of such topic shall be done in consultation with their supervisors.

ANS 999.2 Thesis (16 Units)

Students will do a set of practical research works in their area of specialization, under the supervision of their supervisor(s) and defend it in the presence of an external examiner or as specified by the School of Graduate Studies.

ACADEMIC STAFF LIST

S/No.	Name	Rank	Qualifications	Specialization
1.	Prof. Anthonia I. Ukanwoko	Head of Department /Professor	B. Agric, MSc, PhD Animal Science (MOUAU)	Dairy Science
2.	Prof. Monica O. Ironkwe	Honourable/Professor	BSc Agric Edu(RSUST); MSc, PhD Animal Science (RSUST)	Monogastric Nutrition & Production
3.	Prof. Ibisime Etela	Professor	BSc Animal Science, MSc Animal Science (RSUST); PhD Animal Science (UNIBEN)	Ruminant Nutrition & Production
4.	Prof. Folashade O. Ajayi	Professor	BAgric, MSc Animal Production (UNILORIN) PhD Animal Breeding & Genetics (RSUST)	Animal Breeding & Genetics
5.	Prof. Letorn A.F. Akinola	Professor	BSc, MSc, PhD, Animal Science (RSUST)	Monogastric Nutrition & Production
6.	Prof. Brilliant O. Agaviezor	Director/Professor	BTech, Animal Production & Health (FUTA); MAgric, PhD Animal Breeding & Genetics (Abeokuta)	Animal Breeding & Genetics & Animal Molecular Biology
7.	Prof. Opuda A. Ekine	Professor	HND Animal Health & Production (Vom); PGD; MSc, Animal Science, PhD Animal Science (RSUST)	Animal Production & Nutritional Physiology
8.	Dr. Otokini S. George	Reader	BSc, MSc, PhD Animal Science (RSUST)	Micro-Livestock Nutrition & Production

9.	Dr. Julius N. Ingweye	Reader	BAgric Animal Science (UNICAL); MSc Animal Nutrition & Biochemistry (UNICAL); PhD Animal Prod.& Nutrition (UNICAL)	Micro-Livestock Nutrition and Livestock value chains
10.	Dr. Isaiah S. Oruene	Lecturer I	DVM (ABU)	Theriogenology
11.	Mr. Humphrey N. Benneth	Lecturer II	B. Agric. Animal Science (UPH)	Animal Breeding & Genetics
12.	Mr. Boma V. Iriso	Asst. Lecturer	B. Agric.(UPH); MSc Animal Science (ABU, Zaria)	Ruminant Nutrition & Production
13.	Mrs. Ihuoma C. Adje	Asst. Lecturer	B. Agric. (UPH); MSc. Animal Nutrition and Forage Science (MOUA, UMUDIKE)	Forage Production & Utilisation
14.	Mrs. Abigail A. Ere – Richard	Asst. Lecturer	B. Agric. (UPH) M. Agric. Animal Physiology (FUNAAB)	Animal Reproductive Physiology

DEPARTMENT OF AGRICULTURAL EXTENSION AND DEVELOPMENT STUDIES

POSTGRADUATE DIPLOMA (PGD) IN AGRICULTURAL ECONOMICS AND EXTENSION

Objectives

The objectives of the programme include to:

- a. offer opportunity to graduates of agricultural economics and extension with a 3rd class degree to upgrade.
- b. provide a platform for graduates of agriculture and related fields or holders of HND in agricultural economics and Extension with lower credit who wish to undertake a career in agricultural economics and extension.

Admission Requirements

An applicant should be a graduate of University of Port Harcourt, or a graduate from any other University recognized by the senate of University of Port Harcourt.

Candidate seeking admission into the (PGD) programme in agricultural economics and extension shall possess at least a second class lower Degree in a non-agricultural based discipline or a third class/pass Degree in Agricultural Economics and Extension option. Candidates seeking admission with HND must have an upper credit pass. In addition, candidates must possess the matriculation requirements of the Faculty of Agriculture, University of Port Harcourt

Programme Duration

The PGD programme in Agricultural Economics and Extension shall run for a minimum of 12 calendar months.

Graduation requirements

In addition to passing stipulated courses, the students shall be required to complete and defend a research project.

List of Courses, Codes and Credit Units.

First Semester:

Course Code	Course Title	Units
AEE 701.1	Introduction to Agricultural Economics Theories	2
AEE 702.1	Introduction to Research Methods in Agricultural Economics and Extension	2
AEE 703.1	Agricultural Projects, Planning and Analysis.	2

AEE 704.1	Principles of Agricultural Extension and Rural Sociology	2
AEE 705.1	Communication and Diffusion Process	2
AEE 706.1	Organization and Management of Extension Services	2
AGE 707.1	Scientific communication process	2
Total		14

Second Semester:

Course Code	Course Title	Units
AEE 708.2	Farm Management	2
AEE 709.2	Agricultural Finance and Records.	2
AEE 710.2	Agribusiness Management	2
AEE 711.2	Extension Teaching Methods and Aids	2
AEE 712.2	Women and Youth Programmes in Agriculture	2
AEE 713.2	Comparative Extension Systems	2
AGE 714.2	Project.	4
Total		18

Minimum Graduation requirements: Core courses **Core 10; Electives: 8; Project 4; Seminar: 2. Total 24**

COURSE DESCRIPTION

AEE 701.1: Introduction to Agricultural Economic Theories I (2 units)

Selected economic theories relevant to agriculture. Demand and supply, consumer theories, market structure, theory of the firm, production function.

AEE 702.1: Introduction to Research Methods Statistics in Agricultural Economics and Extension (2 units)

Meaning, scope and functions of extension research. Types and examples of research in agricultural extension. Sampling techniques. Tools and methods of data collection. Basic statistical concepts and their application in extension. Techniques of data interpretation. Reporting research results. Classification, types and methods of data collection in agricultural research; meaning and uses of frequency distribution; measures of central tendency and dispersion, moving averages; simple linear regression, tests of hypothesis.

AEE 703.1: Agricultural Project Planning and Analysis (2 Units)

Characteristics of agricultural and agro-industrial projects; the project cycle; non-discounted and discounted appraisal methods; importance of discount rates, annuity and project life; cash flow preparation.

AEE 704.1: Principles of Agricultural Extension and Rural Sociology (2units)

Agricultural extension: meaning, objectives, principles, philosophy and history, role and contribution of extension in national and economic development. The concept of learning and training. Sociology/rural sociology as sciences, scope and importance of rural sociology; role of rural sociologist, basic sociological concepts applied to rural situation, structure of rural situations, structure of rural community; basic social institutions, social organizations, ecological entities and collectivities (social structure).

AEE 705.1: Communication and Diffusion Process (2units)

Theory and principles of communication. Communication in extension. Characteristics/determinants of effective diffusion. Characteristics of innovation. Innovation-decision (adoption) process. Innovation and adopter categories and characteristics.

AGX 715.1: Organization and Management of Extension Services (2units)

Basic concepts in extension administration. Bureaucracy in extension. Coordination, organization. Organization of extension services in Nigeria. Types of extension organization. Functions of extension administrators, principles of office management.

AEE 707.1 Scientific communication process (2 Units)

The art and science of scientific writing. Journals, conferences, seminars. How to get a paper published in a journal. The editorial process. Visibility process. Mentorship process in scientific communication

AEE 708.2: Farm Management (2 Units)

Farm decision-making process; enterprise combinations; enterprise budget; break-even analysis, sensitivity analysis, graphical approach to linear programming. Case studies

AEE 709.2: Agricultural Finance and Records (2 Units)

Sources of finance to agriculture; farm firm capitalization; agricultural credit; loan payment terms; interest rate determination; cost of capital;

review of farm records and valuation methods; problems of recording and accounting.

AEE 710.2: Agribusiness Management (2 Units)

Managerial roles; executive responsibilities; external and internal environments of enterprise; structural characteristics of organizations; areas of management; authority and responsibility in organizations; conflict and leadership; managerial functions and processes including decision-making, planning, and management of objectives. Case studies

AEE 711.2: Extension Teaching Methods and Aids (2units)

The concept of teaching. Extension teaching methods classification, techniques and device, relative effectiveness of methods. Audio-visuals in extension teaching. Preparation of visual aids for extension delivery

AEE 712.2: Women and Youth Programmes in Agriculture (2units)

The concepts of rural youth. Philosophy and objectives of youth extension programmes; characteristics of rural youth. Youth clubs. Problems of youth work. The concept of rural women. Characteristics of rural women. Extension strategies and methods appropriate to rural women leadership in women programmes.

AEE 713.2: Comparative Extension System (2units)

Evolutionary development of agricultural extension (Pre-colonial to post-independence periods). Current trends; Training and Visit (T&V) system, unified Agricultural Extension System (UAES). Concept of participation theories, typology (general and farmers participation) social capital, participatory extension (thesis, principles, methods characterizing participation, participatory methodologies and practice (PTD, FFS, local agricultural research committees (LARC) PRA, FPR etc. Emerging trends (decentralization, economic liberalization, privatization, contracting, democratization etc) research extension linkages).

AEE 714.2: Project Report (4 Units)

A guided scientific investigation of a selected topic/problem. This involves identification of researchable problem, statement of specific objectives and hypotheses, data collection and analysis. These processes will lead into a special project report.

(ii) MASTER OF SCIENCE (M.Sc.) DEGREE PROGRAMME IN AGRICULTURAL EXTENSION

Introduction

The programme is designed for students seeking for a higher degree in agricultural extension with specialization in agricultural extension administration, agricultural programme planning and evaluation, rural sociology, agricultural extension and rural development, agricultural communication/information communication technology. Consequently, the degree of Master of Science (M.Sc.) in agricultural extension shall be awarded in the three (3) broad areas as:

- (a) M.Sc. Agricultural Extension (Agricultural Extension Administration and Programme Planning)
- (b) M.Sc. Agricultural Extension (Agricultural Extension and Rural Development)
- (c) M.Sc. Agricultural Extension (Agricultural Extension Communication/Information Communication Technology in Agriculture)

Objectives

The programme is designed to expose students to advanced courses in agricultural extension and equip students with research skills through the conduct of supervised research, seminar presentations and thesis preparation in agricultural extension and its related fields.

Admission Requirements

Candidates seeking admission into the Master of Science degree programme in Agricultural Extension shall possess:

- (i) A Bachelor's degree in Agricultural extension or related disciplines with a minimum of Second Class (Lower division).
- (ii) Appropriate Post Graduate Diploma of the University of Port Harcourt or other recognized Universities with at least a credit pass of 3.00 CGPA on a 5-point scale.
- (iii) HND Upper Credit plus a PGD in agricultural extension and related fields.

Areas of Specialization

- (a) Agricultural Extension Administration and Programme Planning
- (b) Agricultural Extension and Rural Development
- (c) Agricultural Extension Communication/Information Communication Technology in Agriculture

Programme Duration

Candidates may register for full-time or part-time studies.

- a) The Full-time Master of Science Degree Programme in Agricultural Extension shall

run for a minimum duration of 12 calendar months and maximum of 24 months.

- b) The Part-time Master of Science Degree in Agricultural Extension shall run for a minimum duration of 24 calendar months and maximum of 48 months.

Requirements for Graduation

The student is required to pass all prescribed courses, present and defend the dissertation.

OPTION 1: M.Sc. IN AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT

First Semester

Course Code	Title	Unit
SGS 801.1	ICT and Research Methods	2
AGX 802.1	Extension Teaching and Communication Methods	3
AGX 803.1	Research Methods and Statistics in Extension Research	3
AGX 804.1	Rural Social Changes and Human Ecology	3
AGX 806.1	Comparative Extension Systems.	2
Total		13

Second Semester

Course Code	Title	Unit
SGS 801.2	Management and Entrepreneurship	2
AGX 810.2	Seminar	2
AGX 811.2	Women, Youths and Children in Agriculture	2
AGX 812.2	Planning and Evaluation of Rural Development Programme	3
AGX 830.2	Thesis	6
Total		15

OPTION 2: M.Sc. in AGRICULTURAL EXTENSION COMMUNICATION/INFORMATION COMMUNICATION TECHNOLOGY IN AGRICULTURE

First Semester

Course Code	Title	Unit
SGS 801.1	ICT and Research Methods	2
AGX 802.1	Extension Teaching and Communication Methods	3
AGX 803.1	Research Methods and Statistics in Extension Research	3

AGX 804.1	Rural Social Changes and Human Ecology	3	Course Code	Title	Unit
AGX 806.1	Comparative Extension System.	2	AGX 805.1	Psychology for Extension Personnel	2
Total		13	AGX 807.1	Strategic human resource management for Agribusiness	2
Second Semester					
Course Code	Title	Unit	AGX 808.1	Scientific communication process	2
SGS 801.2	Management and Entrepreneurship	2	AGX 809.1	Open data in managing agricultural information systems	2
AGX 810.2	Seminar	2	Total		8
AGX 815.2	Photography, Media Use and Documentation in Agriculture	3	Second Semester		
AGX 816.2	Agricultural Journalism	3	Course Code	Title	Unit
AGX 830.2	Thesis	6	AGX 813.2	Participatory Research Approaches in Agricultural Extension	3
Total		16	AGX 814.2	Social Media Applications in Extension	2
OPTION 3: M.Sc. IN AGRICULTURAL EXTENSION ADMINISTRATION AND PROGRAMME PLANNING			Total		5

First Semester

Course Code	Title	Unit
SGS 801.1	ICT and Research Methods	2
AGX 802.1	Extension Teaching and Communication Methods	3
AGX 803.1	Research Methods and Statistics in Extension Research	3
AGX 804.1	Rural Social Change and Human Ecology	3
AGX 806.1	Comparative Extension Systems.	2
Total		13

Second Semester

Course Code	Title	Unit
SGS 801.2	Management and Entrepreneurship	2
AGX 810.2	Seminar	2
AGX 817.2	Agricultural Extension Organization and Institutions	2
AGX 818.2	Extension Administration and Supervision	2
AGX 819.2	Planning and Evaluation of Rural Development Programme	3
AGX 830.2	Thesis	6
Total		17

COURSE DESCRIPTION

SGS 801.1: ICT and Research Methods (2 Units)

Philosophy guiding research; organization of research; scientific methods of research observations; essentials of spreadsheet; internet technique, statistics packages; precision and accuracy estimates; hypothesis testing; research report writing; research proposal format; successful research project; developing methodology and presenting experimental results; developing fundable research proposal; research ethics; referencing format; web 2.0 and social media for research; scientific writing tips

AGX: 802.1: Extension Teaching and Communication Methods (3 Units)

Setting up of effective learning situations in rural areas. Motivation principles of adult learning Communication and diffusion processes; practice of selected extension methods including demonstrations, meetings, Tours exhibit and audio-visual aids.

AGX 803.1: Research Methods and Statistics in Agricultural Extension Research (3 Units)

Characteristics of scientific method. Selection and formulation of a research problem and hypothesis. Exploratory and descriptive research studies. The survey, questionnaire and interview observational techniques, critical incident techniques, action research, etc.

Developmental and growth studies; experimental designs for testing casual hypothesis, one group pretest-post test design, randomized control group

Note: A student is required to take at least two elective courses in each semester.

ELECTIVES

First Semester

design, etc. Methods for data collection. Sampling techniques, tabulation, analysis and interpretation of data. Concept of evaluation of extension project. Preparing a research report.

AGX 804.1: Rural Social Changes and Human Ecology (3 Units)

History of rural development, perspective of rural settlement patterns, rural –urban interaction, models of community development; integrated rural development concept, rural communities and development agency, leadership structure in rural communities, development efforts in rural communities in Nigeria; challenges of rural development; mobilization of rural institution for development. General sociology theory, analysis of rural social systems, relation of the individual to his social environment, group dynamics, leadership patterns, social change and community organization, demography, Rural-urban migration. Sociological concepts and theories selected theories of social change and their potential for modernization of rural society’s structures of rural community. Social and grassroots organization, ecological entities and collectivities/social structure understanding human practices the example of farming.

AGX 805.1: Psychology for Extension Personnel (2 Units)

Concepts of human development, intelligence, individual differences, teaching, learning, motivation and emotion relation to extension education. Intelligence Quotient (IQ) and its application to extension learning. Concepts of remembering. Social psychology attitudes, personality, group behavior and social influence. Implication of psychology to extension practice.

AGX 806.1: Comparative Extension System. (2 Units)

Evolutionary development of agricultural extension pre-colonial to post-independence periods). Current trends; training and visit (T&V) system, unified Agricultural Extension System (UAES). Concept of participation theories, typology (general and farmers participation) social capital, participatory extension (thesis, principles, methods characterizing participation, participatory methodologies and practice (PTD, FFS, local agricultural research committees (LARC) PRA, FPR etc. Emerging trends (decentralization, economic liberalization, privatization, contracting, democratization etc) research extension linkages).

AGX 807.1: Strategic human resource management for Agribusiness (2units)

The concept of strategic management and its application to agribusiness; human resource

strategic goals; internal and external situational analysis; agribusiness human resource (HR) SWOT analysis; development of agribusiness human resource strategies, plans and programs; agribusiness organizational culture development; determination of the right number of personnel; development of human resource policies; determination of the right job grades and salary structures; preparation of agribusiness HR strategic and annual operational plans and budgets; HR performance measures; monitoring and control systems; globalization and its impact on strategic human resource management.

AGX 808.1: Scientific communication process (2unit)

How to write scientific publication. Disseminating channels for publications; the art of manuscript preparation. Editorial process. Ethical provisions. International and national publishers. Indexing agencies. Visibility in the research process (relevance of google scholar, research gate, academia.edu, in the research process and how to get connected). Networking and the research process. Mentorship issues.

AGX 809.1: Open data in managing agricultural information systems (2units)

Concept of open data; benefits of open data in agricultural development; how to make data open ; open data policy; making data social; role of Management Information System (MIS)in the management of agricultural extension programmes; designing an MIS in an agricultural extension organization.; types of information system; information system development; channels of MIS for the agricultural extension programme.

SGS 801.2 Management and Entrepreneurship (2 Units)

AGX 810.2: Seminar (2 Units)

A student will select a topic of current interest in agricultural extension and rural development and prepare, present and defend the report.

AGX 811.2: Women, Youths and Children in Agriculture (2 Units)

Perspectives on women and youth situation in developing countries. Theories of child and youth policies, instruments and programmes. Capacity building needs in women youth organizations. Local and international NGO’s involved in women and youth development, youth, women and the world of work, understanding livelihood, dynamics and diversification of livelihood. Social inclusion, exclusion and access to livelihood options and resources. Youth and women livelihood analysis, women in agriculture.

AGX 812.2: Planning and Evaluation of Agricultural and Rural Development Programmes (3 Units)

Concepts of programme development, procedures for developing extension programme; procedures for programme development. Relevant concepts in programme planning, concepts and process of monitoring in extension, extension indicators for monitoring purposes; impact assessment in agricultural research and extension; summary of evaluation landscape; design and conduct of evaluation programme; evaluation of extension training programmes situation analysis. Needs identification, creating local support and organizing resources. Analysis and evaluation of some rural development projects in Nigeria (seminar presentation).

AGX 813.2: Participatory research approaches in agricultural extension Research (3Units)

Rationale for participatory learning and action in agricultural extension. Benefits of participatory research methodologies. Principles. Requirements. Participatory tools (transects, village social map, daily activity charts, resources picture cards, flow charts, venn diagrams, gender analysis framework, sustainable livelihood analysis, preference ranking, focus group discussion, etc

AGX 814.2 Social Media Applications in Extension (2 Units)

Concept of social media. Types of social media. Web 2.0 and social media in agricultural development. Developing social media policy. Social networking and agricultural development. Practical application of social media tools in agriculture.

AGX 815.2: Photography Media Use and Documentation in Agriculture (2units)

Photographical concepts and application in agriculture, techniques and principles of the photographing. Techniques principles in media use (print and electronic media) information transfer media.

AGX 816.2: Agricultural Journalism (2Units)

Review of communication process; techniques and principles of print and electronic media; information transfer media information sources in agriculture, preparation and delivery of agricultural needs material; news, programmes and features presentation, agricultural journalism and extension work; audio- visual workshops.

AGX 817.2: Agricultural Extension Organization and Institutions (2Units)

Concepts of Extension Organizations Contemporary organization in agricultural and developmental works. Agricultural research institutes; university of agriculture, approaches to

both physical and human management, policy and administrative leadership, roles of these institutions to agricultural extension services and rural development.

AGX 818.2: Extension Administration and Supervision (2 Units)

Overview of administration, theories of management and supervision, the administrative organization, the administrative process; personnel administration and management, the supervision function; managerial decision making model in agriculture assessment of work accomplishment and special issues. Concepts of Extension Organizations; contemporary organization in agricultural and developmental works. Agricultural research institutes; university of agriculture, approaches to both physical and human management, policy and administrative leadership, roles of these institutions to agricultural extension services and rural development.

AGX 819.2: Planning and Evaluation of Agricultural and Rural Development Programmes (3 Units)

Concepts of programme development, procedures for developing extension programme; procedures for programme development. Relevant concepts in programme planning, concepts and process of monitoring in extension, extension indicators for monitoring purposes; impact assessment in agricultural research and extension; summary of evaluation landscape; design and conduct of evaluation programme; evaluation of extension training programmes situation analysis. Needs identification, creating local support and organizing resources. Analysis and evaluation of some rural development projects in Nigeria (seminar presentation).

AGX 830.2 Dissertation: A student shall be required to write, present, defend and submit a dissertation on an issue that is current and relevant to his or her area of specialization.

(iii) DOCTOR OF PHILOSOPHY (Ph.D) DEGREE PROGRAMME IN AGRICULTURAL EXTENSION

INTRODUCTION

The programme is designed for students seeking for a doctoral degree in agricultural extension with specialization in agricultural extension administration, agricultural programme planning and evaluation, rural sociology, agricultural extension and rural development, agricultural extension communication. The above areas shall form the core areas of research focus and supervision.

Philosophy

The Ph.D degree in Agricultural Extension is designed to provide highly skilled manpower to plan, administer and conduct research in Agricultural extension. The programme will equally produce competent scientists and researchers for Universities and Research Centers as well as the Public and Private Sectors able to compete globally and to act as change agents within the Nigerian economy.

Vision

To produce a world class professionals, scholars and researchers in agricultural extension capable of generating innovative principles for an effective agricultural information dissemination and advisory services.

Mission

The mission of this programme is to train and equip individuals with professional and sufficient knowledge and practical skills to enable them to:

- (a) Engage in teaching, research and community outreach activities in the field of agricultural extension at various levels (Extension agencies, private sector, ministries of agriculture, research organizations, universities, NGOs, etc.)
- (b) Work as professionals and consultants in farms, institutions of higher learning, research institutes and other governmental and nongovernmental organizations
- (c) Formulate and design sound agricultural extension and rural development policies applicable in Nigeria and any other country.
- (c) Advise decision makers in formulating agricultural extension policies

Aim

The programme is aimed at:

- a. Producing persons with professional knowledge in the principles, theories and practices of agricultural extension.
- b. Exposing professionals in related disciplines to knowledge, skills and practices in the field of agricultural extension. .

Objectives

The programme is designed to expose students to advanced courses in agricultural extension and development studies and equip students with research skills through the conduct of supervised research, seminar presentations and dissertation writing in agricultural extension and its related fields.

Admission Requirements

Candidates seeking admission into the Ph.D degree programme in Agricultural Extension will be required to possess:

- (i) M.Sc. degree in Agricultural Extension of the University of Port Harcourt or any other recognized University with a minimum CGPA of 3.50 on a 5-point scale or 2.50 on a 4-point scale and a thesis score not lower than 60% (B) at the M.Sc. level.
- (ii) Shortlisted candidates shall be required to submit a proposal on their intended research area of interest to the Departmental Graduate Studies Committee. Candidates shall be interviewed by the committee and candidates scoring 60% and above will be admitted into the programme.

Area of specialization

- (a) Ph.D in Agricultural Extension and Rural Development
- (b) Ph.D in Agricultural Communication/Information Communication Technology in Agriculture

Programme Duration

The programme shall be run on either full time or part time basis.

- a) Candidates for the full time Doctor of Philosophy Degree Programme in Agricultural Extension shall be required to spend a minimum duration of 24 calendar months (2 years) and maximum of 48 months (4 years).
- b) Candidates for the part time Doctor of Philosophy Degree Programme in Agricultural Extension shall be required to spend a minimum duration of 36 calendar months (2 years) and maximum of 72 months (6 years).

Requirements for Graduation

The student is required to pass all prescribed courses, attend and present all relevant seminars and defend the thesis.

Students are expected to pass a minimum of 48 units thus:

Course	Unit
Core courses	21
Electives	9
Thesis	16
Seminar	2
Total	48

COURSE LIST

First Semester

Course Code	Course Title	Unit
AGX 901.1	Advanced Research Methods and Statistics in Agricultural Development Studies	3

AGX 902.1	Design and Administration of Agricultural Training Programmes	3	research, organization and presentation of data. Review of methods of central tendencies, variability, ANOVA, chi-square, linear regression and other correction techniques. Multiple regression, ANOVA, t-test, non-parametric statistics. Procedure for selecting appropriate statistical methods and steps involved in hypothesis testing. Practical application of statistical methods to relevant specimen research data. Review of meaning and scales of measurements, factors influencing the choice of appropriate parametric tests, principles of tests construction. e.g questionnaire, item analysis, and measurement of reliability and validity. Techniques for attitude scale construction methods of paired comparison, equal-appearing interval, successive intervals, summated ratings and scalegram analysis.
AGX 903.1	Advanced Agricultural Extension Administration Programme Planning and Evaluation	3	
AGX 904.1	Current Global Issues in Agricultural Extension Delivery	3	
Total		12	
Second Semester			
Course Code	Course Title	Unit	
AGX 905.2	Seminar for Doctoral Students	2	
AGX 906.2	Advanced Rural Sociology and Social Changes	3	
AGX 907.2	Advanced Extension Services and Rural Development	3	
AGX 908.2	Advanced Agricultural Extension Communication Methods and Audiovisual Aids	3	
AGX 930.2	thesis	16	
Total		27	

Note: A student is required to take at least three elective courses.

ELECTIVES:

Course Code	Course Title	Unit
AGX 909.1	Agricultural Extension Policy and Development	3
AGX 910.1	Agricultural Knowledge Information Systems and Social Media	3
AGX 911.2	Advanced Agricultural Journalism	3
AGX 912.2	Advanced Leadership	3
AGX 913.2	Television and Radio Programmes in Agriculture.	3

COURSE SYNOPSES

AGX 901.1: Advanced Research Methods and Statistics in Agricultural Extension and Development Studies (3 Units)

Review of scientific methods in agricultural Extension and development research: research problems and objectives formulation/hypothesis and data collection techniques, sampling techniques and sample. Research designs, data analysis methods and presentation of research reports. Review of methods and procedures for conducting social research, statistics as a tool for

AGX 902: Design and Administration of training programmes (3 Units)

Theory and principles in extension administration, linkage between organizational structure and extension practices; Practical Training, training through discussion, in service and training the trainer. Public relations skills.

AGX 903.1: Advanced Agricultural Extension Administration Programme Planning and Evaluation (3Units)

Review of administrative theories, manpower planning and development in agricultural analysis of the organization of modern bureaueragy and pubic services. Theoretical concepts and empirical analysis of complex organizations with particular reference to the extension services. Problems of organizing, staffing, control and managing development and research organizations. Policy and administrative leadership in the extension service. Analysis and evaluation of some rural development programmes projects in Nigeria. Review of the concepts of development, analysis of current theories, concepts, principles, objectives, criteria, procedures and sources of information for planning, implementation and evaluation of agricultural and rural development projects. Review of the concepts of monitoring and evaluation. Alternative planning and evaluation models, problems associated with programme planning and evaluation situation analysis. Myths about evaluation and uses of evaluation reports. Students are required to collect and critique at least 4 programme plans and their evaluation reports. The report would be presented in the class.

AGX 904.1: Current Global Issues in Agricultural Extension Delivery (3 Units)

Issues that are both current and global in nature should be highlighted. For example, HIV/AIDS, global warming and climate change, health care

delivery, poverty, environmental degradation, etc. Their effects or interrelationship with agricultural extension programme delivery in the various continents, in Nigeria and other countries should be discussed. Strategies being adopted and best practices should be pointed out. Examination of problems of extension service delivery - including organization, functions, and responsibilities, programme determination, grassroots involvement and participation, staff training and field performance. Analysis of historical, philosophical, social and logistic factors affecting these issues.

AGX 905.2: Seminar for Doctoral Students (2 Units)

A student will select a topic of current issues in any area of agricultural extension and rural development, such as agricultural extension administration, agricultural programme planning and evaluation, rural sociology, and agricultural communication/information technology, and prepare, present and defend the report.

AGX 906.2: Advanced Rural Sociology and Social Changes (3 Units)

Review of basic sociological concepts. Social and human factors in agricultural technology transfer. Rural institutions and functions. Rural-urban relations. Theories of social changes. Influencing factors and consequences of social changes. Theoretical and empirical problems in introducing social changes. Rural-urban interaction, agricultural development, education, occupation mobility and migration and other elements of social change. Analysis of social changes in Nigeria in the past one century. Review of indigenous technologies that are related to crop and animal production, soil conservation, health and health care, etc. constraints to effective use of indigenous technologies in agricultural production. Procedure for developing new technologies. Constraints to development of modern technologies that are appropriate. Procedure for selecting appropriate technologies, effective transfer of technologies. Gender issues in technology development and transfer. Case studies of farming-related technologies developed in advanced countries and in Nigeria, their transfer adoption and appraisal. Participatory technology. Integration of indigenous knowledge and innovation in agriculture and rural development.

AGX 907.2: Advanced Agricultural Extension and Rural Development (3 Units)

Concept of agricultural extension and rural development. Agricultural extension/rural development as an educational process. Nigeria's agricultural extension/rural development policy. Various agricultural extension/rural development

approaches/systems implemented or being implemented in Nigeria and other countries of the world. Cases of success or failure of agricultural extension/rural development programmes. Appraisal of agricultural extension programmes in Nigeria. Leadership and rural development role, types and problems. Review of history of extension in the World and in Nigeria, the place and role of extension in rural community development. Extension training, objectives and extension resources, survey of extension methodology. Major activities of extension services, extension concept of programming, major constraints of extension organization and education. Case studies of agricultural extension systems in some advanced and developing countries emerging extension systems across the world.

AGX 908.2: Advanced Extension Communication Methods and Audio-Visual Aids (3 Units)

Communication process, and environment, skills of communication, design selection and utilization of audio-visual extension teaching aids. The laws of teaching and learning. Communication strategies for different audience groups-policy makers, programme planners, village leaders and rural farmers, case studies of extension communication systems in the world and in Nigeria. Theory and practice of agricultural writing. Preparation of research materials for scientific journals. Planning, writing, editing and production of educational publications, agricultural exhibit techniques and advertising. The use of computers in designing and production of extension information.

AGX 909.1: Agricultural Extension Policies and Development (3 Units)

Development of policy briefs; policy cycle. Historical and analytical treatment of government systems affecting agricultural policies and programmes in Nigeria and developing countries in general. Agricultural policies in Europe and America. Agricultural planning and project appraisal as related to agricultural development, evaluation of agricultural policies and development. Seminar on topical development and policy issues.

AGX 910.1: Agricultural Knowledge Information Systems (3 Units)

Basic concepts – data versus information, characteristic of information; Concept of Agricultural Knowledge and Information System (AKIS), Training of Stakeholders of AKIS; Role of Management Information System in extension organization; Need for automation; Networking

and interactive processing; Establishing a Management Information System; Social Media Strategy; How to use social media for extension services; Factors to consider in selecting social media in extension work – awareness, interest and doable (AID); Cyber extension, ICT enabled extension services; Market Led Extension

AGX 911.2: Advanced Agricultural Journalism (3 Units)

Principles of writing, structure of news story, procedure in writing the news story and the elements of style. Success stories & feature articles; writing for success & feature articles, Types of Feature articles. Information materials; Types of information materials and user; Techniques in book Publishing. Editing Principles, Tools & Techniques and art of Proof Reading Techniques, Measuring Readability of writing; Developing communication & Media Strategy for selected developmental programme. Exercise of editing & proof reading the Farm News for Newspapers and different types of intro and leads.

AGX 912.2: Advanced Leadership (3 Units)

Leadership theories and their application to rural community settings.; effective leadership roles and relationships in small groups and community settings, analysis of processes in leadership development with specific reference to principles applicable to discovering and educating potential leaders for social change, evaluation of leadership development programmes.

AGX 913.2: Televisions and Radio Programmes in Agriculture (3 Units)

Principles of writing agricultural articles, news and reports for extension work; Principles and methods of communication media administration related to rural population; Analysis and applied techniques; communication media suitable to rural situation; Principles of presenting agricultural information, radio and TV programs; article writing and preparation of radio programs for farmers; Influence, importance and profitable mass communication for extension, selection techniques in other categories of mass communication for extension.

AGX 930.2: Thesis (16 Units)

A student shall be required to undertake an empirical study on a current and relevant area of choice in the field of Agricultural Extension and rural development culminating to writing a thesis.

ACADEMIC STAFF LIST

S/No.	Name	Rank	Qualifications	Specialization
1.	Dr. Angela I. Emodi	Reader/Ag. Head of Department	B.Sc (Home Econs Edu.), UNN PGD (Agric Econs & Ext); MSc (Agric Ext & Rural Sociology), RSUST; PhD (Agric Ext & Admin), UNN	Home Economics Education
2	Prof. O.M. Adesope	Professor	BSc Agric. Ext (Ibadan), TTC Agric. Science Educ. (FCETOM) MSc Agric. Ext (FUTO), PhD Agric. Ext (FUTO)	Agric. Ext. (Rural Development)
3.	Prof. Olajire S. Olatunji	Professor	NCE, Agric/Edu. (SACOED) B.Sc. Agric/Edu (ABSU), MSc Agric Extension Services (UI); PhD Agric. Extension and Rural Development (MOUAU); M.Ed & PhD -Measurement & Evaluation (ABSU)	Agric. Ext, Rural Sociology & Development
4.	Prof. B.I. Isife	Professor (Adjunct)	B. Agric (UNN); MSc. Agric Extension (UNN);PhD Agric Extension (UNN)	Agric Extension & Administration
5.	Prof. O. N. Nwaogwugwu	Professor	NCE (Alvan). BSc Agric Educ (RSUST); MSc (Agric Ext (RSUST), PhD Agric. Extension (FUTO)	Agric Extension & Rural Sociology
6.	Dr. Clara C. Ifeanyi-Obi	Senior Lecturer	BSc (Agric Econs & Ext) FUTO, MSc (Agric Ext & Rural Sociology, RSUST; PhD, Agric Extension, FUTO	Rural Community Development
7.	Dr U. Akwiwu	Lecturer I	BSc (Agric. Econs & Ext) Imo State University. MSc, PhD, Ibadan.	Rural Sociology
8	Mr. Chimkanma C. Wigwe	Lecturer II	B. Agric (Agric Extension) UPH. MPhil Agric. Extension (UCC), Ghana	Agricultural Extension
9	Dr Ugochi G. Okorie	Lecturer II	HND (Agric. Mgt & Ext), PGD (Agric. & Applied Economics/Extension), MSc (Agric. Ext & Rural Soc. (RSUST), PhD (Community & Rural Dev.)	Community and Rural Development

DEPARTMENT OF AGRICULTURAL ECONOMICS AND AGRIBUSINESS MANAGEMENT

The Department of Agricultural Economics offers the following programmes:

- A. PGD IN AGRICULTURAL ECONOMICS AND AGRIBUSINESS**
- B. MSc. IN AGRICULTURAL ECONOMICS**

Areas of Specialization

1. Farm Management and Production Economics
2. Agricultural Finance and Project Analysis
3. Agribusiness Management
4. Agricultural Resource and Environmental Economics

C. PhD IN AGRICULTURAL ECONOMICS

Areas of Specialization

1. Farm Management and Production Economics
2. Agricultural Finance and Project Management
3. Resource and Environmental Economics

A. Postgraduate Diploma (PGD) in Agricultural Economics and Agribusiness

The programme is designed for candidates seeking to remedy their deficiencies to qualify for a Master's degree in agricultural economics and others intending to improve their skills for better performance in the field.

Philosophy

The philosophy of the postgraduate diploma programme is to provide postgraduate training in Agricultural Economics for Higher National Diploma graduates of Agriculture. It is also to provide training for professionals in related disciplines, and graduates in agriculture who otherwise would not qualify for admission into Master's Degree Programmes in agricultural economics and Agribusiness

Vision

To produce experts and consultants in agricultural economics to analyze and interpret agricultural policies in critical sectors in ministries of agriculture, Agricultural Development Programmes (ADPs), Non-Governmental Organization, private and public agencies and farms to bridge the knowledge gap.

Mission

To provide excellence in agricultural economics and Agribusiness research. To train and develop world class manpower in agricultural economics

Rationale/Justification

The programme will provide opportunity for such individuals with 3rd class degree in Agricultural economics who need to remedy their bachelor's degrees to enable them pursue higher degrees in agricultural economics professionals from related disciplines who wish to change careers to agricultural economics and Agribusiness

Aim

The Postgraduate Diploma Programme in agricultural economics and Agribusiness is aimed at:

- a. Producing persons with advanced knowledge and skills in basic and applied agricultural economics and Agribusiness in principles, theories and practices.
- b. Exposing professionals in related disciplines to knowledge, skills and practices in the field of farm economics and policies required in managing farm business enterprises.
- c. Providing training in specific aspects of agricultural production and Agribusiness.

Objectives

The objectives of the programme include to:

- a. offer opportunity to graduates of agricultural economics with a CGPA of less than 2.50 for further studies at the higher degree level.
- b. provide a platform for graduates of agriculture and related fields or holders of HND in agricultural economics with lower credit who wish to undertake a career in agricultural economics.

Admission Requirements

An applicant should be a graduate of University of Port Harcourt, or a graduate from any other University recognized by the senate of University of Port Harcourt.

Candidate seeking admission into the (PGD) programme in agricultural economics shall possess at least a second class lower Degree in a non-agricultural based discipline or a third class/pass Degree in Agricultural Economics. Candidates seeking admission with HND must have an upper credit pass. In addition, candidates must possess the matriculation requirements of the Faculty of Agriculture, University of Port Harcourt

Programme Duration

The PGD programme in Agricultural Economics shall run for a minimum of 12 calendar months.

Graduation requirements

In addition to passing stipulated courses, the students shall be required to complete and defend a research project.

List of Courses, Codes and Credit Units.

First Semester:

Course Code	Course Title	Units
AEE 701.1	Introduction to Agricultural Economics Theories	2
AEE 702.1	Introduction to Research Methods in Agricultural Economics	2
AEE 703.1	Agricultural Projects, Planning and Analysis.	2
AEE 704.1	Principles of Agricultural Micro Economics	2
AEE 705.1	Agricultural Marketing	2
AEE 706.1	Mathematical Economics	2
AGE 707.1	Scientific Communication Process	2
Total		14

Second Semester:

Course Code	Course Title	Units
AEE 708.2	Farm Management	2
AEE 709.2	Agricultural Finance and Records.	2
AEE 710.2	Agribusiness Management	2
AEE 711.2	Principles of Macro Economics	2
AEE 712.2	Production Economics	2
AEE 713.2	Seminar	2
AGE 714.2	Project.	4
Total		18

Minimum Graduation requirements: Core courses **Core 26; Project 4; Seminar: 2. Total 22**

COURSE DESCRIPTION

AEE 701.1: Introduction to Agricultural Economic Theories I (2 units)

Selected economic theories relevant to agriculture. Demand and supply, consumer theories, market structure, theory of the firm, production function.

AEE 702.1: Introduction to Research Methods Statistics in Agricultural Economics (2 units)

Meaning, scope and functions research. Types and examples of research in agricultural economics. Sampling techniques. Tools and methods of data

collection. Basic statistical concepts and their application agricultural economics. Techniques of data interpretation. Reporting research results. Classification, types and methods of data collection in agricultural research; meaning and uses of frequency distribution; measures of central tendency and dispersion, moving averages; simple linear regression, tests of hypothesis.

AEE 703.1: Agricultural Project Planning and Analysis (2 Units)

Characteristics of agricultural and agro-industrial projects; the project cycle; non-discounted and discounted appraisal methods; importance of discount rates, annuity and project life; cash flow preparation.

AEE 704.1: Principles of Micro Economics (2units)

The theory of consumer behavior and demand. The theory of value and prices, the theories of cost and production. The theory of perfect competition. The theory of distribution. Market Equilibrium.

AEE 705.1: Agricultural Marketing (2units)

Concepts in Agricultural Marketing - Characteristic of Agricultural product and Production – Problems in Agricultural Marketing from Demand and Supply and Institutions sides. Market intermediaries and their role - Need for regulation in the present context -Marketable & Marketed surplus estimation. Marketing Efficiency

AEE 706.1: Mathematical Economics (2units)

Differentiation. Maxima and minima and their applications. Integration applications to economics. Difference equations and applications. Matrix algebra and applications in Economics.

AEE 707.1 Scientific Communication Process (2 units)

The art and science of scientific writing. Journals, conferences, seminars. How to get a paper published in a journal. The editorial process. Visibility process. Mentorship process in scientific communication

AEE 708.2: Farm Management (2 units)

Farm decision-making process; enterprise combinations; enterprise budget; break-even analysis, sensitivity analysis, graphical approach to linear programming. Case studies.

AEE 709.2: Agricultural Finance and Records (2 units)

Sources of finance to agriculture; farm firm capitalization; agricultural credit; loan payment terms; interest rate determination; cost of capital; review of farm records and valuation methods; problems of recording and accounting.

AEE 710.2: Agribusiness Management (2 units)

Managerial roles; executive responsibilities; external and internal environments of enterprise; structural characteristics of organizations; areas of management; authority and responsibility in organizations; conflict and leadership; managerial functions and processes including decision-making, planning, and management of objectives. Case studies

AEE 711.2: Principles of Macro Economics (2units)

Measuring Macroeconomic activity. National Income, Aggregate supply demand. Government and the theory of aggregate demand. Consumption function hypotheses. Investment function. Equilibrium in the product market. The supply of money, demand for money and the money market. Simultaneous Equilibrium or the money and product markets. Theory of the labour market

AEE 712.2 Production Economics (2units)

The methodology of production function analysis. Different forms of production functions. The profit function. Optimization under perfect knowledge. Optimization over time. Optimization under risk and uncertainty.

AEE 713.2: Seminar (2units)

Seminar presentations on current issues in Agricultural Economics and Agribusiness

AEE 714.2: Project Report (4 Units)

A guided scientific investigation of a selected topic/problem. This involves identification of researchable problem, statement of specific objectives and hypotheses, data collection and analysis. These processes will lead into a special project report.

B. MSc. IN AGRICULTURAL ECONOMICS

Introduction

The programme is designed for students seeking for a higher degree in agricultural economics with specialization in Farm management and Production Economics, Agricultural Finance and Project Analysis, Agribusiness Management and Agricultural Resource and Environmental Economics. Consequently, the degree of Masters of Science (M.Sc.) in agricultural economics shall be awarded in the four (2) broad areas as:

1. M.Sc. in Farm Management and Production Economics
2. M.Sc. in Agricultural Finance and Project Analysis
3. M.Sc. in Agribusiness Management
4. M.Sc. in Agricultural Resource and Environmental Economics

Philosophy

The M.Sc. degree in Agricultural Economics is designed to provide highly skilled manpower to plan, administer and conduct research in Agricultural Economics. The programme will equally produce competent scientists and researchers for Universities and Research Centres as well as the Public and Private Sectors able to compete globally and to act as change agents within the Nigerian economy.

Vision

To produce a world class professionals, scholars and researchers in agricultural economics and policies, capable of generating solutions and guiding policy makers in effective agricultural policy directions.

Mission

The mission of this programme is train and equip individuals with professional and sufficient knowledge and practical skills to enable them to:

- (a) Engage in teaching, research and community outreach activities in the field of agricultural economics at various levels (Extension agencies, private sector, ministries of agriculture, research organizations, universities, NGOs, etc.)
- (b) Work as professionals and consultants in farms, research institutes and other governmental and nongovernmental organizations
- (c) Advise decision makers in formulating agricultural economic policies

Objectives

The programme is designed to expose students to advanced courses in agricultural economics and equip students with research skills through the conduct of supervised research, seminar presentations and thesis preparation in agricultural economics and its related fields.

Admission Requirements

Candidates seeking admission *into the Master of Science degree programme in Agricultural Economics shall possess:*

- (i) A Bachelor's degree in Agricultural economics or its related disciplines with a minimum of Second Class (Lower division).
- (ii) Appropriate Post Graduate Diploma of the University of Port Harcourt or other recognized Universities with at least a credit pass of 3.0 CGPA on a 5-point scale.
- (iii) HND Upper Credit plus PGD.

Programme Duration

Candidates may register for full-time or part-time studies.

- a) The Full-time Master of Science Degree Programme in Agricultural Economics shall run for a minimum duration of 12 calendar months and maximum of 24 months.
- b) The Part-time Master of Science Degree in Agricultural Economics shall run for a minimum duration of 24 calendar months and maximum of 48 months.

AGE 809.1	Research Methodology and Statistical Methods	3
AGE 810.1	Microeconomic Theory	3
AGE 811.1	Macroeconomic Theory	3
AGE 812.1	Econometrics	3
AGE 813.1	Agricultural Policy Planning and Development	3
AGE 827.1	Scientific Communication Process	3
Total		20

Requirements for Graduation

The student is required to pass all prescribed courses, earn a CGPA of 3.00 and defend the dissertation.

OPTION 1: M.Sc. IN FARM MANAGEMENT AND PRODUCTION ECONOMICS

First Semester

Compulsory/Core Courses

Course Code	Course Titles	Units
SGS 801.1	ICT and Research Methods	2
AGE 809.1	Research Methodology and Statistical Methods	3
AGE 810.1	Microeconomic Theory	3
AGE 811.1	Macroeconomic Theory	3
AGE 812.1	Econometrics	3
AGE 813.1	Agricultural Policy Planning and Development	3
AGE 827.1	Scientific Communication Process	3
Total		20

Second Semester

Course Code	Course Titles	Units
SGS 801.2	Entrepreneurship and Management	2
AGE 818.2	Agricultural Project Analysis and Evaluation	3
AGE 806.2	Seminar	2
AGE 819.2	Agricultural Production Economics	3
AGE 822.2	Mathematical Economics	3
AGE 823.2	Farm Management	3
AGE 815.2	Farm Accounting and Financial Management	3
AGE 899.2	Dissertation	6
Total		25

OPTION 2: M.Sc. IN AGRICULTURAL FINANCE AND PROJECT ANALYSIS

First Semester

Compulsory/Core Courses

Course Code	Course Titles	Units
SGS 801.1	ICT and Research Methods	2

Second Semester

Course Code	Course Titles	Units
SGS 801.2	Entrepreneurship and Management	2
AGE 814.2	Agribusiness Finance and Risk Management	3
AGE 815.2	Farm Accounting and Financial Management	3
AGE 806.2	Seminar	2
AGE 817.2	Agricultural Finance and Insurance	3
AGE 818.2	Agricultural Project Analysis and Evaluation	3
AGE 829.2	Operational Research	3
AGE 899.2	Dissertation	6
Total		25

OPTION 3: MSc. IN AGRIBUSINESS MANAGEMENT

First Semester

Compulsory/Core Courses

Course Code	Course Titles	Units
SGS 801.1	ICT and Research Methods	2
AGE 809.1	Research Methodology and Statistical Methods	3
AGE 810.1	Microeconomics	3
AGE 811.1	Macroeconomics	3
AGE 812.1	Econometrics	3
AGE 813.1	Agricultural Policy Planning and Development	3
AGE 827.1	Scientific Communication Process	3
Total		20

Second Semester

Course Code	Course Titles	Units
SGS 801.2	Entrepreneurship and Management	2
AGE 814.2	Agribusiness finance and Risk Management	3
AGE 825.2	Strategic human resource management for Agribusiness	3
AGE 816.2	Agricultural Cooperatives for Agribusiness	3

AGE 818.2	Agricultural Project Analysis and Evaluation	3
AGE 829.2	Operational Research	3
AGE 824.2	Agricultural Marketing and Price Analysis	3
AGE 806.2	Seminar	2
AGE 899.2	Dissertation	6
	Total	28

OPTION 4: MSC. IN AGRICULTURAL RESOURCE AND ENVIRONMENTAL ECONOMICS

First Semester

Compulsory/Core Courses

Course Code	Course Titles	Units
SGS 801.1	ICT and Research Methods	2
AGE 809.1	Research Methodology and Statistical Methods	3
AGE 810.1	Microeconomics	3
AGE 811.1	Macroeconomics	3
AGE 812.1	Econometrics	3
AGE 813.1	Agricultural Policy Planning and Development	3
AGE 827. 1	Scientific Communication Process	3
	Total	20

Second Semester

Course Code	Course Titles	Units
SGS 801.2	Entrepreneurship and Management	2
AGE 819.2	Agricultural Production Economics	3
AGE 820.2	Agricultural Resource Economics	3
AGE 821.2	Environmental Economics	3
AGE 814.2	Agribusiness Finance and Risk Management	3
AGE 829.2	Operational Research	3
AGE 806.2	Seminar	2
AGE 899.2	Dissertation	6
	Total	28

COURSE DESCRIPTION

FIRST SEMESTER

SGS 801.1 ICT and Research Methods (2 Units)

Philosophy guiding Research; Organization of Research; Guiding Principles of Scientific Research; Scientific Methods of Research Observation; Essential of spreadsheet; Internet technology; Statistical packages; Precision and accuracy of estimates; Principles of scientific research; Concept of hypothesis testing; Organization of research and report writing and proposal format; Principles of successful project (titles, goals and objectives); Developing methodology and presenting experimental results; Research ethics; Referencing

research writing; Web 2.0 and social media; Scientific writing tips; Visibility actions for research output.

AGE 809.1: Research Methodology and Statistical Methods (3 Units)

Science and the scientific method. Research problems, objectives and research hypothesis; sampling theory and practice, data processing; analysis and reporting. Selected case studies in the various sub-disciplines of agricultural economics. Presentation of research proposals and reports.

AGE 810.1: Microeconomic Theory (3 Units)

The theory of consumer behavior and demand. The theory of value and prices, the theories of cost and production. The theory of perfect competition. The theory of distribution. Market Equilibrium.

AGE 811.1: Macroeconomic Theory (3 Units)

Measuring Macroeconomic activity. National Income, Aggregate supply demand. Government and the theory of aggregate demand. Consumption function hypotheses. Investment function. Equilibrium in the product market. The supply of money, demand for money and the money market. Simultaneous Equilibrium or the money and product markets. Theory of the labour market. Derivation of Aggregate demand and Aggregate supply curves. General equilibrium of the commodity, money and labour markets. New classical economics.

AGE 812.1: Econometrics (3 Units)

Simple and multiple regression analysis. Econometric problems and methods. Generalized least squares. "Instrumental variables and errors in variables. Discriminate Analysis: Methods and principal components/factor analysis.

AGE 813.1: Agricultural Policy Planning and Development (3 Units)

Meaning and scope of Development, causes and characteristics of economic growth. Poverty, population and economic growth. Unemployment. Migration. Agrarian change. Structural Adjustment Programme. Agribusiness research policy.

AGE 827.1: Scientific Communication process (2Units)

How to write scientific publications. Disseminating channels for publications; the art of manuscript preparation. Editorial process. Ethical provisions. International and national publishers. Indexing agencies. Visibility in the research process (relevance of google scholar, research gate, academia.edu, in the research process and how to get connected). Networking and the research process. Mentorship issues.

SECOND SEMESTER

SGS 801.2 Entrepreneurship and Management (2Units)

Concept of Entrepreneurship in agriculture; feasibility report writing, cash flow analysis .

AGE 806.2: Seminar (2 Units)

A student will select a topic of current interest and prepare and defend the report

AGE 818.2: Agricultural Project Analysis and Evaluation (3 Units)

Aspects of project preparation and analysis. The project cycle. Project costs and benefits. Financial analysis of projects. Farm investment analysis. Economic aspects of project analysis. Measures of project worth. Meaning and scope of monitoring and evaluation. Techniques in data collection and information system. Monitoring of physical and financial progress.

AGE 819.2 Agricultural Production Economics (3 Units)

The methodology of production function analysis. Different forms of production functions. The profit function. Optimization under perfect knowledge. Optimization over time. Optimization under risk and uncertainty.

AGE 822.2: Mathematical Economics (3 Units)

Differentiation. Maxima and minima and their applications. Integration applications to economics. Difference equations and applications. Matrix algebra and applications in Economics.

AGE 823.2: Farm Management (3 Units)

Principles and concepts of Farm Management. Valuation and depreciation of assets. Analysis of farm business performance. Gross margin analysis. Farm Budgeting. Farm Assessment and Planning. Linear and dynamic programming. Investment Appraisal. Budgetary Control.

AGE 815.2: Farm Accounting and Financial Management (2 Units)

Accounting principles and applications. Farm records, banking and credit procedures. Financial analysis, scope and methods of financial management Ratio analysis. Profit planning, financial forecasting, planning and control. Capital budgeting techniques. Investment decision under uncertainty.

AGE 814.2: Agribusiness Finance and Risk Management (3 Units)

Modeling, risk adjustment); return on capital. Nature of risk to business; areas of risk; sources of risk in agribusiness; managing risks in agribusiness; global demands and trends; security and strategic factors. Introduction to insurance; life assurance laws; insurance of the person; marine and aviation insurance; property and pecuniary insurance; motor

insurance; underwriting and claims; insurance broking; re-insurance and marketing of insurance services.

AGE 816.2: Agricultural Cooperatives (3 Units)

Concept of cooperatives. Principles and types of cooperatives. Cooperatives in Nigeria. Formation, admission and registration of cooperatives. Conduct of meetings fund raising, loan application and administration. Management of cooperatives. By-laws of cooperative societies. Cooperatives in rural development. Evaluation in rural development. Evaluation of cooperatives, case studies.

AGE 817.2: Agricultural Finance and Insurance (3 Units)

Definition and scope. Classification of agricultural credit. Loan repayment. Interest rates and loan costs. Survey of credit institutions and programme in Nigeria. External finance in Nigeria agriculture. Risk and uncertainty. Risk situations in agriculture. Risk and insurance and agriculture. Loss Assessment.

AGE 820.2: Agricultural Resources Economics (3 Units)

The concept of Resource Economics, Scarcity of resources: theories, mathematical concepts ; Resource Sustainability, Land as a resource: Availability, use and valuation of resources: Demand for the supply of land, land use planning, land tenure, valuation of land, availability, use and scarcity, resource conservation, desertification, erosion control, formulation and implementation of land policies, Water resource: supply and availability of water, irrigation and water management, water salinization, drainage, quality and hygiene of drinking water. Energy and Forest Resource: availability and use of energy; farm internal and external sources of energy, Forestry: wood, importance of forests, deforestation, optimal rotation, forest, Policies etc, Labour as a Resource: Supply; availability, types, improvement, use and demand for labour. Capital as a resource: Forms of capital, availability, use, types and scarcity of different forms of capital, Livestock/wildlife/fisheries as a resources: procurement, availability and uses; degradation, optimal management, forests, fossil fuels and mineral resources as well as their over exploitation.

AGE 821.2: Environmental Economics (3 Units)

The concept of Environmental economics. The economy and the environment. Economic efficiency and markets. The economics of environmental quality. Environmental Analysis- Environmental Impact Assessment, Benefit-Cost Analysis, Net Present Value etc, Environmental Policy Analysis, International Environmental Issues, Trade and the environment, Energy transition,

Sustainability, Environmental Pollution, Climate change issues.

AGE 824.2: Agricultural Marketing and Price Analysis (3 Units)

Review of Concepts in Agricultural Marketing - Characteristic of Agricultural product and Production – Problems in Agricultural Marketing from Demand and Supply and Institutions sides. Market intermediaries and their role - Need for regulation in the present context -Marketable & Marketed surplus estimation. Marketing efficiency - Structure Conduct and Performance analysis - Vertical and Horizontal integration - Integration over space, time and form-Vertical coordination. Marketing Co-operatives – APMC Regulated Markets - Direct marketing, Contract farming and Retailing - Supply Chain Management - State trading, Warehousing and other Government agencies – Performance and Strategies – Market infrastructure needs, performance and Government role - Value Chain Finance. Role of ICT in marketing of agricultural products. Spatial and temporal price relationship – price forecasting – time series analysis – time series models – spectral analysis. Price policy and economic development – non-price instruments. Theory of storage – Introduction to Commodities markets and future trading – Basics of commodity futures – Operation Mechanism of Commodity markets – Price discovery -Hedging and Basis – Fundamental analysis - Technical Analysis – Role of Government in promoting commodity trading and regulatory measures.

AGE 825.2 Strategic human resource management for Agribusiness (2 Units)

The concept of strategic management and its application to agribusiness; human resource strategic goals; internal and external situational analysis; agribusiness human resource (HR) SWOT analysis; development of agribusiness human resource strategies, plans and programs; agribusiness organizational culture development; determination of the right number of personnel; development of human resource policies; determination of the right job grades and salary structures; preparation of agribusiness HR strategic and annual operational plans and budgets; HR performance measures; monitoring and control systems; globalization and its impact on strategic human resource management.

AGE 829.2: Operations Research (3 Units)

Matrices, Game theory, Decision theory under different kind of uncertainties, Uncertainty modelling, Supply chain decisions, linear programming, inventory management, use of ICT for operations management, risk management, production and quality management, simulation modelling and analysis, mathematical optimization,

stochastic modeling, probability and statistics, operations research practices.

AGE 899.2: Dissertation (6 Units)

Students are expected to write, present, defend and submit a scientific work on contemporary issues in agricultural economics.

D. Ph.D. IN AGRICULTURAL ECONOMICS INTRODUCTION

The programme is designed for students seeking for doctoral degree in Agricultural Economics with specialization in **Farm Management and Production Economics and Agricultural Finance and Project Analysis**. Consequently, the core areas of Specialization shall be:

1. PhD in Agricultural Economics (Farm Management and Production Economics)
2. PhD in Agricultural Economics (Agricultural Finance and Project Analysis)
3. Ph.D in Agricultural Economics (Resource And Environmental Economics)

Philosophy

The Ph.D degree in Agricultural Economics is designed to provide highly skilled manpower to plan, administer and conduct research in Agricultural Economics. The programme will equally produce competent scientists and researchers for Universities and Research Centres as well as the Public and Private Sectors able to compete globally and to act as change agents within the Nigerian economy.

Vision

To produce a world class professionals, scholars and researchers in agricultural economics and policies, capable of generating solutions and guiding policy makers in effective agricultural policy directions.

Mission

The mission of this programme is train and equip individuals with professional and sufficient knowledge and practical skills to enable them to:

- (a) Engage in teaching, research and community outreach activities in the field of agricultural economics at various levels (Extension agencies, private sector, ministries of agriculture, research organizations, universities, NGOs, etc.)
- (b) Work as professionals and consultants in farms, research institutes and other governmental and nongovernmental organizations
- (c) Advise decision makers in formulating agricultural economic policies

Objectives

The programme is designed to expose students to advanced courses in Agricultural Economics and

equip students with research skills through the conduct of supervised research, seminar presentations and thesis preparation in agricultural economics and its related fields.

Admission Requirements

Candidates seeking admission into the Ph.D degree programme in Agricultural Economics will be required to possess:

- (i) M.Sc. degree in Agricultural Economics of the University of Port Harcourt or any other recognized University with a minimum CGPA of 3.50 on a 5-point scale or 2.80 on a 4-point scale and a dissertation score not lower than 60% (B) at the M.Sc. level.
- (ii) Shortlisted candidates shall be required to submit a proposal on their intended research area of interest to the Departmental Graduate Studies committee. Candidates shall be interviewed by the committee and candidates scoring 60% and above will be admitted into the programme.

Programme Duration

The programme shall be run on either full time or part time basis.

- a) Candidates for the full time Doctor of Philosophy Degree Programme in Agricultural Economics shall be required to spend a minimum duration of 24 calendar months and maximum of 60 months.
- b) Candidates for the part time Doctor of Philosophy Degree Programme in Agricultural Economics shall be required to spend a minimum duration of 36 calendar months and maximum of 84 months.

Requirements for Graduation

The student is required to pass all prescribed courses, attend and present all relevant seminars and defend the thesis.

Students are expected to pass a minimum of 48 units thus:

Course	Unit
Core courses	21
Electives	9
Thesis	16
Seminar	2
Total	48

OPTION 1. PhD IN FARM MANAGEMENT AND PRODUCTION ECONOMICS

COURSE LIST

First Semester: (Core Courses)

Course Code	Course Titles	Credit Units
AGE 901.1	Advanced Microeconomic theory	3
AGE 902.1	Advanced Macroeconomic theory	3
AGE 903.1	Advanced Econometrics	3

ELECTIVES

Course Code	Course Titles	Credit Units
AGE 904.1	Advanced Agricultural Development Policy and Planning	3
AGE 921. 1	Advanced Agricultural Marketing	3
Total		6

SECOND SEMESTER

Course Code	Course Titles	Credit Units
AGE 905.2	Seminar	2
AGE 906.2	Advanced Agricultural Projects Analysis	3
AGE 907.2	Advanced Operations Research	3
AGE 909.2	Advanced Production Economics	3
AGE 910.2	Advanced Farm Management	3
AGE 922.2	Agricultural Data Systems and Processes	3
AGE 900.2	Thesis	16
Total		33

OPTION 2: PhD IN AGRICULTURAL FINANCE AND PROJECT ANALYSIS

COURSE LIST

First Semester: (Core Courses)

Course Code	Course Titles	Credit Units
AGE 901.1	Advanced Microeconomic theory	3
AGE 902.1	Advanced Macroeconomic theory	3
AGE 903.1	Advanced Econometrics	3
Total		9

ELECTIVES

Course Code	Course Titles	Credit Units
AGE 904.1	Advanced Agricultural Development Policy and Planning	3
AGE 921. 1	Advanced Agricultural Marketing	3
Total		6

Second Semester

Course Code	Course Titles	Credit Units
AGE 905.2	Seminar	2
AGE 911.2	Advanced Agricultural Credit and Rural Finance	3
AGE 912.2	Advanced Money and Capital Market	3
AGE 906.2	Advanced Agricultural Project Analysis	3
AGE 907.2	Advanced Operations Research	3
AGE 900.2	Thesis	16
AGE 922.2	Agricultural Data Systems and Processes (Elective)	3
Total		33

OPTION 3. PhD IN AGRICULTURAL ECONOMICS (RESOURCE & ENVIRONMENTAL)

First Semester:

(Compulsory/Core Courses)

Course Code	Course Titles	Credit Units
AGE 901.1	Advanced Microeconomic theory	3
AGE 902.1	Advanced Macroeconomic theory	3
AGE 903.1	Advanced Econometrics	3
AGE 904.1	Advanced Agricultural Development Policy and Planning	3
AGE 921.1	Advanced Agricultural Marketing	3
Total		15

Total for First semester =15 Units

Note that SGS 801.1 will be taken by any student who did not offer it at MSc degree level.

Second Semester

Students are required to take six (6) courses.

(Resource and Environmental Economics)

Course Code	Course Titles	Credit Units
AGE 905.2	Seminar	2
AGE 913.2	Advanced Natural Resource Economics	3
AGE 914.2	Advanced Environmental Economics	3
AGE 915.2	Advanced Welfare Economics and Policy	3
AGE 916.2	Advanced Ecology and Energy Economics	3
AGE 900.2	Thesis	16
Total		30

Total for second semester = 30Units + 3 Units from electives = 33 Units

ELECTIVES (Only one elective is required)

Course Code	Course Title	Credit Units
AGE 909.2	Advanced Production Economics	3
AGE 906.2	Advanced Agricultural Project Analysis	3
Total		6

COURSES SYNOPSES

AGE 901.1: Advanced Microeconomic Theory (3 Units)

Recent development in the theory of market demands. Decision-making and utility theory. Theories of imperfect competition, monopoly, monopsony, duopoly, oligopoly and monopolistic competition. Elements of welfare economics. Critique of the neoclassical theory of the firm. General and partial equilibrium analysis.

AGE 902.1: Advanced Macroeconomic Theory (3 Units)

Revision of National income accounting, multiplier, product, money and labour markets. Simultaneous equilibrium of product, money and labour markets. IS-LM External Trade Model. New classical economics. Theories of business cycle. Exchange rate determination. Balance of payment theories and policies. Theories of inflation, unemployment and stagnation. Economic policy. Current issues in macroeconomics.

AGE 903.1: Advanced Econometrics (3 Units)

The general linear model and problems associated with its use in Econometric research in Agriculture. Errors in variables, auto-correlation and miscellaneous single-equation problems, the theory of simultaneous equation approach, model construction and estimating techniques in agriculture. Solutions of simultaneous equation bias. Time series models and forecasts: choice of econometric Techniques. Monte Carlo studies on demand, production costs and investment, etc. Current advances in econometric modeling.

AGE 904.1: Advanced Agricultural Policy, Planning and Development (3 Units)

Agriculture in economic growth and development. Theories of agrarian change. The global food problem. Rural-Urban terms of trade. Theory and evidence of trade and development. Investment and foreign aid. Development planning. The Aggregate Growth models. Choice of planning techniques in national development plans. Consideration and analysis of planning models. Planning problems involving manpower demand and supply, regional development, foreign trade, monetary and fiscal

policy. IMF structural adjustment. Agricultural trade liberation. Agriculture and environmental management. Energy policy. Sustainability issues in development planning.

AGE 921.1: Agricultural Marketing (3 Units)

The role of agricultural marketing in economic development, international aspects of agricultural marketing. The measurement and use of various types of elasticities, methodology in price analysis. Application of economic theory to analysis of market structure and its impact on conduct and performance of agricultural industry in relation to the other sectors of the economy. Evaluation of the effects of current public policies and arrangements under which the marketing system operates in agriculture.

AGE 905.2: Seminar for Doctoral Students (2 Units)

A student will select a topic of current issues in any area of agricultural economics, such as, farm management and production economics, agricultural finance and project analysis and resource and environmental economics and prepare and present a report.

AGE 906.2: Advanced Agricultural Project Analysis (3 Units)

External effects and public goods. The social rate of discount. The opportunity cost rate of discount. Equilibrium social time preference and social opportunity cost. Institutional barriers, formulae for project choice. Risk and uncertainty. Demand and supply analysis. Shadow pricing. Welfare economics and ease studies in cost benefit analysis. Environmental accounting.

AGE 907.2: Advanced Operations Research (3 Units)

Quantitative tools in operations research. Inventory models. Replacement models. Competitive problems and models, decision theory and applications to agriculture. Mathematical programming models (linear, quadratic, non-linear, dynamic, integer, programming, etc.). Inter-industry analysis, system simulation and Markov chain analysis.

AGE 909.2: Advanced Production Economics (3 Units)

Application of economic analysis to agricultural production problems. Static and dynamic production theories. Supply functions. Applying mathematical programming to production planning, simulation and input-output analysis, location and spatial analysis in agriculture, Advanced treatment of production functions in agribusiness ventures, application of linear programming to farm production problems, recursive programming.

Return to scale and farm size. Time factor, rewards and resource allocation. Decision making under imperfect knowledge, agricultural supply and demand functions.

AGE 910.2: Advanced Farm Management (3 Units)

Application of concepts and tools of farm business management in farm planning and farm management. Business analysis and planning, interpretation and use of information for decision making in organizing and operating farm business to achieve goals; planning under risk and uncertainty, farm finance and appraisal, capital requirements in agriculture;

AGE 911.2: Advanced Agricultural Credit and Rural Finance (3 Units)

Distinction between agricultural finance and credit. Role of credit. Farm financial accounting system. Analysis of farm financial statements. Time value of money and capital budgeting. Risks in investment decision-making, legal consideration in agricultural finance. A survey of the place of credit and rural finance in agricultural development. Credit targeting and loan portfolio regulations and rural development strategies.

AGE 912.2: Money and Capital Markets (3 Units)

Development of money market in Nigeria. Money market instruments, trade credit. Short term financing. Financing receivable, inventory financing. Use of security in short term financing. The market for long term securities. Common stock. Fixed income securities. Term loans and leases. Warrants and convertibles.

AGE 913.2: Advanced Natural Resource Economics (3 Units)

Dynamic resource allocation; Resource scarcity; application to renewable and nonrenewable resources; land tenure issues; natural resources overexploitation; irrigation; water use; forestry resources; practicum on natural resource issues (fisheries, forests, land degradation, pollution). Sustainability, the substitution capability between human-made and natural capital, and the appropriate application of economics to sustainable development analysis and policies. Resource use conflicts and sustainability objectives. Role of property and related institutions in natural resource stewardship. Introduction to economic concepts for management of the environment and specific natural resources. Potential applications of these perspectives of natural resource policy, both in Nigeria and internationally are considered.

AGE 914.2: Advanced Environmental Economics (3 Units)

The economy and the environment. Economic efficiency and markets. The economics of environmental quality. Environmental Analysis-Environmental Impact Assessment, Benefit-Cost analysis, Net Present Value, etc, Environmental Policy Analysis, International Environmental Issues, Trade and the environment, Environmental Pollution, Pollution Control Policies, Climate change. Social science and perspectives on environmental issues (emphasis is on interactions among market relationships; policy action and legal rights of institutions); The role of scientific evidence in the resolution of environmental disputes. Law of contracts, tort, wills, executorship and Trust; externalities and market failure, Valuation of environmental goods.

AGE 916.2: Advanced Ecology and Energy Economics (3 Units)

Investment appraisal, cost-benefit analysis, cost-effectiveness analysis, internalization of external costs. The principles of demand and supply, consumption, investment, labour demand and productivity in an ecological context; A review of population, community, and ecosystem ecology; implications of these areas for methods of resource management and environmental assessment. Management strategies and policies to achieve sustainable flows of energy and materials in the

economy; Eco-efficiency strategies reduce these flows while resource substitution strategies seek more environmentally benign flows. Applies expertise from economics, ecology, agriculture, behavioral sciences; A review of population, community, and ecosystem ecology; implications of these areas for methods of resource management and environmental assessment; Material Balance model; Ayres-Kneese's Material balance model; Economy, Ecology and Environment Interaction. Abatement model: Leontief's Abatement model. Biodiversity Crisis: Value of Biodiversity, Measures of Conservation and Sustainable use of Biodiversity. Recycling and Waste Management:

AGE 922.2 Agricultural Data Systems and Processes (3 Units)

Economics and other characteristics of modern agricultural data gathering and storage processes. Relationship between agro-industrial structure, business conduct and data base and data bank. Evaluation of data processing performance. Data management.

AGE 900.2 Thesis (16 Units)

A student shall be required to undertake an empirical study on a current and relevant area of choice in the field of Agricultural Economics culminating to writing a thesis.

ACADEMIC STAFF LIST

S/No.	Name	Rank	Qualifications	Specialization
1	Prof. Adanna Henri-Ukoha	Professor	B. Agric Economics (Calabar) MSc. Agric Economics (Port Harcourt) Ph.D Agric Economics (Owerri) PGD Agribusiness (UK)	Resource & Environmental Economics: Agribusiness Mgt
2	Prof. Data I. Ekine	Professor (Adjunct)	BSc, MSc (Ibadan) PhD (Newcastle upon Tyne, UK)	Farm Mgt & Prod. Econs
3	Prof. Peter A. Ekunwe	Professor	B. Agric (Benin) MSc. Agric Economics (Benin) Ph.D Agric Economics (Benin)	Farm Management and Production Economics
4	Prof. Anthony O. Onoja	Professor	B.Sc. (Agric. Education), UNN MSc (Agric. Econs. Finance), UNN MSc, PhD (Agric. Econs ; Resource & Environmental Economics, UNN	Agric Finance & Project Analysis; Resource & Environmental Economics
5	Prof. Mercy E. Ndubueze-Ogaraku	Professor	NCE Agric. Sc. Edu. RSCOE; B.Sc Agric. Econs. & Ext, MSc Agric. Economics (RSUST); PhD, Agric. Economics (RSUST)	Agric. Marketing; Farm Mgt & Production Economics
6	Dr Monday G. Nyienakuna	Reader	BSc, MSc (Tashkent); PhD (Uyo)	Farm Management
7	Dr. Zelda A. Omasanuwa	Reader	B. Agric. Fisheries (UNIBEN); MSc. Agric. Econ. (Imperial College, London); PhD Agric. Econ. (Tamil Nadu, India)	Agric. Finance & Production Economics
8	Dr. Henry. C Unaeze	Senior Lecturer	B. Agric. MSc Agric. Econ (UNN)	Resource & Environmental Economics
9	Dr. Vivian C. Ugwuja	Senior Lecturer	B. Agric. (UNN); MSc Agric. Econ (UST); PhD Agric. Econ. (UNN)	Agric. Finance
10	Dr. Uche Chima	Senior Lecturer	BSc, Agric. Econ. & Extension, MSc. Agric. Economics (RSUST)	Farm Management Production & Economics

			PhD, Agric. Economics UNN	
11	Dr Linda C. Familusi	Lecturer II	B Agric Agric Econs (UPH); MSc Agric Econs (Univ Eduardo Mondlane, Mozambique)	Agribusiness Management
12	Mr Samuel U. Nwokugha	Assistant Lecturer	B. Agric. Agric. Econ. (UPH); MSc (Ibadan)	Agricultural Policy and Administration
13	Mrs Oyoburuoma N. Ihunwo	Assistant Lecturer	B. Agric. Agric. Econ. (UPH); MSc	Farm Management & Production Economics

DEPARTMENT OF FISHERIES

PREAMBLE

The Department was established to equip her graduates with the right technical and entrepreneurial skills / capacity necessary for the advancement of the fisheries and aquaculture sub-sectors, and also for the sustenance of the aquatic environments in the mandate area, Niger Delta. This area is largely aquatic and the epicenter of petroleum exploration and exploitation. It is thus exposed to incessant pollution from the associated activities coupled with natural environmental challenges, resulting in the loss of agro-related livelihoods and invariably cause food insecurity. Also, the level of environmental degradation in the area is monumental, and the major fallout is an escalation in food demand. These key challenges facing the present and next generations need to be confronted systematically in order to avert the dire consequences. Solutions to meet these challenges can only be realized through advanced education, research and technological developments that lead to increased fish production, enhanced livelihoods and environmental sustainability. In order to respond to these societal needs of fostering high environmental quality, promotion of aquaculture technological innovations and sustainable exploitation of fisheries and other aquatic resources, it is expedient to develop graduate programmes anchored on systems-oriented research, field experiences and sound theoretical knowledge.

PHILOSOPHY

The programmes will focus on providing training that will enable students acquire discipline-specific skills that are problem-solving and invaluable both for careers in academic research and outside of academia. Graduates from these programmes will thus acquire competencies that will enable them function as academics, managers in aquaculture and fisheries enterprises as well as field environmental officers.

VISION

To be a leading Centre in innovative research, education, and community engagement that provides solutions needed in tackling the challenges of fish production, and the management of aquatic environments.

MISSION

Commitment to develop capacities required to manage aquatic resources and enhance aquaculture production sustainably, through life-enriching research and learning.

RATIONALE

The environmental perturbations and the challenges of fish production in the Niger Delta region, are serious concerns that can only be resolved through advanced manpower development and research. It is envisaged that the proposed post-graduate programmes in the Department will provide significant technological advances that will drive the fisheries economy of the region, and thus contribute to food security and sustainability of the aquatic environment.

OBJECTIVES

The objectives of the programmes are to offer quality programmes that address contemporary needs of the region; produce high level manpower equipped with the right technical and entrepreneurial skills and capacity required to develop practical solutions that will drive the advancement of fisheries and aquaculture sub-sectors; and develop appropriate technologies that would be demand-driven, in response to local needs and ecological challenges.

PROGRAMMES

- Postgraduate Diploma (PGD) in Fisheries and Aquaculture
- Master of Science (M.Sc.) in Fisheries and Aquatic Resources Management
- Master of Science (M.Sc.) in Aquaculture

ADMISSION REQUIREMENTS

- Postgraduate Diploma**
Candidates seeking admission into the Postgraduate Diploma programme should possess either a minimum of 2nd Class (Lower Division) Bachelor's degree in relevant non-agricultural based discipline or a third class/pass in fisheries or a upper credit in HND or equivalent qualification in relevant fields earned from Universities, Polytechnics or similar institutions, recognized by the University of Port Harcourt.
- Master of Science**
The minimum qualification shall be a Second Class (Lower Division) Bachelor's degree from the University of Port Harcourt or any recognized tertiary institution; or HND Upper Credit with Distinction at PGD level.

DURATION OF PROGRAMMES

Postgraduate Diploma

The Postgraduate diploma programme shall normally take a minimum of 12 months and a maximum of 24 months to complete for full-time

students; and a maximum of 36 months for Part-time. The candidate shall follow the prescribed courses and shall be required to complete a research project before graduation.

Master of Science

The programme shall run for a minimum of 24 months and a maximum of 48 months. Candidates shall take prescribed courses for 2 semesters in the first year. The research work might run concurrently with the coursework. A thesis of acceptable standard shall be written up by the student under the supervision of qualified academic staff following completion of the research component.

LIMITS OF DURATION

The University regulations on the maximum length of time to complete all requirements for the award of Diplomas and M.Sc degrees shall apply.

The candidate shall deliver a pre-data collection seminar to the Department for methodological check and approval before field data collection, and shall deliver periodic progress report

seminar(s), leading to the post-data collection seminar at the Department and Faculty before the mandatory Graduate Studies seminar.

GRADUATION REQUIREMENT

The student is expected to pass the prescribed courses and defend the research project, and this should not be less than a total credit of 36 for the Masters, and 26 for the PGD.

LIST OF COURSES

GRADUATE LEVEL COURSES

- i. Postgraduate Diploma (PGD) in Fisheries and Aquaculture: all 700 Level Courses.
- ii. M.Sc in Aquaculture and M.Sc in Fisheries and Aquatic Resources Management Programmes: all relevant 800 Level Courses.

The prescribed courses and their units for each programme are listed and described below:

Course Codes, Titles and Units for PGD in Fisheries and Aquatic resources management

FIRST SEMESTER			SECOND SEMESTER		
Course Code	Units	Course Title	Course code	Units	Course Title
FSH 701.1	2	Oceanography and Estuarine Ecology	FSH 705.2	2	Principles of Fish Breeding and Genetics
FSH 702.1	2	Fish Biology and Systematics	FSH 706.2	2	Limnology
FSH 703.1	2	Fisheries Resources Management	FSH 707.2	2	Fish Farm Engineering
FSH 704.1	2	Fish Processing, Preservation and Marketing	FSH 708.2	2	Statistical Methods and Research Techniques
FSH 705.1	3	Principles of Aquaculture	FSH 709.2	2	Seminar
FSH 706.1	2	Fishing Gear Technology	FSH 710.2	2	Fisheries Economics and Extension
			FSH 799.2	6	Research Project
Total	13		Total	18	

Course Codes, Titles and Units for Master of Science (M.Sc) in Fisheries and Aquatic Resources Management

FIRST SEMESTER			SECOND SEMESTER		
Course Code	Units	Course Title	Course code	Units	Course Title
FSH 801.1	3	Advanced Fish Biology and Systematics	FSH 807.2	3	Climate Change and Aquatic Sustainability
FSH 802.1	3	Fisheries Management and Administration	FSH 808.2	3	Limnology and Oceanography
FSH 803.1	3	Capture Fisheries and Fishing Gear Technology	FSH 809.2	3	Seminar
FSH 805.1	3	Statistical Methods and Research Techniques	SGS 801.2	2	Entrepreneurship and Management
FSH 806.1	2	Aquaculture Production Systems	FSH 812.2	2	Ornamental and Recreational Fisheries
SGS 801.1	2	ICT and Research Method	FSH 813.2	2	Fish Health Management
FSH 814.1	3	Fisheries and aquaculture Economics and Extension	FSH 899	6	Research Project
Total	22		Total	24	

Course Codes, Titles and Credit Units for Master of Science (M.Sc) in Aquaculture

FIRST SEMESTER	SECOND SEMESTER
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Course Code	Units	Course Title	Course code	Units	Course Title
FSH 801.1	3	Advanced Fish Biology and Systematics	FSH 809.2	3	Seminar
FSH 805.1	3	Statistical Methods and Research Techniques	FSH 812.2	2	Ornamental and Recreational Fisheries
FSH 806.1	2	Aquaculture Production Systems	FSH 813.2	2	Fish Health Management
FSH 811.1	3	Aquaculture Engineering	FSH 814.2	2	Innovations and Sustainable Aquaculture
FSH 812.1	3	Advanced Genetics and Fish Breeding	FSH 815.2	2	Shellfish Culture
FSH 813.1	3	Advanced Fish Nutrition	FSH 816.2	2	Advanced Post-Harvest Technology and Marketing
FSH 814.1	3	Fisheries and Aquaculture Economics and Extension	FSH 899	6	Research Project
SGS 801.1	2	ICT and Research Method	SGS 801.2	2	Entrepreneurship and Management
Total	22			21	

Course descriptions

FSH 701.1 Oceanography and Estuarine Ecology (2)

Topography of the sea. Physical and chemical properties of the sea and their effect on fish behavior and abundance. Water currents, circulation, tides and waves. Survey of marine organisms and their biological interactions. Species composition, distribution and adaptation of marine organism, planktons, invertebrates, fish, reptiles and mammals. Nutrient cycles and productivity. Fish forecasting. Physiological problems of estuarine organisms.

FSH 702.1 Fish Biology and Systematics (2)

Classification and identification of major groups of West African and Nigeria fish species. The gross external and internal anatomy of typical bony and cartilaginous fishes. Basic function of each system and organ in the fish. Food and feeding habits - methods of study and analysis. Age and growth studies. Reproduction and life cycles of commercially important local species e.g tilapia, catfish, mullets, carp. Fish behaviors-migration, shoaling and their effects on fisheries.

FSH 703.1 Fisheries Resources Management (2)

Challenges and economics of fisheries management; Population dynamics; Catch and effort statistics, growth parameters, recruitment and yield studies. Estimation of survival rate and mortality coefficients, Techniques of management.

FSH 704.1 Fish Processing, Preservation & Marketing (2)

Fish handling and storage, fish preservation; Physico-chemical and biological changes in fish; Fish spoilage; Assessment of fish quality. Off-flavour in fish: causes, effects and control; Processing and packaging; Transportation and marketing strategies of fishery products; Current technological developments in Post Harvest Technology; Quality control and regulation

FSH 705.1 Principles of Fish Breeding and Genetics (2)

Concepts of fish breeding, and genetics; Basis of inheritance, Mendelism, Genetics of populations; Quantitative inheritance; Principles of selection, breeding methods, molecular biology and genetic engineering; application of biotechnology in fish breeding

FSH 706.1 Fishing Gear Technology (2)

Fishing gear materials-characteristics and components; classification, terminology and numbering systems of twines. Fishing gear design, and construction in relation to fish behavior and habitat. Fishing crafts and engines. Gear and craft efficiency/coefficient. Fish location and detection equipment.

FSH 705.2 Principle of Aquaculture (2)

Spectra of aquaculture systems; Organizational and operational systems; aquaculture development in Nigeria; Site and Species selection for aquaculture; Design and construction of aquaculture facilities; Fish production in different culture systems; Care and maintenance of culture systems; Fish nutrition and feeding; Breeding and genetic selection; Fish health; Weeds; pests and parasites; Socio-economics, environment and public health, and aquaculture; Post harvest technology and marketing of aquaculture products

FSH 706.2 Limnology (2)

Classification of aquatic systems, Physio-Chemical parameters of aquatic environment, plankton and benthos; Stratification; Hydrology and water cycles; Biological activities in freshwater system; species composition, distribution and mode of life of plankton, invertebrates and fin fishes with emphasis on Nigerian and West African waters. Primary and Secondary production in freshwater; Inland waters of Nigeria

FSH 707.2 Fish Farm Engineering (2)

Aquaculture production systems; Design of different culture (pond, tanks, recirculating

aquaculture systems, etc.) and supporting systems (water supply, pump station, treatment system, aeration, etc.); Surveying

FSH 708.2 Statistical Methods and Research Techniques (2)

Experimental design and statistical analyses, sampling from populations and test of hypothesis, information review, general laboratory techniques. Planning of experiments; Data transformation; Parametric and Non-Parametric tests; Analysis of qualitative data; report writing and presentation,

FSH 709.2 Seminar (2)

Oral presentation and discussion of research on contemporary aquaculture and fisheries issues.

FSH 710.2 Fisheries and Aquaculture Economics and Extension (2)

Humanistic understanding and goals of human welfare. The economic theory of fisheries models. Basic aquaculture business concept, planning and financial management; marketing and trade in fisheries and aquaculture products. Principles and practice of extension education, role of community participation in conservation of fish including demonstration meetings, exhibitions, visual aids etc.

FSH 799 Research Project (6 credit units)

Independent and original research project undertaken by the student under the supervision of lecturers in topics selected by students or if need be, by the lecturers.

FSH 801.1 Advanced Fish Biology and Systematics (3)

Taxonomy and detailed study of major fish species of Nigerian waters; Identification of species using taxonomic keys; Application of molecular techniques in systematics and taxonomy. External and internal morphology of major groups. Food and feeding habits. Important commercial species. Biotic and abiotic factors of aquatic environment and their effects on fish and fisheries. Trophic relations in aquatic system, bioenergetics. Biotic relationships in fishes: Physiological adaptations of fish to the aquatic environment.

FSH 802.1 Fisheries Management and Administration (3)

Problems and economics of fisheries management. Biological basis of management- analytical models, fishing effort, yields, etc. Management techniques of natural stocks/populations in marine, brackish and inland waters. Population genetics and fisheries management. Flood plains fisheries management. Concepts and administrative theories-international and national fishery laws and regulations. Right of ownership of aquatic

resources: Basis for formulation of fisheries policies.

FSH 803.1 Capture Fisheries and Fishing Gear Technology (3)

Design of fishing gears, factors affecting fishing gear design, types, general structure of gear, characteristics of fishing vessels and accessories of trawlers. Destructive and prohibited fishing practices, Bycatches, reduction devices and principles of operation; Environmental impacts of fishing gear, Policy and regulatory framework on the fishing gear, relevant management strategies, Reservoir and Lacustrine fisheries: Major reservoirs and lakes in Nigeria; Marine fisheries resources, Quantitative techniques to assess and manage fish populations; Quantitative techniques for the assessment and management of fish populations

FSH 805.1 Statistical Methods and Research Techniques (3)

Sampling methods, Population parameters and sample statistics, Density and distribution functions, Confidence intervals, Hypothesis testing, Review of biometrical concepts in agriculture: Experimental design; Aquaculture and fisheries research methodology; Parametric and non-parametric tests

FSH 806.1 Aquaculture production systems (2)

Overview of aquaculture (objectives, scope, history, etc.); Trends in the development of aquaculture; Global trends in aquaculture production and value; Aquaculture systems, their characteristics and function; Characterization and categorization of the production systems (shellfish culture, cage culture, pond culture, recirculating aquaculture systems, etc.); Organic aquaculture; Water quality and fish health; Aquaculture economics and financing.

FSH 811.1 Aquaculture Engineering (3)

Engineering principles applied to aquacultural systems; biological, ecological and environmental aspects of aquacultural engineering design. Design and construction of culture facilities and ancillary structures - inland fish farms, pumping station and fish hatcheries, pens, cages, recirculating aquaculture system;. Pond preparation - liming and fertilization, supplementary Feeds, water quality management in fish culture; aquatic weeds; pond sanitation and fish health management; instrumentation in aquaculture systems; Waste management techniques in aquaculture production

FSH 812.1 Advanced Genetics and Fish Breeding (3)

Reproduction and reproductive cycles in bony and cartilaginous fishes. Concepts of breeding and

genetics in aquaculture; Breeding biology of fishes; Management of brood-stock and spawning techniques. Structure and care of eggs; nursing and management of larvae and fingerlings; Artificial propagation of selected fish and shell-fish species in Nigeria. Principles of selective breeding, hybridization and polyploidy in fish; Sex determination; application of genomics in aquaculture

FSH 813.1 Advanced Fish Nutrition (3)

Feeding ecology of fishes; Macro and micro-nutrients in fish, Digestion and metabolism; bioenergetics; Dietary requirements of cultivated fish species; Nutritional biochemistry and feeding physiology in fish; Feed stuff evaluation and diet formulation. Feed processing and manufacture and storage; Live food in aquaculture; Nutritional pathology;

FSH 814.1 Fisheries and Aquaculture Economics and Extension (3)

Economic constraints in fisheries development; free access to fishery, sustainable yield curve and total revenue curve. Bionomic equilibrium, factor rents, welfare economic theory and its relevance for fisheries externalities in fisheries capital investment and depreciation of equipment; consumption price theories; fishery resources and right of ownership. Market models, Business planning, operations and farm management; Farm records and accounting; Incentives in aquaculture; Principles and methods of programme planning, extension need and educational objectives, etc.; organizing associations and cooperatives, concepts of evaluation applied to fisheries extension; Cooperatives

FSH 807.2 Climate Change and Aquatic Sustainability (3)

Theories of climate change; Concept of sustainability within the context of aquatic resources management; Climate science and future predictions; implications for sustainable aquaculture and fisheries production. Global warming and climate change; Climate change and aquatic resources management. Environmental Impact (physical and ecological) analyses; Mitigation; current thinking adaptation strategies. Case studies

FSH 808.2 Limnology and Oceanography (3)

Tidal levels, substrate types, salinity zones and river types. Physicochemical and biological processes in aquatic environments. Physiological problems of estuarine organisms. Estuarine food chain and productivity. Primary producers (phytoplankton, macroalgae, mangroves and other macrophytes). Consumers: local taxonomic groups and communities. Ecological characteristics of the

main freshwater habitats: rivers, flood plains, man-made lakes and ponds.

FSH 809.2 Seminar

Oral presentation and discussion of research on contemporary fisheries issues.

FSH 810.2 Water Quality, Bio-Assessment and Management (3)

Physical properties of water bodies; water chemistry, nutrient cycles and aquatic productivity. Effects of contaminants e.g. hydrocarbons, heavy metals, pathogens, excess nutrients, chemical stressors, harmful algal blooms on fish, crustaceans and molluscs within Nigerian coastal waters; and methods for maintaining and improving water quality (chemical, mechanical and biological). Ecological toxicology.

FSH 812.2 Ornamental and Recreational Fisheries (2Units)

Science of Recreational fisheries. Economic, social and ethical aspects of recreational fisheries. Opportunities, challenges, International and National perspectives. Management in recreational fisheries; impacts, status of inland fisheries and future for recreational fisheries. Economics of operation, development of a credible project; Aquarium use and maintenance. Trade and transportation of ornamental fishes.

FSH 813.2 Fish Health Management (2 credit units)

Maintenance of health quality in fish culture; Pathogenic diseases in aquaculture (bacteria, parasites, viruses, etc.); Principles of disease diagnosis, and diagnostic techniques; Use of chemotherapeutants, and biological control: Nutritional pathology.

FSH 814.2 Innovations and Sustainable Aquaculture (2)

Overview of aquaculture, and its contribution to global fish production; Aquaculture production systems; Contemporary issues in aquaculture; Concept of sustainability, and sustainable aquaculture; Conceptualization and management of innovations in aquaculture; Innovation and sustainability of aquaculture; Technological innovations in aquaculture

FSH 815.2 Shellfish Culture (2 credit units)

General biology with respect to the culture of culturable crustacean and molluscan species, with particular reference to indigenous species. Site selection; Cultivation of specific shellfish species (Oyster, shrimp, clam, etc.); Public health aspects, and environmental impact of shellfish culture.

FSH 816.2 Advanced Post Harvest Technology and Marketing (2credit units)

Handling, transportation and storage of live and fresh fish; The principle components of fish muscle and factors affecting their composition. Fish spoilage; Quality assessment of fish; Techniques of fish preservation and processing; Quality control and international standards for fisheries products. Marketing of fisheries products.

FSH 899 Research (6 credit units)

Independent and original research project undertaken by the student under the supervision of lecturers in topics selected by students or if need be, by the lecturers.

DEPARTMENT OF FISHERIES STAFF LIST

S/No.	Name	Rank	Qualifications	Specialization
1	Prof Adaba T. Ibim	Professor/Head of Department	BSc Zoology (UPH); MTech, Fisheries (FUT Minna); PhD Aquaculture (UPH)	Aquaculture, Fish Reproduction and Health
2	Prof Ebere S. Erondu	Professor	BSc Zoology (UNN); MTech (RSUST); PhD Fisheries (UNN)	Aquaculture
3	Prof Nenibarini Zabbey	Professor	BSc Zoology (UPH), MSc, PhD Hydrobiology & Fisheries (UPH)	Benthic Ecology and Biomonitoring
4	Prof Olaniyi A. Olopade	Professor	BSc, MSc, PhD Fisheries Mgt (Ibadan)	Aquaculture & Fisheries Management
5	Prof Nene A. Jamabo	Professor	BSc Fisheries (RSUST); MPhil. Fisheries (RSUST); PhD Aquaculture & Aquatic Ecology (RSUST)	Aquaculture & Aquatic Ecology
6	Prof Amiye Francis	Professor	BSc Zoology (ABU); PGDE, MSc. Parasitology (UPH); PhD Fisheries (UPH)	Fisheries Management
7	Dr Justin A. Akankali	Senior Lecturer	BSc, MSc Fisheries (UNIBEN); PhD Environmental Management (RSUST)	Fisheries Management
8	Dr Sylvanus A. Nwafili	Senior Lecturer	B Agric Animal Science (UNN) MTech Fisheries (Minna); PhD Fisheries (China)	Population Genetics
9	Dr Henry E. Dienye	Senior Lecturer	OND Food Technology (ILARO); BSc Aquaculture & Fisheries (Abeokuta); MSc Hydrobiology & Fisheries (UPH)	Aquaculture & Fishing Gear
10	Dr Benjamin U. Akpoilih	Lecturer I	BSc Fisheries (FUTA); MSc Fisheries (Ibadan)	Environmental Toxicology
11	Dr. Inienebo C. Davies	Lecturer I	B Fisheries (UPH); MSc Hydrobiology & Fisheries (UPH)	Aquaculture & Fisheries Biology
12	Dr Joy O. Aiyeloja	Lecturer II	B.Agric Fisheries (UNIBEN); MBA	Aquaculture & Fish Postharvest Technology

			Financial Management (LAUTECH); MSc, Ph.D Aquaculture (RSU)	
13	Mr Goodluck N. Nwipie	Assistant Lecturer	B. Fisheries (UPH)	Aquaculture
14	Mr Effiong I. Idongesit	Assistant Lecturer	BFisheries (UPH); MSc Environmental Technology & Mgt (UPH)	Fisheries Statistics & Management

UNIVERSITY OF PORT HARCOURT SCHOOL OF SCIENCE LABORATORY TECHNOLOGY (SSLT)

The Graduate Programmes in the School of Science Laboratory Technology seeks to inspire and equip students for innovative laboratory technological advancement, leadership, scholarship, and service. Students from a wide range of disciplines are invited into a community of scholars and passionate educators who are committed to the life of science, technology, laboratory and service. University of Port Harcourt is the first Nigerian University that started the first degree programme in SLT in 2005. In 2018, the Senate of the University of Port Harcourt approved the establishment of Graduate Programmes in the School of Science Laboratory Technology making the University of Port Harcourt again to be the first institution in Nigeria to run Post Graduate Programmes in Science Laboratory Technology from 2018/2019 academic session under the leadership of Professor Michael Horsfall Jnr as Dean.

At the moment, Post-Graduate Diploma in Science Laboratory Technology (PGD-SLT) and the Master of Science Laboratory Technology (MSLT) are available in the following options:

- Biochemistry/Chemistry Technology
- Biomedical/Physiology/Pharmacology Technology
- Geology/Mining Technology
- Microbiology/Virology Technology
- Industrial Chemistry/ Petrochemical Technology
- Physics with Electronics Technology
- Physics with Production Technology

1. Postgraduate Diploma in Science Laboratory Technology (PGD-SLT)

The Postgraduate Diploma in Science Laboratory Technology (PGD-SLT) will have specialization in the following areas:

- (a) Biochemistry/Chemistry Technology
- (b) Biomedical / Physiology / Pharmacology Technology
- (c) Geology/Mining Technology
- (d) Microbiology/Virology Technology
- (e) Industrial Chemistry/Petrochemical Technology
- (f) Chemical/Petroleum Technology
- (g) Physics with Electronics/Production Technology

1.2 Programme Duration

The duration of the PGD-SLT programme shall be a minimum of 12 months (2 semesters) and maximum of 24 months (4 semesters) for Full-Time and a minimum of 18 months (3 semesters)

and a maximum of 24 months (4 semesters) for Part-Time

1.3 Admission Requirements for PGD Set

Candidates seeking admission into the PGD-SLT programme in the School of Science Laboratory Technology must have BSc, BTech, BSLT degree not lower than a Third Class with minimum CGPA of 1.50 or HND with a minimum of upper credit in any of the following areas: Biochemistry/ Chemistry Laboratory Technology, Biochemistry, Chemistry, Medical Biochemistry, Pure and Industrial Chemistry, Pure & Applied Chemistry, Agricultural Technology, Biomedical Technology, Biochemistry Technology, Physiology/ Pharmacology Technology, Virology Laboratory Technology, Microbiology Laboratory Technology, Nursing, Medical Laboratory Science, Physiology, Anatomy and Pharmacology, Geology, Geology/Mining Laboratory Technology, Mining Science, Mining Engineering Technology and Mineral Resources Engineering Technology, Microbiology, Biology, Biology/ Biotechnology Laboratory Technology, Industrial Chemistry/Petrochemical Laboratory Technology, Chemical/Petroleum Laboratory Technology, Food Science Technology, and any of the Science Laboratory Technology degree obtained from institutions recognized by the Senate of the University of Port Harcourt.

1.4 Compulsory Courses for All Science Laboratory Technology Options in the PGD-SLT Programme

Students admitted into the various options of the Postgraduate Diploma in Science Laboratory Technology (PGD-SLT) must register and pass the following compulsory courses.

First Semester

Course Code	Course Title	Credit Units
SGS 701.1	ICT and Research Methods	2
SLT 701.1	Introduction to Biostatistics	3
SLT 702.1	Seminar	3
	Total	8

Second Semester

Course Code	Course Title	Credit Units
SGS 701.2	Entrepreneurship & Management	2
SLT 703.2	Laboratory management Administration	3

SLT 704.2	Equipment Reliability	3
SLT 705.2	Scientific Instrumentation	3
SLT 706.2	Research project	6
	Total	17
Total units for compulsory courses		25

1.5 COURSE DESCRIPTION FOR PGD-SLT COMPULSORY COURSES

FIRST SEMESTER

SGS 701.1 ICT and Research Methods

This course covers essentials of spread sheets, internet technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of hypotheses, formulation and testing, organization of research and report writing. (2 Units)

SLT 701.1 Introduction to Biostatistics

Definition and Introduction to the course, Data representation and plotting, Arithmetic mean, Geometric mean, Measure of Variability, Standard deviation, ZScore, Box plot, Kurtosis Correlation and Regression, Interpolation and extrapolation, Variance and Covariance, Sampling distributions and Central limit and Confidence intervals, Confidence intervals, Test of Hypothesis, T-test, Chi-square test, Analysis of Variance (ANOVA) (Unit 3)

SLT 702.1 Seminar

Candidates must extensively review current or novel topic complementary to their area of training to broaden their knowledge. (3 Units)

SECOND SEMESTER

SGS 701.2 Entrepreneurship and Management

This course covers business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving. (2 Units)

SLT 703.2: Laboratory Management and Administration

Laboratory Planning: Various types of laboratories — industrial, research, hospital, teaching. Location, design, cost an acceptability of laboratories. Layout, organization and installation of suitable essential services and physical facilities, fixtures and fittings to achieve the desired and specialized rooms. Staffing the Laboratory, Managing Laboratory Personnel, and Work Management, Laboratory Records and Information Management, Store Management, Budgeting the Cost Control, Laws Affecting Laboratory Practice, General Laboratory Maintenance (3 Units)

SLT 704.2: Equipment Reliability

Basic concept of reliability. Reliability production causes and remedies of component failure. Maintainability. Specifications. (3 Units)

SLT 705.2: Scientific Instrumentation

Refrigerators and freezers, water bath, autoclave, incubator, anaerobic chamber, microscope, centrifuge, laboratory balance, water stills, deionizers, heater, photometer, spectrophotometer. Transducers as input elements to instrumentation system; Feed Backs and Operational Amplifiers; Analog and Digital Data Acquisition; Computer Controlled Test; Spectrophotometer Instrumentation; Types of chromatography and applications of the various techniques. Simple mathematical treatment of the chromatographic process, Definitions of efficiency and resolution; Instrumentation for UV/VIS. Laboratory Work: Instrumentation Workshop Practice Design Construction of simple electronic circuits/systems. Repair/serving of teaching and research equipment, Coil winding. (3 Units)

SLT 706.2 Research Project

Research is a vital part of University life and all of our graduate degrees have, as a vital component, a research project. In our graduate research project, students work independently within a research group or in area of specialization of a staff member. A research project to be carried out by the candidates following stringent scientific procedures that will yield results acceptable by experts worldwide. Each project must contribute to knowledge. (6 Units)

1.6 COURSES FOR THE PGD. SLT (BIOCHEMISTRY / CHEMISTRY TECHNOLOGY)

In addition to the general compulsory course for the postgraduate diploma in Science Laboratory Technology (PGD-SLT), Students admitted into the programme for Biochemistry/Chemistry Technology must register and pass the following first semester courses

Course Code	Course Title	Credit Units
BCT 711.1	Analytical Instrumentation & Techniques in Chemistry	3
BCT 712.1	Techniques in Biochemistry and Immunochemistry	3
BCT 713.1	Bioanalytical Techniques	3
	Total	9
TOTAL UNITS = 34		

1.7 COURSE DESCRIPTION FOR PGD-SLT PROGRAMME IN BIOCHEMISTRY! CHEMISTRY TECHNOLOGY

FIRST SEMESTER

BCT 711.1: Analytical Instrumentation & Techniques in Chemistry

Introduction: Types of Analysis. Steps in Analytical process. Statistical Evaluation of Analytical Results. Gravimetric analysis, Electrogravimetry and Coulometry; Coulometric titration. Applications. Voltammetry: Dropping mercury electrode. Polarographic currents. Stripping voltammetry. Anodic stripping analysis. Amperometry. Amperometric titration. Applications. Complexometry: Classification of ligands. Masking and demasking. Complexometric titration. Metal ion indicators. Application. Thermal Analysis: Principle, Types, instrumentation and analytical applications. X-Ray Methods: Production of X-ray and X-ray spectra, x-ray methods, resolution, use of stable isotopes, quantitative analysis. Radiochemistry: measurement of radioactivity, applications of radionuclides, analytical applications. (3 Units)

BCT 712.1: Techniques in Biochemistry and Immunochemistry

Principles of instrumentation, paper, thin-layer and high performance liquid chromatographic techniques. Membrane transport system (active and passive). Ionophores. Chemical work of biosynthesis. Mechanism of contraction, action and applications. Gel filtration techniques and applications. Spectrophotometric methods and application. Centrifugation techniques and applications. Fluorimetry and applications. Electrophoresis and application. Radioimmunoassay and fluoroimmunoassay techniques and application. Nuclear magnetic resonance and electron spin resonance and applications in biochemistry and immunochemistry. Qualitative analysis. X-ray fluorescence method. Immunology, immunochemistry and immunochemical reactions and specificity. Humoral and cellular immunity. Classes, structures and properties of immunoglobulins. Toxoids, vaccination. (3 Units)

BMT 713.1 Bioanalytical Techniques

Chromatographic methods: Definition, principle, types and terminologies, Absorbent, ion exchanges and methods of development of chromatograms, Processes of TLC, gel-permeation, chromatography and bases for biological significance, Matrices for gel-affinity/linkage of ligand, GLC and different types of detectors, LLC determination of column efficiency and RF value, Kovat indices and Reynold constants. Electrophoresis:

Definition, principle, theory, effect of the mobility particles (pH, osmotic flow and diffusion), Methods of sampling application, detection and estimation of sample components, also types of support media, List application of electrophoresis. Potentiometric methods: Nernst equation, Description and theory of pH meter and the setup of potentiometric measurements, List of applications. Spectrophotometry: Explain electromagnetic emission spectrum, Beer Lambert law, UV/visible spectrophotometer; sections of spectrophotometer, Describe the operation of the spectrophotometer (3 Units)

1.8 COURSES FOR THE PGD-SLT (BIOMEDICAL AND PHYSIOLOGY! PHARMACOLOGY TECHNOLOGY)

In addition to the general/compulsory course for the postgraduate diploma in Science Laboratory Technology (PGD-SLT), Students admitted into the programme for Biomedical Technology and Physiology/Pharmacology Laboratory Technology must register and pass the following first semester courses.

Course Code	Course Title	Credit Units
BCT 711.1	Analytical Instrumentation & Techniques in Chemistry	3
BCT 712.1	Techniques in Biochemistry and Immunochemistry	3
BCT 713.1	Bioanalytical Techniques	3
	Total	9

TOTAL UNITS = 34

1.9 COURSE DESCRIPTION FOR PGD-SLT PROGRAMME IN BIOMEDICAL/PHYSIOLOGY/PHARMACOLOGY TECHNOLOGY

BMT 721.1 Biomedical/Physiology & Pharmacology Techniques

Electrocardiography, Immunohematology - blood grouping, cross matching, & Rhesus, typing, anti-sera diagnosis, pregnancy test. Techniques on major instruments such as organ bath, spectrophotometer, flame photometer, centrifuges electrocardiogram (ECG), erythrocyte sedimentation rate (ESR), kymograph, blood pressure recorder, pycnometer, electrophoresis, coagulation profiles, urine microscopy/urinalysis, haematological analysis (full blood count), colourimetric analysis, haemoptometry, haemostasis and fibrinolysis (3 Units)

BMT 722.1 Experimental Methods & Animal Management

It include the design of animal house for various colonies of laboratory animals and their breeding methods. Diseases and control of infections. Handling of laboratory animals. Environmental Hazards of laboratory animals. The use of animals for Research and Teaching. Laws governing the use of laboratory animals: Humane killing methods. General anaesthesia and theories of anaesthesia. Various available anaesthetics and sites of action. Volatile and gaseous anaesthetics. Methods of preparation and handling of animals for anaesthesia. Routes of drug administration: intravenous (iv), intraperitoneal (ip) subcutaneous, etc. Signs and different stages of anaesthesia. (3 Units)

BMT 723.1 Anatomy and Histology Techniques

This is a course in microscopic anatomy; the branch of anatomy that deals with cells and minute structure of the tissues and organs. The general goals of this course will include an overview of both fast and concept of microscopic anatomy sufficient to serve as a meaningful background for subsequent basic and clinical science in which the functional aspects are taken up in greater details. The course will include both lectures and laboratory work, Specific objectives will include: (A) The proper use of the light microscope in order to gather enough information to recognize cells, tissues and organs; (B) Interpretation of basic cellular structure as seen by electron microscopy; (C) The ability to correlate subject material given in histology with the other disciplines of anatomy; and (D) The ability to use the vocabulary of this subject. (3 Units)

1.10 COURSES FOR THE PGD.-SLT IN GEOLOGY/MINING TECHNOLOGY

COURSES FOR THE PGD.-SLT (GEOLOGY/MINING TECHNOLOGY)

In addition to the general/compulsory course for the postgraduate diploma in Science laboratory Technology (PGD-SLT), Students admitted into the programme for Geology/Mining Technology must register and pass the following first semester courses.

Course Code	Course Title	Credit Units
GMT 731.1	Mining Method & Mineral Processing	3
GMT 732.1	Geological Methods in Mineral Exploration & Mining	3
GMT 733.1	Field Geology	3
	Total	9

TOTAL UNITS = 34

1.11 COURSE DESCRIPTION FOR PGD-SLT PROGRAMME IN GEOLOGY/MINING TECHNOLOGY

GMT 731.1 Mining Methods and Mineral Processing

Definition of mining methods and systems. Mine development workings and their constructions. Surface mining methods: open-pit, open cast and quarrying operations and their parameters. Equipment used in surface mining and their application. Various systems of mine field development and face advancement in surface mines. Underground Mining of steeply dipping ore bodies and seams. Attention should be given to specific mining methods like level and sublevel caving and shrinkage methods. Methods of longwall advancing in coal mines. Various methods of roof support. Definition of mineral processing and ore beneficiation. Stages of comminution. Various concentration methods, magnetic gravity and heavy media concentration. Case studies of processing of iron ore at national iron ore mining company limited at Itakpe, Nigeria. Chippings production and explanation of the plant as a closed system. Various systems of mine plant design. Explanation of mechanism of aggregate separation at the multi-deck screen. Chippings business in Nigeria. (3 Units)

GMT 732.1 Geological Methods in Mineral Exploration & Mining

The principles of mineral prospecting and exploration. Exploration indicators. Stages in Exploration process. Exploration philosophy and management. Grid setting, borehole drilling and prospect generation. Ore reserve estimation. Environmental and legal issues in mineral prospecting and exploration. Cut-off grade estimation and its relationship to reserve estimation. Planning of exploration programme. Environmental and legal issues in mineral exploration. (3 Units)

GMT 733.1 FIELD GEOLOGY

Mapping of basement and basin terrain. Field note taking and geologic report writing. The different sedimentary basin and basement complexes of Nigeria. Stratigraphic evolution of basin in Nigeria. (3 Units)

1.12 COURSES FOR THE PGD-SLT IN MICROBIOLOGYTECHNOLOGY

COURSES FOR THE PGD-SLT (MICROBIOLOGY TECHNOLOGY)

In addition to the general/compulsory course for the postgraduate diploma in Science Laboratory Technology (PGD-SLT), Students admitted into the programme for Microbiology Technology must register and pass the following first semester courses.

Course Code	Course Title	Credit Units
MCT 741.1	Basic Microbiological Instrumentation	3
MCT 742.1	Microbiological Techniques	3
MCT 743.1	Techniques in Biology	3
	Total	17

TOTAL UNITS = 34

1.13 COURSE DESCRIPTION FOR PGD-SLT PROGRAMME IN MICROBIOLOGY TECHNOLOGY

MCT 741.1 Basic Microbiological Instrumentation

Staining techniques, sterilization techniques, preparation and uses of buffer and dilution fluids, cell suspension, centrifugation and diluting fluids. Microbiology and Photomicroscopy; Preparation of Microscope slides; Photometry, Colorimetry; chromatography, Conductometry, Centrifugation, Experimental Design and Data Interpretation; Preparation of Report. Preparation of culture Media, and cells for Tissue and Organ Culture; Preparation and preservation of Stock Cultures; Care and management of experimental Animals, Safety in Microbiology laboratory. Preparation and use of stains for bacteriology, parasitology, mycology and virology. Bioassay: symptomatology on original host and test plants. (3 Units)

MCT 742.1 Microbiological Techniques

Principles and techniques of sera diagnosis of infections: immunological assays- Agglutination reactions, ELISA, CFT, FAI tests, etc. bacteriophage assays, Bioassay, Hyperimmune sera preparation, Blood grouping, Rh typing, cross-matching. HLA typing. Estimation of antibodies, Tests for hypersensitivity reactions, Tests for autoimmune diseases. Biological standardization. Principles and techniques of Anaerobic Cultivation. Maintenance of equipment Microscopes, centrifuges, Autoclave, etc. (3 Units)

MCT 743.1 Techniques in Biology

Plant collection, identification and storage collection and preservation of plant specimens.

Identification of plants and animals procedure for the observation of living tissues. Procedure for the observation of dead tissues (Microtomy). The microscope—its structure, use and care. Cytological techniques. Electrophoretic techniques chromatographic techniques. Principles of colorimetry/spectrophotometry. Preparation of simple reagents and stains. Simple Histochemical techniques. Palynology. Photographic techniques, Laboratory hazards and safety measures. Experimental designs. Population sampling: Transects, quadrants sampling in the lab. Collection and preservation of animal specimens 9a) Collection apparatus (b) Soil organisms killing and preservation of animal specimens. Introductory experimental design and analysis: (a) completely randomized (b) randomized complete block (c) factorial. (3 Units)

1.14 COURSES FOR THE PGD-SLT IN INDUSTRIAL CHEMISTRY/ PETROCHEMICAL TECHNOLOGY & CHEMICAL/PETROLEUM TECHNOLOGY

In addition to the general/compulsory course for the postgraduate diploma in Science laboratory Technology (PGD-SLT), Students admitted into the programme for Industrial Chemistry/ Petrochemical Technology & Chemical/ Petroleum Technology must register and pass the following first semester courses.

Course Code	Course Title	Credit Units
ICP 751.1	Petrochemistry	3
ICP 752.1	Chemical Technology of Petroleum	3
ICP 753.1	Process Technology	3
	Total	17

TOTAL UNITS = 34

1.15 COURSE DESCRIPTION FOR PGD-SLT PROGRAMME IN INDUSTRIAL CHEMISTRY/ PETROCHEMICAL TECHNOLOGY & CHEMICAL/ PETROLEUM TECHNOLOGY

ICP 751.1 Petrochemistry

Introduction; brief chronological history of oil and gas. The origin of petroleum. Nature of oil and gas: definition of crude oil. Composition of crude oil. Analysis and properties of crude oil. Classification of crude oil. Gaseous petroleum (natural gas). Composition of natural gas. Chemical used for oil drilling. Environmental implications of oil and gas production. Oil refinery processes. Separation processes: crude oil distillation. Catalytic reforming. Catalytic isomerization. Hydrocracking. Dehydrodesulphurization. Lubricating oils. Basic

test for petroleum products and quality control. (3 Units)

ICP 752.1 Chemical Technology of Petroleum

Desalination processes. Atmospheric and vacuum distillation of petroleum. True boiling point and equilibrium flash vaporization curves for petroleum and petroleum fractions. Gasoline stabilization and sweetening. Properties of fuels octane number, octane number etc. hydrocarbon gas purification and separation. LPG Production. Gas processing-alkylation and polymerization. Thermal processes- cooking, thermal cracking and pyrolysis. Catalytic reforming and isomerization. (3 Units)

ICP 753.1 Process Technology

Fundamental concepts and equations in heat, mass, and momentum processes. Mass transfer with and chemical reaction. Single and multiple isothermal chemical reactors. Non-isothermal chemical reactor. Selected topics in heat conduction and in mass and modal concentration diffusion processes. Ideal-stage and non- ideal stage separation techniques in chemical process operations. Ideal (or equilibrium) — Stage calculations of trayed and packed columns (or towers). Studies of process techniques for separation mixtures of chemical species in the petroleum/petrochemical, natural gas liquid and chemical industries. Real (or non-ideal) — stage approach of separation techniques, Non- equilibrium stage approach determination of the performance of distillation columns, hydrocarbons absorbers, trayed and packed absorbers and strippers for the removal of acidic components like CO, H₂S and CO from gas streams. (3 Units)

1.16 COURSES FOR THE PGD-SLT IN PHYSICS ELECTRONICS TECHNOLOGY & PHYSICS PRODUCTION TECHNOLOGY

COURSES FOR THE PGD-SLT (PHYSICS ELECTRONICS TECHNOLOGY & PHYSICS PRODUCTION TECHNOLOGY)

In addition to the general/compulsory course for the postgraduate diploma in Science Technology (PGD-SLT), Students admitted into the programme for Physics with Electronics Technology & Physics Production Technology must register and pass the following first semester courses.

Course Code	Course Title	Credit Units
PET 761.1	Electronics & Instrumentation	3
PET 762.1	Circuits Analysis & Electronics	3
PET 763.1	Laboratory Practice	1

PET 764.1	Semiconductor Technology	2
	Total	9

TOTAL UNITS = 34

COURSE DESCRIPTION

PET 761.1 Electronics and Instrumentation

The transistor as a switch, power dissipation base over drive storage drive and switching speed, logic gates: Nano or with close logic, the TTL and gate, Truth table, noise margins, television pole, open collector and tristate, TTL CMOS, NMOS,ECL combinational systems. Boolean algebra, identities, De-Morgan’s law, Karnaugh maps, QuineMcCluskey minimization by computer aided techniques. The half and full adder. Fliflop; R-S, J-K and D types edge and level trigger, maser slave types, the shift register. Circuit techniques. Oscillation sine wave amplitude control, sequencing frequencing stability. Waveform discrimination. Practical ramp generators. Conversion techniques, frequency to voltage staircase generators, analogue to digital D to A termination of pulse lines, Beargon diagram, low noise amplifier design use to discrete components for minimum noise. (3 Units)

PET 762.1 Circuits Analysis and Electronics

Outline of linear circuit analysis. Linear transformations. One port and two port networks, single-phase sinusoidal alternating current circuits. Lock diagrams, poly-phase circuits, network topology. The methods of symmetrical components; some properties of three phase systems, example of networks of unbalanced impedances. Distribution parameter networks, periodic non- sinusoidal currents in linear circuit, Fourier series, harmonic in three phase systems. Conventional filter design and operation. Operational methods of transient analysis of distributed parameter networks, non-linear A.C circuits, frequency response of electrical networks. Bode plots. Poles and zeros and time delay root-locus concepts. Frequency response analysis of electronic amplifiers, oscillators. Power feedback instrumentation amplifiers. Operational amplifier. Field effect transistor circuits, stabilized power supplied and voltage regulation circuits. Transducers, noise and interference in systems. Multistage amplifiers. Differential amplifier circuits. (3 Units)

PET 763.1 Laboratory Practice

Multi-meters and Oscilloscopes. Auto-ranging in measuring instruments. A survey of the use of electronic circuit devices, eg, diodes, transistors including FET, integrated circuits, photocells. Selection, use and maintenance of test instruments. Survey of pick-ups and transducer devices. Basic

circuit synthesis and analysis. Pulse circuits. Instrumentation and measuring techniques: impedance matching, Probes active and input and output impedance using the scope. (1 Units)

PET 764.1 Semiconductor Technology

The chemical physics of semiconductor; preparation, purification, growth of simple crystals, evaluation of chemical structural properties, dropping effects, mechanical and metallurgical properties. Thermodynamic and kinetic consideration in crystal growth from met and by chemical vapour transport techniques. Si, De, Ga, As and measurements of electrical properties. Processing of semiconductor materials for device fabrication. Formation of pn junction luminescence and luminescent materials, photo emissive and photoconductive materials. Materials for IC's and their fabrication. (2 Units)

2. MASTER OF SCIENCE LABORATORY TECHNOLOGY (MSLT) PROGRAMME

The Master of Science Laboratory Technology (MSLT) will be in the following options:

- (a) Biochemistry/Chemistry Technology
- (b) Biomedical/Physiology/Pharmacology Technology
- (c) Geology/Mining Technology
- (d) Microbiology/Virology Technology
- (e) Industrial Chemistry/Petrochemical Technology
- (f) Chemical/Petroleum Technology
- (g) Physics with Electronics/Production Technology

2.1 Admission Requirements for Master of Science Laboratory Technology (MSLT)

Candidates seeking admission into MSLT in the various options must possess a BSc or BTech. Or BSLT with not less than CGPA of 2.40 on a 4 point scale and CGPA of 3.0 on a 5 point scale. Candidates with FIND Degree must possess Upper Credit and those with the PGD-SLT must have a CGPA of 3.50 on a 5 point scale in any of the Science Laboratory Technology options.

2.2 Programme Duration

The Master of Science Laboratory Technology (MSLT) for Full-Time shall be a minimum of 12 calendar months and a maximum of 24 calendar months for Full-Time. Part-Time will be a minimum of 24 calendar months and a maximum of 48 calendar months for

2.3 Academic Work/courses for MSIT

Full-Time Students: Full-time students will register for four taught courses and a seminar in the first semester and three taught courses and a research project in the second semester.

Part-Time Students: Part-time students will register for two taught courses in the first semester of the first year and two taught courses in the second semester of the first year. Two taught courses with a seminar in the first semester of second year and one taught course with a research project in the second semester of second year.

Both Full-Time and Part-Time Students: Graduate students are also mandated to register and pass one SGS course per semester. Candidates must pass all the prescribed courses before graduation

2.4 COMPULSORY COURSES FOR MASTER OF SCIENCE LABORATORY TECHNOLOGY (MSLT) PROGRAMME

Students admitted into the various options of the Master of Science Laboratory Technology (MSLT) must register and pass the following compulsory courses.

First Semester

Course Code	Course Title	Credit Units
SGS 801.1	ICT and Research Methods	2
SLT 801.1	Advanced Laboratory Management	3
SLT 802.1	Seminar	3
	Total	8

Second Semester

Course Code	Course Title	Credit Units
SGS 801.2	Entrepreneurship & Management	2
SLT 803.2	Biostatistics & Research Methods	3
SLT 804.2	Dissertation	6
	Total	11

TOTAL UNITS FOR COMPULSORY COURSES = 19

2.5 COURSE REQUIREMENTS FOR MASTER OF SCIENCE LABORATORY TECHNOLOGY (MSLT)

A. BIOCHEMISTRY/ CHEMISTRY TECHNOLOGY

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
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BCT 811.1	Advanced Analytical Instrumentation	3
BCT 812.1	Advanced Bioanalytical Techniques	3
BCT 813.1	Advanced Environmental Technology	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
BCT 84.2	Spectroscopic Methods in Chemistry	3
BCT 815.2	Advanced Biochemical Technology	3
Total		6

B. BIOMEICAL TECHNOLOGY

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
BMT 821.1	Biomechanics, Ergonomic and Occupational Safety	3
BMT 822.1	Biomedical Devices Manufacturing Processes	3
BMT 823.1	Health, Safety and Environment	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
BMT 824.2	Biomedical Instrumentation	3
BMT 825.2	Biosafety	3
Total		6

C. PHYSIOLOGY/PHARMACOLOGY TECHNOLOGY

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
BMT 831.1	Pharmacological Techniques	3

BMT 832.1	Advance Physiological concepts & Techniques	3
BMT 833.1	Anatomical Techniques	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
BMT 834.2	Advance Animal and Store Management Techniques	3
BMT 825.2	Biosafety	3
Total		6

D. GEOLOGY/JMINIT4GTECIINOLOGY

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
GMT 841.1	Mining Method and Unit Operations	3
GMT 842.1	Drilling Practice	3
GMT 843.1	Advanced Field Geology	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
GMT 844.2	Oil and Gas Exploration Geology	3
GMT 845.2	Geologic Exploration, Mining and Mineral Processing	3
Total		6

E. MICROBIOLOGY/VIROLOGY TECHNOLOGY

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
MCT 851.1	Advanced Food Processing and Packaging Techniques	3
MCT 852.1	Advanced Microbiological Laboratory Techniques	3

MCT 853.1	Advanced Molecular Techniques in Biotechnology	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
MCT 854.2	Fermentation and Brewing Technology	3
MCT 855.2	Advanced Environmental Microbiology and Techniques	3
Total		6

**C. INDUSTRIAL CHEMISTRY/
PETROCHEMICAL TECHNOLOGY**

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
BCT 811.1	Advanced Analytical Instrumentation	3
ICP 861.1	Advanced Petrochemical Science and Technology	3
ICP 862.1	Unconventional Hydrocarbon Sources	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
ICP 863.2	Petroleum Refining Technology	3
ICP 864.2	Computational Techniques for Process Systems	3
Total		6

**C. CHEMICAL/PETROCHEMICAL
TECHNOLOGY**

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
CPT 871.1	Chemical Reaction Technology	3
ICP 861.1	Advanced Petrochemical Science and Technology	3

CPT 872.1	Chemical Technology Process Analysis	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
CPT 873.2	Technology of Process Equipment	3
ICP 864.2	Computational Techniques for Process Systems	3
Total		6

**D. PHYSICS/ELECTRONICS
TECHNOLOGY OPTION**

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
PET 881.1	Electrical Circuits and Electronics	3
PET 882.1	Electronics Laboratory Practice I	3
PET 883.1	Application of Electrical/Electronic Principles	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
PET 884.2	Electronics and Instrumentation	3
PET 885.2	Electronic Laboratory Practice II	1
PET 886.2	Semiconductor Technology	2
Total		6

E. PHYSICS/PRODUCTION TECHNOLOGY

In addition to the compulsory courses for the Master of Science Laboratory Technology (MSLT), Students admitted into the programme for must pass the following courses.

First Semester

Course Code	Course Title	Credit Units
PPT 891.1	Electromagnetic Materials Technology	3
PPT 892.1	Production Laboratory Practice I	3
PPT 893.1	Power Plant Technology	3
Total		9

Second Semester

Course Code	Course Title	Credit Units
PPT 894.2	Solar Energy	3
PPT 895.2	Automatic Technology	1
PPT 896.2	Production Laboratory Practice II	2
	Total	6

2.6 COMPULSORY COURSES DESCRIPTION FOR MSLT

The courses described below are compulsory for MSLT options

FIRST SEMESTER

SGS 801.1 ICT and Research Methods

This course covers essentials of spread sheets, internet technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of hypotheses, formulation and testing, organization of research and report writing. (2 Units)

SLT 801.1 Advance Laboratory Management

Management Techniques and functions: The concept and relevance of management to laboratory practice. Record keeping in the laboratory. Selection and management of staff: Job description; the advertisement; application forms - references, interviewing and selection- final selection; Organization of laboratory practice: Elements of law. Common and statutory laws and relevance to laboratory practice such as health and safety, welfare of employees, and cruelty to animals. Import and exercise duties. Nature of contract. Elements of contract. Contract in relation to purchase of laboratory materials, employment etc. Legislation regulating the science laboratory practice in Nigeria (NISLT Act no.12 of 2003). Structure of NISLT and functions. Legal and professional responsibilities of technologists. Organization of laboratory services in Nigeria.- Public and private laboratories. Professional code of ethics. Types of business organization. Small business management. Production, Entrepreneurship and business development. (3 Units)

SLT 802.1 Seminar

Candidates must extensively review current or novel topic complementary to their area of training to broaden their knowledge. How to prepare and conduct a presentation with Power-Point, Creating a PowerPoint, Step by Step: Scientific Poster making (3 Units)

SECOND SEMESTER

SGS 801.2 Entrepreneurship And Management

This course covers business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving. (2 Units)

SLT 803.2 Biostatistics and Research Methods

Biostatistics: Definition, scope and applications. Presentation of data. Overview of measure of central tendency. Chi square test. (a) Biostatistics; Population and sample size. Sampling distribution. Tests of significance. Student's t test. Analysis of variance (ANOVA). One way or two way ANOVA. Regression analysis. Simple and multiple regression. Overview of non-parametric tests. Likert Scale. Statistical packages, Graphpad, Minitab, SAS, Epi Info, Sigma Plot and SPSS. Scientific writing techniques, How to make PowerPoints, How to make posters, Referencing styles (3 Units)

SLT 804.2 Dissertation

Research is a vital part of University life and all of our graduate degrees have, as a vital component, a research project. In our graduate research project, students work independently within a research group or in area of specialization of a staff member. A research project to be carried out by the candidates following stringent scientific procedures that will yield results acceptable by experts worldwide. Each project must contribute to knowledge. (6 Units)

2.7 COURSE DESCRIPTION FOR MSLT IN THE DIFFERENT OPTIONS

COURSE DESCRIPTION FOR BIOCHEMISTRY/CHEMISTRY TECHNOLOGY COURSES

BCT 811.1 Advanced Analytical Instrumentation

General principle of chemical and physical quantification. Comparison of various methods for identification and quantification of biomolecules. Electrochemical principle in quantification and separation of biomolecules. Electrochemical instruments. Chromatographic principles of separation, identification and quantitative analysis. Chromatographic Instrumentations, HPLC, Gas Chromatography, Liquid Chromatographic. Techniques for cell disruption, centrifugation, conventional filtration, membrane filtration, solvent extraction, aqueous two phase extraction, adsorption, precipitation, distillation and crystallization. (3 Units)

BCT 812.1 Bioanalytical Techniques

The purpose is to perform the pharmacokinetics, toxicokinetics, bioequivalence and exposure

response like pharmacokinetic/pharmacodynamic studies. Various bioanalytical techniques are performed in bioanalytical studies such as hyphenated techniques, chromatographic techniques, and ligand binding assays, bioanalysis of the drugs, Liquid-liquid extraction, and some techniques commonly used in bioanalytical studies include: Hyphenated techniques: LC-MS (liquid chromatography-mass spectrometry; GC-MS (gas chromatography-mass spectrometry; CE-MS (capillary electrophoresis-mass spectrometry; Chromatographic methods: HPLC (high performance liquid chromatography, GC (gas chromatography)

Electrophoresis

Ligand binding assays: Dual polarisation interferometry; ELISA (Enzyme-linked immunosorbent assay; MIA (magnetic immunoassay); RIA (radioimmunoassay) Mass spectrometry and Nuclear magnetic resonance (3 Units)

BCT 813.1 Advanced Environmental Technology

Pollution and the environment-definitions and interrelationships, natural and man-made pollution, the economics of pollution. Air pollution-gaseous and particulate pollutant and their sources. Effects on weather, vegetation materials and human health. Legislation relating to air pollution. Methods of control of gaseous emission and destruction, cyclones, inertial, separators, electrostatic precipitators, bag filters, wet washers, etc. dispersal from chimneys and method of calculating chimney height. Flare stacks. Water pollution-river pollution by industrial effluents Legislation and standards for effluents on the ecosystems. Treatment processes including precipitation, flocculation, coagulation sedimentation, clarification and colour removal. Principles of biological treatment processes. Cost treatment. Treatment of water re-use, on exchange. Cooling water treatment. Land pollution- disposal of solid wastes by incinerator and dumping. Possible future trends including conversion of solid waste into useful materials or energy. Treatment of other types of pollution-noise. Thermal and Nuclear pollutions. Waste management: Management of liquid waste, solid waste and gaseous waste (3 Units)

SECOND SEMESTER

BCT 814.1 Spectroscopic Methods in Chemistry

Spectrophotometric methods and instruments in quantitative analysis. Absorption spectroscopy: UV/Visible spectrometry: instrumentation, sources of radiant energy, sample handling, detection devices, amplification and readout of detector signals, single- beam and double-beam

operation, Emission and Atomic Absorption Spectrometry: radiation sources and operational system, typical instrumentation. Mass Spectrometry: Instrumentation and interpretations of results, NMR spectrometry: Instrumentation and interpretations of results, X-ray Spectrometry: Instrumentation and interpretations of results (3 Units)

BCT 815.1 Advanced Biochemical Technology

Aspect of living processes. Microbiology and control of microorganisms. Microbial kinetics. The Biochemistry and physic-chemical properties of biological compounds. Biochemical pathways and metabolism of simple substrates. Fermentations. Enzymes and enzymes kinetics. Biochemical reactors. Design of microbial culture processes in the manufacture of pharmaceuticals, commercial enzymes and alcoholic beverages. Batch and continuous culture. Biological waste disposal. (3 Units)

COURSE DESCRIPTION FOR MSLT IN BIOMEDICAL TECHNOLOGY

BMT 821.1 Biomechanics, Ergonomic and Occupational Safety

Basics concepts of statics, dynamics of particles and rigid bodies in a plane; analysis of forces; distributed force vectors, flexible cables, friction, Static and Dynamic Equilibrium of a particle and equilibrium of rigid bodies; areas of centroids, masses, centre of gravity; analysis of structure; internal forces, Newton's third law; shearing forces; moments, trusses and frames. Forces system resultants; structural analysis, kinematics and kinetics of particles and rigid bodies in motion. Methods of impulses and momentum; linear and angular momentum; work and energy. Occupational health standards; Occupational exposure to hazardous chemicals and blood-borne pathogens; Stress, fatigue and the work environment; Precautions in equipment handling in the industries; Workman compensation act. (3 units)

BMT 822.1 Biomedical Devices Manufacturing processes

The lathe and its function. Driving and feeding work. Holding devices. Turning on centers, taper turning, screw-cutting; eccentric turning, form-turning. Boring and saddle. Button bearing. Automatic lathe. Copy turning and capstan lathe. Types of milling machines; milling cutters. Machine feed and rotation. The driving head; linear indexing and linear graduating. Gear cutting, rack cutting attachment. General principle of machining, using point and multi — point cutting tools. Chip formulation, cutting forces cutting parameters. Tools temperature, life and wear.

Cutting threads, surface roughness. Tools materials. Design of single point and multiple — point cutting tools. Drills and milling cutters; causes of vibration and chatter in machine tools operation. Principles of casting; sand casting, plaster and mould casting; shell moulding, investment cast; permanent mould casting; centrifugal casting, die casting, continuous casting. Defects in casting. Design of casting; riser designer and placement; solidification control. (3 Units)

BMT 823.1 Health, Safety and Environment

Introduction, Definition, Scope and Application, Group standards and Requirements, Unsafe Acts and Unsafe Conditions, Management system, HSE Responsibilities and Competence, Job Safety Analysis, Personal Protective Equipment, Procurement and Assurance of PPE, introduction to Security, Security Survey and Risk Assessment, Security Plan, Permit to Work, Complementary Certificate, Fire Prevention, Protection and Evacuation Procedure, Classes of Fire, Starvation, Identification of Fire Extinguishers, Size and Colour codes, First Aid, Cardiopulmonary Resuscitation (CPR) Practical (3 Units)

BMT 824.2 Biomedical Instrumentation

Blood pressure measurement; Blood flow measurements; Measurement of the respiratory system; Clinical laboratory instrumentation; Electrical safety in instrumentation. Study of medical equipment used in health care, especially critical care; Sources of hioelectric potentials and use in electrocardiograms, electroencephalograms and electromyograms; Operating principles of patient monitors, defibrillators, pace makers etc.; Electrical hazards and patient/user safety. (3 Units)

BMT 825.2 Biosafety

This course is an introduction to the principles of biosafety, how to work safely with biological agents, microorganisms and genetic modified organisms in laboratory. In Hospitals and (Biomedical) Science biological materials (micro-organisms, eukaryotic cells, tissues, body fluids, faeces...) are intensively used in both basic research and diagnostics. In many situations these biological materials are genetically modified or originated from genetic modified organisms. The biological materials can be pathogenic and therefore one should know the rules how to handle these material in a safe way to avoid any harm to yourself or the environment. For working with genetic modified organisms additional legislation applies. In this course the importance of working safely and responsibly with biological materials and genetically modified materials are stressed. Guidelines and regulation, decontamination and disinfection, disposal and sterilization, facility and

equipment design will be discussed. During the practical assignments the participants can train some basic biosafety principles for proper handling of microorganisms. In the case studies some realistic laboratory situations are depicted by which the participants are forced to think about how to handle these situations in a (bio) safe way. (3 Units)

2.8 COURSE DESCRIPTION FOR PHYSIOLOGY/ PHARMACOLOGY TECHNOLOGY

BMT 831.1 Pharmacological Techniques

The course is designed to provide an in-depth knowledge in analytical techniques in Pharmacology. These include titrimetry, chromatography, spectroscopy, capillary electrophoresis and hyphenated techniques. (3 Units)

BMT 832.1 Advance Physiological concepts and Techniques

Opportunity for students to acquire knowledge in neuroendocrinology and environmental physiology, Analytical methods in physiology, flame photometry, spectrophotometry, vitalography, electrocardiography, encephalography, ultrasonography, radiography, transducers, kymographyetc (3 Units)

BMT 833.1. Anatomical Techniques

This course will deal with tissue preparations and staining techniques, general principles of electron microscopy and preparation and preservation of anatomical specimen. (3 Units)

BMT 834.2 Advanced Animal and Store Management Techniques

This course provide information about the standards of design and management of a range of common animal housing and care facilities, breeding methods of such as rats, guinea pigs etc., Animal ethics in research, animal care, common laboratory animal infectious diseases and control of infections., Environmental Hazards of laboratory animals, the use of animals for Research and Teaching. Laws governing the use of laboratory animals:

Humane killing methods. General anaesthesia and theories of anaesthesia. Various available anaesthetics and sites of action. Volatile and gaseous anaesthetics. Methods of preparation and handling of animals for anaesthesia. Routes of drug administration: intravenous intrapritoneal, oral, subcutaneous, etc. Signs and different stages of anaesthesia. (3 Units)

2.9 COURSE DESCRIPTION FOR GEOLOGY! MINING TECHNOLOGY

GMT 841.1 Mining Method and Unit Operations

Drilling and blasting operation in surface and underground mine. Loading and haulages systems in underground and surface mine. Waste dump Construction. Auxiliary work in mines. Mining methods and system for underground mining; open pit mining method, open cast mining method for surface mines. Room and pillar method for underground coal mines, sub-level caving and shrinkage methods for underground coal mines. (3 Units)

GMT 842.1 Drilling Practices

Element of rock mechanics; Basic drilling methods: cable and rotary drilling methods, advantages and disadvantages of Equipment and Drilling techniques used in cable tools drilling; Introduction to other drilling methods: Rotary drilling practices for oil and gas well: Basic rotary components, their functions and Selection; formation pressures prediction, Fracture gradient prediction, drilling fluid function; properties and testing, types of drilling fluid or mud additives, Drilling hydraulics; function; drilling cost analysis and control. Well completion and safety techniques used in drilling and completion operation; offshore drilling. Storage and transportation problems prediction of wind, wave current force, equipment employed in Marine environment. Drilling on hard rock; selection of types of drilling and blast hole diameter. Drilling in water; drilling for community water services and borehole completion (3 Units)

GMT 843.1 Advanced Field Geology

Mapping of basement and basin terrain. Field note taking and geological report writing. The different sedimentary basin and basement complexes of Nigeria. Stratigraphic evolution of basin in Nigeria. (3 Units)

GMT 844.2 Oil and Gas Exploration Geology

Completion of oil and gas well- single and multiple completion; open holes, perforation methods, interval selection, productivity consideration. Well head bottom hole equipment-check and starting up of oil and gas well. Well surveillance diagnosis, well bore damage (drawdown and build -up), production logging. Critical completion conditions-seizing of tabular goods. Forum on tubing and packers (Anchored and unanchored tubing helical buckling). Wire line operation. Workover techniques-perforating, depth control squeeze cementing, well treatments (Acidizing, Fracturing, Sand control). Fundamentals of vertical flow for multiphase, system (Krislov's Poetmann and Carpenter, Gilbert's Ross and other theories). Single and two phases flow through

choke. Flowing oil well. Types and control of flowing wells. (3 Units)

GLY 845.2 Geologic Exploration, Mining and Mineral Processing

The idea of mineral prospecting and exploration. Exploration indicators. Stages in exploration process. Exploration philosophy and management. Grid setting, borehole drilling and prospect generation. Ore reserves estimation environmental and legal issue in mineral prospecting and exploration. Cutoff grade estimation and its relation to reserve estimation. Planning of exploration Programmes. The meaning of mining engineering; branches of mining; mining methods and systems. Mining equipment selection-and mine parameter estimation; environmental and legal issues in mining operation; elements of mine planning and design; mineral processing basics, mine unit operation. (3 Units)

2.10 COURSE DESCRIPTION FOR MICROBIOLOGY TECHNOLOGY

FIRST SEMESTER

MCT 851.1 Advanced Food Processing and Packaging Techniques

Principles and practice of food processing, techniques of processing and preservation of Nigerian food with regard to their physio-chemical properties; Food packaging and microbial dynamics. Chemical preservative/additive. Legislation and control. Plant sanitation. Canning containers; outline of canning operation; principal spoilage organisms in canned foods. Use of radiation in food, preservation; insect contamination as spoilage organisms; laboratory examination of canned foods; method of detecting contaminants in foods, Food enzymes, their production and biochemistry. Emerging nutraceutical/functional food industry with emphasis on the analysis, production, control, quality assurance, and development of natural health products. Indices of food quality and Microbial standards. Some advance food analytical methods. (3 Units)

MCT 852.1 Advanced Microbiological Laboratory Techniques

Introduction and safety aspects of microbiology lab, Instructions and handling of microbiology equipments & tools, Sterilization techniques, Microbial culture media and its importance, Isolation of microorganisms from soil, Air and water, plating techniques, Streaking methods, Pure culture preparation, Sub culturing of microbes in solid and liquid media, Screening of desired organism. Morphological behavior of microbes, Staining techniques, Identification by biochemical test, Production of secondary metabolites,

Antibiotic sensitivity assay, Isolation and identification of fungi, LCB Mount, Growth studies of microbial cultures at shake flask UV-VIS, Spectrophotometer Estimation, Effect of Physical stress, Shake flask Fermentation techniques, Upstream and downstream processing, Milk analysis & Water analysis, Methods of anaerobic bacteriology (3 Units)

MCT 853.1 Advanced Molecular Techniques in Biotechnology

Principle of molecular biology techniques, DNA Molecular Techniques, Southern Blotting, RNA/DNA Technologies, isolation and characterization, Northern Blotting, Application of Molecular Biotechnology, Restriction digestion, Detection of antibodies resistance gene in bacteria, Polymerase Chain reaction (PCR), DNA sequencing, Primer design, Metagenomics, DNA library construction, Enzyme Technology, Bioinformatics etc.

SECOND SEMESTER

MCT 854.2 Fermentation and Brewing Technology

Principles of fermentation, element, element of biochemical engineering, fermentators and fermentator design, continuous and batch system, process control, fermentation kinetics, Microbial enzymes, cell and enzyme immobilization. Application of immobilized cells. Scale up of fermentation process and computer control, Trends in genetic engineering, Microbial proteins (SCP process) Food Enzymology. Use of water in brewing, effects of specific ions and water purification, matting and washing to include a study of barley, its chemical composition the malting process, milling and mashing, adjuncts, hops and wort treatment. Fermentation to include yeast growth, biochemistry and post-fermentation techniques. Traditional fermentation of alcoholic beverage and method of up-grading. (3 Units)

MCT 855.2 Advanced Environmental Microbiology and Techniques

Microbial aspects of the genesis of petroleum, Microbial indicators on oil. Prospecting, Microbial enhance oil recovery (MEOR). Microbial metabolism of straight- chain, branched and cyclic alkane. Microbial metabolism of gaseous hydrocarbons. Pathway for hydrocarbon degradation. Microbial degradation of petroleum products and use of microorganisms in oil clean-up operations. Bioremediation of heavy metals. Application of anoxic/anaerobic processes to environmental problems. Anaerobic digestion of municipal solid wastes and biogas generation. Composting. (3 Units)

2.11 COURSE DESCRIPTION FOR INDUSTRIAL CHEMISTRY/ PETROCHEMICAL TECHNOLOGY)

BCT 811.1 Advanced Analytical Instrumentation

General principle of chemical and physical quantification. Comparison of various methods for identification and quantification of biomolecules. Electrochemical principle in quantification and separation of biomolecules. Electrochemical instruments. Spectrophotometric methods and instruments in quantitative analysis. Chromatographic principles of separation, identification and quantitative analysis. Techniques for cell disruption, centrifugation, conventional filtration, membrane filtration, solvent extraction, aqueous two phase extraction, adsorption, precipitation, distillation and crystallization. (3 Units)

ICP 861.1 Advanced Petrochemical Science and Technology

Petrochemical Precursors. Socio-economic, socio-political and geographical implications of the petrochemical industry. Planning petrochemical industry for a developing country. Petroleum Hydrocarbon Solvents, Petrochemical Industry; Primary petrochemicals; intermediates and derivatives; Major End use Products including, 2-Ethylhexanol, Acetone, acetylene, ethylene, Polyethylene, Isopropyl Alcohol, Propane, Polypropylene, ethanol, Vinyl chloride and Polyvinyl chloride. (3 Units)

ICP 862.1 Unconventional Hydrocarbon Sources

Coal; The formation of coal, different ranks of coal, the analysis of coal, coal preparation technology, secondary processing, carbonization, gasification and catalytic process. The Fischer-Tropsch synthesis. Shale oil; Definition and formation, properties and composition, production, oil-shale retorting. Above ground retorting, in-situ retorting and shale oil refining. Tar sands; Definition, occurrence and reserves, schools of thought regarding the- origin of the oil. Tar sand recovery technology. In-situ processes. combustion steam drive, emulsion-steam drive process. Mining of tar-sands, Bitumen recovery, direct coking and anhydrous solvent extraction. Biomass; Introduction to biofuel classification, thermochemical, biochemical and agrochemical processes. Alcoholic fermentation, ethanol fuel use, conversion of methanol to Hydrocarbons Anaerobic digestion for biogas. Pyrolysis and Gasification of biomass to liquid fuel (3 Units)

ICP 863.2 Petroleum Refining Technology

Chemistry of Petroleum, the Petroleum refinery, Desalination processes, The tank farm and oil storage, Distillation processes, Gasoline sweetening, Reforming Processes, Catalytic cracking, Isomerization, Polymerization, Alkylation, Coking Process, Hydrocracking, Lubricating oil Production, Grease and wax production, Refinery layout, Transfer of different Petroleum products, safety and environmental protection in the petroleum refinery. Corrosion in equipment and pipelines and control techniques. (3 Units)

ICP 864.2 Computational Techniques for Process Systems

Application of analysis data to obtain solutions using linear transformation, complex analysis, system of linear equations, numerical analysis techniques. Use and application of ANOVA, Correlation, regression and other statistical tools in interpretation of process systems. Computational methods and software for analysis of process technology. Modeling and simulation. (3 Units)

2.12 COURSE DESCRIPTION FOR CHEMICAL/PETROLEUM TECHNOLOGY

CPT 871.1 Chemical Reaction Technology

Heterogeneous reactions: fluid-solids interacting systems. Noncatalytic, and solid catalysed gas-phase reaction. Tubular reactors-design equation based on plug flow for isothermal and adiabatic cases. Transport effects, packed bed design. Fluidized and slurry-phase reactors and their uses. Factors affecting choice of reactor, Optimization-output and yield problems. Conditions of stability of reactors. Rate-controlled regime in gas-solid reactions catalysed by porous catalysts. Scale-up procedure-batch and continuous flow reactors. Economic evaluation and comparison of reactor types. (3 Units)

CPT 872.1 Chemical Technology Process Analysis

Introduction to Engineering calculations Process and Process variables. Processes and process descriptions. Process data representation and analysis industrial stoichiometry (counting reactant excess reacted, degree of completion, percentage conversion). Material of Energy balances on batch, semi batch and continuous systems, in steady and (or) unsteady state. Gases vapours liquids and solids. Their mixtures vapours liquid equilibrium (Raoult's law, relative and percent saturation, condensation dew point). Steam (enthalpy temperature chart and steam table). Combustion calculations (solid, liquid and gaseous fuels, excess air, waste gas analysis. Applications to the chemical process industries. Sources of data. Dimensional analysis. (3 Units)

CPT 873.2 Technology of Process Equipment

Operations and maintenance of items and parts of process equipment. Fluid-flow measurement equipment: orifice plate meter, ultrasonic flowmeter and coriolisflowmeter, densitometers. Valves, valve-fittings, piping and pipelines. Pumps. Pump performance and characteristics. Types of pumps: dynamic pumps, axial and mixed flow pumps, submersible pumps, seal-less pumps, disc pumps, positive displacement pumps, rotary pumps, gear pumps and screw pumps. Heat exchangers: double pipe heat exchanger, shell and tube heat exchanger, tube arrangement, types of shells, baffle types in shell-and-tube heat exchangers. Plate heat exchangers, air-cooled heat exchangers. Agitated vessels, spray condensers, direct-contact condensers. Distillation and ancillary equipment. Distillation columns: plate columns, types of trays, factors that determine column performance. Bubble cap trays, sieve trays, valve trays. Plate efficiency. Packed columns for distillation. Types of packing. Reflux divides, condensers and reboilers. (3 Units)

2.13 COURSE DESCRIPTION FOR PHYSICS/ELECTRONICS TECHNOLOGY OPTION

PET 881.1 Electrical Circuits and Electronics

Outline of linear circuit analysis. Linear transformations. One port and two port networks, single-phase sinusoidal alternating current circuits. Lock diagrams, poly-phase circuits, network topology. The methods of symmetrical components; some properties of three phase systems, example of networks of unbalanced impedances. Distribution parameter networks, periodic non-sinusoidal currents in linear circuit, Fourier series, harmonic in three phase systems. Conventional filter design and operation. Operational methods of transient analysis of distributed parameter networks, nonlinear A.C circuits, frequency response of electrical networks. Bode plots. Poles and zeros and time delay root-locus concepts. Frequency response analysis of electronic amplifiers, oscillators. Power feedback instrumentation amplifiers. Operational amplifier. Field effect transistor circuits, stabilized power supplied and voltage regulation circuits. Transducers, noise and interference in systems. Multistage amplifiers. Differential amplifier circuits. (3 Units)

PET 882.1 Electronics Laboratory Practice 1

Practical use of d.c ammeters and voltmeters. Simple a.c/d.c test with meters-condenser testing techniques. Construction of resistances boxes, Meter Bridge and Potentiometer Bridge.

Application of bridges to experiments. Wiring techniques-lamps and switching arrangements in wiring. Fuses connection. Fault finding techniques, eg trouble shooting techniques. Colour coding of resistors and condensers. Simple experiments involving electromagnetic inductances. Connection of cables to a.c sources (American, Britain and European cable colour codes). Simple experiments to show how electricity is controlled by using IC's to illustrate the principles of circuit designing. Circuit testing, soldering and case study of a mini designed and tested circuit. Introduction to Instrumentation workshop practice design and construction of simple electronic circuit/systems. (1 Unit)

PET 884.2 Application of Electrical/Electronics principles

The course deals with a survey of industries, institutions or organizations that use electrical/electronic principles in its operation. The institution include but not limited to NNPC instrumentation laboratory, Communication industries, Telecommunication companies, ground stations of satellites in orbit, instrumentation laboratories of universities. A report is expected on operations and experience gained. (3 Units)

PET 885.2 Electronics and Instrumentation

The transistor as a switch, power dissipation base over drive storage drive and switching speed, logic gates: Nano or with close logic, the TTL and gate, Truth table, noise margins, television pole, open collector and tristate, TTL CMOS, NMOS, ECL combinational systems. Boolean algebra, identities, De-Morgan's law, Karnaugh maps, QuineMcCluskey minimization by computer aided techniques. The half and full adder. Fliflop; R-S, I-K and D types edge and level trigger, maser slave types, the shift register. Circuit techniques. Oscillation sine wave amplitude control, sequencing frequency stability. Waveform discrimination. Practical ramp generators. Conversion techniques, frequency to voltage staircase generators, analogue to digital D to A termination of pulse lines, Beargon diagram, low noise amplifier design use to discrete components for minimum noise. (3 Units)

PET 886.2 Electronics Laboratory Practice 2

Multi-meters and Oscilloscopes. Auto-ranging in measuring instruments. A survey of the use of electronic circuit devices, eg, diodes, transistors including FET, integrated circuits, photocells. Selection, use and maintenance of test instruments. Survey of pick-ups and transducer devices. Basic circuits synthesis and analysis. Pulse circuits. Instrumentation and measuring techniques: impedance matching, Probes active and input and output impedance using the scope. (1 Unit)

2.14 COURSE DESCRIPTION FOR IN PHYSICS/PRODUCTION TECHNOLOGY

PPT 891.1 Electromagnetic Materials Technology

Electrical conducting materials; conductor and properties, factors affecting the resistivity of electrical materials, materials of low resistivity and high conductivity, materials of low conductivity and high resistivity, materials for lamp filaments and for transmission lines, fuse, soft and hard solders, thermocouple materials. Temperature effect in electrical conductivity of metals. Semiconductors and examples of semiconducting materials. Electrical insulating materials; characteristics of good insulating materials, classification of insulating materials, solid and liquid insulating materials, insulating gases. Properties of insulating materials; electrical, thermal, chemical and mechanical properties. Effect of moisture on insulation. Special purpose materials; high frequency materials, permanent magnetic materials, ceramic magnetic materials. Magnetic materials; terms associated with magnetic materials, classification and properties of magnetic materials, magnetically soft and hard materials. (3 Units)

PVT 892.1 Production Laboratory Practice 1

Conditions and synthesis of Accuracy. Interchangeability and limit systems. Identification and use of common work materials metals, alloys ferrous and non-ferrous metal and their characteristic utilization for the construction of tool bits. Measurement and precision work slip gauges. Comparator vernier height gauge making out vernier micrometer. Examples of measurement. Sine bar. Angular testing: use of rollers — Tapers projection. 1-land tools, power operated hand tools and machine tools. Drills and drilling machines. Drilling and Boring Techniques countersinking. Grinding, off hand grinding and precision grinding. Sawing and cutting machines. (1 Unit)

PPT 893.1 Power Plant Technology

'The World and Nigeria's energy demands. Methods of electrical power generation. Steam power generation cycles, steam generators and generation cycles, gas turbines combustors and auxiliary equipment. Nuclear power generation. Hydropower generation. Alternative energy sources and their power cycles. Energy storage. Economics of power generation. Computer aided power engineering. Industrial visits to at least one each of the hydro, steam-and gas-turbine power stations in the country. (3 Units)

PPT 894.2 Solar Energy

Solar radiation: solar declination. hour angle, apparent solar time, clock time, structure of the sun, motion of the earth in respect of incident solar energy on earth atmosphere, direct radiation, diffused radiation, total radiation (global) solar constant air mass, methods of estimating total, direct and diffused radiation, distribution curves for solar radiation collection iso- radiation map (solar map), pyranometer, pyheliometer. Fundamentals of heat transfer; heat conduction through flat plate, the wall of a cylinder, lamberts laws. Properties of collectors; structure of flat plate collector, structure and uses of concentrators, liquid heating by solar energy, porous and non-porous solar air- heaters, solar pond, solar furnace, application of solar pond. Solar storage: Mechanical solar energy storage, thermal energy storage and chemical energy storage and chemical energy storage. Solar energy utilization; solar cells, solar powered refrigerators and air conditioner. Solar energy conversions techniques; solar energy to electrical energy (using fuel cells), device that convert thermal energy to electrical energy, natural conversion of solar energy to chemical energy in plants, conversion of solar to electrical energy in photovoltaic cells. Application of various solar energy conversion techniques. (3 Units)

PPT 895.2 Automatic Technology

The cooling, lubricating, ignition and fuel supply systems. Valves and valve train design, operating mechanism and valve timing. Engine cylinder block and head design. Pistons and connecting rods. Crankshaft and engine balancing. The automobile, body, chassis and engine design. Frame and suspension systems. Steering, braking and transmission systems. Drive shafts, differentials and axles. Analysis and design algorithms and programs for computer treatment of automotive Engineering problems. (2 Units)

PPT 896.2 Production Laboratory Practice 2

Tree Related properties and structure of wood, Composition and variability of wood, Wood — moisture relations. Strength and elasticity of wood Lumber, Gluanus and Veneer, Wood- Based Panels, Thermal Properties and fire performance of structural wood. Wood deterioration and its prevention. Wood finishing and wood construction Wood adhesives, preservatives and protective coatings. Bench tools- hammers, bench vice, files, chisels, punches, drifts, scrapes and hacksaws etc. Sowing machines, cutting machines, and planning machines used in wood work. Construction of science apparatus to acquaint students with methods of planning, sawing, shaping, joining wood, polishing and painting etc. Safety in the wood workshop. (1 Unit)

DOCTOR OF PHILOSOPHY (PhD) DEGREE PROGRAMME IN SCIENCE LABORATORY TECHNOLOGY (SLT)

1.0 Introduction

Doctoral training is an important aspect of the tertiary education system. The School of Science Laboratory Technology of the University of Port Harcourt hereby proposes a PhD programme in Science Laboratory Technology (SLT).

2.0 Objective

Vision

The vision of the PhD programme is to contribute to national development and self-reliance through the training of world class science laboratory technologists who will be creative and innovative to propagate knowledge for service to the community and to humanity.

Mission

The School of Science Laboratory Technology has a mission to be a centre that is technologically and professionally sound, committed to pursuit of academic innovation and practical skills through excellence in teaching, research and community service.

Philosophy

The philosophy of the School of Science Laboratory Technology is to produce Science Laboratory Technology graduates with requisite practical skill, knowledge and competence to manage institutional, industrial and research laboratories and workshops.

Objectives:

The objectives of the School are to:

- i. Educate and train science laboratory technologists with the requisite practical skills, knowledge and competence to manage institutional, industrial and research laboratories and workshops;
- ii. Produce science laboratory technologists with capacity to design, develop, test, produce and maintain devices, systems and products that are beneficial to the human race;
- iii. Ensure socio-economic relevance of the academic programme with particular reference to the capacity of graduates for self-employment and the needs of employers of labour.
- iv. Enhance sustainable national development through research

3.0 Area of Specialization in the PhD Programme

The School of Science Laboratory Technology proposes to run post-graduate programmes leading

to the award of Doctor of Philosophy (PhD) in Science Laboratory Technology in the following areas of specialization:

- (a) Biology/Biotechnology
- (b) Biochemistry/Chemistry Technology
- (c) Biomedical Technology
- (d) Physiology/Pharmacology Technology
- (e) Geology/Mining Technology
- (f) Microbiology Technology
- (h) Industrial Chemistry/Petrochemical Technology
- (i) Chemical/Petroleum Technology
- (j) Physics with Electronics/Production Technology

4.0 Admission Requirements for Doctor of Philosophy (PhD) in Science Laboratory Technology

Candidates seeking admission into the PhD of the various options must possess an MSc, MTech, MSLT or MEng with a CGPA not less than 2.8 on a 4 point scale and CGPA of 3.5 on a 5 point scale in any of the following areas: Biology/Biotechnology, Biochemistry/Chemistry Technology, Biomedical Technology, Physiology/Pharmacology Technology, Virology Technology, Microbiology Technology, Geology/ Mining Technology, Geological Technology, Biology/Biotechnology Laboratory; Industrial Chemistry/Petrochemical Technology, Chemical/ Petroleum Technology, Physics with Electronics Technology or Physics with Production Technology, all areas of Science programme; all areas Engineering programme

5.0 Admission Process

On completion of the appropriate School of Graduate Studies (SGS) application forms, candidates will be invited by the School of Science Laboratory Technology Academic Board for oral/presentation interview. Candidates who score 70 % and above will be recommended to the School of Graduate Studies for admission into the PhD programme.

6.0 Registration

Registration of PhD students will be done at the beginning of every new academic session. At the beginning of every new academic session, PhD students will be strongly advised to proceed to the School of Graduate Studies, pay all requisite fees and return to the Chairman, School of Science Laboratory Technology Graduate Committee (SSLT-GC) for registration.

7.0 Duration of Programmes

Students admitted into the PhD programme will require a minimum of 2 years and maximum of 4 years to complete the programme for full time and

a minimum of 3 years and maximum of 6 years for part-time students.

8.0 Academic Work/Courses for PhD

Students admitted to PhD programme of the School of Science Laboratory Technology shall take and pass the following courses as the minimum requirements for a PhD (Doctoral) degree in SLT as part of the partial fulfillment for graduation.

The minimum benchmark for PhD programme in the School of Science Laboratory Technology consists of:

Course Code	Course Title	Credit Units
SLT 901.1	Advanced Laboratory Management	3
SLT 902.1	Advanced Techniques in Laboratory Administration	3
SLT 903.1	Research Techniques in Science Laboratory Technology	3
SLT 904.2	Advanced Workshop Technology & Practice	3
SLT 905.2	Advanced Laboratory Safety Techniques	3
SLT 906.2	Research Seminar 1	3
SLT 907.2	Research Seminar 2	3
SLT 908.2	Research Seminar 3	3
SLT 910	Thesis	16
TOTAL Credit Units		40

Note: There will be a School of Graduate Studies Seminar. Students must score a similarity index of 15 in the Anti-plagiarism Screening of their Research Thesis before they will be permitted to present the School of Graduate Studies (SGS) Seminar

9.0 Course Descriptions for PhD Programme in SSLT

SLT 901.1 Advanced Laboratory Management

Laboratory Regulations; Good Laboratory Practice ; Standards, Good Practices and laboratory quality management systems; Laboratory Information Management ;Laboratory and Research Ethics Scientific methodology, data handling, and management practices in research and manufacturing laboratories. Laboratory safety and health compliance; and management of laboratory personnel, space, inventory, and equipment. Assignments will address laboratory operating systems, finances and recordkeeping, safety regulations and procedures, data management, project planning, problem solving, procurement, personnel training, and

communication with a broad array of stakeholders. (3 Units)

SLT 902.1: Advanced Techniques in Laboratory Administration

Laboratory Planning: Various types of laboratories – industrial, research, hospital, teaching. Location, design, cost and acceptability of laboratories. Layout, organization and installation of suitable essential services and physical facilities, fixtures and fittings to achieve the desired and specialized rooms. Staffing the Laboratory, Managing Laboratory Personnel, and Work Management, Laboratory Records and Information Management, Store Management, Budgeting the Cost Control, Laws Affecting Laboratory Practice, General Laboratory Maintenance (3 UNITS)

SLT 903.1: Research Techniques in Science Laboratory Technology

Overview of a Research Proposal, Problem definition and Conceptualization, Hypothesis formulation and Objectives, Analysis of Objectives and formulation of questionnaire, review of related literature, types and sources of data, methods of data collection, conducting surveys, data processing, overview of appropriate methods analysis, result presentation and discussion, referencing, writing a research report, computer application in SLT research. Power point Preparation and presentation style, Poster preparation, Excel worksheet and statistical data analysis, formulation of scientific hypothesis, Anti-plagiarism, How to write scientific papers, How to write research proposal for a grant, How to make Poster presentation for conferences, A research proposal will be submitted as part of the course requirement. (3 UNITS)

SLT 904.2: Advanced Workshop Technology & Practice

Conditions and synthesis of accuracy. Interchangeability and limit systems. Identification and use of common work materials - metals, alloys ferrous and non-ferrous metal and their characteristic utilization for the construction of tool bits. Measurement and precision work slip gauges. Comparator vernier height gauge making out - vernier micrometer. Examples of measurement. Side bar. Angular testing use of rollers - tapers projection. Hand tools, power operated hand tools and machine tools. Drills and drilling machines. Drilling and boring Techniques countersinking. Grinding, offhand grinding and precision grinding. Sawing and cutting machines. Techniques in metal cutting and sheet metal forming. Hard and soft soldering, gracing and ways joints. Welding techniques. The lathe machine, planning machines and the milling

machines. Surfacing, taper turning and thread cutting on the lathe. Shaping, planning and slotting. Metal characteristics, heat treatment of metals. Metal finishes. High energy rate forming, chipless machining. Electro machining processes. Powder metallurgy. Cryogenic applications. Jigs and fixtures. Hydraulic power transmission. Workshop practice should focus on the construction and graduation of a variety of teaching, research and industrial tools, standard weight of mass, lever system, meter rules, calorimeters (3 UNITS)

SLT 905.2 Advanced Laboratory Safety Techniques

Culture of Laboratory Safety; Environmental Health and Safety Management System; Emergency Planning; Evaluating Hazards and Assessing Risks in the Laboratory; Management of Chemicals; Working with Chemicals; Working with Laboratory Equipment; Management of Waste; Laboratory Facilities; Laboratory Security; Laboratory Safety Plan, Radiation safety; Safety Awareness; Safety Shielding; Compressed safety, Cold Traps and Cryogenic Hazards; Glassware; Needles and Sharps Safety; Electrical Safety; Controlled Substances; Safe Handling of Peroxidizable Compounds; Safe Handling of Laboratory Animals; Safe Handling Of Biological Hazards; Biological Safety Cabinets; Laboratory Hoods; Safe use of Nanomaterials and potential health hazards; Safety Laws and Standards Pertinent to Laboratory (3 UNITS)

SLT 906.2: Research Seminar 1

Topical issues in Science Laboratory Technology research. (3 UNITS)

SLT 907.2: Research Seminar 1

Topical issues in Science Laboratory Technology research. (3 UNITS)

SLT 908.2: Research Seminar 1

Topical issues in Science Laboratory Technology research. (3 UNITS)

SLT 910 Thesis

Research is a vital part of University life and PhD students would be required to undertake advanced research project work that may positively impact society. In our graduate research project, students work independently within a research group or in area of specialization of a staff member. A research project to be carried out by the candidates following stringent scientific procedures that will yield results acceptable by experts worldwide. Each project must contribute to knowledge. (16 Units)

**LIST OF ACADEMIC STAFF PARTICIPATING IN THE
SLT POST-GRADUATE PROGRAMME**

LIST OF ACADEMIC STAFF IN SSLT

S/No	Name in Full	Present/ Position
1.	Prof. Michael Horsfall Jnr	Professor/Dean
2.	Dr. Lucky Nsirim Edwin-Wosu	Associate Dean Senior Lecturer/Coordinator, BBT/
3.	Dr. David Lekpa	Senior Lecturer/Coordinator, BMY
4.	Dr. Stev. Omeodu	Senior Lecturer/Coordinator, BCT
5.	Dr. Selegba Abrakasa	Senior Lecturer/Coordinator, GMT
6.	Dr. Hubert O. Stanley	Senior Lecturer/Coordinator, MCT
7.	Engr. John Lander Ichendu	Senior Lecturer and Coordinator, ICPT
8.	Dr. Hilary Obong	Senior Lecturer/Coordinator, PET/PPT

**FOR BIOCHEMISTR/CHEMISTRY TECHNOLOGY OPTION
DEPARTMENT OF BIOCHEMISTRY**

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Onyeike, E. N.	B.Sc, M.Sc, Ph.D (UPH) PGDE (UNN)	Nutritional Biochemistry/Toxicology	Professor
2	Monanu, M. O.	B.Sc (Nigeria) Ph.D (Alberta)	Enzymology/Protein chemistry	Professor
3	Akaninwor J. O. (Mrs.)	B.Sc, M.Sc (Benin), Ph.D (UPH)	Nutritional Biochemistry	Professor
4	Monago- Ighorodje, C. C.	B.Sc, M.Sc, PhD (UNN) AIMLS	Medical Biochemistry/Toxicology	Professor
5	Wegwu, M. O.	B.Sc, M.Sc, PhD (UPH)	Environmental Biochemistry	Professor
6	Essien, E. B.	B.Sc (Uyo), M.Sc. PhD	Nutritional Biochemistry/Toxicology	Professor
6	Ogunka-Nnoka, C. U	B.Sc, M.Sc, Ph.D (UPH)	Nutritional Biochemistry/Toxicology	Professor
7	Abariku, S	B.Sc. M.Sc Ph.D (Ibadan)	Medical Biochemistry	Professor
8	Anacletus, F	B.Sc, M.Sc, (UPH) Ph.D (Calabar)	Medical Biochemistry	Professor
9	Onwuka, F.	B.Sc, M.Sc, Ph.D (Calabar)	Medical Biochemistry	Professor
10	Ikweuchi, J. C.	B.Sc, M.Sc, PhD (Benin)	Biochemical Pharma.	Professor
11	Belonwu, D.	B.Sc, M.Sc, PhD	Environmental Biochemistry	Professor
12	Nwaichi E. O.	B.Sc, M.Sc. PhD	Nutrition/Toxicology	Professor
13	Ikewuchi, C. C.	B.Sc, M.Sc, PhD	Nutrition/Toxicology	Senior Lecturer
14	Omeodu, S. I.	B.Sc, M.Sc, PhD	Enzymology	Senior Lecturer
15	Iwuanyanwu, Patrick K. C.	B.Sc, M.Sc, PhD	Nutrition/Toxicology	Senior Lecturer
16	Peters, D. E.	B.Sc, M.Sc, PhD	Medical Biochemistry	Senior Lecturer
17	Onuoha, S. C.	B.Sc, M.Sc, PhD	Medical Biochemistry	Senior Lecturer

DEPARTMENT OF PURE AND INDUSTRIAL CHEMISTRY

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Ngochindo, R. I.	B.Sc, Ph.D. (Liverpool)	Organic Chemistry	Professor
2	Abayeh, Ovi	B.Sc, M.Sc Ph.D	Organic Chemistry	
3	Akaranta, O.	B.Sc, (Nigeria), M.Sc (A. Bello) Ph.D (UPH)	Polymer Science & Technology/Surface Coasting	Professor
4	Horsfall, M.	B.Sc, M.Sc, Ph.D (UPH)	Analytical/Environmental Chemistry	Professor
5	Obuzor, G. U.	B.Sc, (Washington D.C) M.Sc (UPH), Ph.D (UMIST)	Polymer/Organometallics	Professor
6	Okoye, I. P.	B.Sc, (Benin), M.Sc, Ph.D, (UMIST)	Petroleum Chemistry	Professor
7	Monago, K	BSc, PhD (UMIST)	Process Chemistry	Professor
8	James O. A. (Mrs.)	B.Sc, (OSU), M.Sc (UPH), Ph.D (Ibadan)	Inorganic/Corrosion Chem.	Professor
9	Orubite, K	BSC (Benin), MSc, PhD (UPH)	Inorganic Chemistry	Professor
10	Ibezim-Ezeani M. U. (Mrs.)	B.Sc, M.Sc, PhD (UPH)	Physical Chemistry	Reader
11	Osu, C. I.	B.Sc, (ABSU), M.Sc, PhD (MOUA)	Environmental Chemistry	Reader
12	Chukwu, Uche J.	B.Sc, (NAU), M.Sc, PhD (UPH)	Inorganic Chemistry	Reader
13	Iwuoha, G.	B.Sc (IMSU), M.Sc. PhD (UPH)	Inorganic/Analytical Chem.	Reader
14	Achugasim, O.	B.Sc (UCAL), M.Sc. (UPH), PhD (UPH)	Organic Chem.	Snr. Lecturer
15	Onyema, O. M.	B.Sc, (IMSU), M.Sc. (UPH), PhD (UPH)	Organic/Petroleum Chem.	Snr. Lecturer
16	Ngobiri, N.	B.Sc, (ABSU), M.Sc. (FUTO), PhD (UPH)	Inorganic/Analytical Chem.	Snr. Lecturer
17	Obi, C.	B.Sc, (IMSU), M.Sc. (UPH), PhD (UPH)	Physical Chem.	Snr. Lecturer
18	Onojake, M. C.	B.Sc, (DELSU), M.Sc. (UPH), PhD (UPH)	Organic/Petroleum Chem.	Reader

**FOR BIOMEDICAL TECHNOLOGY PROGRAMME
DEPARTMENT OF PHARMACOLOGY**

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Obianeme, A. W.	B.Sc. Ibadan, Ph.D Lord	Immuno Pharmacology	Professor
2	Georgewill, O. A.	B Med Sc, MB. BS (UPH), M.Sc., MD	Pharmacology	Professor
3	Siminialayi, L.	B Med Sc, MB. BS UPH MD	Pharmacology	Professor
4	Kagbo H. Delesi	B.Sc. M.Sc., PhD (UPH)	Pharmacology	Professor
5	Georgewill, O. U	MB. ChB (Calabar, M.Sc. (UPH), PhD (UPH)	Pharmacology	READER
6	Eyaru Sunday G.	MBBS (Benin)	Pharmacology	Senior Lecturer
7	Odigie Johchim O.	MBBS, M.Sc.PhD (UPH)	Pharmacology	Lecturer I

DEPARTMENT OF HUMAN PHYSIOLOGY

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Nwafor, A.	Ph.D	Membrane Physiology	Professor
2	Dapper, D. V.	B.Med., MBBS, M. Sc., MD	Blood Physiology	Professor
3	Amah-Taria F. S.	B.Med MBBS, M.Sc. , PhD	Physiology	Professor
4	Obia Onyebuchi	MBBS, PhD	Blood Physiology	Senior Lecturer
5	Obiandu Chibuike	MBBS, PhD	Blood Physiology	Senior Lecturer
6	Ojeka S. O.	MBBS, PhD	Blood Physiology	Senior Lecturer

DEPARTMENT OF HUMAN ANATOMY

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	H. B. Fawehinmi	B. Med. Sc. MBBS, (UPH); M. Sc. (London). FRAI, PhD	Biomedical Anatomy & Neuroanatomy	Professor
2	G. S. Oladipo	(A.G.H.O.D) BSC , PhD ILORIN, MSC.LAGOS, PhD	Development Anthropometry	Professor
3	C. W. Paul	B.Sc. (UPH), MBBS (Benin), M.Sc. , PhD	Anatomy	Senior Lecturer
4	Joy Olotu	BSC (ILORIN), MSC. (LAGOS) Ph.D.	Reproductive Anatomy	Senior Lecturer
5	Orish C. N.	MBBS (NAU), M.Sc. (UPH). , PhD	Neuroanatomy	Senior Lecturer
6	Oyakhire M. O.	B.Med. Sc. MBBS (UPH) , PhD	Productive & Development Anatomy	Senior Lecturer
7	Emeka A. Osunwoke	B.Sc., Med. Sc. PhD	Developmental Anatomy & Medical	Senior Lecturer
8	Hart Josiah	B.Sc., AIMLS, M.Sc. , PhD	Histochemistry & Cell Biology	Senior Lecturer
9	Edibamode Ezon-Ebidor I.	B.Sc., Med. Sc. , PhD	Gross Anatomy & Cell Biology	Senior Lecturer
10	Gwunireama Israel U.	B.Sc., Med. Sc. , PhD	Anthropometry	Senior Lecturer
11	Oghenamavwe E. I.	B.Sc., M.Sc. PhD	Histology, Radiologic Anatomy, Biomedical Anthropology	Senior Lecturer
12	David, L. K	BSc, MSc, PhD	Neuro-Anatomy	Senior Lecturer
13	Ibeachi,	BSc, MSc, PhD	Neuro-Anatomy	Senior Lecturer
14	Bob-manuel, I. F	BSc, MSc, PhD	Embryology	Senior Lecturer

FACULTY OF PHARMACEUTICAL SCIENCES

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Prof. Ogbonna Okorie	B. PHARM, M. PHARM, Ph.D.	PHARM & PHARM TECH	Professor

3	Prof. Ugozie, Kenneth Chinedu	B.S. PHARM, M. PHARM, Ph.D.	PHARM & PHARM TECH	Professor
4	Pharm. John I. Ordu	B. PHARM, M.Sc.PhD	PHARM & PHARM TECH	Senior Lecturer
5	Pharm Nwachukwu Nkemakolam	B. PHARM, MSc, PhD	PHARM & PHARM TECH	Senior Lecturer
6	Prof. E. Orisakwe	Ph.D.	EXPT. PHARM./MGT.	Professor
7	Pharm. (Mrs.) A. Mgbahurike	B. PHARM, M. PHARM.	CLINICAL PHARM./MGT.	Senior Lecturer
8	Pharm. (Mrs.) I. C. Nwauche	B. PHARM, M.Sc, PhD	TOXICOLOGY.	Senior Lecturer
9	Pharm. (Mrs.) O. A. Shorinwa	B. PHARM, M.Sc., MBA, PhD	EXPT. PHARM./MGT.	Senior Lecturer
10	Prof. Vincent C. Okore	B. PHARM, M. PHARM.	PHARM. MICROBIOLOGY	Professor
11	Dr. Ogbu, Hanson I.	Dip. (MCB); M.Sc, PhD	PHARM. MICROBIOLOGY	Senior Lecturer
12	Pharm. (Mrs.) Catherine Stanley	B. PHARM, M.Sc, PhD	PHARM. MICROBIOLOGY	Senior Lecturer
13	Kio A. Abo	Ph.D.	PHARACOGNOSY/PHYT OT HERAPY	Professor
14	Pharm. Osuala, Felix Ngozi	B. PHARM, PhD	PHARACOGNOSY/PHYT OT HERAPY	Senior Lecturer
15	Pharm Stanley E. Ukwueze	B. PHARM., M. PHARM, PhD.	PHARM. MED. CHEMISTRY	Senior Lecturer
16	Mrs. O. R. Johnson Ajinwo	B.Sc., M.Sc., PGDE, PhD	PHARM. MED. CHEMISTRY	Senior Lecturer
17	Pharm. Abayomi E. Omotoso	B. PHARM, M.Sc. , PhD	PHARM. MED. CHEMISTRY	Senior Lecturer

**FOR GEOLOGY/MINING TECHNOLOGY
DEPARTMENT OF GEOLOGY**

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Odigi, M. I.	B.Sc M.Sc. (Ibadan) PhD (UPH)	Petrology	Professor
2	Ukaegbu, V. U.	B.Sc. UPH M.Sc (Jos) PhD (UPH)	Mineral Exploration/Minning Geology	Professor
3	Udom, G. J	B.Sc. (Nig), M.Sc., PhD (Alberta)	Petroleum Geochemistry	Professor
4	Nwosu, J. I	MSc Moscow, PhD St. Petersburg	Mining Engineering	Senior Lecturer
5	Ugwu, S. A.	M.Sc. PhD (Nig.)	Geophysics	Senior Lecturer
6	Njoku F. A.	B.Sc (Ibadan), M.Sc. (Lond.), DIC, PhD (Calabar)	Geophysics	Senior Lecturer
7	Egesi, N.	B.Sc., M.Sc (Jos), PhD (UPH)	Structural Petrology	Senior Lecturer
8	Abakasa, S	BSc Calabar, MSc, PhD New Castle	Organic Geochemistry	Senior Lecturer

9	Nwankwala, H. O.	B.Sc. (UPH), M.Sc (RUST), PhD UPH	Hydrogeology	Senior Lecturer
10	Onwualu, John J.	B.Sc. (NAU), M.Sc (RUST), PhD UPH	Petrology	Senior Lecturer
11	Ugwueze C. U	B.Sc., M.Sc. PhD (UPH)	Petroleum Geology	Senior Lecturer
12	Jones, E A	BSc, MSc, PhD (UPH)	Sedimentology	Senior Lecturer

**FOR INDUSTRIAL CHEMISTRY/PETROCHEMICAL TECHNOLOGY OPTION
DEPARTMENT OF CHEMICAL ENGINEERING**

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Kuye, A. O.	B.Sc, M.Sc (Lagos) Ph.D (Strathclyde) R. Eng (3290)	Computer-Aided Design	Professor
2	Chukwuma, F. O.	BS, MS, Ph.D (Tulsa) MNSE R. Eng. (16966)	Separation/Processes/ Process Control	Professor
3	Evbuomwan, B. O.	B.Eng. M.Eng. (Benin), PhD (FUTO) MNS. ChE, MNSE, R.Eng. (13727). MNSE	Biochemical Engineering	Reader
4	Uyigwe, L.	B.Sc UPH, M. Eng. Benin	Chemical Engineering	Senior Lecturer
5	Josiah, P. N.	B.Sc (UPH) M. Eng. (Lagos), PhD	Chemical Engineering	Senior Lecturer
6	Otaraku J. I.	M.Sc (Volgograd), PhD (Moscow) AIChE	Reaction & Fine Chemical Engineering	Senior Lecturer
7	Oduola M. K.	M.Sc (Pet Eng), Ph.d (Chem Eng.), Lvov, Ukraine, R. Eng. (18680), PhD	Chemical Engineering	Senior Lecturer
8	Nwambo Y. P. (Mrs.)	B. Tech. (RSUST), M.Sc. (UNILAG), PhD	Chemical Engineering	Senior Lecturer
9	Oji, A.	B.Eng., M.Eng. PhD (UPH)	Chemical Engineering	Senior Lecturer
10	Ajoku, G. A. O.	B.Sc (Ind. Chem.), PGD (Chem. Eng.), M.Eng. PhD (UPH)	Chemical Engineering	Senior Lecturer
11	Edeh I.	B.Eng. (Enugu), M.Eng. PhD(UPH)	Chemical Engineering	Senior Lecturer

DEPARTMENT OF PETROLEUM AND GAS ENGINEERING

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Onyekonwu, M. O.	B.Sc. (Ibadan) MS Ph. D. (Stadford) R. Eng. (3536)	Petroleum and Gas Engineering	Professor
2	Ajienka, A.	B.Sc. (Ibadan) MS, Ph.D (UPH) MNSE E. Reg (5285)	Petroleum and Gas Engineering	Professor
3	Appah, D.	B.Sc. Dip (Edu.) Baku Ph.D (UPH) MNSE R. Eng. (7961)	Mining & Petroleum Engineering	Professor

4	Dosunmu, A.	B.Sc. (Ibadan) M. Eng Ph.D (UPH), MNSE, R. Eng. (3562)	Drilling and Gas. Engr.	Professor
5	Ogbonna, J.	B. Tech. Chem. Eng. (UST), M. Sc. Eng. Mgt (Uniben), PhD Pet./Chem. (UST)	Gas Engineering Drilling & Environmental Engineering	Professor
6	Ikiensikimama S. S.	B.Eng., M. Eng. (Chem.), M.Eng. (Pet) (UPH), PhD (Unilag), MNSChE, MNSE, R. Eng (10595)	Petroleum Engineering	Professor
7	Kwelle, S. O.	B.Sc. M. Eng. Uniport	Petroleum Engineering	Reader
8	Kinigoma, B. S	B.Sc. (RSUT) M. Eng (UPH), MSc, PhD (UPH)	Energy Engineering	Reader
9	Oriji, A. B.	B.Eng. Petr., M. Eng. Petr. PhD (UPH)	Drilling Engineering	Senior Lecturer
10	Enyi, C. G.	B. Tech. Chem. Eng., PGD Pet. Tech, M. Eng. Pet. Eng. (UPH), PhD (UPH)	Gas Engineering	Senior Lecturer
11	Ikeh, I.	B.Eng., M.Eng. (UPH), M.Sc. (Newcastle upon- Tyne), PhD	Petroleum, Gas & Pipeline Engineering	Senior Lecturer
12	Ubani, C. E.	B.Eng., Petr., M.Eng. Petr. PhD (UPH)	Petroleum Engineering	Senior Lecturer
13	Amieibibama, J.	B.Eng. Pet. (UPH), M. Eng. Gas (UPH), M.Sc. Oil & Gas Enterprise Management (Aberdeen) PhD (UPH)	Petroleum Engineering	Senior Lecturer
14	Ekeh, O. C.	B.Eng., Petr., M.Eng. Petr. PhD (UPH)	Petroleum Engineering	Senior Lecturer
15	Osokogwu, U.	B.Eng., Petr., M.Eng. Petr. MNSE PhD (UPH)	Petroleum Engineering	Senior Lecturer
16	Buduka S.	B.Eng., Petr., M.Eng. Petr. PhD	Petroleum Engineering	Senior Lecturer

**FOR BIOLOGY/BIOTECHNOLOGY OPTION
DEPARTMENT OF PLANT SCIENCE AND BIOTECHNOLOGY**

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Nyananyo, B. L.	B.Sc. (Lagos) M.Sc, Ph.D Reading M.I. (Biol) UK C. Biol, FLS LL.B (UST)	Plant Taxonomy/Law	Professor
2	Ataga, A. E.	B.Sc, M.Sc, (Jos) Ph.D (Manchester)	Plant Pathology	Professor
3	Akonye, L. A.	B.Sc, M.Sc, Ph.D UPH	Plant Physiology	Professor
4	Nwachukwu, E. O.	B.Sc, (Imo), M.Sc, PGDE Ph.D (UPH)	Plant Pathology	Professor
5	Osuji, J. O.	B.Sc, M.Sc, Ph.D (UPH)	Biosystematics/Molecular Genetics	Professor
6	Obute, G. C.	B.Sc (IMO), Ph.D (Lagos)	Biosystematics and Taxonomy	Professor
7	Agbagwa, I. O.	B.Sc, M.Sc, Ph.D (UPH)	Plant Taxonomy/Biosystematics	Professor

8	Mensah, S.	B.Sc, A. (Bello), Ph.D (Glassglow), M.I. (Biol) UK	Plant Physiology	Reader
9	Tanee, F. B. G.	B.Sc, M.Sc, Ph.D (UPH)	Ecology	Reader
10	Agogbua, J. U. (Mrs.)	B.Sc., (UPH) M.Sc. (UL)	Tissue Culture/Genetics	Snr. Lecturer
11	Ochekwu, E. D.	B.Sc., (Jos) M.Sc. (UL), PhD (UPH)	Ecology	Snr. Lecturer
12	Edwin Wosu N. L.	B.Sc, M.Sc (PhD UPH),	Ecology	Snr. Lecturer
13	Wahua, C.	B.Sc, (UST), PhD (UPH)	Plant Taxonomy/Biosystematics	Snr. Lecturer
14	Eremrena, P. O	B.Sc, M.Sc PhD (UPH)	Plant pathology	Snr. Lecturer

DEPARTMENT OF ANIMAL SCIENCE AND ENVIRONMENTAL BIOLOGY

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
2	Sikoki, S. D.	B.Sc., M.Sc. (Michigan) Ph.D (Jos)	Fisheries & Hydrobiology	Professor
6	Nduka F. O.	B.Sc., M.Sc. PhD UNN	Parasitology	Professor
7	Hart, A. I.	B.Sc. (Ibadan), M.Sc. Ph.D (UPH)	Fisheries/Aquaculture	Professor
8	Awi-waadu, I.	B.Sc. (Ibadan), M.Sc. Ph.D (Aberdeen)	Animal Ecology	Professor
10	Imafidor, H. I.	B.Sc. M.Sc, PhD (UPH)	Nematology/Molecular Biology	Professor
11	Woke N. G.	B.Sc. (UNN), M.Sc. Ph.D (UPH)	Fisheries/Hydrobiology	Reader
12	Vincent A. I.	B.Sc. (Unilag), M.Sc. Ph.D (Ibadan)	Fisheries/Hydrobiology	Reader
13	Noutcha A. E. M.	B.Sc. (Ibadan), M.Sc. Ph.D (Ibadan)	Entomology/Molecular Biol.	Professor
14	Nzeako O. S.	B.Sc. (UNN), M.Sc. (UPH)	Parasitology/Neonatology	Senior Lecturer
15	Daniel, U. I.	B.Sc. (UYO), M.Sc, PhD (UPH)	Fisheries & Hydrobiology	Senior Lecturer
16	Babatunde B. B.	B.Sc. M.Sc. (Ibadan)	Environmental Biology	Senior Lecturer
17	Aroloye N. O.	B.Sc. M.Sc. (RUST)	Environmental Biology	Senior Lecturer
18	Tambeke N. G.	B.Sc. M.Phil. (RUST) Ph.D (UPH)	Entomology	Senior Lecturer

**FOR MICROBIOLOGY TECHNOLOGY OPTION
DEPARTMENT OF MICROBIOLOGY**

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Okpokwasili, G.S.C	B.Sc, (Lagos) Ph.D (Maryland)	Environmental/Petroleum Microbiology	Professor
2	Abu, G. O.	B.Sc. (ABU) Ph.D (Maryland)	Aquatic Microbiology	Professor
3	Odokuma, L. O.	B.Sc., M.Sc., Ph.D (UPH)	Industrial/Environmental Microbiology	Professor
4	Frank Peterside, N. U.	B.Sc. M. Sc. (Ibadan) Ph.D (Belfast)	Immunology	Professor

5	Ogugbue, C. J	B. Sc. (ABSU), M. Sc., PhD (UPH)	Environmental Microbiology and Toxicology	Professor
9	Okerentugba, P. O.	B.Sc. (Lagos), Ph.D (Strath)	Microbial Genetics	Reader
10	Ibiene, A. A.	B.Sc., M.Sc., Ph.D. (UPH)	Microbiology	Reader
11	Odu N.	B.Sc. M.Sc. (London) PhD (UPH)		Reader
13	Ariole C. N.	B.Sc. M.Sc., Ph.D (UPH)	Environmental Microbiology	Reader
14	Okonko I. O.	B.Sc. M.Sc. (Ibadan)	Medical Microbiology	Senior Lecturer
15	Stanley H. O.	B.Sc. UPH, PGDE (Unical) MEM (AAU)	Environmental Microbiology	Senior Lecturer
16	Chikere, C. B.	B.Sc. (ABSU), M.Sc. (FUTO), Ph.D. (UPH)	Environmental Microbiology	Senior Lecturer
17	Ire, F. S.	B.Sc. M.Sc., Ph.D (UNN)	Industrial Microbiology	Senior Lecturer
18	Agbagwa, E. O.	B.Sc. M.Sc. (UPH)	Public Health Microbiology	Senior Lecturer
19	Agwa O. K.	B.Sc. M.Sc. (NAU Akwa)	Industrial Microbiology	Senior Lecturer
20	Otokunefor K.	B.Sc. (UPH), M.Sc. PhD (Manchester)	Medical Microbiology	Senior Lecturer
21	Uzoigwe C. I.	B.Sc., M.Sc. (UPH)	Environmental Microbiology	Senior Lecturer
22	Eruteya, O. C.	B.Sc. (Delsu), M.Sc. PhD(Ibadan)	Microbiology Food/Industrial	Senior Lecturer
23	Igwilo, J. P.	B.Sc. MSc, PhD (UPH)	Microbiology Food/Industrial	Senior Lecturer
24	Onianwa O.	B.Sc. MSc, PhD (UPH)	Microbiology	Senior Lecturer
25	M. N. Ezediokpu	B.Sc. MSc, PhD (UPH)	Microbiology	Senior Lecturer
26	E. J. N. Ogbodo	B.Sc. MSc, PhD (UPH)	Microbiology	Senior Lecturer

FOR PHYSICS WITH ELECTRONIC TECHNOLOGY & PHYSICS WITH PRODUCTION TECHNOLOGY

DEPARTMENT OF PHYSICS

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Ebeniro, J. O.	B.Sc. (Lagos) M.A, Ph.D (Texas)	Geophysics	Professor
2	Owate, I. O.	B.Sc. (UPH) M.Sc. Ph.D (Manchester)	Solid State Physics	Professor
3	Abumere, O. E.	B.Sc. (Ife) Ph.D (Manchester)	Solid State Physics	Professor
4	Abbey, T. M.	B.Sc. (UPH) M.Sc., Ph.D (Ibadan)	Applied Physics	Professor
5	Avwiri, G. O.	B.Sc., M.Sc., Ph.D (UPH)	Environmental	Professor
6	Okujagu, C. U.	B.Sc. (UPH) M.Sc. (Ibadan) Ph.D (Nigeria)	Material Science	Professor
8	Chukwuocha, E. O.	B.Sc., M.Sc., PhD (UPH)	Solid State Physics	Professor

9	Osarolubo, E.	B.Sc. Tech. (FUTO), M.Sc. (Ibadan)	Material Physics	Reader
10	Obong, H. P.	B.Sc. (Calabar) M.Sc. PhD (UPH)	Theoretical Physics	Reader
11	Ngwueke, M. I.	B.Sc., M.Sc. PhD	Theoretical Geophysics	Reader
12	Nte F. U.	B.Sc., (UPH) PGDE (UPH) M. (Phil.) PhD.	Environmental Physics	Reader
13	Yahuedah E. Chad-U	B.Sc. (UST), M.Sc., Ph.D.	Nuclear Physics	Reader
14	Onwuneme S. E.	B.Sc., M.Sc., PhD (UNN)	Theoretical Physics	Senior Lecturer
15	Nwosu L.	B.Sc., M.Sc., PhD (UPH)	Applied Geophysics	Senior Lecturer
16	Emujakporue O. G.	B.Sc. (FUTA) M.Sc., PhD (UPH)	Applied Geophysics	Senior Lecturer
17	Sofolabo A.	B.Sc., M.Sc., PhD (UPH)	Exploration/Applied Geophysics	Senior Lecturer
18	Nwankwo, C.	B.Sc. (Ibadan), M.Sc. PhD (UPH)	Geophysics	Senior Lecturer

DEPARTMENT OF MECHANICAL ENGINEERING

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Odi-Owei, S.	B.Sc., Mech. Eng (Zaria), M.Sc. Automotive (Cranfield) PhD Swansea, FNSE, R.Eng. (1526)	Tribology	Professor
2	Ofodu, J. C.	B. Eng. (ESUT), M. Eng. PhD (UPH)	Mechanical Engineering	Senior Lecturer
3	Mezie-Okoye, J. O.	B.Sc. (UNN), M. Eng. PhD	Mechanical Engineering	Senior Lecturer
4	Ojopah, M. M.	B.Sc. (Illorin), Ph.D (Lagos)	Mechanical Engineering	Senior Lecturer
5	Shadrack, M. U.	B.Eng. (ABU), M. Eng. (Ilorin)	Mechanical Engineering	Senior Lecturer
6	Nnaike, G. U.	B.Sc. (New York), M. Sc. (Louisiana), B.Sc. Mathematics (New York), MNSE, PhD R. Eng.	Mechanical Engineering	Senior Lecturer
7	Jack, T. K.	B.Eng. (UNN), M. Eng. MGT, PhD (UPH)	Mechanical Engineering	Senior Lecturer
8	Briggs, T.	B. Eng. M.Eng. MNSE, PhD R. Eng.	Mechanical Engineering	Senior Lecturer
9	Big-Alabo A.	B.Eng. Mech. Eng. (UPH), M.Sc. Mech. Eng. & MGT, PhD (Glasgow)	Mechanical Engineering	Senior Lecturer

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

S/NO	NAME	QUALIFICATION	FIELD OF SPECIALIZATION	RANK
1	Ibe, A. O.	B. Eng. (UNN), M.Sc. (Manchester) Ph.D (London), DIC, MNSE, R. Eng. (3497), SMIEE	Electrical Engineering	Professor
2	Biebuma, J. J.	B.Sc., M.Sc. (Sussex), PhD (Southern Cahtorma), PGDE (UPH), CISD, MNISE, MNSE	Telecommunication	Professor
	Uhunmwangbo, R.	B. Eng. (Lasi), M. Tech (UST) PhD MNSE	Electrical/Electronic Engineering	Professor
4	Kamalu U. A.	B. Eng. M.Sc., PhD (FUTO), MNSE, R. Eng. (7123)	Electronics/Computer Engineering	Senior Lecturer
5	Ajabuego, B. O.	B. Eng. (FUTO), M.Eng. PhD UPH)	Electrical/Electronic Engineering	Senior Lecturer
6	Omijeh, B. O.	B.Eng. (Benin), M. Eng. PhD (UPH).	Electrical/Electronic Engineering	Senior Lecturer

LIST OF TECHNOLOGISTS IN SSLT

S/No	Name in Full	Present Position	Dept./ Discipline	Academic Qualifications
1.	Umirih, Williams Oyovwikigho	Senior Technologist	Microbiology Technology	BTech.
2.	Olu-Tima, Belema Afolabi	Technologist I	Industrial Chemistry/ Petrochemical Technology	BTech. MSc
3.	Ajinwo, Solomon	Technologist II	Biochemistry/Chemistry Technology	BTech.
4.	Amadi, Gift Victor	Technologist II	Biomedical Technology	BTech.
5.	Eruotor, Taiye	Technologist II	Microbiology Technology	BTech.
6.	Adah, Jennifer	Technologist II	Biomedical Technology	BTech.
7.	Omani, Miracle Chika	Technologist II	Geology/Mining Technology	BTech.
8.	Ateli, Rufus Dennis	Technologist II	SSLT/Industrial Chemistry/ Petrochemical Technology	BTech.
9.	Abel Onyekachi	Technologist II	SSLT/Industrial Chemistry/ Petrochemical Technology	HND
10.	Alex Precious Isa	Technologist II	SSLT/Industrial Chemistry/ Petrochemical Technology	BTech
11.	Onoja, Christian	Technologist II	SSLT/Microbiology Technology	HND MCB (SLT)
12.	Chuku Gift Chiza	Technologist II	SSLT/Microbiology Technology	BTech.
13.	Francis Victor Akoma	Technologist II	SSLT/Physics with Electronics	BTech
14.	Chikezie, Oporum Justice	Technologist II	SSLT/Physics with Production Technology	BTech.
15.	Okala, Valentine Victor	Technologist II	SSLT/Physics with Production Technology	BTech.

INSTITUTES AND CENTRES

UNIVERSITY OF PORT HARCOURT SPORT INSTITUTE (UPSI)

GRADUATE PROGRAMMES (M.Sc) IN SPORTS SCIENCE AND SPORT MEDICINE.

1. MSc in Sports Science

(Option):

- (A) Exercise Science
- (B) Fitness and Recreational Management
- (C) Sports Coaching and Administration
- (D) Sports Broadcasting/Journalism.

II. MSc in Sports Medicine

1. Introduction

The University of Port Harcourt Sports Institute (IJPSI) was established in 2014 through collaboration between the University and national and international sports institutes and academies, in partnership with sports industries. Its establishment is viewed as a paradigm shift from school sports to grow talents for competitive sports, including healthy recreation and sustainable development of the sports industry.

It is worthy of note that the University of Port Harcourt has impressive facilities certified by international bodies such as IAAF, FINA, FIBA, International Tennis Federation, International Federation of Swimming Organisation, and has dominated school sports in the West African sub-region for close to two (2) decades.

The collaborating institutes and academies include: National Institute for Sports and Lawn Tennis Academy in Nigeria, National Sports Institutes in South Africa National Institute of Sports Expertise and Performance (NTSEP), United States of America China, Inna Japan and South Korea, amongst others. It is heart-warming to state that UPSI is a member of an international consortium of institution that bring together different cultures training programmes and best operating practices, including best available technologies.

The Institute has successfully commenced its Diploma programmes in Sports Science and will, in the next few weeks, graduate its first batch of graduate students. It was this success story that informed the decision of UPSI Board of Management (BoM) to submit the proposal for the

commencement of Masters programmes in Sports Science. The Institute has renowned professors and other senior academics who have published widely in high impact journals and are the finest in their areas of expertise. We are also collaborating with the best brains in the West African sports industries.

2. Philosophy

The philosophy of MSc. Programme in Sports Science is the promotion of culture of excellence in sustained learning, leadership, internationalism, professionalism and the advancement and propagation of knowledge in the sports industry.

3. Vision

The vision of MSc. Programme in Sports Science is to project the University of Port Harcourt as the foremost International Centre of Excellence in Sports and Recreation in Africa.

4. Mission

The mission of MSc. in Sports Science is to produce graduates that 'will meet the needs of sports industry through a commitment to excellence in training, applied research, continuing education, capacity building and community service.

5. Rationale

It is common knowledge that in recent times, international sports are purely scientific and countries such as Nigeria that are yet to key into this highly sophisticated sports have consistently performed abysmally poor in international sports competitions. For Nigeria to be numbered among the great sporting nations, it is pertinent that current scientific trends must be adopted and the MSc. Programme in sports Science promises to provide this needed missing link.

6. Aim

The aim of MSc. Programme in Sports Science is to produce innovative and highly motivated and competitive professionals equipped with sharpened competencies, technical expertise, multidisciplinary skills, professional ethics, cost efficiency, soft skills, including principles of clear communication and team skills for optimum productivity.

7. Objectives

The primary objective of the programme is to provide graduates with broad-based training required for sustainable sports development and recreation. On completion of the programme, the elite sports graduate will, among other skills, effectively:

- Compete globally and practice professionally in their respective areas of specialization.
- Project the University of Port Harcourt as a Centre of Excellence in Sports Science
- Train future athletes for better performance.

8. Admission Requirements

Candidates seeking admissions for Master's degree in Sports Science must have the following qualifications from recognised institutions:

- Five Credit passes, including English Language and Mathematics at the O' Level or its equivalent.
- Bachelor's degree with a minimum of Second Class Lower and with a CGPA of 3.00 or above, on a 5-point grading system or its equivalent.
- A Postgraduate Diploma with a minimum of 3.50 in Sports Science or related discipline, including diploma in Basic Medical Sciences (Biochemistry, Anatomy and Physiology) and Human Kinetics and Health Education from a recognised university.

Duration of Programmes

The duration of Programme for all the options are as follows:

- Full-time: A minimum of twelve (12) calendar months and maximum of 24 calendar months.
- Part-time: A minimum of 24 calendar months and maximum of 48 calendar months.

10. Requirements for Graduation

In addition to the compulsory course work, candidates are expected to carry out original Dissertation in partial fulfilment for the award of Master of Science degree in the relevant options, in line with Graduate School guidelines.

In general, the MSc programme shall consist of course work, seminars and dissertation.

11. Masters in Sports Science

The following conditions must be fulfilled by the student before the award of Masters in Sports Science.

- The student must pass a minimum of 35 credit units as shown below

Course	Units
Core Courses	27
Dissertation	6
Seminar	2
Total	35

- He/she must carry-out a dissertation relevant to Sports Science and must defend his/her dissertation before School of Graduate Studies Board of examiners.

12. Examination

- In line with school of Graduate Studies Policy, the minimum pass score in course work shall be 50%. Also, the written semester examination shall constitute 70% of the examination while Continuous Assessments shall be 30% of the examination. Most importantly, a student must have a cumulative Grade Point Average (CGPA) of not less than 3.00 in each semester, to be in a good standing. A student whose CGPA fell below 3.00 at the end of the first year of study shall be asked to withdraw from the programme.

Scoring and grading of course shall follow the School of Graduate Studies approved pattern as shown:

MARKS %	LETTER GRADES	GRADE POINTS
70 and Above	A	5
60 - 69	B	4
50 - 59	C	3
0 - 49	F	0

13. Course Structure for M.Sc in Sports Science

(FULL TIME)

FIRST SEMESTER (Compulsory Courses)

Course Code	Course Title	Units
SGS: 801.1	ICT and Research Methodology	2
SCI: 801.1	Overview of Sports Nutrition	2
SCI: 802.1	Fundamentals of Biomechanics	2
SCI: 803.1	Advanced Concepts in Sports Science	2
SCI: 804.1	Advanced Concepts in Sports Anatomy	2
SCI: 805.1	Advanced Concepts in Sports Physiology	2
SCI: 806.1	Current trends in Preventing and Management of Sport Injury	2
SCI: 807.1	Research Methods in Sports Science	2

TOTAL 16

SECOND SEMESTER (Specialization Courses)

			Recreational Management		
(A) Sports Nutrition Courses					
Course Code	Course Title	Units	SCI: 833.2	Supervision of Recreational Programme and Leadership Techniques in Recreation	2
SGS: 801.2	Entrepreneurship and Management	2			
SCI: 808.2	Sports, Media and Society/Corporate Communication	2	SCI: 890.2	Seminar	2
SCI: 811.2	The Science of Eating and Exercise	3	SCI: 899.2	Dissertation	6
SCI: 812.2	Sport-Foods, Supplements, Ergogenic aid and vegetarianism for athletes	2	TOTAL		19
SCI: 813.2	Sports Specific Training and Nutrition and Exercise, Nutrients and Body Adaption.	2	(D) Sports Coaching and Administration Courses		
SCI: 814.2	Seminar	2	Course Code	Course Title	Units
SCI: 815.2	Dissertation	6	SGS: 801.2	Entrepreneurship and Management	2
TOTAL		19	SCI: 808.2	Sports, Media and Society/Corporate Communication	2
(B) Exercise Science Courses			SCI: 841.2	Principles and Theory of Sports Training and Administration of Sports Coaching	3
Course Code	Course Title	Units	SCI: 842.2	Problems and Issues in Sports Coaching	2
SGS: 801.2	Entrepreneurship and Management	2	SCI: 843.2	Planning and design of sports coaching and Supervision of Coaching Programme	2
SCI: 808.2	Sports, Media and Society/Corporate Communication	2	SCI: 890.2	Seminar	2
SCI: 821.2	Exercise and Health/Exercise Testing and Training	3	SCI: 899.2	Dissertation	6
SCI: 822.2	Energy Balance and Weight Control	2	TOTAL		19
SCI: 823.2	Advanced Laboratory Work and Exercise laboratory	2	(E) Sports Journalism Courses		
SCI: 890.2	Seminar	2	Course Code	Course Title	Units
SCI: 899.2	Dissertation	6	SGS: 801.2	Entrepreneurship and Management	2
TOTAL		19	SCI: 851.2	Sports, Media and Society/Corporate Communication	2
(C) Fitness and Recreational Management Courses			SCI: 853.2	Social Media and Sports Communication and Sports Communication Research	3
Course Code	Course Title	Units	SCI: 856.2	Contemporary Issues in Sports Journalism and Sports Reporting/Community Development	2
SGS: 801.2	Entrepreneurship and Management	2	SCI: 857.2	Art of Public Speaking/Investigative Reporting	2
SCI: 808.2	Sports, Media and Society/Corporate Communication	2	SCI: 890.2	Seminar	2
SCI: 831.2	Overview of Fitness and Recreation and exercise and Recreational Adaptation	3	SCI: 891.2	Dissertation	6
SCI: 832.2	Organization and Administration of	2	TOTAL		19

14. Course Structure for M.Sc in Sports Science
(PART-TIME)
FIRST SEMESTER YEAR-1
(Compulsory Courses)

Course Code	Course Title	Units
SGS: 801.1	ICT and Research Methodology	2
SCI: 801.1	Overview of Sports Nutrition	2
SCI: 802.1	Fundamentals of Biomechanics	2
SCI: 803.1	Advanced Concepts in Sports Science	2
TOTAL		8

SECOND SEMESTER YEAR-1
(Compulsory Courses)

Course Code	Course Title	Units
SGS: 804.2	Advanced Concepts in Sports Anatomy	2
SCI: 805.2	Advanced Concepts in Sports Physiology	2
SCI: 806.2	Current trends in Preventing and Management of Sport Injury	2
SCI: 807.2	Research Methods in Sports Science	2
TOTAL		8

FIRST SEMESTER YEAR-2
(A) Sports Nutrition Courses

Course Code	Course Title	Units
SGS: 801.1	Entrepreneurship and Management	2
SCI: 808.1	Sports, Media and Society/Corporate Communication	2
SCI: 815.1	Building a High energy eating Programme and Winning Recipes for Peak Performance	3
SCI: 813.1	Sport-Foods, Supplements, Ergogenic aid and Vegetarianism for athletes	2
TOTAL		9

(B) Exercise Science Courses

Course Code	Course Title	Units
SGS: 801.2	Entrepreneurship and Management	2

SCI: 808.2	Sports, Media and Society/Corporate Communication	2
SCI: 821.2	Exercise and Health/Exercise Testing and Training	3
SCI: 822.2	Energy Balance and Weight Control	2
TOTAL		9

(C) Fitness and Recreational Courses

Course Code	Course Title	Units
SGS: 801.2	Entrepreneurship and Management	2
SCI: 808.2	Sports, Media and Society/Corporate Communication	2
SCI: 831.2	Overview of Fitness and Recreation and Exercise and Recreational Adaptation	3
SCI: 832.2	Organization and Administration of Recreational Management	2
TOTAL		9

(D) Sports Coaching and Administration Courses

Course Code	Course Title	Units
SGS: 801.2	Entrepreneurship and Management	2
SCI: 808.2	Sports, Media and Society/Corporate Communication	2
SCI: 841.2	Principles and Theory of Sports Training and Administration of Sports Coaching	3
SCI: 842.1	Problems and Issues in Sports Coaching	2
TOTAL		9

(E) Sports Journalism Courses

Course Code	Course Title	Units
SGS: 801.2	Entrepreneurship and Management	2
SCI: 808.2	Sports, Media and Society/Corporate Communication	2
SCI: 853.2	Social Media and Sports Communication and Sports Communication Research	3

SCI: 854.2	Contemporary Issues in Sports Journalism and Sports Reporting/Community Development	2
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TOTAL **9**
SECOND SEMESTER (YEAR-2)

(A) Sports Nutrition Courses

Course Code	Course Title	Units
SGS: 813.2	Sport Specific Training and Nutrition and Energy Balance and Weight Control	2
SCI: 890.2	Seminar	2
SCI: 899.2	Dissertation	6
TOTAL		10

(B) Exercise Science Courses

Course Code	Course Title	Units
SGS: 823.2	Advanced Laboratory Work and Exercise Laboratory	2
SCI: 890.2	Seminar	2
SCI: 899.2	Dissertation	6
TOTAL		10

(C) Fitness and Recreational Management Courses

Course Code	Course Title	Units
SGS: 833.2	Supervision of Recreational Programme and Leadership Techniques in Recreation	2
SCI: 890.2	Seminar	2
SCI: 899.2	Dissertation	6
TOTAL		10

(D) Sports Coaching and Administration Courses

Course Code	Course Title	Units
SGS: 843.2	Planning and design of sports coaching and Supervision of Coaching Programme	2
SCI: 890.2	Seminar	2
SCI: 899.2	Dissertation	6
TOTAL		10

(E) Sports Journalism Courses

Course Code	Course Title	Units
SGS 853.2	Art of Public Speaking/ Investigative Reporting	2
SCI: 890.2	Seminar	2
SCI: 899.2	Dissertation	6
TOTAL		10

15. Course Description

➤ **General Courses**

SGS: 801.1: ICT and Research Methodology:

This course deals with the essentials of spreadsheets, Microsoft excel, basic computing knowledge, window 2018, Internet technology, statistical packages, precision and accuracy estimates, principles of statistics research, basis of power point presentation, concepts of hypotheses formulation and testing, organization of research and technical report writing.

SCI 801.2: Overview of Nutrition

- The Nutrients – (i) Energy – yielding nutrients (ii) Vitamins (iii) Minerals (iv) water
 - Reasons for eating the way we do
 - The body's stress response
- Energy Balance and weight control
- Energy in: The Kcalories in food
 - Energy out: The Kealories the body spends
 - Energy balance: Weight loss and gain
 - Hunger, satiety and Anorexia
- Shifting the balance
- Body weight and body Composition
 - Problems of obesity — causes of obesity, genetics verses environment, inactivity etc.

SCI 802.1: Fundamentals of Biomechanics:

The course examines the mechanics of motion, principles of stability and motion, law of motion and effects of forces upon movement in different directions. The anatomical and physiological fundamentals of human motion, fundamentals of region of the musculoskeletal structures and application of kinesiology to human motion.

SCI 803.1: Advanced Concepts in Sports Science:

The course deals with the concepts and conditions which influence the historical and philosophical basis of sports science, objectives and scope of sports science, the structure of sports science, sports implements and materials used in sports participation.

SCI \$04.1: Advanced Concepts in Sports Anatomy:

The course deals with the study of Anatomy and its relationship to Sports Science. Liver muscles involved in sports, cardio respiratory system, exercise and sports.

SCI 805.1: Advanced in Sports Physiology:

The course deals with the structure of functional physiology to physical activities.

SCI 806.1: Current trends in Preventing and Management of Sports Injury:

Treatment

principles of the scene of injury and emphasis on head injuries, cardiovascular problems, chest injuries and other causes of mortality in sports. Various methods and prevention of sports injury will be identified.

SRM 807.1: Research Methods in Sports Science: The course deals with the nature and scope of Research methods in sports science and statistics. The basic descriptive statistical data collection, measures of frequency, distribution, control tendency and dispersion. Also inferential statistics of parametric and non-parametric tests as a means for scientific study.

SGS 801.2 Entrepreneurship and Management: The course deals with business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

SCI: 801.2 Sports, Media and Society/Corporate Communication: This course is structured to teach the students how social issues would influence sports and how sports may influence the society. The course covers media reportage of how certain social issues such as gender, gambling, racism, politics, and hooliganism, commercialization of sports and the influence of the *media* on sports among others are affecting sports administration. The students are equally taught how the interrelationship between media and society influence sports.

SCI 890.2: Seminar — Students shall select topics approved by the course lecturer (s) from their area of specialization. They are expected to demonstrate ability to prepare logical and in-depth papers on the approved topics and make formal presentation of the paper to the Academic Board of the Institute.

SCI 899.2: The dissertation shall be a written report of original research completed under the supervision of the supervisor(s).

Options

(A) Sports Nutrition

- a) **SCI: 811.2 The Science of Eating and Exercise:**
- Fueling before Exercise
 - Fueling During and after exercise
 - Supplements, performance Enhancers and Engineered Sports Funds
 - Building a High-Energy Eating Plan
 - Winning Recipes for Peak Performance: Bread and Breakfasts, Potatoes, Rice, Vegetables, Salads, Chicken and Turkey, Fish, Sea Food, Beans, Tofu,

Beverages, Smoothies, Snacks and Desserts.

b) **SCI: 812.2: Sports Foods, Supplements, and Ergogenic Aids and Vegetarianism for Athletes**

- ❖ Sports Foods and Supplement Concepts
- ❖ Sports-Foods: Bars, Drinks, and Gels
- ❖ Supplements
- ❖ - Physiological Ergogenic Effects
- ❖ Sports Doping
- ❖ Doping Drug Classification
- ❖ Vegetarianism for active people and Athletes
- ❖ Protein quality and quantity,
- ❖ Vitamins and Minerals.

c) **SCI: 813.2 Sports Specific Training and Nutrition and Exercise, Nutrients, and Body Adaptation:**

- ❖ Nutrition for Ice Hockey
- ❖ Nutrition for Base-ball/Soft ball
- ❖ Nutrition for Football
- ❖ Nutrition for Basketball
- ❖ Nutrition for Volleyball
- ❖ Nutrition for Tennis
- ❖ Nutrition for Golf Wrestling.
- ❖ Nutrition for Swimmers
- ❖ Nutrition for Cycling and Endurance Runners
- ❖ Nutrition for Body builders
- ❖ The essentials of exercise
- ❖ Exercise and the Body's use of fuels
- ❖ ATP and PC, the first-fuels of Exercise
- ❖ Fat and Protein use in exercise
- ❖ Vitamins and Performance
- ❖ Minerals and Performance

(B) **Exercise Science**

a) **SCI 821.2: Exercise and health, Exercise Testing and Training:** The course deals with the development of conceptual and laboratory competencies needed for work in adult *fitness*, cardiopulmonary rehabilitation programmes and physical therapy, including stress testing and prescription.

b) **SCI 822.2: Energy Balance and Weight control:** The course deals with Blood energy needs, biological system throughout the life cycle with consideration of socio-psychological factors. Food composition and manipulation for weight control.

c) **SCI 807.1: Advanced laboratory work and Exercise Laboratory:** Course deals with development of skills in the use of exercise and physical fitness apparatus in the laboratory.

Advanced Laboratory Work: Exercise machines, work loads and measuring

equipment, treadmill, cycle ergometer, dynamometer, sphygmomanometer, gas analyses, spirometer, ECG. Simple test of enzymes in the human body at rest and during exercise. Evaluation of physical fitness of athletes and individual research work in the laboratory.

(C) Fitness and Recreational Management

a) **SCI 831.1:** Overview of Fitness and Recreation, Exercise and Recreational management: An overview of fitness concepts, social and economic background of present viewpoints of play and recreation and consideration of new points based on the production capacity of Nigeria.

Exercise and Recreational Adaptation: General practice in selected sports and games, critical study of motor ability through various training methodologies, adaptation, process of training, Periodization and recreational planning.

b) **SCI 832.2: Organization and Administration of Recreational Managements:** Administrative policies for recreation on a national, state, or local basis .Suggested needed enabling laws, charter provisions and school codes A survey and establishment of an administrative procedure of selected situations

c) **SCI 8312: Supervision of Recreational Programmes and Leadership Techniques in Recreation:** Course deals with personal interviews, supervisory conferences, in-service training programmes, supervision of activities, purchasing and maintenance of supplies and equipment. An analysis of the objectives of youth agencies in Nigeria, the role of their leadership in the fulfillment of those objectives.

(I) Sports Coaching and Administration (OPTION)

a) **SQ 841.1 Principles and Theory of Sports Training and Administration of Sports Coaching:**

- The subject will deal with the process of sports theory and principles in training, methods and various types of tests on athletes' assessment.
- Problems and standards connected with the administration of sports club, relationship with state and national sporting federation.

b) **SCA: 843.1: Problems and Issues in Sports Coaching:** A critical study of sports in context of culture, believes or gender with reference to social system educational economic, political and mass media and process changes. Also problems in sports

c) **SCI 891:2: Planning and design of Sports Coaching and Supervision Coaching Programme:**

- Standards for indoor facilities, their design and construction. Administrative norm and facility development.
- Personal interview and supervisory conference in-service training programme, supervision of activities, purchasing and maintenance of supplies and equipment.

(E) Sports Journalism

a) **SCI: 853.1: Social Media and Sports Communication Reporting:** Social media have affected all the spheres of humans. This programme explores the role of social media in the sports industry. In this course, students will investigate the sociological impact of these new media platforms on sports as well and develop the skills necessary to create integrated, ethical, and professional social media campaigns. Sports as burgeoning business and entertainment are reported through various media platforms. The student will learn the various ways.

b) **SCI 856:2 Contemporary issues in sports journalism and Sports reporting and rural development:**

- This is not a taught course, but designed for students to develop and research on certain contemporary problems in sports for presentation to colleagues. Students' topics should be approved by a supervisor/lecturer.
- This course focuses on how to exploit the power of sports in gathering youths to effect rural change. The course will cover areas such as participatory' communication for development, community self-help, behavior change, entertainment education, social marketing, rural transformation, among others.

c) **SCI 857.2: Art of public speaking and Investigative reporting:**

- This course focuses on oral communication or- presentation of speech & it is targeted at taking students through oral presentation skills.
- Investigative journalism course focuses on digging deeper to unravel certain scandals, crimes and unethical activities going on in the society especially as they concern sports.

LIST OF LECTURERS

S/N	Names	Qualification	Field of Specialization	Status
1	Anugweje, K.C.	MBBCH, (Nigeria) DSM, (London, M PhD (UPH)	Sports Science and Medicine	Professor I
2	Wegwu, M.O	B.Sc, M.Sc, PhD, (UPH)	Nutritional Biochemistry and Toxicology	Professor I
3	Dpper, D. V.	MBBS, B. Med. Sc, MD (UPTH)	Human Physiology	Professor I
4	Ihejirioka, W. C.	BA M.A; MED; Ph.D (Rome)	Communication Theory; Development Communication; New Information and Communication Technology; Media, Religion and Communication Culture	Professor I
5	Onyeano C. O.	BDS (U), FWACS	Dentistry (orthodontics)	Professor I
6	Okpako, J. E. F.	B.ed., M.e.d, Ph.D (Ibadan)	Environmental, Health and Safety	Professor I
7	Mrs. I. C. Anochie	MBBS, (Benin), FWACP-(2001)	Paediatncs	Professor I
8	Amasiatu, A.A	B.ed., M.e.d, (Nigeria); Ph.D (Lagos) BSBA, MBA, MS, Ph.D	Exercise and Sports Psychology	Professor I
9	Kalu, S. E.	M.Sc, Ph.D, IDPM, PGD, MARS	Strategic Marketing Management	Professor I
10	Umoh,G.I.	B.Sc (UST); MBA M.Sc, Ph.D (UP) FCIPIA	Operations Management/Quantity Analysis	Professor I
11	Nwinee, B. F.	BBA, MBA, MS, Ph.D (U.I)	Sports Psychology and Sociology	Professor I
12	Akuru,G.B	B.ed., M.e.d, Ph.D (UI)	Organizational Leadership and Factor Analysis	Professor I
13	Ukohia Ojiabo	B.Sc (Ilorin) M.Sc (Lagos) Ph.D (ABSU)	Developmental Anatomy and Anthropometry	Professor I
14	Oladipo, G.S	B.Sc, MBA, Ph.D	Marketing	Professor I
15	Amue, J.G	B.Med. Sc (Pharm) MBBS (UPTH), FWACS (1991), FWACS (2003)	Radiology	Professor I
16	Agi, C.E	MBBS (Benin), M.Sc (Sports Med) (London)	Neurophysiology	Professor I
17	Akpa M.R	B.Sc, MSc. (Ilorin) Ph.D (UPH)	Clinical and Experimental Anatomy	Professor I
18	Olorunfemi, O.I	B.Sc, (UPH) M.Sc, MBBS (Benin), Ph.D (UPH)	Mass Communication Development Communication and Corporate	Professor I
19	Paul, C.W	B.A; M.A; (UNN) Ph. D (UPH)	General Linguistics	Professor I
20	Ochonogor, C.I	B.A; M.A; (UNN) Ph. D (UPH)	Exercise Physiology and Rehabilitation Therapy	Senior Lecturer
21	Obikudo, E.F.	B.Sc (LASU) M.Sc (Lagos) Ph.D (U.I)	Medical and Molecular Biochemistry	Senior Lecturer

22	Ogunleye V.A.	B.Sc (RSU) Ph.D (Lagos)	Toxicology	Senior Lecturer
23	Onyegeme-Okerenta K.C.	B.Sc, MBA (UNN) Ph.D (UPH)	Insurance management and Public Finance and Entrepreneurial Finance	Senior Lecturer
24	Patrick-Iwuanyanwu	BBA, MBA, Ph.D	Marketing	Senior Lecturer
25	Torbira, L.L	B.Sc (DELSU),	Nutritional Biochemistry	Senior Lecturer
26	Ozuru H.N	BBA, MBA, Ph.D (UPH)	Toxicology	Senior Lecturer
27	Amadi, B.A.		Gastrointestinal Physiology	Senior Lecturer
28	Okoro, Samson Eruke		Pharmacological Biochemistry and Toxicology	Lecturer II
29	Obia, O			Lecturer I
30	Ogbonnaya, E. Anthony	B.Sc, MBA (UNN) M.Sc, Ph.D (UNIBEN)		Lecture I

Lecturers from international collaborating sports institute and industries shall be part of the teaching crew.

INSTITUTE OF PETROLEUM AND ENERGY STUDIES UNIVERSITY OF PORT HARCOURT

INTRODUCTION

The Institute of Petroleum Studies (IPS) is an international post graduate institution established through collaboration between École du Pétrole et des Moteurs (IFP School) France and the University of Port Harcourt Nigeria in the year 2003. IPS is sponsored by the TOTAL E & P Nigeria Limited/NNPC Joint Venture. IFP School is in international collaboration & partnership with world renowned universities spread across the globe. These universities include the Imperial College of Science & Technology, London (UK); Colorado School of Mines (USA); McGill University (Canada); Technical University, Delft (The Netherlands) and Universite Gubkin (Russia). The University of Port Harcourt is also in international collaboration with leading universities in South Africa, United States of America and Canada. These collaborations have brought together different cultures, academic programmes and technology applications. In addition to pursuing an aggressive policy of home-grown human capital development in line with world standards by offering internationally recognized, industry-relevant and professionally sound and certified programmes, IPS saves the industry and the government huge foreign exchange investments in postgraduate training. IPS promotes international and national academic collaborations and linkages, partnership with industry and collaboration with national and international professional bodies. The healthy relationship between town and gown makes it possible for the industry and professional bodies to be actively involved in driving the programme life-cycle of IPS from curriculum development to course delivery/joint project supervision. IPS is also a registered member of the Oil and Gas Trainers Association of Nigeria (OGTAN) rendering continuing education to the oil and gas industry.

MISSION, PHILOSOPHY AND VISION

Mission: To meet the needs of the Petroleum Industry through a commitment to excellence in training, applied research, continuing education and capacity building

Philosophy: The institute believes in sustained learning, internationalism and professionalism; advancement and propagation of knowledge in the Petroleum Industry

Vision: To become the foremost International Centre of Excellence in Petroleum Geosciences

and Technology, Petroleum Economics and Management, and Petroleum Policy & Strategic Studies in Africa

CORE VALUES

1. We are **COMMITTED** to life-long learning for entrepreneurial and leadership skills
2. We are committed to academics and professional **EXCELLENCE**
3. We uphold **INTEGRITY** and **TRANSPARENCY** in all our operations
4. We encourage **TEAM WORK** and **EFFECTIVE COMMUNICATION** in the exchange of ideas and opinions to achieve set goals
5. We **RESPECT** each individual's unique talents and uphold the rights of all.

CENTRE FOR CONTINUING EDUCATION

This Centre is aimed at providing a platform for specialized and in-depth training to enable participants perform as specialists and professional experts in their chosen career. We have a multidisciplinary pool of consultants and experts in Nigeria and abroad who have many years of experience as Lecturers. With such a high caliber expertise, we deliver professional and high quality Short Courses to enable the participants perform with high competence at local and international levels. IPS is strategically positioned to offer the necessary training services to the industry. In conjunction with IFP Continuing Education Company, ENSPM France, and other local content service providers, the Institute offers broad based continuing education programmes to professionals in the petroleum industry. The courses are designed to meet the needs of managerial, engineering and technical staff in oil and gas, refining, petrochemical and chemical companies.

INDUSTRY PARTNERSHIPS

IPS is in partnership with the Nigerian Institute of Management (NIM), the Nigerian Environmental Society (NES), the Society of Petroleum Engineers (SPE), the National Registry of Environmental Practitioners (NREP), TOTAL E&P Nigeria, the Nigerian National Petroleum Corporation (NNPC), FUGRO Consultants Nigeria Limited, Pollution Control & Environmental Management (POCEMA) Consultants, the Nigerian Society of Engineers (NSE), the International Well Control Forum (IWCF), the Nigeria Institute of Safety Professionals (NISPP), Emerald Energy Resources Ltd, the Energy Information Services (EIS) and the Society for Underwater Technology (SUT).

STATISTICS

As at January 2022, IPS has graduated 368 Masters Students and 260 Post Graduate Diploma Students in our Center for Oil and Gas Technology. Most of these graduates are employed by International Companies like Baker Hughes, Halliburton Energy Services, Shell Petroleum Development Company (SPDC), Trans Ocean, Nigerian National Petroleum Company (NNPC), Statoil Norway, Chevron Nigeria Ltd, Exxon Mobil, Schlumberger and TOTAL E&P Nigeria to name a few.

IPS ALUMNI

Every graduate of the Institute automatically becomes an Alumnus and is expected to be an active participant in the Institute's Alumni activities.

ADMISSION PROCEDURE

- Advertisements are placed on a national daily, state and community based newspapers by TOTAL announcing the sales of forms.
- Forms are sold for candidates from the TOTAL facility areas specified by their MOUs
- At the close of sales of forms, a computer based aptitudes test is conducted to screen candidates.
- Oral interview is conducted for those shortlisted from the aptitude test that scored a certain minimum scores.
- Successful candidates from the oral interview with a certain minimum scores are then chosen according to the number of candidates expected to be admitted from that community.
- 20 candidates are selected by the panel at the end of the oral interview, signed, sealed and copies distributed to all stakeholders
- Members of the panel are drawn from TOTAL (Sustainable Development), Institute of Petroleum Studies and others (Uniport and professional bodies)

ADMISSION REQUIREMENTS

Candidates must possess a minimum of Second Class (Lower Division) honours bachelor's degree in any branch of Engineering and the physical sciences and should have completed their NYSC.

GRADUATION REQUIREMENTS

- The student must pass all the courses in every module of the different specializations which are in the syllabus of the IPS PGD Programme either once in first sitting or through resits:
- The students must have research and EIA projects to write and produce for defence which is part of the last module of the session for graduation.
- The students must be supervised by an

authority in the specialization which could either be a University lecturer or an industry facilitator or consultant.

- The project must be written, typed and produced for defence afterwards some copies are brought forth to the library for storage.
- All projects and other IPS materials such as PPE and training tools under their custody must be returned to the institute also.
- The student(s) must not be guilty of questionable character before graduation because such might not possibly graduate despite the academic success.

POST GRADUATE DIPLOMA IN PETROLEUM TECHNOLOGY (PGDPT)

Objective: The objective of this operations-oriented post graduate Diploma programme is to improve the technical competence and skills of the graduates to be employable in the petroleum industry. The students will be taught jointly by lecturers from the University of Port Harcourt (Uniport) Nigeria, IFP School, France as well as experts from the petroleum industry both in Nigeria and abroad.

- On completion of this Programme, the graduates will among other skills, be able to:
- Supervise the drilling of exploration and development wells and carry out drilling optimization programmes
- Supervise, and evaluate well completion, workover and well stimulation programmes
- Operate onshore and offshore oil and gas production facilities
- Carry out well performance enhancement programmes

Duration: The duration of the programme shall be 12 calendar months of intensive full time study.

Award of Diploma: Successful students at the end of the programme shall receive a Diploma of the University of Port Harcourt, Nigeria.

Admission Requirements: Candidates must possess a minimum of Second Class (Lower Division) honours bachelor's degree in **any branch of Engineering and the physical sciences** and should have completed their NYSC.

Sponsorship: Candidates should be sponsored by OPCOs, Service companies, PTDF and other sponsoring agencies.

PGDPT COURSE STRUCTURE AND PLAN

1. SOFT SKILLS (GENERAL SKILLS)

SSM 700.1 Time management/Learning

SSM 700.2	and Leadership skills Management and Business skills/ Team building
SSM 700.3	Entrepreneurial skill 1 (software/ Hardware maintenance)
SSM 700.4	Entrepreneurial skill 2 (Embedded Automation)
SSM 709.1	Entrepreneurship
SSM 710.1	Communication skills/ Technical writing
SSM 710.2	Project/ Field Studies Report
SSM 710.3	Presentation/ Bidding Skill
SSM 720.1	HSE in Energy Industry/ HSE in Occupational Health
SSM 720.2	Environmental Consideration in E & P Industry/Energy
SSM 720.3	Ethics & Governance/ Community Relations
SSM 730.2	Probability & Applied Statistics
SSM 740.1	Introduction to Computer Technology
SSM 740.2	Introduction to ICT/Internet skills
SSM 740.3	Computer programming for Engineers & Scientists
SSM 740.4	Autocad - Design and Application

2. ENGINEERING SKILLS

GEM 730.1	Engineering Mathematics
GEM 730.3	Applied Mathematics for Petroleum Engineers and Geoscientists
GEM 750.1	Basic Thermodynamics
GEM 750.2	Basic Electrical Engineering
GEM 750.3	Fluid Mechanics
GEM 751.1	Transport Phenomena I
GEM 751.2	Transport Phenomena II
GEM 751.3	Engineering Drawing I
GEM 752.1	Engineering Drawing II
GEM 752.2	Workshop Practice
GEM 752.3	Strength of Materials

3. PETROLEUM TECHNOLOGY

DPT 709.1	Introduction to Oil and Gas Industry
DPT 710.1	Fundamentals of Geosciences
DPT 710.2	Wellsite Geology
DPT 710.3	Geology Practical skills
DPT 720.1	Rock and Fluid Properties
DPT 720.2	Reservoir Engineering I
DPT 720.3	Reservoir Engineering II
DPT 721.1	PVT/CORE Analysis
DPT 722.2	Research Methodology in Petroleum Engineering.
DPT 730.1	Petroleum Engineering Rock Mechanics
DPT 730.2	Drilling Operations

DPT 730.3	Drilling/ Cementing fluids/ Cementing Laboratory
DPT 731.1	Well Logging and Interpretation

DETAILED COURSE DESCRIPTION

1. SOFT SKILLS (GENERAL SKILLS)

SSM 700.1 Time Management, Learning and Leadership Skills Definition of personal time management, the ways of winning the “Eff” words; effective, efficient and effortless in time management, emphasizing their daily routine application, ways of managing time; always define your objectives as clearly as possible, analyze your use of time, have a plan, action plan analysis. Facets of personal time management, symptoms of poor time management, identification of common time stealers; the telephone, lack of priorities/objectives, attempting too much, drop in visitors, ineffective delegation. How to be an effective learner, ways of achieving effective learning, how to tackle assignments, projects and writing of reports. Qualities of good leadership, roles of a good leader.

SSM 700.2 Management and Business skills/ Team building Definition of a team, features of good teams, ways of team building, stages involved in team building; clarification of collective goals, identification of inhibitors to reach desired goals and their removal, ways of assessing and monitoring team progress, ways of improving team performance using feedback strategy from team assessment. Roles of managers,

SSM 700.3 Entrepreneurial Skills 1 (Software and Hardware maintenance)

The instructor should highlight that to become a successful entrepreneur the following basic and fundamental general skills are desired such as: communication (oral and writing), software development and hardware maintenance, team building and creative-thinking (finding new ways to solve problems) skills. Planning and research, good decision making, organization (set priorities and organize to achieve them), financial management, record keeping, ways of goal setting and business management skills.

SSM 700.4 Entrepreneurial Skills 2 (Embedded Automation) Essentials of Embedded System, Microprocessor and Microcontroller, Development process in Embedded System. Introducing the Embedded System Software, System Architecture and learning tools, The LPC1768 Microcontroller, getting started with the embedded System software and Programming. Introduction to the Development Environment. Digital input and Output. Analog input and output.

Entrepreneurial Embedded System, Design and construction of Automated Systems, Entrepreneurial Projects.

SSM 710.1 Communication skills /Technical Writing.

The different components of a proposal writing: the introduction, literature review, methodology and reference, detailed description of each of these components and the numbering of adjoining subsections in each component. Difference between Paid and unpaid proposal writing formats, presentation of diagrams, graphs, tables and equations.

SSM 710.2 Project/ Field Studies Report

Writing of feasibility report (FR), detailed project report (DPR) and presentation of working drawings (WD). Basic definition of FR, DPR, Project report and WD for small, medium and large-scale industries. Writing of technical briefs. Preparation of bill of quantities, introduction to Risk analysis.

The power of good listening and observation in field trips, identification of Key elements to be reported. Discussion of the different components of a field report: writing of abstract, acknowledgment, table of contents, the observation at different locations of the trip, presentation of figures and tables, conclusion and citing of references.

SSM 710.3 Presentation/ Bidding Skill

Oral technical presentation: via giving seminar symposiums, conference and workshop papers and the difference between these forms. Use of overhead projector, slides, blackboards, etc for presentation. Radio and Television presentation. Requirements for individual and team presentations, interview skills. Preparation of bid: profile of the company, services, proof of experience presentation of materials and equipment; pictures, list of past and current jobs executed, cost of previous jobs and the cost of anticipated project.

SSM 720.1 HSE in Energy Industry / HSE in Occupational Health Safety and Security Considerations in E&P Industry/Energy Industry.

Development of industrial safety, definition of safety, safety regulations measures of implementing safety, unsafe acts, definition of accident, causes of accidents, flame and flame propagation, fire and explosion, limits of flammability, industrial fire protection, labeling and identification of hazardous materials, Use of PPE's, instructional safety signs, alarm signals. Use of security gadgets: on well heads, in flow stations, on flow lines, armed personnel.

SSM 720.2 Environmental Considerations in E & P Industry/ Energy Industry

Gas flaring and venting, oil pollution, causes of gas flaring and oil pollution; blowout, pipeline and flowline leakages, sour gas production, sea transportation hazards, need for oil spillage prevention and control, prevention and control of gas flaring, impact on the environment, ecology; global warming, pollution of water, land, air. Methods of control: mechanical, chemical and biological. Global pollution problems, government regulations and contingency plans.

SSM 720.3 Ethics & Governance/ Community Relations

Definition of sustainable industry, anticipated economic, environmental and social trends, new ways of doing things (business) that improve economic, environmental and social performance. Sustainable industry initiatives; impact of government policies, industry project and eco-efficiency. Sustainable tools and resources, Conservation of raw materials, non-renewable energy sources, alternative sources of energy (solar, wind, nuclear), biofuel technology, recycling schemes to generate energy.

SSM 730.2: Probability & Applied Statistics

Axiomatic definitions of probability. Basic rules of probability. Bayes formula. Permutations and combination. Tabular and graphical representation of samples. Measures of central tendency and dispersion. Random variables. Probability distributions, rectangular, hyper-geometric, binomial, poisson and normal distribution and Mathematical expectation. Mean and variance of a distribution, Bivariate distributions, Joint, marginal and conditional distributions covariance; correlation coefficients. Regression and correlations. Method of least squares, Regression curves. Random sampling, Sampling distributions, Expected value, and Standard error. The control limit theorem. Student's t, X² and F-distributions. Confidence intervals for mean, proportion, difference of means, difference of proportion and ratio of variances. Elements of tests of hypothesis: critical regions, significance level, type I and type II errors.

SSM 740.1 Introduction to Computer Technology

This covers basic computer appreciation. Introduction to hard and softwares, visual identification of the components. Applications of Microsoft Word, Excel in programming and mathematical analysis and the introduction of Microsoft Power Point for slide preparation for presentation.

SSM 740.2 Introduction to ICT/Internet Skills

Browsing skill; use of different search engines, downloading and uploading of articles and papers, navigational skills during subscriptions, local information transfer skill, development of web addresses, signing-up of e-mail address, chatting.

SSM 740.3 Computer Programming for Petroleum Engineers and Scientists

Algorithms, flow chart and pseudo code. Computer languages, programming in Fortran 77, Visual Basic, and C++. Debugging techniques, computer code security.

SSM 740.4 Autocad –Design and Application

Introduction to AutoCAD; Installation and Launching of AutoCAD, Introduction to AutoCAD Environment and learning tools. Introduction to Workspace; Isometric Drawing, Orthographic Drawing, Isocircles, Tangent. Layouts, Exporting DWG Files to PDF, Creating Blocks, Primitives, 3D Tools (Extrude, Loft, Presspull, Revolve, Sweep etc). Visual Styles, Annotation, Surface Finishing, Plotting of Drawings.

2. GENERAL ENGINEERING SKILLS

GEM 730.1: Engineering Mathematics

Partial differentiation, directional derivatives, gradient differential, infinite series, matrix algebra, solutions of systems of linear equations and numerical techniques. Multiple Integrals: Double and triple integrals, analysis in Cartesian coordinates, change of variable to polar, cylindrical and spherical coordinates. Expansion of power series, application of Taylor's series, Fourier series orthogonal systems of functions, Fourier integral, Fourier transformation, applications. Special functions, gamma, Beta, Bessel, Legendre and hypergeometric functions. Euler's equations, geometrical and physical interpretation of solutions. Operators and operator method of solving equations, system of linear equations. Operational calculus, Laplace transform, theory and application to initial value problems.

GEM 730.3 Applied Mathematics for Petroleum Engineers and Geoscientists

In this course the lecturer should teach the students the following: the derivation of fluid flow equations in the reservoir using the law of conservation of mass, transport equation, equation of state and the equilibrium equation. Derivations should consider both single and multiphase flow in Cartesian and radial systems with emphasis on the dimensions, the classification of boundary conditions and the use of initial conditions. Solution methods for first and higher order

differential equations, the application of Fourier equation, Laplace transform, Bessel function, Gamma function and the Green function in petroleum engineering.

GEM 750.1 Basic Thermodynamics

Basic concepts definitions, thermodynamic properties, the thermodynamic system units, equations of state for the perfect and real gases; the First law of thermodynamics, energy equations and analysis; basic thermodynamic processes and cycles for ideal gas, pure substance and mixtures; reactive systems; thermodynamic relations; the Second law of thermodynamics and introduction to irreversible processes.

GEM 750.2 Basic Electrical Engineering

Heat transfer basic concepts, heat transfer modes and rate processes, Fourier's law of heat conduction; Newton's law of cooling, Stephane-Boltzmann law of thermal radiation and configuration factor algebra; stationary heat conduction in simple geometries and composite bodies; correlational: equations for convection heat transfer, boiling and condensation; heat transfer by combined modes, insulation and intensification of heat transfer; electrical and triple analogies and introduction to heat exchangers.

GEM 750.3 Fluid Mechanics

Fundamentals, physical characteristics and properties of fluids, viscosity, surface tension, pressure. Fluid static's manometry, forces on submerged surfaces, buoyance and floatation, stability of floating bodies. Fluid masses subject to acceleration. Kinematics of fluid motion, continuity equation, circulation and vorticity. Flow of ideal incompressible fluid, Euler's equation, Bernoulli's equation, Application of Bernoulli's equation and 2-D flow systems. Impulse and momentum principle, elementary and simple flow machines applications. Some aspects of a real flows, laminar and turbulent flow, flow in pipes, flow in open channels.

GEM 751.1 Transport Phenomena I

Fluid mechanics, Microscopic and macroscopic material, momentum and energy balances, Momentum transfer in fluids in laminar and turbulent flow. Dimensional analysis: flow in conducts, pumps and fluid metering. Heat and mass transfer, heat transfer rate: conducting, convection and radiation mechanisms of heat transfer; heat exchanger design. Molecular diffusion; Mass transfer mechanisms, phase mass transfer coefficients, prediction of mass transfer rates.

GEM 751.2 Transport Phenomena II

Momentum energy and mass transfer in solids, in laminar and turbulent fluid in and between two

phases; theory of molecular and eddy viscosity, thermal conductivity and diffusivity, microscopic and macroscopic equations of motion, radiant heat transfer.

GEM 751.3 Engineering Drawing I

Introduction to drawing instruments, scales, drawing aids and their proper use, Size of paper and drawing layout. Dimensioning, line work and lettering, Geometrical constructions and engineering graphics. Development of Geometrical figures and intersection of solids and curves. Introduction to projections.

GEM 752.1 Engineering Drawing II

Orthographic projections in first and third angles, isometric Projection; sectioning, auxiliary views and staggered sectioning. Freehand sketching, conventional practices with simple examples including threads and threaded fasteners, cam profiles and Assembly drawing from detailed components.

GEM 752.2 Workshop Practice

Introduction to workshop practice with inherent characteristics of inculcating the spirit of teamwork: Use of measuring devices and bench tools. Manufacturing methods with metal materials (cold and hot workings) such as deep drawing; wire drawing; spinning and rolling extrusion. Machine-tool manufacture (turning, milling and shaping etc), Fabrication by welding and threaded fasteners and riveting, etc, metal-casting; manufacture of plastic products (moulding and blowing). Fitting and joining processes (soldering, brazing), wood-working and machinery. Surface finishes, forging.

GEM 752.3 Strength of Materials

Basic concepts and principles of mechanics, definition of movements and couples. Friction problems, determination of structures (frames, machines, shear forces, moment of inertia). Thin cylindrical spherical and conical pressure vessels, cylindrical shells with rings, torsion of circular shafts and power transmission of shafts. Axial force, shear force and bending moment diagrams. Pure bending of beams, bending stresses in composite beams, shearing stresses in beams, complex stresses, principal stresses.

3. PETROLEUM TECHNOLOGY

Petroleum Geoscience & Reservoir Engineering
This course covers general geosciences, applied Petroleum Geology and practical skills in Geology. The description of each of these components is given below:

DPT 709.1 Introduction to Oil & Gas Industry

This course is designed to acquaint participants with an awareness level of the structure,

Operations of the Nigerian and international Oil and Gas Industry. It will expose the participants to the different segments of the Oil and Gas industry and their interrelationship so as to provide a basis for further detailed study of the operations of Oil and Gas Industry. The course further introduces the participants to development of Oil and Gas assets and presents the issues of profitability in petroleum exploration and development

DPT 710.1 Fundamentals of Geosciences

The scope of geophysics: solid earth geophysics; the shape of the earth; geomagnetism, marine geophysics isostasy. Geophysical instruments, field data processing interpretation and application of different geophysical methods (gravity, magnetic, electrical, seismic, radiometric, etc). Geophysical logging of bore holes. Geophysical prospecting and exploration.

DPT 710.2 Wellsite Geology

This covers introductory geology, petroleum geology and formation evaluation: specifically, the following areas are emphasized: Geologic map interpretation. Simple geologic structures. Organic movements, volcanism and mountain building. Introduction to paleontology and stratigraphy, historical geology. Introduction to petrology. Elementary geology of Nigeria. Economic minerals of Nigeria. Applied aspects of geology. Physical and chemical characteristics of petroleum, reservoir geology. Chemistry and origin of formation water. Origin, migration and accumulation of petroleum. Structural stratigraphic and combined traps. Basin analysis and the Niger Delta petroleum prospect. Other Nigerian petroleum deposits. Global distribution of petroleum in time and space. The energy problem. Subsurface methods in petroleum exploration and exploitation. Well-logging methods and interpretations. Open-hole and cased-hole logs, their mechanics and manipulations. Labs and/or field trips will accompany course.

DPT 710.3 Geology Practical Skills

This covers Mapping/Map interpretations, identification outcrops, identification/classification of rocks and minerals accompanied with a Field Trip.

DPT 720.1 Rock and Fluid Properties

This course covers rock and fluid properties, reservoir engineering and the water and gas flooding aspects of enhanced oil recovery. Participants are exposed to the petrophysics of reservoir rocks. Discussion of porosity, permeability, saturation, electrical conductivity, capillary pressure and relative permeability. Reservoir fluid properties and behaviour under high pressure and relatively high temperature. Gas

laws, pressure-volume-temperature (PVT). Characteristics of binary and complex hydrocarbon systems and equation of state. The K-Value concept and its use in stage separation. The use of fluid properties in reservoir engineering.

DPT 720.2 Reservoir Engineering I

Description and classification of natural underground oil and gas reservoirs. Fluid flow in porous media. Reservoir drive mechanisms. Engineering calculations of fluid content of reservoirs and predicted recoveries of oil, natural gas geothermal, and water reservoirs, material balances, steady and unsteady flow equation. Water flooding and gas injection aspects of enhanced oil recovery.

DPT 720.3 Reservoir Analysis II

Mathematical basis for pressure transient tests. Theory and Practice of pressure tests, techniques for oil and gas well. Pressure build-up, Pressure drawdown; pressure fall-off, interference, multi-rate, injectivity and pulse testing. Determination of average reservoir pressure, reservoir heterogeneities and rock properties. Test design, etc.

DPT 721.1 PVT/CORE Analysis

Introduction to Coring, Core Screening, Routine Rock Properties, including Full Diameter Analysis and Overburden Measurements, photography and Imaging Liquid Permeability, Wettability, Electrical Resistivity, Acoustic Properties, NMR, Capillary Pressure Relative Permeability and Summary.

DPT 730.1 Petroleum Engineering Rock Mechanics

Fundamentals of rock mechanics, crater formation: plastic and pseudo-plastic characteristic of rocks. Load rate mechanism statistic and impact leading; tooth penetration as a function of differential and overburden pressures. Effects of differential pressure on drilling rate, Rock properties and earth stresses.

DPT 730.2 Drilling Operations

Well drilling methods, rheology of Newtonian and Non Newtonian fluids, chemical properties and carrying capacity of drilling fluids, rotary drilling hydraulics, prediction and control of abnormal pressures: pressure loss calculations in rotary drilling, surge and swab pressures and hole problems encountered in drilling operations. Coiled Tubing Drilling, Slim hole and monobore aerated fluid Drilling. Measurement While Drilling (MWD).

DPT 730.3 Drilling/Cementing Fluids/Cementing Laboratory

Functions and composition of drilling fluids. Mud

properties; testing classification and chemical analysis. Drilling mud calculations, control of mud properties. Well completion fluids. Drilling mud performance. Cementing and Cement calculations, instrumentation, Laboratory Work.

DPT 731.1 Well Logging and Interpretation

Open hole and Cased Well logs; logging devices, principles and technology. Electrical, radioactive, acoustic velocity, caliper, inclinometer, dip meter and thermometer logs. Well log interpretation. Use of combination logs, cross plots. Production logging. Computer processing of logs. Measurements-while-drilling systems. Logging While Drilling (LWD)

DPT 731.2 Onshore/Offshore Drilling Operation

Participants are exposed to the following areas: Casing design and selection, tubing design and selection, primary and secondary cementing methods, sand control, perforation, formation testing and initial well completion.

DPT 731.3 Well Completion and Workovers

Participants are exposed to the following areas: Casing design and selection, tubing design and selection, primary and secondary cementing methods, sand control, perforation, formation testing, initial well completion, and workovers/Through Tubing (TT) Re-entry such as stimulation, acidizing, hydraulic fracturing etc.

DPT 740.1 Subsurface Production Operations

Participant in this course are expected to be conversant with the Analysis, specification and characteristics of production systems. Introduction to Production Engineering, Well Performance (IPR, RI Concepts), Design Factors of Well completion, Well Completion; Well Analysis; Inflow Performance relationships. Study of flow in pipes; sucker rod pumping; gas lift; submersible pumping; traverse curves hydraulic pumping. Production logging, offshore technology. Formation damage assessment; production optimization. Use of Software: PERFORM, PROSPER, PIPESIM.

DPT 740.2 Surface Production Operations

Participants are exposed to surface equipment: Gathering Systems, Design and Testing of flow lines, service and cleaning of systems; Phase separation: Separation process, separators and component design and construction of separators, dehydration, emulsion problems: Oil emulsion, emulsifying agents and emulsifiers. Choice and dosage of emulsifiers; Corrosion and controls; Storage fiscalization and custody transfer, offshore surface operations.

DPT 740.3 Natural Gas Engineering

This course covers natural gas engineering and

processing. Specifically, the following topics are emphasized: Estimation of reserves and Well performance, Production and transportation of natural gas, natural gas metering and compression. Field handling of natural gas and Sour gas problems. Study of gas condensate fields and underground storage. Application of the concepts of thermodynamics transport phenomena, and phase behaviour in processing; utilization and conservation; gasoline plant design; Liquefied Petroleum Gas (LPG), Liquefied Natural Gas (LNG) and other gas utilization techniques. Others sources of gas.

DPT 750.1 Fundamentals of Petroleum Economics

In this course, the instructor should teach: volumetric estimation of hydrocarbon reserve, Profitability analysis in oil and gas investments; inter-relationship of technical and economic data; Decline curve analysis, Cash Flows, Depreciation, Amortization, Depletion and Tax credit, Time value of money, profitability indices, present value of declining income, profitability of a development well, short cut profitability methods, accelerated projects, capital and budgeting, projects evaluation.

DPT 750.2 Practical EIA Review and Monitoring

This course will cover evaluation of risk and uncertainty in oil and gas exploitation. Decision tree analysis; Utility theory, Probability, Expected Monetary Value (EMV), Expected Utility value maps, Monte Carlo simulation; preference theory; pricing and bidding strategies; optimum development of oil and gas fields.

DPT 750.3 Energy Law and Policy

Laws and Regulations: The Nigerian Legal system, Industrial safety law, electricity supply laws, water and public health laws; laws company and partnership law; copy writes and trademarks. The relating to employer – employee; contract law; land acquisition law.

4. PETROLEUM PROJECTS

DPT760 Field Development Projects (Team Projects) DPT 760.1 Team Project – Reservoir Study

Students in teams will investigate petroleum reservoir problems and proffer likely solution using industry based software in the study. Reports shall be written and defence shall be made for onward grading.

DPT 760.2 Team project–Drilling and Well Completion/ Workover Project

Students will engage in drilling, well completion and workover projects. A typical problem shall be studied with a view of solving problems. At the end of the study, a report and oral presentation shall be made to assess the performance of each team.

DPT 760.3 Team Project – Production/ Economics Project.

Petroleum production software shall be used to design and select some accessories such as tubing size, choke size, best completion method and other accessories in the complete producing system. Detailed economic analysis to select best alternatives as a guide in decision making should also be incorporated.

DPT 770 INDUSTRIAL PROJECTS (INDIVIDUAL PROJECTS)

Independent investigation of petroleum projects under the supervision of an academic staff.

Elective Courses:

DPT 790.3 Petroleum Engineering Design Project

The projects will cover field and/or laboratory studies. Every student is required to submit a project report on the solution of an integrated petroleum-engineering problem. Analysis and evaluation of surface production processing fluid separation, storage, measurement, treating, custody transfer, transmission, disposal, corrosion, other operations.

CHM 741 Electrochemistry (3 Units)

Chemical equilibria: Ionic equilibria. Conductance, theory and measurements, interpretation of data for strong and weak electrolytes. Conductance and transport processes. Thermodynamics and galvanic cells. Standard electrode potentials. Practical electrodes. Molecular forces in solid and liquids. Dipole moments interaction potentials and forces. Reversible galvanic cells, measurement of emf. Electrode potentials and the electrochemical series. Standard state and the nernst equation. Applications of emf measurements (excluding thermodynamic relationships). Potentiometric titration including measurement of pH Redox reactions. The electrical double layer and its applications.

PEE 702: Introduction to Structure Programming (2 Units)

Language definition structure, data type structure review of basic data type including list and trees control structure and data flow. Computer structure and machine language, file manipulation techniques for updating, deleting and inserting records in sequential files. Random access. Tree traversal and balance, high-level language data management facility. Words processing.

ME 716 Law and Management I (2 Units)

Basic Management: Functions of Management, management principles and practices. Location of industry. Introduction to production management – scope of production management. Types (scales) of production. Basic concept of production planning and control.

PEE 711: Oil Pollution and Control (2 Units)

Causes of oil pollution; blowout, pipeline and flow line leakages, sour-gas production, sea transportation hazards. Need for oil spill prevention and control; impact on the environment-ecology. Methods of control; mechanical, chemical and biological methods. Global pollution problems; government regulations.

PEE 517: Enhanced Oil Recovery (Elective) (3 Units)

Principles of displacement; rock properties fluid properties in reservoir; phase behaviour; displacement efficiencies. Gas methods; miscible slug; enriched gas; high-pressure lean gas; carbon dioxide; nitrogen and other inert. Chemical methods micellar – polymers; polymer augmented water flood; permeability alteration; caustic. Thermal methods; steam stimulation; steam drive; in-situ combustion.

ME 761 Power Plants and Energy Studies

(Elective) (3 Units) Revision of problems in thermodynamics cycles and irreversibility, criteria of excellence combined cycles, Gas turbine cycles, Boilers and heat exchangers, large thermal power plant, nuclear plant and its cycles. Hydro power plants, Electric power generation, supply and distribution. Power system structure, transformers, lines, cables and generators. Energy sources. Energy and civilization, renewable and non-renewable energies. Solar energy solar collectors, solar tracking systems, wind power, photovoltaic panels, satellite and beaming systems.

**MASTER OF SCIENCE IN PETROLEUM
ENGINEERING AND PROJECT
DEVELOPMENT**

PROGRAM OVERVIEW

Program presentation

The Institute of Petroleum Studies (IPS) is an international post graduate institution established through a collaboration between IFP School (France) and the University of Port Harcourt (Nigeria) in the year 2002.

IFP School in France has for many years established international collaboration and partnership with world-renowned Universities in

different parts of the world (Imperial College of Science & Technology, London (UK); Colorado School of Mines (USA); Texas A & M (USA); Oklahoma University (USA); McGill University (Canada); Technical University Delft (Netherlands) and Université Gubkin (Russia)).

This brings together different cultures, academic programs and technology applications. Through its association with IFP School, IPS now belongs to this international consortium of Institutions.

Program Objective

The University of Port Harcourt and IFPEN have associated their experience in teaching and research in the fields of petroleum exploration, reservoir characterisation, petroleum engineering and field management to create a Master's degree dedicated to petroleum engineering and project development.

The oil industry is greatly interested in increasing knowledge and integrating know-how into the architecture and management of petroleum reservoirs, in view of a more efficient recovery. For this reason, oil companies, service companies and governmental agencies are looking for professionals able to join efficiently multidisciplinary teams associated in oil or gas field development and management. Furthermore, in the context of energy transition, the oil industry is interested in developing competencies and know-how to move ahead on the path of decreasing the carbon footprint of oil and gas projects, while ensuring their sustainability and limiting their environmental impact.

The Master of Science in Petroleum Engineering and Project Development is designed to develop professional engineers with a high level of competency in drilling, reservoir engineering, well production and process. It prepares engineers with a good and sound knowledge of the basics of petroleum engineering and capable of fast adaptation to the needs of the Petroleum Industry, particularly in the frame of the energy transition.

By associating Nigerian and European cultures the program also prepares the student to work in an international environment, as required now by the energy industry.

Upon Completion of this program the graduates will be able to:

- Master the basic techniques needed to properly evaluate and manage oil and gas fields.
- Design and supervise the drilling of producing wells in an efficient way. Carry well maintenance programs to improve

hydrocarbon recovery, design work over and stimulation programs.

- Master the basic techniques needed to design and realise hydrocarbon-producing facilities from well head to loading terminal. (On and Offshore)
- Carry out Production optimisation and field performance enhanced programs.
- Participate effectively in multidisciplinary oil and gas field review and field development teams.
- Integrate HSE into all engineering, construction, operations and facility management work. In order to instill this 'HSE' culture, this theme is addressed across the entire program. In particular, safety is very present in the lessons and during site visits.
- Situate their future profession within a sustainable development approach (increased energy efficiency, reduction of the carbon footprint, importance of regulation, ethics and societal aspects).

Organisation of the Institute

The Institute of Petroleum Studies (IPS) is situated within the University of Port Harcourt in Choba (Rivers State). It is managed by both UNIPORT and the IFP School in France through a close collaboration between the Director of the Institute (appointed by UNIPORT) and the co-ordinator (appointed by IFP School). Teachers will either come from IFP School or UNIPORT or will be specialist engineers from the oil industry. Courses are held in English. The Institute will provide students with efficient computer hardware and software similar to what can be found within the oil companies.

Admission requirement: For admission into the program candidates must possess a minimum Second Class (Upper Division) honours Bachelor's Degree in Engineering. Engineers with 5 years working experience in the petroleum industry who graduated with Second Class (Lower Division with CGPA > 3) honours Bachelor's degree will also be considered.

Award of Degree: Successful students at the end of the program shall receive a Master's Degree jointly awarded by the IFP School, France and the University of Port Harcourt (UNIPORT), Nigeria.

Programme structure

Duration: The program will extend over a 48 weeks full time study and be devised in 5 Modules:

- General Module (6 weeks)
- Geosciences & Reservoir Module (12 weeks)
- Drilling Module (12 weeks)
- Production Module (11 weeks)
- Project Module and Project Presentation (7 weeks)

Degree Awarded

After successful completion of the course, graduates will receive a **Master of Science in Petroleum Engineering and Project Development**. This degree will be jointly awarded by UNIPORT, Nigeria and IFP School, France and is credited 53 credits hours corresponding to 96 ECTS (European Credit Transfer System).

One course corresponds to 1 credit hours.

Using the European standards one course is also called UE (Unit of Education). The European Credit Transfer System (named ECTS) is used for European students. It is based on the student's workload required for completing successfully the academic program objectives. These objectives are based on examination results and competencies gained.

Summary of the requirements to get the Master of Science in Petroleum Engineering and Project Development is given in the following table:

	Number of weeks	Credits	
		Credit hours	ECTS
General Module	6	6	6
Geosciences and Reservoir (GSR) Module	12	12	24
Drilling Module	12	12	24
Production Module	11	11	22
Project Module and FDP report and presentation. Industrial Project/Thesis	7	12	20
Total	48	53	96

Courses organisation

The courses will be given 5 days a week from Monday to Friday. 6 ¼ Hours of daily course: From 8:00 to 12:00 (with a 30 mns break). From 13:00 to 16:00 (with a 15 mns break).

The Institute will be open daily from 08:00 AM to 17:30 PM and students will be allowed outside the courses hours to review their studies, consult documents or books, and work on computers.

Course examinations are conducted on Saturday and merged by group of two exams organized every two weeks. Re-sit of failed exams will be organised at specific dates decided by IPS administration

The Field Development Project (FDP) study will be organised in work groups and will be managed

by specialist engineers from the oil industry. This method will familiarise the students with teamwork spirit that is needed in the industry.

The Industrial Project (Industrial Thesis) is an independent study by students to find engineered solutions to oilfield problems. The projects are supervised by Lecturers from the University of Port Harcourt and industrial experts.

Computer Software: Most widely used specialised software (as used by the industry) will be available to the students for practice.

Final Project: A three weeks final project on field development will terminate the Program. This Teamwork will be a synthesis study covering all the aspects of the petroleum engineering.

Project Presentations/Seminars: Both the industrial projects and Field Development Projects are presented to examination boards made up of lecturers from IFP School, Uniport and industry experts. The presentation takes the form of Seminar/Technical Forum.

Grading of exams

Each course is sanctioned by an exam or an assignment or a project and is graded on a percent scale with the following classification:

Grade higher than 70 %: letter Mark is A and number of points is 5

Grade between 60 % and 70 %: letter mark is B and number of points is 4

Grade between 50 % and 60 %: letter mark is C and number of points is 3

Grade less than 50%: The course assessment must be re-taken and the re-sit must be successful

A maximum of two re-sits are allowed during each module. When the res-sit is successful the grade will be a C.

The CGPA calculation takes into account the number of points for each assessment and the Credit Hour of the course. It is calculated on a 0 to 5 scale.

Classroom Rules

1. Lecture starting time is 08:00 am Monday to Friday.
2. Presence to lecture is compulsory.
3. Attendance sheet should be signed when entering the building.
4. Any health related issues should be reported ASAP to IPS Administration
5. Any other absences should be requested by e-mail and duly authorized by the admin Secretary.
6. Absolute silence must be maintained during lectures.

7. Eating, drinking and other acts of distractions are prohibited.
8. All mobile phones should be on silent mode during lectures.
9. Exams are usually organized on Saturday Morning from 09 am to 12pm. All phones must be switched off during exams
10. Presence to exam is compulsory
11. Students are responsible for the cleanness of the white board and the good condition of the Flip-Chart
12. Lecturer Evaluation forms should be returned before Monday morning.

MODULE DESCRIPTION

2.1 General Module (6 weeks)

The goal of this general module is a reminder and should bring to the same level all the students on mathematics, computational, thermodynamic, presentation and communication skills

This module is divided into 2 courses: PPD 801 and PPD 802.

PPD 801: Entrepreneurship, Introduction to Petroleum Industry and HSE (3 weeks)

This Program includes the following subjects:

Week 1	PPD 801-1	Management and Entrepreneurship
Week 2	PPD 801-2	Subsurface role in energy transition
Week 3	PPD 801-3	HSE and EIA (3 days)
Week 3	PPD 801-4	Ethics, Governance and Social Responsibilities (2 days)

PPD 802: Computational and Communication Skills (3 weeks)

This Program includes the following subjects:

Week 1	PPD 802-1	Applied Mathematics/ Applied Statistics for Petroleum Engineers
Week 2	PPD 802-2	Programming skills
Week 3	PPD 802-3	Communication Skills (Writing and Presentation)

MANAGEMENT AND ENTREPRENEURSHIP GENERAL MODULE PPD 801-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	1

OBJECTIVES

This course provides business and non-business majors with the skills necessary to succeed as an entrepreneur. The fundamentals of starting and operating a business, developing a business plan, obtaining financing, marketing a product or service and developing an effective accounting system will be covered.

PROGRAM

- An Overview of Entrepreneurs and Entrepreneurship /Start your small business Basic
- Forms of Ownership, Becoming an Owner, Planning, Organizing, and Managing Joint
- Managing Human Resources - Employee Relationships
- Obtaining the Right Financing, Developing Marketing Strategies
- Basic Financial Planning

SUBSURFACE ROLE IN ENERGY TRANSITION

GENERAL MODULE PPD 801-2 (UNIPORT)		
NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	1

OBJECTIVES

The purpose of this course is to give a general overview of the subsurface role for energy transition, including hydrocarbon exploration and production, usage of the subsurface for gas storage and CO2 geological sequestration, the assessment and exploitation of geothermal resources. It will emphasise the necessity to move toward a low carbon industry, while limiting the environmental footprint. This teaching unit develops an understanding of the energy industry trends and its impact at an engineer’s level, and the confidence and professional enthusiasm which comes with that understanding. It focuses on practical applications, and includes classroom exercises.

PROGRAM

The International Energy/Petroleum Industry/Organisations

Basic Structure of Worldwide Oil & gas Industry
International Politics of Petroleum

The Oil & Gas Industry in Nigeria

Joint ventures
Policies and legislations
Producing companies
Host communities
Nigerian LNG Industry

Towards a low carbon industry

The climate change context
Challenges of the energy world to reduce carbon emissions

How the subsurface can contribute to a low carbon future:

Some practical examples
New subsurface engineering needs

HSE AND EIA

GENERAL MODULE PPD 801-3 (UNIPORT)		
NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
3	0.6	0.6

OBJECTIVES

This course will introduce students to the fundamental concepts and techniques in Health Safety and Environment (HSE) in the upstream petroleum industry

PROGRAM

Introduction to Safety, Health and Environment in the oil Industry

- The Oil Industry and the Environment
- Overview of the risks associated with oil research and production
- Review of hazards (fire, chemical, handling and stepping, electrical, noise, explosives etc)
- Accident causation, Role of supervisor in accident prevention
- Accident reporting recording and investigation.
- Job safety analysis.
- Permit-to work system (PTW)
- HSE Performance Monitoring

HSE Statutory Requirements

- HSE Regulatory Framework in E & P Operations
- HSE Legislations and Policies
- The Role of DPR, Federal Ministry of Environment /FEPA
- State and Local Government Environmental Pollution Authorities Sustainable Development /HSE Depts. in Oil & Gas Companies

Environment considerations in E&P operations

- Environmental Considerations in Exploration, in Production Operations, Oilfield Drilling and Production Waste Management
- How to conduct EIAs and Other Environmental Studies (PPA, PIA, SIA etc)
- Environmental Management Policy (EMP), Strategic Environmental Assessment (SEA)

Overview of HSE Management Philosophy

- HSE Management
- Waste management.
- Risk management. Accident prevention

- Implementation of procedures and Monitoring
- Assessment and continuous improvement

ETHICS, GOVERNANCE AND SOCIAL RESPONSIBILITIES

GENERAL MODULE PPD 801-4 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	1

OBJECTIVES

To introduce how engineers employed by large companies should be concerned with holding the balance between economic and social goals and between individual and communal goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources.

PROGRAM

- The concepts, essential principles, and stakeholders of corporate governance
- Corporate Social Responsibility, citizenship and performance
- Board and committee functions and structures and company officers' training, induction, and behaviour
- Corporate governance in Nigeria: background and regulations
- Principles of good corporate governance and corporate disclosure requirements corporate governance disclosure in practice
- Future directions for corporate governance and considerations in corporate decision-making
- Develop an understanding of the nature of entrepreneurship & determine whether you want to be an entrepreneur with your own business or a corporate entrepreneur (entrepreneur in someone else's business)
- Understand how to identify opportunities (problems), develop creative solutions and build a viable business model around these
- Identify and understand the driving forces of new venture success
- Understand the ethical and legitimacy challenges that face entrepreneurs with new ventures

APPLIED STATISTICS FOR ENGINEERS

MATHEMATICS/APPLIED FOR PETROLEUM ENGINEERS

GENERAL MODULE PPD 802-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	1

OBJECTIVES

This course will help students develop mathematical skills particularly in the use of mathematics to evaluate fluid flow in porous media. The Course involves Philosophy of solution of Engineering Problems; construction, solution and interpretation of mathematical models applicable to the study of petroleum engineering problems.

The Applied Statistics for Petroleum Engineers' course will enable students to effectively use statistics in their work and know the vital role of risk uncertainty analysis in exploration.

PROGRAM

Interpolation

- Theory and Applications
- Piecewise Polynomial Interpolation, Curve-fitting (Regression)

Integrals and Differential Equations

- 1st degree Differential Equations
- 2nd degree Differential Equations

Partial Derivatives equations

Numerical differentiation and Integration, derivation and solutions of Fluid Flow Equations

- Fourier Transforms, Laplace Transform
- Green's function
- Bessel Functions

Vectors and vectorial calculations

Applied statistics for petroleum engineers

- Introduction, Basic probability concepts, analysis of data quality, most common probability distributions (discrete, continuous).
- Basic statistics, definitions, equations of best fit, exercises
- Regression and Correlations, Auto and Cross Correlation, exercises.
- Test of Hypothesis ad significance, General approach to data analysis
- Design and analysis of experiments, sampling techniques, exercises

PROGRAMMING SKILLS

GENERAL MODULE PPD 802-2 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	1

OBJECTIVES

The course is designed to develop confidence in the use of productivity software and industry software in petroleum engineering, and to

introduce the latest approaches in the processing of the petroleum industry data.

PROGRAM

- Computer programming, Languages, Software, Data management
- Introduction to Python
- Basics of Machine Learning
- Overview of machine learning
- Regression approaches
- Classification
- Clustering

through lectures during the morning sessions, and practical applications to geosciences data in the afternoon, with Python coding

COMMUNICATION (Writing and Presentation)

GENERAL MODULE PPD 802-3 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	1

OBJECTIVES

This course aims:

- to provide an overview of Concept and Dynamics of Communication
- to acquaint the participants with Verbal Communication Techniques
- to introduce the participants to Presentation Techniques
- to equip the participants with the basic skill for use of Power Point

PROGRAM

Effective Engineering Report Writing

- Preparing to write an engineering proposal
- How to write an effective technical report
- Report structure and the essence of good writing
- Writing research study
- Format of proposals: funded and unfunded/International & National
- Company Study Proposals/Terms of Reference
- Common Pitfalls in Proposal Writing

Technical Presentation Skills

- The purpose of a presentation
- Types of Technical Presentation
- The Essence of Good Presentation: Form & Content
- Organizing your Presentation
- Preparing for a Presentation
- The Use of Computer in Presentation: PowerPoint Templates etc
- Practicing your Presentation
- The D-Day
- Handling Nervousness

- How to Answer Questions Effectively

Technical Presentation Skills Workshop

- Presentation Aids/Equipment: Flip Charts, Slide Projectors, Overhead Projectors, In-Focus (Paperless Presentation) etc
- Cases Studies
- Syndicate Sessions

2.2 Geosciences and Reservoir Module (12 weeks)

The Reservoir Module part aims to give students the ability to:

- Initiate acquisition, processing and interpretation of data used in reservoir characterisation.
- Evaluate the quantities of hydrocarbon in place by means that include probabilistic methods.
- Analyse Hydrocarbon reserves and drainage mechanisms, propose improved recovery systems
- Develop a plan to efficiently produce a reservoir with an optimum production profile, optimise the number of well, and predict production decline and secondary or tertiary recovery with associated work-over.

This Module is composed of 4 Courses: PPD 803, PPD 804, PPD 805 and PPD 806.

PPD 803: Petroleum Geosciences (3 weeks)

This Program includes the following subjects:

Week 1	PPD 803-1	Fundamentals of Geosciences
Week 2	PPD 803-2	Geology Field Trip
Week 3	PPD 803-3	Reservoir Geology and Geophysics

PPD 804: Introduction to Reservoir Analysis (3 weeks)

This Program includes the following subjects:

Week 1	PPD 804-1	Rock and Fluid Properties
Week 2	PPD 804-2	Well Logging and Interpretation
Week 3	PPD 804-3	Fundamentals of Reservoir Engineering

PPD 805: Reservoir Modelling (3 weeks)

This Program includes the following subjects:

Week 1	PPD 805-1	Well Testing and Interpretation
Week 2	PPD 805-2	Data Integration & Reservoir Modeling
Week 3	2PPD 805-3	OOGIP Calculation with uncertainties

PPD 806: Applied Reservoir Engineering and Simulation (3 weeks)

This Program includes the following subjects:

Week 1	PPD 806-1	Reservoir Management
Week 2	PPD 806-2	Reservoir Simulation
Week 3	PPD 806-3	Reservoir Simulation Project

Project: The Reservoir Project involves an actual field case with Reservoir Simulation and Determination of a production profile including uncertainties and comparison with observed field performance.

**FUNDAMENTALS OF GEOSCIENCES
GEOSCIENCES AND RESERVOIR
MODULE PPD 803-1 (UNIPORT)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS: 2
5	1	

OBJECTIVES

The students not having any geosciences knowledge, the lectures aim to give them a broad overview of general geology as an introduction of the more specialised "petroleum geology" course.

At the end of this module, students are expected to

- have a broad understanding of the structure and composition of the earth and the Geologic Time Scale
- To recognize and distinguish between rock types and know what makes up source rocks and reservoir rocks
- Understand the principles of stratigraphy and correlation
- Understand the principles of Geophysics
- Become familiar with Geologic structures and different types of Petroleum Traps
- Understand the Geology of the Niger Delta

PROGRAM

General introduction

- The Earth – structure and Composition
- Plate Tectonics
- Geologic time Scale
- Basin Formation

Rock and Minerals

- The rock cycle
- Different types of rocks – igneous, metamorphic and sedimentary
- Mineral composition of rocks / Stable/Unstable minerals
- Geologic processes – Weathering, Transportation, and depositional lithification of Sediments to form sedimentary rocks.

Types of Sedimentary Rocks

- Classic and Non Classic Sediments
- Reservoir materials – carbonates, sandstones
- Sedimentary textures – effects on Reservoir types and Quality.

Principles of Stratigraphy and correlation

- Litho, Chromo and Biostratigraphy.
- A sequence Stratigraphy as application in oil exploration
- Principles of Correlation and use of Correlation in well planning and Field development

Structural Geology and Petroleum Traps

- Rock Deformation
- Faults, Folds, Unconformities, Joints, Diapirs etc
- Sedimentary Structures
- Basic Map Interpretation
- Types of Petroleum Traps – Structural, Stratigraphic and combination
- Seals and cap rocks

GEOLOGY FIELD TRIP

**GEOSCIENCES AND RESERVOIR
MODULE PPD 803-2 (UNIPORT)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS: 2
5	1	

OBJECTIVES

The geology field trip is used as an illustration of the first week. The students have the opportunity to see at a true scale, different geological outcrops covering the main geological aspects (geological landscapes, sedimentology, stratigraphy, structural geology etc...)

A visit to a company core storage is organised.

At the end of the course, students are able to:

- understand the main geological principles
- use the most common terms in geology
- classify the most common rocks met at earth surface
- recognise the main type of faults on cross sections and on maps

PROGRAM

Field Trip is to experience the nature of outcrops Mapping, Map interpretation.

This is a 7 days fieldwork where sedimentary succession within the lower Benue Trough (Anambra and Afikpo basins) will be visited. The rock successions have been selected to illustrate depositional environment analogous to the subsurface Niger Delta. Some rock exposures will be visited during the period.

**RESERVOIR GEOLOGY and GEOPHYSICS
GEOSCIENCES AND RESERVOIR
MODULE PPD 803-3 (IFP)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student is able to:

- list the different kind of sedimentary basins and understand the exploration process,
- list the elements and the functioning of a petroleum system leading to an accumulation and describe the different types of hydrocarbons,
- describe briefly the seismic tool as it is used in exploration and field description,
- describe briefly the geological data as they are used in reservoir and field description.

PROGRAM

Sedimentary basins, petroleum systems and exploration process

Sedimentary basins: types and locations

Petroleum systems

- Source rocks and types of hydrocarbons
- Reservoir/seal
- Traps
- Timing and entrapment

Geophysics: Seismic reflection

- Seismic tool: principles and limitations
- Seismic tool: Interpretation (Geological interpretation and limitations, Time to depth conversion)

Geophysics: Applications to reservoir description

- 3 D seismic acquisition, processing and interpretation
- Seismic amplitudes and attributes analysis and applications
- Seismic facies and applications
- Special seismic studies (seismic inversion, AVO, AVA) 4 D seismic and applications

Field geology

- Different kinds of maps for different use
 - Time/depth maps
 - Isopach, isobath maps etc.
- Definition of the architecture of the reservoir
 - Continuity of reservoir (sedimentology and stratigraphy)
 - Integration of seismic data
- Correlation and layering
 - Principles

- Exercises
- Fluids
 - Fluids and hydrocarbon-water contacts
 - Pressure data and integration

**ROCK AND FLUID PROPERTIES
GEOSCIENCES AND RESERVOIR
MODULE PPD 804-1 (INDUSTRY)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

This course provides fundamental knowledge of rock characterisation and reservoir fluid properties. The approach is practical/ industry oriented with laboratory visits.

At the end of the course, students will:

- understand the concepts used in rock characterisation and be familiar with porosity, permeability (absolute, effective or relative), saturation, wettability, capillary pressure parameters and know the basic equipment and practical aspects in laboratory measurements (Field Visit)
- be familiar with the behaviour of reservoir fluids at different pressures and temperatures (oil, gas, gas condensates and water), with equations of state and with phase diagrams and understand physical significance of parameters such as Formation Volume Factor, Gas-Oil Ratio, viscosity. (Field Visit)

PROGRAM

Fundamentals of Coring and Core Analysis

- Coring Programme, Coring Fluid; Coring Techniques Core Preservation; Core Preparation; Routine Core Analysis; Special Core Analysis

Structure and properties of porous materials

- Porosity (Definition, Measurement methods, Averaging porosity)
- Rock density and Specific surface: definition, measurements
- Permeability
- Compressibility of porous rocks
- Fluid saturation
- Wettability
- Capillarity Pressure
- Electrical properties of rocks
- Mechanical properties of rocks

Fluid Properties: Introduction/ generalities

Components of reservoir fluids: oil, gas, gas condensates and water - Thermodynamic of petroleum fluids: properties of pure components and simple mixtures: phase diagrams, viscosity.

Types of reservoir fluids

Properties of reservoir fluids: crude oil (Bo, Rs, GOR, compressibility, density, gas condensate). Natural gas (Bg, Z, density, specific gravity). Gas condensate. Pseudo critical pressure and temperature. Correlation of physical properties.

Computation of liquid-vapour equilibrium/ equations of state

Sampling.

PVT measurements - PVT laboratory report analysis

Description of reservoir fluids:

- Properties of reservoir waters: composition and salinity, resistivity, solubility
- Asphaltenic and waxy crude (intro),
- Hydrates (intro)

WELL LOGGING and INTERPRETATION GEOSCIENCES AND RESERVOIR ENGINEERING AND RESERVOIR GEOSCIENCES

MODULE PPD 804-2 (IFP)		
NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student:

- know the fundamental basics for the conventional geological and petrophysical log interpretation,
- know data acquisition and tools principles in order to highlight the impact of the uncertainties on the evaluation results,
- is able to make qualitative log interpretation,
- have an overview of the applications of the well data in geology, geophysics and reservoir engineering.

PROGRAM

Generalities- Definitions- Basic concepts and relationships

Wireline logging operations – The log. Practical (exercises and homework).

Basic tools Porosity and Resistivity tools

Principles, application and quality control

- Caliper, GR, SP
- Porosity tools (density, neutron, sonic)
- Resistivity tools (laterolog, Induction, microresistivity)

Quick look interpretation method

- Reservoir identification
- Determination of fluid contacts
- Determination of formation water resistivity
- Determination of porosity, lithology, water saturation

Crossplots techniques, special lithologies

Basics of quantitative interpretation methods

- Shaly formation
- Shale and gas effects on logs
- Water saturation equations

Other Logging tools and Techniques

- Nuclear Magnetic Resonance logging
- Dipmeter and Borehole Imaging
- Pressure measurements, fluid sampling and applications
- Overview of Cased Hole Logging
- Logging data Management

FUNDAMENTALS OF RESERVOIR ENGINEERING AND RESERVOIR GEOSCIENCES

MODULE PPD 804-3 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

To teach the fundamental concepts of reservoir engineering to prepare the students for the second phase of the Module (Reservoir Modelling & Oil in Place, Material Balance, EOR and Reservoir Simulation)

At the end of the week, students will have a working knowledge of

- Types of reservoir characteristics
- Method of obtaining oil in place
- Water influx models
- Decline curve analysis procedures
- Basic fluid flow concepts

PROGRAM

Introduction

- Opportunity of reservoir Lifestyles
- Field Development Criteria
- Economic Evaluation
- Optimizing HC Recovery – Process and Roles
- Concerns and Functions of the Reservoir Engineer
- Overview of Reservoir Characterization and Implication

Reservoir Energy and Characteristics

- Introduction – Reservoir Forces, Maximum Efficiency Rates
- Oil drives – Fluid Expansion, Solution Gas Drive, Gas cap Expansion Drive, Water Drive, Gravity Drainage

- Gas Drives: Fluid Expansion, Water Drive
- Gas Condensate Reservoir

Oil and Gas Reservoirs

- Definitions (Reservoir, Reserves, etc...)
- Overview of methods of Estimation
- Material Balance
- Forms of Material Balance and Applications
- Water Influx Calculation
- Decline Curves Analysis

Fluid Flow Concept

- Flow Potential
- Darcy’s law
- Multiphase flow concepts (wettability, relative permeability)
- Deliverability tests

**WELL TESTING and INTERPRETATION
GEOSCIENCES AND RESERVOIR**

MODULE PPD 805-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS: 2
5	1	

OBJECTIVES

At the end of the course, students will:

- understand the concepts used in well-test analysis for oil and gas reservoirs
- appreciate what information is gained from well testing
- be able to design and interpret well-tests with current industry software.
- understand the use and limitations of analytical interpretation models
- know the equipment and practical aspects of well testing.

PROGRAM

An overview of well testing: purpose of well testing.

- Methodology, Types of tests.
- Diffusion equations - Initial and boundary conditions
- Definitions & typical regimes, Productivity Index, Radius of Investigation.
- The analysis methods: Log-log plot – semi log plot.

Basic Well Testing Methodology

- Well bore storage – definition, effect of wellbore storage on pressure measurement computation
- Skin – Definition, effect on pressure profile
- Drawdown test: definition, calculations, advantage and limitation

- Superposition Principle – Bluid up Test – Calculations - examples
- Review of basic pressure plots (MDH, LOG-LOG, Horner, Multirate drawdown or bluid up)
- Pressure derivative: Definition, examples, Dimensionless Type Curves
- Influence of boundaries on type curves

Well Test Interpretation Models

- Well model (Wellbore storage and skin, infinite conductivity, limited well entry, horizontal well, etc.)
- Reservoir model (Homogenous, Dual porosity, dual permeability)
- Boundary model (Linear boundaries, circular boundaries, constant pressure, intersecting faults, parallel faults)
- Pressure derivative: Definition, examples, Dimensionless Type Curves
- Influence of boundaries on type curves

Gas Well Testing

- Pseudo pressures
- Pseudo time
- Pseudo skin
- Absolute open flow
- Isochronal test, Modified isochronal test.

Well Testing procedures and Equipment

- Review of gauge technology – DST and Production test Procedures
- Reporting and presentation of results, Example of interpretation report contents

DATA INTEGRATION AND RESERVOIR MODELING

**GEOSCIENCES AND RESERVOIR
MODULE PPD 805-2 (IFP)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS: 2
5	1	

OBJECTIVES

This course is largely illustrated on an example and is used for showing the methodology and the different steps for the building of a geological model. It is achieved through a case study.

This course is partially implemented using the PETREL® software package.

At the end of this course module, the student:

- know what kind of data are necessary to build a geological model and the methodology used for a deterministic and stochastic modelling,
- is able to list the main uncertainties associated with each step of building,
- is able to use the basics of geostatistics for a stochastic modelling,

- understand the evolution from a geological model to a reservoir model.

PROGRAM

The program is built as a simplified exercise for building a geological model from an industrial data set.

Available Data base

- Cultural data
- Well logs and cores
- Seismic data and maps

Data interpretation and correlation

- Core interpretation (sedimentology and petrophysics)
- Sequence and stacking patterns
- Correlation and stratigraphical model
- Associated uncertainties

Deterministic geological modelling

- Hydrocarbon-water contacts
- Associated uncertainties
- Facies definition – Assigning parameters

Stochastic geological modelling

- Basics of geostatistics
- Building of a stochastic model
- Associated uncertainties

From the geological model towards the reservoir model

- Upscaling of the model
- Associated uncertainties

OOGIP CALCULATION – UNCERTAINTIES

GEOSCIENCES AND RESERVOIR MODULE PPD 805-3 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of the course, students will:

- know the main parameters involved in a volume calculation,
- be aware of uncertainties and of the possible data acquisition to mitigate those uncertainties,
- understand the process of OOGIP calculation (when done by geoscientists),
- be able to perform simple OOGIP calculations.

PROGRAM

Introduction

- Resource Classification System
- Definitions, abbreviations, units
- Volumetric calculation: global rules

- Well to well correlations

The different categories of oil and gas in place

- Reservoir shape and reservoir closure
- Oil water Contact and free water level
- Reservoir thickness consideration
- Gas cap

OOIP calculation - Proven Probable Possible

- Proven Oil in Place
- Probable Oil in Place
- Possible Oil in Place
- Exercises

OOIP: OGIP calculations

- Volumetric Method based on isobaths method
- Uncertainties and errors
- Reserves calculation: use of probabilistic distributions- Monte Carlo method

RESERVOIR MANAGEMENT

GEOSCIENCES AND RESERVOIR MODULE PPD 806-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of the course, students will:

- understand the concept of relative permeability's and methods to measure them,
- be able to determine flood characteristics using Buckley Leverett model,
- know factors influencing front stability,
- calculate recovery factors associated to natural depletion mechanisms,
- be familiar with design and implementation of water and gas injection,
- be aware of the enhanced oil recovery techniques,
- be able to recognise the drive mechanisms of a field, to recommend the optimum recovery mechanism and to assess the associated recovery factor,
- masters the basics of gas storage in natural reservoirs,
- understand the specific challenges associated to mature fields.

PROGRAM

Introduction: Importance of Multiphase Flow in Production Mechanisms (0,5 day)

- Multiphase flow: Surface forces, Capillary doublet, Genesis of drop and Jamin effect; wettability.
- Relative permeability: concept, variation with saturation, measurements, empirical equations.
- Theory of frontal displacement: front concept, Buckley Leverett model.

- Effect of capillary and gravity forces - Practical application.
- 2D/3D 2 phase flow: Mobility ratio, instabilities mechanisms.

Natural depletion: material balance and its use (0,5 day)

- OIL RESERVOIRS: Closed reservoir, undersaturated oil, rock and fluid expansion. Solution gas drive.
- Reservoir associated with an active aquifer, water drive, aquifer functions, calculation of water inflows.
- Gas Cap expansion.
- Combination drive and generalised material balance for an oil reservoir with gas cap and aquifer.
- GAS RESERVOIRS: Phase diagram: dry gas, wet gas and gas condensate reservoir. Material balance equation: active or inactive aquifer. Graphical representation of material balance. Recovery factor determination.

Secondary recovery: water and immiscible gas injection (2 days)

- Sweep efficiencies.
- Water flooding: Origin and treatment of injected water, well injectivity, water flooding implementation, flood pattern, practical example.
- Immiscible gas injection: injected gas sources, flood mechanism and well injectivity, gas injection implementation, practical example.

Mature Fields (1 day):

- Tertiary recovery and enhanced oil recovery: principles and field examples
- Presentation of several study cases to illustrate the different strategies for exploiting mature fields and the issues that condition companies' decisions to manage these fields: economic constraints, surface facilities, level of reservoir depletion, validity of the concession, etc. Field examples

Gas Storage Basics (1 day):

Tool to optimize gas distribution infrastructures, obtain geopolitical flexibility, have an efficient market mechanism. Different types of possible SKUs (Stock Keeping Units), porous media, advantages.

**RESERVOIR SIMULATION
GEOSCIENCES AND RESERVOIR
MODULE PPD 806-2 (IFP)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS: 2
5	1	

OBJECTIVES

At the end of the course, students will:

- understand the theoretical bases of a reservoir simulator,
- know the practical aspects of a reservoir simulation study: data to be input, initialisation, history match, predictive runs,
- be able to conduct a simple simulation study with a black oil model (with an industrial software),
- be aware of the actual trend of simulation techniques.

During all the week in parallel to formal lectures, a model is built.

PROGRAM

Generalities-principles

- Introduction, Description of reservoir simulation process
- Reservoir simulation, overview
- The reservoir simulator

Input data

- Porosity-permeability upscaling
- PVT
- Kr-Pc
- Hysteresis modelling
- 3 Phases relative permeability
- Pseudo Kr's and Pc's
- Aquifer Modelling

Numeric

- Physical equations
- Black- oil model
- Discretisation, numerical aspects
- Resolution: linear systems and computing
- Gridding
- Time step issue

Well representation

- Practical aspects of simulation
- Construction of a Simulation model

**RESERVOIR SIMULATION PROJECT
GEOSCIENCES AND RESERVOIR
MODULE PPD 806-3 (IFP)**

**GENERAL MODULE PPD 801-1
(UNIPORT)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS: 2
5	1	

OBJECTIVES

At the end of this course module, the student will:

- have a practical understanding of the use of a reservoir simulation,

- be able to propose and evaluate a simple field development strategy using reservoir simulation,
- be aware of uncertainties and their impacts,
- be able to perform adequate sensitivities.

PROGRAMME

The project and the objectives to be reached are explained. Then the students work in team of two or three on their project using ECLIPSE®. When needed, teachers provide an assistance to help the students to finalise their project.

The simulation will include

- natural depletion
- water injection
- gas injection

Each group will deliver a report that will be graded by the IFP reservoir team

2.3 Drilling Module (12 weeks)

PPD 807: Well Construction, Casing Design and Drilling Fluids (3 weeks)

This course aims to give the students the necessary knowledge to be able to:

Analyse the geological section of the formation and design the architecture of a well, including drilling program, drilling fluids program, casing calculations and cementing programs.

Supervise the construction of the well and face drilling, fishing and trajectory problems, control abnormal pressure behaviour.

Select a drilling rig, issue an invitation to tender and analyse a contract.

This course includes the following subjects:

Week 1	PPD 807-1	Overview of drilling and production operations with field trip
Week 2	PPD 807-2	Well Architecture and Well Design
Week 3	PPD 807-3	Drilling Fluids and Cementing Operations

PPD 808: Directional drilling and well control (3 weeks)

This course module provides the students with all the information required for successfully preparing, executing and controlling the drilling of a directional and horizontal well, and ensuring thorough knowledge of modern calculation techniques in relation to the use of different types of bottom hole assemblies. It also acquaints the students with conventional and advanced well control techniques for both onshore and offshore well control procedures

This course includes the following subjects:

Week 1	PPD 808-1	Drilling operations, equipment and optimisation
Week 2	PPD 808-2	Directional drilling
Week 3	PPD 808-3	Well control

PPD 809: Well Completion, Interventions and Performance (4 weeks)

This course module gives the main characteristics of Well Completions. At the end of the course the student will be able to manage the concept of Productivity Index and Inflow Performance Relationship. It also gives to the student knowledge of the completion equipment and artificial lift

This course includes the following subjects:

Week 1	PPD 809-1	Completion design and equipment, Tests
Week 2	PPD 809-2	Well Performance
Week 3	PPD 809-3	Artificial Lift Systems – Design and Operations
Week 4	PPD 809-4	Specific Operations (Stimulation, Perf. Sand Control)

PPD 810: Offshore Drilling and Drilling Project (2 weeks)

This course module gives the necessary knowledge of offshore drilling and HPHT drilling operations. It incorporates a drilling project which aims to synthesize the whole module.

This course includes the following subjects:

Week 1	PPD 810-1	Offshore Drilling and New Challenges
Week 2	PPD 810-2	Drilling Project – Design of an Optimized Well

OVERVIEW of DRILLING & PRODUCTION OPERATIONS WITH FIELD TRIP

PPD 807-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

The drilling field trip gives the students a good vision of the size of a rig and its components. It also focuses on the safety and environmental problems.

During the visit the three main functions: hoisting, pumping and rotating will be analysed. A particular attention will be given to the BOP and well control equipment.

After the visit, the students will design the three main functions of a standard onshore drilling rig:

- Introduction to drilling operations (Hoisting, pumping, rotating)
- Well Control and HSE in Drilling Operations
- Introduction to Production Operations (Separators, pump, compressors, pipelines)

Drilling and Production Field Trip

Hoisting function

Pumping function

Rotation

Introduction to Production

- Specification of exported products (rvp, H2S, water content in oil, oil content in water ...)
- Separation: principle of functioning, separator types, number of stages, separator pressure determination (Separation problems: emulsion and foams)
- Gas treatment overview
- Water treatment overview

WELL ARCHITECTURE and WELL DESIGN

DRILLING MODULE PPD 807-2 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student is able to:

- manage the concept of pore pressure, fracture pressure and mud window,
- understand the role of conductor pipe, casing, liner and tubing,
- determine the depth of the casing shoe,
- know the different stresses applied on a casing string,
- manage the mechanical and physical parameters of casing,
- design a complete casing PROGRAM for different configurations,
- make the hook-up of the well head.

PROGRAM

Mud Window

- Normal and abnormal pore pressure
- Fundamental of rocks mechanics
- Fracture pressure and LOT procedure

Drilling and casing program

- Function and types of casing and liner
- Geometrical dimensions of casing and drift diameter
- Different programs

Depth of casing shoe

- Different methods:
 - Casing point

- Maximum allowable kick
- Maximum allowable mud weight

Casing stresses calculation

- Tension load
- Burst load
- Collapse load
- Bending load

Mechanical casing properties

- Coupling and Threads
- API Grades
- API strengths

Drilling and casing design

- Design for a standard vertical or deviated exploration well
- Design of a development well

DRILLING FLUIDS AND CEMENTING OPERATIONS

DRILLING MODULE PPD 807-3 (INDUSTRY)

GENERAL MODULE PPD 801-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

The course provides students with knowledge of the basic techniques used in characterising, selecting and preparing drilling mud and cementing operation and hence promote better understanding between drilling and mud engineers in view of improving control of drilling and cementing operations.

On completion of the module, students are able to:

- Design a drilling mud program,
- Understand the casing running procedures and make the calculation for a primary cementing job.

PROGRAM

Functions and different types of drilling fluid

- Functions, composition, characteristics and conditioning of different types of mud
- Water base mud
- Oil base mud, invert mud, aerated mud

Rheology

- Rheological parameters
- Pressure losses and equivalent mud weight

Mechanical treatment

- Selection of equipment and layout

- Separation ranges
- Overall efficiency and site reconditioning

Mud losses and treatment

- Losses mechanism and treatments

Characteristics of cements

- Cement chemistry and API cements
- Rheology and setting time

Primary cementing procedure and calculations

- Cement job design (casing running fluids and mud removal cementing calculations)
- Post-job evaluation:

Special cases

- Multistage cementing
- Liner
- horizontal wells

Remedial cementing (Squeeze and Plug cementing)

Lab Visit Mud and Cementing Labs

DRILLING OPERATION, EQUIPMENT and OPTIMISATION

DRILLING MODULE PPD 808-1 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student is able to:

- select drilling and coring bits based on geology and drilling constraints,
- use the IADC/SPE roller cone bits and fixed cutter bits,
- evaluate the dull grading of the bit and fill the bit record,
- Select the WOB, RPM for optimisation of ROP,
- Optimise the hydraulic flow and select nozzles,
- prepare a coring program,
- design a drilling string with/without motor,
- understand the principles of fishing.

PROGRAM

Description of drilling bits and IADC/SPE classification

- IADC roller cone bit description and classification
- IADC fixed cutter drill bit description and classification
- Use of comparison tables

Dull grading and causes

- Roller cone drill bit dull codes
- Fixed cutter drill bit dull codes

- Analysis of dull and Remedial

Drilling parameters optimisation

- Optimisation of WOB and RPM
- Problems of whirling, bit balling
- Hydraulic losses in the drill string and nozzles
- Hydraulic optimisation
- Bit records

Design of drill string and motors

- Characteristics of drill pipes and heavy-weight drill pipes
- Drill collars
- Rules for design of drill string
- Overpull calculation

Rig characteristics and design

- Rig power
- Travelling Block and Travelling line sizing
- Mud pressure calculation
- Mud pump design

DIRECTIONAL DRILLING

DRILLING MODULE PPD 808-2 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

This course module provides the students with all the information required for successfully preparing, executing and controlling the drilling of a directional and horizontal well, and ensuring thorough knowledge of modern calculation techniques in relation to the use of different types of bottom hole assemblies.

PROGRAM

Fundamentals of directional drilling

- Well profiles
- Representation of the wells
- Trajectory control
- Uncertainties calculations
- Factors affecting the deviation

Directional drilling equipment

- Standard drilling equipment
- Specific directional drilling equipment
- Measuring equipment
- Delayed time tools
- Real time tools
- Later directional drilling equipment

Directional drilling engineering

- Well planning & engineering
- Drill string design
- Drilling fluids program

Horizontal drilling

- Different types of horizontal wells

- Horizontal drilling engineering
- Multi-lateral wells
- Re-entry

Fishing

- Diagnostic of problems
- Fishing tools
- Under-reamers tools
- wash-over tools
- Milling and cutting tools
- Magnets

**WELL CONTROL
DRILLING MODULE PPD 808-3
(INDUSTRY)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

To acquaint the students with conventional and advanced well control techniques. The module is based on the international standards for well control for both onshore and offshore situations.

PROGRAM

Initial test

Pressures and well kicks analysis

- Normal and abnormal formation pressures
- Reasons for and indications of well kicks

Kick control procedures (Driller Method)

- Shut-in procedures
- Shut-in pressure observations
- Kick handling methods

Special cases

- Volumetric method
- Weight and Wait method
- Kick control bit off bottom
- Shallow gas formation
- Offshore well control – Riser margin

Equipment

- Accumulation unit, BOP
- Choke manifold, degasser
- Subsea BOP
- Calculations

**COMPLETION DESIGN and EQUIPMENT,
TESTS
DRILLING MODULE PPD 809-1 (IFP)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student:

- Is able to choose the appropriated well-completion equipment for a specific application
- Is able to write the corresponding running and operational procedures
- Has the knowledge of the principles and equipment of natural flowing wells
- Is aware about the specificities of gas wells.

PROGRAM

Equipment

- Perforations (Principle, guns, characteristics, etc.)
- Perforations: parameters (Density, penetration, hole size)
- Production wellhead (components, working pressure and diameter)
- Tubing (main characteristics, criteria of choice)
- Packers (drillable or permanent, retrievable)
- Bottom hole devices (landing nipples circulating sub,..) and wireline
- Subsurface safety valve (surface controlled, subsurface controlled)

Effects of Temperature & Pressure Changes on Tubing

- Main temperature & pressure effects
- Comprehension of buckling phenomena
- Field examples and exercises

Operational procedures

- Job preparation
- Safety recommendations during completion operations
- Operations recommendations
- Running-in and start-up procedures:
 - With a packer set directly with the tubing
 - With a packer set previously to the running-in of the tubing
- Special completion procedures:
 - Double completion
 - Gravel pack completion
 - Horizontal well completion
- High pressure gas well completions

Test

- DST, Main Equipment being used.
- DST, Operations and Interpretations
- Field examples

**WELL PERFORMANCE
DRILLING MODULE PPD 809-1 (UNIPORT)**

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student is able to:

- manage the concept of Productivity Index and Inflow Performance Relationship (IPR) for oil,
- design IPR curve above and below the bubble point,
- manage the concept of Gas Well performance,
- calculate the fluid flow in pipes for gas well and two-phase wells,
- use the traverse curves or equivalent computerised curves,
- identify the key factors for the proper design of a completion: naturally flowing wells or artificial lifted,
- use an appropriate software such as PERFORM® or PROSPER®.

PROGRAM

Overall approach of well flow capacity

- From reservoir to surface facilities: main parameters, order of magnitude
- Different way to increase the flow capacity, need for artificial lift on oil wells

Performance of productive Formation

- Productivity Index, global skin & flow efficiency for oil well
- Study of the completion skin: mechanical geometrical skins, order of magnitude of geometrical skins
- Inflow Performance Relationship, Vogel's curve, Patton & Golan method
- Gas well productivity
- Productivity of horizontal wells

Flow of Fluids in Pipes and Chokes

- General energy equation, Friction factor, Reynolds Number
- Application of general energy equation in calculating the static bottom hole pressure and in performing flow calculation in gas well
- Vertical and inclined two-phase flow, energy and pressure losses, flow regime
- Flow through chokes

Flowing Well performance

- Pressure gradient curves and traverses
- Graphical and computer-based determination

Practical exercises with software (Perform, Prosper)

**ARTIFICIAL LIFT
DRILLING MODULE PPD 809-2
(INDUSTRY)**

GENERAL MODULE	PPD 801-1		
(UNIPORT)			
NUMBER OF	CREDIT	ECTS:	
DAYS:	HOURS:		

5 1 2

OBJECTIVES

This course will provide the students with the ability to understand the techniques involved in well activation and the equipment needed for artificial lifts (Gas lift and pumps)

PROGRAM

Overview of artificial lift technology

- Artificial lift: Definition and introduction to the main systems
- Gas lift
- Criteria for selection of artificial lift systems
- Artificial lift screening
- Equipment of Artificially lifted wells (From tubing shoe to well head)

Gas lift design

- Mandrels, valves, injection gas requirement, temperature, chokes, spacing, equilibrium curve, continuous flow design

Rod-pump design

- Pumping unit
- Rods
- Pump
- Prime movers
- Gas anchor
- Pump off controls

ESP design

- Pump performance curves, pump intake curves, typical problems, installation, troubleshooting
- Best practices and for installation and maintenance for all methods
- Introduction to rod-pumping, gas lift and ESP systems

Economic Analysis

SPECIFIC OPERATIONS (Acidizing, Frac, Sand Control, WO)

DRILLING MODULE PPD 809-3 (IFP)			
NUMBER OF	CREDIT	ECTS:	
DAYS:	HOURS:		
5	1	2	

OBJECTIVES

At the end of this course, the student should be able to:

- evaluate the causes and control of formation damage
- evaluate the need for remedial cementing,
- evaluate the benefits of fracturing and acidizing,

- know the techniques and equipment for perforating,
- decide and design a sand- control system,
- manage the principles of Work-over.

PROGRAM

Overview of Formation damage

- Causes
- Evaluation
- Control

Acidizing

- Types of acid and types of acid treatments
- Matrix acidizing of Carbonates
- Matrix acidizing of Sandstone
- Placement techniques and productivity after acidizing

Fracturing

- Basic principles of hydraulic fracturing
- Fracturing materials
- Operation execution
- Post-job analysis

Sand stabilisation

- Sand production mechanisms
- Liners and screens
- Gravel-packing methods
- Chemical consolidation techniques
- Sand control in Horizontal wells
- Chemical sand control

Work-over

- Introduction to work-over
- For a well under pressure
- On a killed well
- Specific operations such as:
 - wire-line
 - coiled-tubing
 - snubbing

OFFSHORE DRILLING OPERATION and NEW CHALLENGES

DRILLING MODULE PPD 810-1 (INDUSTRY/ IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student is able to:

- know the main characteristics of drilling with dry well head on:
 - fixed platform
 - swamp barge
 - jack-up
- know the drilling process from a floating vessel:
 - sub-sea well head
 - riser and relative equipment

- surface equipment (heave compensation, tensioners, ...)
- understand the specific points of the deep offshore
- has a general understanding of other techniques such as:
 - floating vessel with surface BOP
 - drilling from a SPAR
 - drilling from a TLP

PROGRAM

Surface BOP drilling

- Drilling from a platform
- Swamp barge
- Jack-up
- Compact rig and tender

Floating rigs

- General description
- Well-head suspensions
- Riser
- heave compensation

Deep offshore

- Drilling programme
- Specific well control

New challenges

- Floating rig with surface BOP

Specific wells (0.5 day taught by IFP)

- Geothermal wells
- HP/HT wells
- Smart completion

PROJECT - DESIGN OF AN OPTIMISED WELL

DRILLING MODULE PPD 810-2 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of the Drilling Module, the students are able to design and optimised well with its relative completion and artificial lift if required from the technical point of view as well as on the economic parts.

It is an additional opportunity for a team work as the design is made by groups of 4 or 5 students. They will produce a written report corresponding to a casing and drilling programme as well as a completion programme.

An oral presentation will conclude the exercise.

PROGRAM

- Report and oral presentation.

- No formal courses, assistance of the teachers to help the students in their personal work.

2.4 Production Module (11 weeks)

This module aims to prepare students for designing surface oil and gas treating facilities from the well head to the unloading terminal on both land and marine environment. Safety and pollution free operations will be a very important part of this module.

The Module: This module is composed of 5 courses PPD 811, PPD 812, PPD 813, PPD 814 and PPD 818.

PPD 811: Production Engineering/Process Engineering (4 weeks)

During this course students will be prepared to:

- Understand the functioning all the elements composing the surface process: Test Separators, Production Separators, Heaters, Water Treaters, Pumps, Tanks, etc.
- Design and size all the element of the process installation (including power requirement and instrumentation).

This course includes the following subjects:

Week 1	PPD 811-1	Production Operations
Week 2	PPD 811-2	Production Equipment Design
Week 3	PPD 811-3	Utilities and Instrumentation
Week 4	PPD 811-4	Process Simulation with Software (HYSYS)

PPD 812: Production Optimisation (3 weeks)

At the end of this course, the student will be familiar with the problems associated with gas production (NLG plan, Gas compression and gas injection, Turbines). He will be able to design a production pipeline taking into account structure problems and fluid mechanics issues.

This course includes the following subjects:

Week 1	PPD 812-1	Multiphase Flow in Pipe and Flow Line Design
Week 2	PPD 812-2	Flow Assurance
Week 3	PPD 812-3	Well Surveillance and Production Enhancement

PPD 813: Terminals and Gas Utilization (2 weeks)

These courses will cover the oil and gas export. Students will be able to understand the major

issues in the problems of Oil export and Gas processing and Gas Utilization

Week 1	PPD 813-1	Terminals and Receiving Facilities
Week 2	PPD 813-2	LNG and Natural Gas Utilization

PPD 814: Introduction to Offshore Engineering and Subsea Architecture (1 week)

This Course will introduce the problems associated with the offshore oil and gas Production. Students will be able to:

- Knowledge of marine environment (Wind, Waves, Streams, Corrosion)
- Knowledge in the sizing and erecting of Steel Platforms
- Be familiar with the newest Production Technology used in Deep Water Production
- Understand the problems associated with field development using subsea wells

This course includes the following subjects:

Week 1	PPD 814	Offshore Production Engineering and Architecture
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PPD 818: « Towards a low carbon energy world » (1 week)

During this course students will be prepared to:

- Describe the axes of reduction of greenhouse gas emissions from oil production and the storage of carbon dioxide in the basement.

This course includes the following subjects:

Week 1	PPD 818	Towards a low carbon energy world
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PRODUCTION OPERATIONS			
PRODUCTION MODULE PPD 811-1 (IFP)			
NUMBER OF	CREDIT	ECTS:	
DAYS:	HOURS:		
5	1		2

OBJECTIVES

At the end of this course module, the student is able to:

- Understand the basic functioning of a Production Flow Station (Gas and Oil).
- Recognize the main elements composing the surface process.
- Understand the physical laws governing fluid behaviour during the production phase.
- Know the oil, gas and water required characteristics for transport

- Understand the principle and the basic functioning of all the elements composing the surface process.

PROGRAM

Introduction to Oil and gas process design:

Specification of exported products (rvp, H2S, water content in oil, oil content in water ...)
 Separation: principle of functioning – number of stages
 Separation problems: emulsion and foams
 Heaters:
 Desalting
 Dehydration

Oil processing

Vertical separator (two and three phases), function, internals, sizing - Horizontal separator (two and three phases), function, internals, sizing – Particularities of the floating production
 Heaters Treaters Electrostatic Separation
 Desalting Techniques,
 Pumping

Gas processing

Need for sweetening process Techniques in use
 Principle of Dehydration
 Principle of Condensate removal
 Compression

Water treatment (Injection water, Produced water)

Injection water description – sea water characteristics – water production deoiling (waters characteristics, deoiling systems) – re-injection of water formation – environmental aspects

Electricity production and energy efficiency

PRODUCTION EQUIPMENT DESIGN

PRODUCTION MODULE PPD 811-2 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student is able to:

- Understand the physical laws governing fluid behaviour during the production phase.
- Know the oil, gas and water required characteristics for transport
- Understand the principle and the basic functioning of all the elements composing the surface process.
- Be able to design and the important parts of a surface facilities
- Choose and size the required equipment according to the process required.

PROGRAM

H2S Processing

Basic notions – Processes available, Circuits diagrams, Basic Calculation

Separators: Design and Sizing. Operational problems

Gas Dehydration

Basic notions – Processes available, Circuits diagrams, Basic Calculation

Gas – Condensate Removal

Basic notions – Processes available, Circuits diagrams, Basic Calculation

Heat exchangers: Functioning, description and calculation

Basic notions – heat exchanger elements – types – temperature calculation – shell exchanger – plate exchanger.

Pumps and Compressors: types, functioning and sizing

Turbo machine classification – velocity diagram – centrifugal pump and compressor – gas turbine – turbo expanders.

Flares Description Basic calculations

Tanks: Types and sizing

UTILITIES and INSTRUMENTATION

PRODUCTION MODULE PPD 811-3 (INDUSTRY)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course module, the student is able to:

- have a global knowledge of the functioning of the utilities and the instrumentation
- estimate the power balance,
- understand the principles of the control and the regulation,
- use different types of sensors,
- use different types of communication,
- understand PFS and PID diagramme

PROGRAM

Electric power: Different means of production and distribution.

- General power generation - example of oil production facilities (turbines)
- Electrical power distribution – types of distribution used in the oil production facilities

Electrical power balance calculation

- Power consumption in a oilfield production systems
- Gas calculation for power generation

Instrumentation: Types of sensors, control system technology, analog and digital systems

- Pressure sensors
- Temperature sensors
- Flowmeters (Water, oil and gas)
- Level controllers
- Data transmission

Control and regulation: Definition and objectives.

PFS and PID diagram

PROCESS SIMULATION

PRODUCTION MODULE PPD 811-4 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

The objective of this course module is to present the HYSYS® software to the student. At the end of this module the student is able to use this software to design different kind of systems.

PROGRAM

Introduction to HYSYS®

- Generalities on process simulation
- Review of thermodynamics and phase envelopes

Data required for a simulation

- Valves
- Pump
- Compressor
- Turbine
- Heat exchanger
- Mixer
- Splitter
- Separator

Propane Cryogenic loop

- Simple loop
- Refrigeration loop

Crude oil and natural gas treatment

- Composition and specification
- Simulation (Oil stabilisation and gas dehydration and compression)

LPG and liquid extraction from natural gas

- Data
- Specification
- Assumption
- Simulation

Field examples of a complete process

- H2S treatments

MULTIPHASE FLOW in PIPE and FLOW LINE DESIGN

PRODUCTION MODULE PPD 812-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

This course exposes students to hydrodynamic behaviour in pipes. It develops the concept of multiphase flow in pipes and their application to petroleum production engineering. At the end of the course, students will be able to determine pressure drop and a thermal evolution in a single-phase line and a multiphase flow line; appreciate the multiphase flow metering and pumping; critical phenomena such as slugging, critical and subcritical multiphase flow, wet gas transportation.

PROGRAM

Introduction to the fluid Flow in Pipes

- General Energy Equation, Evaluation of Friction Losses-Friction Factor
- Single phase flow: Definitions (laminar, turbulent, balance equations for steady state and transient flows...) pressure drop calculation for laminar and turbulent flow – thermal evolution of the fluid.

Multiphase flow

- Definition of variables: Two phase Flow parameters, Liquid Holdup, Mixing Rules; Description of multiphase mixtures
- Determination of the flow patterns
- Determination of the pressure drop (closure laws)
- Hydrodynamic criteria affecting flow-line sizing (severe/terrain slugging phenomenon)

Vertical/Inclined/Horizontal Multiphase Flow

- Liquid Hold-up Correlations
- Flow patterns
- Flow Correlations
- Slugging
- Applications: Directional Wells, Pipelines, Pipelines in Hilly Terrain

Multiphase Flow Through Restrictions: Chokes and Subsurface safety valves (SSSV)

- Critical vs Subcritical Flow
- Flow Correlations: Analytical, Experimental and Empirical Bean Performance Correlations
- Bean Performance Optimization

- Design of SSSVs

Applications

- Oil Well Optimization
- Wet Gas Transport
- Multiphase Flow Pipeline Design
- Pipeline Pigging
- Introduction to Multiphase Flow Metering and Pumping

FLOW ASSURANCE

PRODUCTION MODULE PPD 812-2 (INDUSTRY)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course the student will have knowledge of the constraints and problems associated with flow assurance including deep sea operations

PROGRAM

Introduction

Terminology, Characterization of fluids, Sampling ...

Hydrate Control

Definitions, analysis, prevention, treatments

Paraffin and Asphaltene Control

Identification of problem, prevention and treatments

Emulsion & Foaming

Identification of problem, prevention and treatments

Scale

Identification of problem, prevention and treatments

Corrosion in pipes

Introduction, principles and prevention

Flow profile in pipes, Drag Reducers

Identification of problems related to the multiphase flow in surface pipes. Drags reducers,

Material and Design aspect of Flow Assurance

FPSO, Flowlines, Risers, umbilicals

Modelling and Studies

PVT envelopes, Hydrates formation models, paraffin/asphaltene deposition models, simulation software.

Deep Sea flow assurance issues

FPSO, design and operations. Preservation operations shut down

WELL SURVEILLANCE and PRODUCTION ENHANCEMENT

PRODUCTION MODULE PPD 812-3 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

At the end of this course, students will be:

- exposed to the principles of emerging Production Optimization Technologies
- exposed to state-of-the art well intervention practices
- able to diagnose the problems of sick wells, dying wells and dead wells using our software package
- able to evaluate well completion efficiency and current well potential
- able to screen candidates for well stimulation, through tubing well intervention and workover
- understand the management of mature fields

PROGRAM

- Production Practices, Problems and Prospects
 - type of well effluent,
 - reservoir system,
 - well completion etc.
- Well Diagnostics
 - Healthy Wells
 - Sick Wells
 - Dying Wells
 - Well Potential Determination
 - Well Inflow Quality/Performance Indicators
 - Evaluation of Well Completion/Production Efficiency using in-house Software
- Well Surveillance
 - Oil Wells
 - Waxy Crude Oil Well
 - Gas Wells
 - Artificial Lift wells;
- Production Performance Optimization
- Mature Field Management
- Application of PLT in Well Diagnostics

TERMINALS and RECEIVING FACILITIES

PRODUCTION MODULE PPD 813-1 (IFP) GENERAL MODULE PPD 801-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

- At the end of this course module the student will have a complete knowledge of the oil export, terminals, metering and the floating facilities.

PROGRAM

HSE

- Safety on Storage of large amount of hydrocarbon (onshore and offshore)
- Rules and policies

Terminals

- Terminals functions, Safety and Loading/Unloading

On Shore Tanks

- Types and Design
- Operations and Safety
- Operational Problems

Offshore Tanks - FPSO/FSO

- Type and Designs
- FPSO operations
- FPSO/FSO Tank safety

Mooring of Floating Units

- Offshore foundations
- FPSO mooring (Turret Type)
- Type and design of mooring lines

FPSO/FSO tank unloading

- CALM buoy
- Tandem Operations
- Unloading Operations

Metering

- Design of a metering unit
- Operation and maintenance

LNG and NATURAL GAS UTILIZATION PRODUCTION MODULE PPD 813-2 (INDUSTRY)

GENERAL MODULE PPD 801-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

- At the end of this course module the student will have a complete knowledge of the LNG and the special treatments associated.

PROGRAM

Upstream treatment

- Gas conditioning (Hydrate prevention, dehydration, sweetening)

- Condensate separation, stabilisation, treatment.

LNG recovery process

- Joule-Thomson expansion
- external refrigeration loop (sea water cooling)
- Production units (trains, sizes)
- Peak Shaving facilities

Process schemes

- Review of LNG Process Plants Worldwide
- Gas conditioning
- Mercury, Nitrogen removal
- fractionation
- cold section
- Flash gas production
- The process licensors (APCI, PHILLIPS, STATOIL/LINDE, AXENS, SHELL)

Terminals and Distribution

- LNG Carriers (Moss Rosenberg Spheres Technology, Membrane Technology, Gas Carrier Fuel)
- Terminal
- Regasification and distribution
- Loading and Unloading.
- HSE Considerations and Practices in LNG Processes

Gas to Liquid Treatment

- Definition
- Syngas Generation
- Fischer-Tropsch synthesis

OFFSHORE PRODUCTION ENGINEERING and ARCHITECTURE

PRODUCTION MODULE PPD 814 (IFP) GENERAL MODULE PPD 801-1 (UNIPORT)

NUMBER OF DAYS:	OF CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

The objectives of this module are to give knowledge of the specificity of the offshore oil and gas production activities and techniques

PROGRAM

Introduction to offshore oil and gas production – type of structures used Installation of platforms:

- History of offshore exploitation (Water depth, main zones of activity....)
- Main types of structures used (Small jackets, larges jackets, tension leg structure, floating structure...) Dry wells against wet wells.

Marine Environment and stresses on offshore structures

- Effect of wind and waves/swell on offshore structure (Sway and wave period – wave energy spectra)
- Movements of a floating platform
- Simple design of a platform (constraints, fatigue...) Numerical application

Design

- Type of platforms and explanations: Steel jackets, jack-up, gravity structure, TLP, Compliant platforms, floating platforms, arctic systems, others.
- Topsides construction and installation

Pipelines/ flexible installation

- Introduction – Conception – Installation technique.

Deep-sea installations

- Architecture of deep sea development (PLEM, Subsea well heads and Xmas trees, Templates, Manifolds and Subsea Hardware, Flowlines, Risers, Subsea Production Control Systems & Chemical Injection, Intervention barges and multi-purpose support vessels, ROV, ...)
- Flow Assurance Issues, Mitigation and Hydraulic Analysis
- Reliability Engineering and Risk Analysis
- Description of main subsea interventions: inspection, maintenance and repair methods, subsea wells operations and work overs.

Decommissioning

- Laws and regulations. Decommissioning techniques, examples

TOWARDS A LOW CARBON ENERGY WORLD

PRODUCTION MODULE PPD 818 (IFP)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

The objective of this module is to cover the new themes associated to the energy transition. These are already an important part of the activity of engineering contractors. They also represent an increasing share of the activity for the oil and gas operators.

At the end of this course module, the student is able to:

- describe the axes of reduction of greenhouse gas emissions from oil production and the storage of carbon dioxide in the basement.

PROGRAM

- Overview of the energy world and the challenges associated to the decarbonation of the economy, including paths to decarbonation
- Green House Gases – Methane review
- Carbon Capture Utilization and Storage (CCUS) (Note that 1 day is already planned on the topic of underground gas storage, including CO2 geological sequestration, in TU PPD 806-1)
- Renewal energies with:
 - a focus on solar energy (main issue), hydropower and wind power
 - basics on geothermal energy and hydrogen
- Power generation:
 - Project feasibility phase
 - Early development phase
 - Project financing
 - Project construction
 - Operations and Maintenance

2.5 Project Module (7 Weeks)

This module has two goals:

- Presents the Petroleum economics and project Management
- Supervise the students during their 5 weeks project

This module is composed of 2 courses PPD 815 and PPD 816.

PPD 815: Petroleum Economics and Project Management (2 weeks)

This module has the following objectives:

- Present the economic aspect of an oil field development.
- Introduce the risk analysis and the Project Management using a field example
- Familiarise students with cost analysis, cost control and budget preparation
- Provide the students with the concepts of Corporate Governance, business ethics and CSR

This course includes the following subjects:

Week 1	PPD 815-2	Contract, Planning & Project Management
Week 2	PPD 815-3	Petroleum Economics

PPD 816: Field Development Project (4 weeks)

During This course the students will be in small groups. They will study an oil or gas field

development project using different scenarios (number of wells, horizontal or vertical, type of completion, type of producing facilities, economics). Then each group will be assigned a scenario for which they will draw the drilling, the evaluation and completion Program. They will design the producing facilities and prepare a financial report based on the computed recoverable reserves.

In addition to the work on the FDP project, one week within PPD 816 will be devoted to the preparation of the personal project to be presented in PPD 817.

Week 1	PPD 816	Presentation Scenarios
Week 2	PPD 816	Process
Week 3	PPD 816	Process / Structure / HSE / Economy
Week 4	PPD 816	Work for personal thesis

PPD 817: Industrial Project (1 week) – Project presentation week

Presentation of the Personal Thesis given at the beginning of the year and presentation of the Production Final Project Development in PPD 816.

PLANNING, COST ESTIMATION and PROJECT MANAGEMENT

PROJECT MODULE PPD 815-1 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

The aim of this course is to familiarize students with cost analysis, cost control and budget preparation.

PROGRAM

Introduction to development projects

- Asset life cycle - Evaluation process –
- Time and cost objectives - Economic Studies-
- Contracting strategy - Project execution phases

Project cost estimation

- Scope and exclusions - Cost management process - Estimate classes - Capital expenditures - Operating Expenditures
- Software available on the market
- Cost evaluation during project evaluation phases
- Cost evaluation during basic engineering and contracting phases
- Cost escalation, cost indexes, inflation - Location factor
- Additional cost elements

- Risks and uncertainties - Provisions - Expenditure schedule - Particularities of cost estimation of brownfield projects

Cost control

- Cost Control framework
- Definitions, concepts and principles
- Cost control process Establishing a budget - Commitments vs. budget - Actuals vs. budget- Forecasts - Detecting adverse trends - Reporting

Project Management

- Introduction, Definition
- Interface management
- Human resources management, organization charts, role of project manager, project team organization
- Stakeholder management

Project control: cost and schedule

- Project control process, cost control principles, initial budget elaboration, final cost estimation, project reporting, documentation control systems
- Planning elaboration, progress curves, critical path, planning software, progress control, recovery plan
- Technical package and project planning, feed management, execution sequence, deliverables, process licensors packages, EPC phase schedule, CAPEX estimate

PETROLEUM ECONOMICS

PROJECT MODULE PPD 815-2 (UNIPORT)

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
5	1	2

OBJECTIVES

- Facilitate students’ understanding of why some economic decision variables such as oil and gas prices, reserves, production profiles, taxation and fiscal policies, and the environment are important in petroleum exploration and production decisions.
- Learn and apply principles of petroleum economics and the commonly used economic decision methods to facilitate the ability of E&P business to generate profit and grow.
- **Understand approaches to quantify uncertainty and risk in petroleum business decisions**

PROGRAM

Fundamentals of Global Petroleum Market and Pricing

- Basic petroleum economic concepts: supply, demand, and price equilibrium

- The global petroleum industry dynamics: understanding the structure, key players and the mechanics of the global oil market
- Review of basic petroleum economic evaluation concepts--cash flow items/models/analysis
- Elements and determinants of petroleum E&P investment decisions—resources, reserves and production profile

Petroleum Valuation Theory, Finance, & Methods; Project economics profitability; Decision to invest

- Capital budgeting techniques—Discounted cash flow (DCF) / Deterministic analysis & criteria
- Elements and determinants of petroleum E&P investment decisions—rent extractions and petroleum taxation theory

Parameters affecting the project economics

- Descriptions and classification of petroleum fiscal terms and contractual regimes: concessionary arrangements and petroleum sharing arrangements
- The arithmetic & mechanics of various kinds of petroleum fiscal regimes—fundamental criteria underlying efficient fiscal regime design
- The arithmetic & mechanics of various kinds of petroleum fiscal regimes—government and contractor take statistics; the strengths and weaknesses of take statistics
- Basic probability and statistics for E&P economic analysis and business decisions

Worldwide Petroleum Fiscal and Contractual Framework; Introduction to economics simulation. Optimisation

- Basic probability and statistics for E&P economic analysis and business decisions
- Expected value concepts and decision tree analytics

Risk and Uncertainty management Methods. Technical Discussion

- Review
- Simulation and decision analysis –Sensitivity & Monte Carlo overview
- Risk and E&P decision analysis using @Risk

FIELD DEVELOPMENT PROJECT PROJECT MODULE PPD 816 (IFP/INDUSTRY)

OBJECTIVES

This project consists in a field development study. This presentation should include the following subjects:

- Analyse reservoir characteristics, IOGIP, and reserves
- Select a field development scenario
- Define a drilling pattern and draw a typical drilling and completion program
- Define the production process
- Do some simple structure calculation and sizing
- Achieve the economic study
- Present a carbon balance of the project
- Achieve the environmental impact assessment

NUMBER OF DAYS:	CREDIT HOURS:	ECTS:
15	4	10

CONTENTS AND LECTURERS

PROGRAM

This is a team work underdone by a group of 10 students in which each individual will be assigned to a typical task under the control of the team leader.

Lecturers and professional from the industry will supervise the progress of the project and assist the students.

Week	Course
Week 1	Project Presentation – Choice of scenarios – Drilling and production Strategy (IFP)
Week 2	Process definition and simulation, Structure and pipeline calculations, carbon balance aspects of the project (Industry)
Week 3	Process definition and simulation, Structure and pipeline calculations HSE implications, planning, cost analysis and economical evaluation (IFP)

The final report will be evaluated by an oral presentation of each group member as well as an overall technical evaluation of the project by the IFP project team in France

INDUSTRIAL PROJECT PROJECT MODULE PPD 817 (UNIPORT) CREDIT HOURS: 6 ECTS: 6

OBJECTIVES

- To conduct independent study with the aim of finding engineered solutions to oilfield problems. The Project Topics are assigned by lecturers at the beginning of the GSR Module.

- Presentation of the projects is done on the last week of the programme

PROGRAM

NUMBER OF DAYS: Starts from Geosciences and Reservoir Module

SUPERVISION

- Thesis subject and choice of supervisor is done under the supervision of a Uniport professor

- The thesis delivery must follow the Uniport frame for master project

EVALUATION METHODS

Oral Presentation of the Thesis (Project Defence)

Report writing

- Introduction
- Literature Review
- Methodology
- Applications (Use of Software)
- Conclusions
- Recommendation

OFFSHORE TECHNOLOGY INSTITUTE (OTI)

INTRODUCTION

The Offshore Technology Institute (OTI) University of Port Harcourt was established in 2011 as a bold effort to address the dearth of local manpower for the exploitation of the vast energy resources in the deepwater of the Gulf of Guinea. OTI is an industry-oriented postgraduate energy institution offering educational support and direction to the Oil and Gas industry through the development of manpower and delivery of quality research and continuous professional development courses in support of the local content initiative. OTI partners appropriate governmental agencies and is open to academic collaborations and linkages, partnerships with oil industry operators and service providers. The teaching faculty of the institute consists of lecturers from the University of Port-Harcourt, other University within and outside Nigeria and professionals in the industry.

The institute offers M.Sc Programme in Pipeline Engineering, Offshore Engineering, and Subsea Engineering in one hand, a Post Graduate Diploma (PGD) Degree in Offshore Engineering and MSc in Energy Access and Renewable Energy Technology. The Institute also has PhD Programmes in Pipeline Engineering, Offshore Engineering, and Subsea Engineering which are the latest additions to the programmes housed in the Institute. All the eight programmes are run in a conducive environment in the Institute. OTI students are exposed to relevant industry software such as OrcaFlex, ANSYS, PIPEPHASE, PIPESIM and PDMS and undertake necessary safety and underwater training such as TBOSIET/HUET and are OPITO certified. In order to achieve a proper mix of theory and practice, OTI MSc and PGD students undergo supervised internship in relevant oil & gas companies / Renewable energy-related centres in Nigeria.

VISION

The vision of the institute is to be a competent capacity building institute of excellence in sustainable energy studies in Africa with specific focus in offshore & subsea development / renewable energy utilization.

MISSION

TABLE 1: LIST OF COURSES, CODE AND CREDIT UNITS

S/N	Course Code	Course Title	Credit Units
1	OTI 601	Introduction to Offshore Engineering and HSE Skills	3
2	OTI 602	Introduction to Pipeline and Subsea Engineering	3
3	OTI 603	Computational Skills and Methods	3

The mission statement of the institute is to bridge the knowledge and skills gap in the offshore oil & gas industry by providing quality training, applied research and capacity building for sustainable development of the offshore oil & industry and to provide manpower for the exploitation of renewable energy resources abundant in Nigeria.

PROGRAMMES

The Institute has one Post Graduate Diploma Programme, four MSc Programmes, and three Ph.D Programmes:

A. PGD Programme

Postgraduate Diploma programme in Offshore Engineering Technology

B. MSc Programmes

- i. MSc Subsea Engineering
- ii. MSc Offshore Engineering
- iii. MSc Pipeline Engineering
- iv. MSc Energy Access and Renewable Energy Technology

C. Ph.D Programmes

- i. Ph.D Subsea Engineering
- ii. Ph.D Offshore Engineering
- iii. Ph.D Pipeline Engineering

A. PGD PROGRAMME

Postgraduate Diploma programme in Offshore Engineering Technology

Admission Requirements, Programme Duration and Graduation Requirements

Candidates for the PGD in Offshore Engineering Technology must possess a Bachelors degree from a reputable university with a minimum of third class honours for graduates of engineering, or a minimum of second class lower from any other related science fields. All prospective candidates must go through the admission process of screening and selection (Aptitude Test / Oral Interview). The Post Graduate Diploma (PGD) is a Full-Time one (1) year programme that comprises eight (8) months of lecture and four (4) months of internship, including student project writing and defence. To be awarded a degree, the student must have at least a C grade in each of the courses, including internship and project.

4	OTI 604	Computer Aided Drafting and Simulation	3
5	OTI 605	Foundation and Structures	3
6	OTI 606	Marine Survey and Installation	3
7	OTI 607	Offshore Drilling Engineering	3
8	OTI 608	Corrosion in Offshore and Subsea Systems	3
9	OTI 609	Introduction to Management and Entrepreneurial Skills	3
10	OTI 610	Internship Reporting & Defense	3
11	OTI 611	Project Writing & Defence	6
Total			36

COURSE DESCRIPTION

OTI 601 - INTRODUCTION TO OFFSHORE ENGINEERING AND HSE SKILLS

Introduction to the oil and gas industry; petroleum geology; exploration; drilling and testing; production; reservoir mechanics and production management; transportation and storage; refining and petrochemicals; marketing; the structure of the industry; energy and the environment; future of the oil and gas industry. Overview of offshore operations; extracting resources & physical scales; types of offshore structures; hydrostatics and wave/body dynamics laboratory; offshore planning and development; decommissioning and environmental monitoring; waves and inertial-based fluid loading; Currents and viscous-based fluid loading; station keeping. Introduction to the International Standards associated with HSE, including the ISO 14000 family; environmental legislation and voluntary standards. Environmental impacts and prevention; occupational health and safety legislation and duty of care; human reliability analysis and accident causation: major accident sequences, risk perception and control of risk human reliability assessment tools. Offshore safety case and formal safety assessments: regulatory regime, safety case requirements, types of study, scenario development, examples of use of QRA methods, consequence analysis, vulnerability of essential systems, smoke and gas ingress, evacuation escape and rescue and typical output. Review of major offshore accidents: Sea Gem, Alexander Keilland, Star Canopus and Piper Alpha disaster.

OTI 602 - INTRODUCTION TO PIPELINE AND SUBSEA ENGINEERING

Overview of subsea engineering; subsea production systems; flow assurance and system engineering; subsea structures and equipment; subsea pipelines; overview of subsea field development; subsea distribution systems; subsea surveying, positioning and foundation; subsea installation and vessels; subsea cost estimation; subsea control; subsea power supply. Introduction to pipeline engineering; importance of pipelines; freight transport by pipelines; types of pipelines; components of pipelines; advantages of pipelines; single-phase

incompressible flow in pipes; single-phase compressible flow in pipe; principles of pipeline design and design approach; pipeline construction and risk assessment; pipeline operation; pipeline maintenance.

OTI 603 - COMPUTATIONAL SKILLS AND METHODS

Introduction to computational skills; Microsoft windows and explorer; word processing and report presentation with Microsoft Word, spreadsheet and data analysis and presentation on Microsoft Excel; Oral presentation using Microsoft PowerPoint. MATLAB Fundamentals: Working with the MATLAB user interface, entering commands and creating variables, performing analysis on vectors and matrices, visualizing vector and matrix data, working with data files, working with data types, automating commands with scripts, writing programs with logic and flow control, writing functions. MATLAB for data processing and visualization; importing data, organizing data, visualizing data and exporting data. MATLAB programming techniques; programming for correctness, structuring data, structuring code, classes and objects. MATLAB for building graphical user interfaces from the command line by using GUIDE, the GUI development environment. Simulink® for system and algorithm modeling: creating and modifying Simulink models and simulating system dynamics, modeling continuous-time, discrete-time, and hybrid systems, modifying solver settings for simulation accuracy and speed, building hierarchy into a Simulink model, creating reusable model components using subsystems, libraries, and model references.

OTI 604 - COMPUTER AIDED DRAFTING AND SIMULATION

Introduction to the concept of 2D and 3D; AUTOCAD and 3D, types of three-dimensional models, advantages of drawing in three dimensions; working with 3D coordinates; creating surfaced objects; creating solid models from two-dimensional shapes, extruding 2D geometry, creating solid models with solid primitives, revolved solids, controlling the appearance of solids. Composite solid models; working with solid models; editing solid models, filleting solid models,

chamfering solids, generating mass property reports, slicing a solid along a plane, cross-sectional views, moving faces, tapering faces, deleting faces and creating a shell, advanced solid editing options. Plotting 3d models Introduction to Google Sketch-Up; Sketch-Up Essentials; Using Google 3D Warehouse; adding information from Google Earth. Modeling Basics: Creating and editing components, Sharing your model using Google Earth, working with photographs, working with materials browser, stylizing your model, creating a scene-based walkthrough, presenting your design; Projects in Sketch-Up with emphasis on offshore equipment and structures.

OTI 605 - FOUNDATION AND STRUCTURES

Introduction to geotechnical engineering; the offshore environment and site investigation; soil mechanics; formation of offshore soils; classification and basic properties of offshore soils; Stress and strain in soils; fluid flow through soils; compressibility and yielding of soils; practical approaches for soil strength and cyclic loading; theory of applied elasticity and bearing capacity; sample integrity; shallow and deep foundations. Classical beam theory; linear theory of beam bending; general Euler – Bernoulli method; traditional approach and loading considerations; statically indeterminate beams; beam installed at the elastic foundation; fatigue crack initiation; fracture mechanics and evaluation of parameters; nondestructive testing methods

OTI 606 - MARINE SURVEY AND INSTALLATION

Introduction to subsea survey; subsea survey requirements; survey pattern for selected subsea fields; geotechnical study; survey vessel; gyrocompass; navigation computer and software; personnel; subsea survey equipment requirements; multibeam echosounder (MBES); high-resolution sub-bottom profiler; offshore surface positioning and underwater positioning; subsea metrology and positioning; subsea soil investigations and equipment; subsea foundation; pile- or skirt-supported structures; seabed-supported structures; Rigid pipeline installation methods; S-Lay, J-Lay, Reel-Lay; advantages and disadvantages of various lay methods; practical examples; catenary equations; tow & pull methods, difference between shallow and deep water pipe-lay; installation of pipeline end structures and in line tees; trenching and backfilling; marine warranty during pipe-lay. Introduction to flexible and umbilical; difference between rigid pipe and flexible pipeline installation; flexible and umbilical lay methods, flexible and umbilical spooling; installation of flexible and umbilical end structures; various types of flexible risers; flexible riser installation; practical examples.

OTI 607 - OFFSHORE DRILLING ENGINEERING

Industry operations; technology advancement; competition from non-fossil energy source; climate change policy; peak oil production; special problems of deepsea oil and gas engineering; characteristics of deepwater oil and gas field project environment; seabed temperature and instability; gas hydrates; internal waves; equipment combination programs for acquisition; processing, storage and transportation of deepsea oil and gas; equipment for deepwater operation; large scale vertical floating columns and wave load of column groups; special problems in beaches and shallow sea area: characteristics of the marine environment, shallow sea area; seawalls and artificial islands; construction and design; drilling equipment and its movement; problems in oil field development and production in beaches, shallow sea and deep water; oil spill cleanup; emerging challenges for the petroleum industry.

OTI 608 - CORROSION IN OFFSHORE AND SUBSEA SYSTEMS

Thermodynamics of corrosion; electrode reactions; potential. Simple cells; electrochemical series; galvanic series, Nernst equation; common cathodic reactions; general corrosion; Pourbaix diagram; corrosion kinetics; polarisation diagrams; practical measurements; passivity; corrosion mechanisms; effects of oxygen and carbon dioxide; galvanic corrosion; pitting and crevice corrosion; mechanical interactions; microbial induced corrosion; corrosion of welds; stress corrosion cracking; hydrogen embrittlement and effects of H₂S; high-temperature corrosion; corrosion rate measurements; Tafel analysis; polarization resistance; electrochemical impedance spectroscopy; cyclic polarization scans; corrosion of welded structures and micro-biological corrosion with offshore case studies; corrosion control- paints, cathodic protection, corrosion-resistant alloys, corrosion monitoring, control by design.

OTI 609 - INTRODUCTION TO MANAGEMENT AND ENTREPRENEURIAL SKILLS

Understanding management; the downside of management; organizational structures; management functions; management of time and stress; conflicts, conflict environment and conflict resolution; corporate social responsibility; effective project management in small business organization; megaprojects, morality; ethics, and the corporate culture; professional responsibilities; internal partnerships, external partnerships; variables for success; predicting project success; project management effectiveness; expectations and lessons learned; understanding best practices. Network scheduling techniques; network fundamentals;

graphical evaluation and review technique (GERT); dependencies, slack time, network re-planning; estimating activity time, estimating total project time, total PERT/CPM planning; crash times; PERT/CPM problem areas, alternative PERT/CPM models; precedence networks; lag; scheduling problems, with MS Project; Gantt chart; life-cycle costing (LCC); economic project selection criteria; financial modelling and risk analysis; the earned

value measurement system (EVMS); cost control problems; trade-off analysis in a project environment. Basic entrepreneurship concepts including product/service identification, feasibility studies, fundraising, corporate and social entrepreneurship; organising innovative terms; technology-based innovations; small- and medium scale engineering enterprises (SMEE) and how to register a business.

TABLE 2: ACADEMIC STAFF LIST

S/N	Academic	Qualification	Designation	Specialisation
1	Prof. A. Dosunmu	PhD	Professor	Drilling Engineering
2	Prof. A.O. Kuye	PhD	Professor	Computational Skills & Methods
3	Prof S. Ejezie	PhD	Professor	Foundation and Structures
4	Prof. H.U. Nwosu	PhD	Professor	Production and Industrial Engineering
5	Prof. Okonkwo	PhD	Professor	Management and Entrepreneurial Skills
6	Dr. J. Ugbebor	PhD	Senior Lect.	HSE Skills
7	Dr. M.M. Ojapah	PhD	Senior Lect.	Energy and Thermofluids
8	Dr. E.O. Diemuodeke	PhD	Senior Lect.	Computational Skills & Methods
9	Dr. E.G. Saturday	PhD	Senior Lect.	Thermofluids
10	Dr. S. Sule	PhD	Senior Lect.	Foundation and Structures
11	Dr. Adgizi	PhD	Senior Lect.	Foundation and Structures
12	Dr. Akobundu	PhD	Senior Lect.	Management and Entrepreneurial Skills
13	Dr. C.E. Ebieto	PhD	Lecturer I	Thermofluids and Combustion
External Resource Persons				
14	Dr. C. Akhigbemidu	PhD	CEO/PPML	Pipeline Engineering
15	Engr Dr. S.C. Ikpeseni	PhD	S/L DELSU	Corrosion Engineering
16	Dr. J. Andrew	PhD	C Lect./PTI	Marine Survey & Installations
17	Engr. J. Uzoewulu	MEng	Engrg Man./Shell	Marine Survey & Installations
18	Engr. Frank Egbon	MEng	Prod. Man./TOTAL	Offshore Drilling Engineering
19	Engr. T. Njoku	MEng	Design Engr/NNPC	Foundation and Structures

B. MSc PROGRAMMES

Category A:

MSc Offshore Engineering

MSc Subsea Engineering

MSc Pipeline Engineering

Admission Requirements, Programme Duration and Graduation Requirements

- Candidate must be Engineering Graduates with a minimum CGPA of 3.0 on a scale of 5.0
- Consideration may be given to sponsored company staff with a minimum of 3 years relevant experience with a minimum CGPA of 2.5 on a scale of 5.0
- Candidate must possess SSCE/WAEC/NECO with five (5) credits in Mathematics, English Language, Physics, Chemistry, Technical Drawing/ Further Mathematics

- Candidate must have completed their NYSC before applying for the programmes
- The duration of each of the programmes is 12 calendar months
- Candidate must pass all the taught courses do internship/present internship report, and do a MSc Dissertation successfully before he/she can obtain the degree.

COURSES

There are nineteen (19) general courses which are common to the three MSc Programmes in Category A. Sixteen of the general courses are taught courses, one is training, one is Internship while the last one is Dissertation. There are four courses in each area of specialization, making a total of twenty-three (23) courses in each MSc Programme. Table 3 shows the courses offered in the MSc Programmes.

TABLE 3: COURSES OFFERED IN THE THREE MSC PROGRAMMES

S/N	Course Code	Course Title	Credit Units
GENERAL COURSES			
OTI 801: General Module			
1	OTI 801.1	Introduction to Oil & Gas Industry / Offshore Engineering	2
2	OTI 801.2	HSE & Practical skills	1
3	OTI 801.3 / SGS 801.1	ICT & Research Methods (Includes Technical Report Writing)	2
OTI 802: Computational Skills and Methods Module			
4	OTI 802.1	Applied Mathematics	2
5	OTI 802.2	MATLAB & SIMULINK / SOLIDWORKS	1
6	OTI 802.3	ORCAFLEX / ANSYS Software Training	1
OTI 803: Foundation & Structures Module			
7	OTI 803.1	Civil & Geotechnical Engineering / Structural Response Analyses	2
8	OTI 803.2	Reliability Engineering / Structural Integrity of Pipes & Structures	2
OTI 804: Marine Survey & Installation Module			
9	OTI 804.1	Marine Hydrodynamics / Marine Survey	2
10	OTI 804.2	Umbilical, Riser & Pipeline Installations	2
OTI 805: Offshore Drilling & Production Module			
11	OTI 805.1	Introduction to Drilling Engineering & Geomechanics	1
12	OTI 805.2	Offshore Drilling / Introduction to Production & Flow Assurance	2
OTI 806: Corrosion & Power Supply Module			
13	OTI 806.1	Corrosion Inspection & Mitigation	1
14	OTI 806.2	Electrical Power Supplies in Oil and Gas Operations	2
OTI 807: Entrepreneurial Skills & Management Module			
15	OTI 807.1 /SGS 802.2	Introduction to Entrepreneurial Skills & Management	2
16	OTI 807.2	Contract Planning & Project Control / Maritime Law	1
OTI 808: Underwater Safety Module			
17	OTI 808.1	TBOSIET/ HUET	0
OTI 809: Project Module			
18	OTI 809.1	Internship	6
19	OTI 809.2	Dissertation	6
COURSES IN AREAS OF SPECIALIZATION			
OFFSHORE ENGINEERING COURSES			
OOE 801: Offshore Materials and Design Module			
1	OOE 801.1	Theory of Plates / Grillages and Design of Fixed Platforms	2
2	OOE 801.2	Offshore Materials / Failure of Materials & Structures	2
OOE 802: Subsea Equipment Module			
3	OOE 802.1	Subsea Oil & Gas Exploitation & Exploration	2
4	OOE 802.2	Underwater Vehicles Systems	2

SUBSEA ENGINEERING COURSES			
SSE 801: Subsea Equipment Design Module			
1	SSE 801.1	Introduction to Subsea Technology	2
2	SSE 801.2	Subsea Components & Equipment Design	2
SSE 802: Subsea Processing & Artificial Lifting Module			
3	SSE 802.1	Subsea Field Development	2
4	SSE 802.2	Subsea Flow Assurance / Subsea Processing	2
PIPELINE ENGINEERING COURSES			
PPE 801: Pipeline Fundamentals, Materials Fabrication & Welding Module			
1	PPE 801.1	Pipeline Engineering, Hydraulics & Defect Assessment	2
2	PPE 801.2	Pipeline Materials, Fabrication & Welding Engineering	2
PPE 802: Pipeline Design & Construction / Asset Management Module			
3	PPE 802.1	Pipeline Design & Construction	2
4	PPE 802.2	Pipeline Asset Management	2

COURSES DESCRIPTION

GENERAL COURSES

OTI 801 GENERAL MODULE

OTI 801.1: Introduction to Oil & Gas Industry / Offshore Engineering

Introduction and History of the Industry; Petroleum Geology; Exploration; Drilling and Testing; Production; Reservoir Mechanics and Production Management; Transportation and Storage; Refining and Petrochemicals; Marketing; Structure of the Industry; Energy and the Environment; Future of the Oil and Gas Industry.

General Overview of offshore operations; Extracting resources & physical scales ; Types of offshore structures ; Hydrostatics and wave/body dynamics laboratory ; Offshore planning and development ; Engineering systems ; Decommissioning and environmental monitoring ; General FSI framework; Waves and inertial-based fluid loading; Currents and viscous-based fluid loading ; Station keeping. **Special Features:** Laboratory testing the response of structures in waves; Overview of engineering offshore structures from cradle to grave ; Analysis methods for fluid structure interaction

OTI 801.2: HSE and Practical skills

Introduction to the International Standards associated with HSSE, including the ISO 14000 family; Environmental legislation and voluntary standards. Environmental impacts and prevention; Occupational health and safety legislation and duty of care; Human reliability analysis and accident causation: Major accident sequences, risk perception and control of risk human reliability

assessment tools, HEART and THERP. Offshore safety case and formal safety assessments: regulatory regime, safety case requirements, types of study, scenario development, examples of use of QRA methods, consequence analysis, vulnerability of essential systems, smoke and gas ingress, evacuation escape and rescue and typical output. Review of major offshore accidents: Sea Gem, Alexander Keilland, Star Canopus and Piper Alpha disaster.

OTI 801.3 /SGS 801.1: ICT & Research Methods (Includes Technical Report Writing)

Report presentation with Microsoft Word, Data analysis and presentation on Microsoft Excel; Oral presentation using Microsoft PowerPoint. Review of the history and basic concepts of scientific research, research and development, research and development techniques in engineering and physical sciences; Research design; Literature search and review; searching and researching on the world wide web (www); intellectual property, patent rights, patent infringements, software piracy, plagiarism; Scientific writing; Scientific presentation; Critical scientific review; Data types and data collection techniques; Quantitative and qualitative methods and data analysis; Ethical issues.

OTI 802 COMPUTATIONAL SKILLS AND METHODS

OTI 802.1: Applied Mathematics

Analysis and engineering applications of the following concepts: scalar and vector fields; analytic functions; operational calculus; linear and tensor algebra and fields; calculus of variations; systems of ordinary differential equations; autonomous systems, stability problems, and nonlinear

vibrations; equations of mathematical physics, partial differential and integral equations and their solution methods, separation of variables, integral and finite integral transform methods, etc., approximate analytical solution methods.

OTI 802.2: MATLAB & SIMULINK / SOLIDWORKS

MATLAB Fundamentals: Working with the MATLAB user interface, Entering commands and creating variables, Performing analysis on vectors and matrices, Visualizing vector and matrix data, Working with data files, Working with data types, Automating commands with scripts, Writing programs with logic and flow control, Writing functions. **MATLAB for Data Processing and Visualization:** Importing data, Organizing data, Visualizing data and Exporting data. **MATLAB Programming Techniques:** Programming for correctness, Structuring data, Structuring code, Classes and objects. **MATLAB for Building Graphical User Interfaces** from the command line by using GUIDE, the GUI development environment. **Simulink® for System and Algorithm Modeling:** Creating and modifying Simulink models and simulating system dynamics, Modeling continuous-time, discrete-time, and hybrid systems, Modifying solver settings for simulation accuracy and speed, Building hierarchy into a Simulink model, Creating reusable model components using subsystems, libraries, and model references.

Basic 3D Concepts. 3D Modelling of offshore / subsea equipment and structures using SOLIDWORKS.

OTI 802.3: ORCAFLEX/ANSYS Software Training

Introduction and General Overview of ORCAFLEX; Input Data with ORCAFLEX; Modeling simple offshore designs with ORCAFLEX software; Modeling of risers, umbilicals and mooring lines; Adjusting the design views; Performance and Dynamic Analysis; Generating output and results; Work Multiple views.

Introduction of ANSYS , ANSYS and Finite Element Analysis (FEA), ANSYS Basics, Starting ANSYS, ANSYS Workbench Environment, The GUI, Graphics and Picking, The database and files, Saving Files and Exiting ANSYS, File Types; Basics of Meshing with ANSYS; Nodes and Element types: Structural Analysis and Thermal Analysis; Linear Static Analysis and Non-Linear static Analysis; Modal Analysis

OTI 803 FOUNDATION AND STRUCTURES MODULE

OTI 803.1: Civil & Geotechnical Engineering / Structural Response Analyses

Introduction to geotechnical engineering, The offshore environment, Offshore site investigation, Soil mechanics: Formation of offshore soils, Classification and basic properties of offshore soils, Stress and strain in soils, Fluid flow through soils, Compressibility and yielding of soils, Practical approaches for soil strength and cyclic loading, Theory of applied elasticity, and Bearing capacity, Other stability analysis, Consolidation and other time-related processes, Sample integrity. **Deep foundations:** Piled and Drilled Shafts; **Shallow foundations,** Anchoring systems, Mobile jack-up platforms, Pipeline and Riser geotechnics, **Geohazards** Equation of Motion: Mass, Stiffness, and Damping, Ground Excitation and Rotational Motion. **Free Vibration, Single Degree of Freedom Systems (SDOF)** with and without damping: Simple harmonic motion, Dynamic Response Factors, Resonance, Transmissibility. **Response to Arbitrary, Step, and Pulse Excitations of SDOF systems** (with and without damping): Unit impulse, Arbitrary Force, Pulse Excitations. **Numerical Evaluation of Dynamic Response: Inelastic Systems.** **Blast-resistant Design:** Determination of Blast loads, Multiple Degree of Freedom Systems, Stochastic response analysis, long term response analysis, Nonlinear, time domain simulation of offshore structures and wind turbines subjected to extreme environmental actions.

OTI 803.2: Reliability Engineering / Structural Integrity of Pipes & Structures

Introduction: Asset management, overall equipment effectiveness (OEE), asset productivity. **Asset integrity:** Asset integrity management, Risk-based integrity, through-life engineering. **Maintenance engineering:** Maintenance regimes, Maintenance modeling, planning, scheduling, and optimization. **Reliability data analysis,** Probability of failure, Cost of failure, and risk of failure in offshore energy systems. **System's life-cycle:** Life-cycle cost (LCC) analysis, Warranty and service contracts analysis: guarantees, maintenance outsourcing. **Students will work in groups to analyze the reliability, availability and maintainability of various offshore systems and components,** Classical Beam Theory, Statically Indeterminate Beams. **Beam installed at the elastic foundation.** **Fatigue Crack Initiation; Fracture Mechanics,** Creep Deformation and Crack Growth; **Non Destructive Testing Methods; Inspection Reliability; Defect Assessment,** Corrosion Engineering. **Applications for Subsea Pipelines:** Computational Evaluations for Fixed beam on elastic bed: Symbolic Solutions for Point Force, Fixed Pipeline on elastic seabed in cold regions: Iceberg's Dragging Load, Free pipeline on elastic bed: Combined loads. **Installation of Subsea Pipeline at Shallow water,** Strength and stability of

the subsea pipeline, offshore pipeline in current: Subsea Current Dragging Force, Strength and Stability. Subsea Pipelines in Cold and Warm Regions: Perspective and Projects on Subsea Pipeline Installation and Operation Stages: Linear Theory of Bending of Pipeline, French Method of Installation with Lay Barge: Multi-Layers Pipe, Theory of bending of multilayers pipe: Historical view on Arctic regions (Norway, Barents Sea Russia: Prirazlomnoye (Off shore)).

OTI 804 MARINE SURVEY AND INSTALLATION MODULE

OTI 804.1: Marine Hydrodynamics/ Marine Survey

Fundamentals of fluid mechanics, Transport theorem and conservation principles, Navier-Stokes' equation, Dimensional analysis, Ideal and potential flows, Vorticity and Kelvin's theorem, Hydrodynamic forces in potential flow, D'Alembert's paradox, added-mass, slender-body theory, Viscous-fluid flow, Laminar and turbulent boundary layers, Model testing, Scaling laws, Application of potential theory to surface waves, Energy transport, Wave/body forces, Linearized theory of lifting surfaces.

Introduction to Subsea Survey; Subsea Survey Requirements: Survey Pattern for Selected Subsea Field and Each Pipeline Route, Geotechnical Study, Survey Vessel, Survey Aids, Gyrocompass, Navigation Computer and Software, Personnel; Subsea Survey Equipment Requirements: Multibeam Echo Sounder (MBES), Side-Scan Sonar, Sub-Bottom Profilers, High-Resolution Sub-Bottom Profiler, Low-Resolution Sub-Bottom Profiler, Magnetometer, Core and Bottom Sampler, Positioning Systems: Offshore Surface Positioning and Underwater Positioning; Subsea Metrology and Positioning; Subsea Soil Investigations and Equipment, Structural Design and installation, Suction Caissons, and Plate Anchors.

OTI 804.2: Umbilical, Riser & Pipeline Installations

Typical Installation Vessels: Transportation Barges and Tug Boats and Drilling Vessels, Jack-Up Rigs, Semi-Submersibles, Drill Ships, Pipe-Laying Vessels: S-Lay Vessels, J-Lay Vessels, Reel-Lay Vessels; Umbilical-Laying Vessels, Heavy Lift Vessels and Offshore Support Vessels. Vessel Requirements and Selection: Basic Requirements for Vessels and Barges; Vessel Performance and Vessel Strength; Functional Requirements: Vessel for Subsea Hardware Installation, Vessel for Pipe and Umbilical Laying. Installation Positioning: Surface Positioning, and Subsea Positioning. Installation Analysis: Subsea Structure Installation

Analysis, Pipeline/Riser Installation Analysis, Umbilical Installation Analysis

Rigid pipeline installation methods, S Lay, J Lay, Reel Lay, catenary equations, Tow & Pull methods, Shore Pull, Tie-in, Difference between shallow and deep water pipe-lay Lay Analysis, Operability Rosettes, Initiation, Normal lay, Abandonment & Recovery analysis, Installation fatigue analysis, Installation of pipeline end structures and In line Tees. Trenching and Back filling, Trenching Analysis, Marine Warranty during pipe-lay. Introduction to flexible and umbilical, Flexible and umbilical lay methods, Flexible and umbilical spooling, Installation of flexible and umbilical end structures, Various types of flexible risers, Flexible riser installation.

OTI 805 OFFSHORE DRILLING AND PRODUCTION MODULE

OTI 805.1: Introduction to Drilling Engineering and Geomechanics

Review of fundamentals, Mechanical Earth Model ; Anisotropy: Fundamentals, Mechanical properties, Wellbore applications, Effects on stress, Laboratory measurements; Reservoir geomechanics, Well integrity, Plasticity; Salt: Mechanics, Stress, Wellbore stability; Drilling: Bits, Fluids, Lost circulation, Leakoff tests, Wellbore strengthening; Sonic logging and other measurements for geomechanics; Fractures, faults and earthquakes. Geomechanical, geotechnical and petro-physical problems of interest to the petroleum industry: petroleum well drilling, borehole breakouts, wellbore stability, hydraulic fracturing, subsidence and compaction due to oil and gas withdrawal.

OTI 805.2: Offshore Drilling / Introduction to Production & Flow Assurance

Emerging challenges for the Petroleum Industry: Technology advancement, Competition from Nonfossil Energy Source, Climate Change Policy, Peak Oil Production, Industry Operations, Definition of Deep water, characteristics of Deepwater oil and gas field project environment, seabed temperature and instability, gas hydrates, Internal waves, Equipment combination programs for acquisition, processing, storage and transportation of deep sea oil and gas. Equipment for deep water operation: large scale vertical floating columns and wave load of column groups. Special problems in beaches and shallow sea area: characteristics of the marine environment, shallow sea area; Seawalls and Artificial islands: Construction and Design; Drilling Equipment and its movement. Problems in Oil field development and production in Beaches, Shallow Sea and Deep water. Oil Spill Cleanup.

Introduction to oil and gas fluid transport properties, Fluid property data and phase determination, Fluid flow analysis - single and multiphase, Slug formation and prediction, surge analysis, Hydrate formation and prevention, Wax formation and deposition, including prevention and mediation, Asphaltene prediction, Scale precipitation and sand production, Pigging operations, leak detection methods and SCADA, Start-up and shutdown issues.

OTI 806 CORROSION AND POWER SUPPLY MODULE

OTI 806.1 Corrosion Inspection and Mitigation

Thermodynamics of Corrosion, Pourbaix diagram. Corrosion Kinetics: Polarisation diagrams, practical measurements, passivity. Corrosion Mechanisms: Effects of oxygen and carbon dioxide, galvanic corrosion, pitting and crevice corrosion, mechanical interactions, microbial corrosion, corrosion of welds, stress corrosion cracking, hydrogen embrittlement and effects of H₂S, High temperature corrosion. Corrosion Rate Measurements, Tafel Analysis, Polarization Resistance, Electrochemical Impedance Spectroscopy, Cyclic Polarization Scans. Corrosion of welded structures and Micro-Biological Corrosion with offshore case studies. Corrosion Control: Paints, cathodic protection, corrosion resistant alloys, corrosion monitoring, control by design.

OTI 806.2: Electrical Power Supplies in Oil and Gas Operations

Power Generation for offshore operations: Gas turbines, Wind turbines, Application of electrical power in marine installations for production of oil and gas, and subsea process installations. Dynamic models of rotating machines, short circuit analysis, start-up of large motors, cable modeling and subsea cable networks. Subsea motors and subsea high voltage equipment. Electrical heating of subsea pipelines. Offshore power grid.

OTI 807 - ENTREPRENEURIAL SKILLS & MANAGEMENT MODULE

OTI 807.1 /SGS 802.2: Introduction to Entrepreneurial Skills & Management

Basic entrepreneurship concepts including product/service identification, feasibility studies, fund raising, corporate and social entrepreneurship, organizing innovative terms, technology-based innovations, small- and medium scale engineering enterprises (SMEE).

Understanding Management; Organizational Structures. Management Functions; Effective Project Management in Small Business

Organization, Mega Projects, Morality, Ethics, and The Corporate Culture, Professional Responsibilities, Internal Partnerships, External Partnerships, Variables For Success: Predicting Project Success, Project Management Effectiveness, Expectations, Lessons Learned, Understanding Best Practices, Network Scheduling Techniques: Understanding Project Management Software, Project Graphics And Software Application, Economic Project Selection Criteria, Risk Analysis, Capital Rationing, Project Financing. Cost Control, The Material Accounting Criterion, Material Variances: Price And Usage, Summary Variances, Status Reporting, Cost Control Problems, Trade-Off Analysis in a Project Environment.

OTI 807.2: Contract Planning & Project Control / Maritime Law

Contract Management; Procurements; Planning; General Planning; Life-Cycle Phases; Proposal Preparation; Project Specifications; Milestone Schedules; Work Breakdown Structure; WBS Decomposition Problems; Stopping Projects; Handling Project Phase-outs and Transfers; Detailed Schedules and Charts; Master Production Scheduling; Project Plan; Total Project Planning; The Project Charter; Management Control; Project Audits; Project Management Growth; Risk Management: Risk Analysis, Probability Distributions and the Monte Carlo Process, Risk and Concurrent Engineering; Learning Curves; Quality Management; Modern Developments in Project Management; The Business of Scope Changes; Managing Crisis Projects

Maritime Law: The Conflict Of Laws; Shipbuilding, Sale, Finance And Registration; International Trade And Shipping Documents; Charterparties; Cargo Claims And Bills Of Lading; Carriage Of Passengers; The Liabilities Of The Vessel; Public International Law Aspects Of Shipping Regulation; Safety And Compliance; Marine Pollution From Shipping Activities; Marine Insurance; Procedures For Enforcement; The Application Of The EU Competition Rules To The Marine Sector

OTI 808 UNDERWATER SAFETY MODULE

OTI 808.1: TBOSIET/HUET

Practical training on Tropical Basic Offshore Safety Induction and Emergency Training (TBOSIET); Social responsibility in the offshore environment; Sea Survival; Hazards and control measures. Introduction to Factors Influencing Offshore Helicopter Transport Safety; Development and Implementation of Helicopter Underwater Escape Training or Helicopter Underwater Egress Training (HUET) Programs; Psychological Factors in Underwater Egress and Survival; The

Physiological Responses to Cold-Water Immersion and Submersion. This course has no Credit Unit.

OTI 809PROJECT MODULE

OTI 809.1: Internship (16 Weeks in the field and Oral Defense)

16 weeks industrial training at oil and gas industries to enhance and develop the knowledge and skills gained through classroom lectures in the course of the programme. Written report and oral examination are required at the end of the internship.

OTI 809.2: Dissertation

Supervised research on a problem of current national, professional and academic interest chosen from the student's area of specialization, approved by the supervisor. The research should represent a significant level of the student's independent work and be such that culminate his/her efforts in applying the principles covered in the graduate programme. Written report and oral examination are required at the end of the research.

OFFSHORE ENGINEERING COURSES

OOE 801 - OFFSHORE DESIGN MODULE

OOE 801.1: Theory of Plates / Grillages and Design of Fixed Platforms

Introduction, Fundamentals of the Small Deflection Plate Bending Theory, Grillages, Rectangular and Circular Plates, Plate behaviour under lateral pressure or in-plate compression, structural dynamics, composite materials. Frames and grillages with emphasis on elastic and plastic responses of stiffened plate structures. Elastic plate theory and elasto-plastic plate theory. Buckling of plates and tripping of stiffeners, Flexural vibration of plates and beams. Design considerations and criteria for limiting vibrations. Design of structures made of composite materials. Introduction to structural dynamics; Plate Bending by Approximate and Numerical Methods; Thermal Stresses in Plates.

Loads on Offshore Structures; Calculation based on Maximum base Shear and Overturning Moments; Design Wave heights and Spectral Definition; Hydrodynamic Coefficients and Marine growth; Fatigue Load Definition and Joint Probability distribution; Seismic Loads, Concepts of Fixed Platform Jacket and Deck, Steel Tubular Member Design; Design for combined axial and bending stresses (API RP 2A guidelines).Tubular Joint Design for Static and Cyclic Loads; Submarine Pipelines and Risers, Design using DNV 81 code, Design against Accidental Loads Design of structures for high temperature; Blast Mitigation-Blast walls; Collision of Boats and energy

absorption; Platform survival capacity and Plastic design methods.

OOE 801.2 Offshore Materials / Failure of Materials & Structures

Introduction to materials: atomic structure, crystal structure, imperfections, diffusion, mechanical properties, dislocations and strengthening mechanisms, phase diagrams, phase transformations, solidification, corrosion. Introduction to materials in offshore structures: to materials usage in offshore engineering including C-Mn ferrite-pearlite steels; stainless steels; composites; concrete; etc. This should include discussion of heat treatment effects on microstructure and hence mechanical properties. Offshore failures: case studies.

Structure of materials. Imperfections in structures. Dislocations and strengthening mechanisms. Study of macro, micro, nano and atomic structures. Phase transformation in metals. Principles of structure-property relationships of materials; control through processing. Alloy theory, phase diagrams and microstructural development; application to ferrous and nonferrous alloys. Structures and properties in other materials. Role of structure in cyclic loading and high temperature applications. Role of structure in interaction of materials with environment. Role of structure in physical properties of materials.

OOE 802 - SUBSEA EQUIPMENT MODULE

OOE 802.1 Subsea Oil and Gas Exploitation and Exploration

Subsea Structures within Subsea Development Concepts, Categories and Functional Roles of Subsea Structures, General Arrangements and key components of subsea structures, Regional Characteristics. Subsea structure design: Functional Requirements, Regulatory and Design Code Framework, Key design drivers, Design methods and analysis tools/techniques. Design Examples: Multi Slot Manifold, Fishing Protection Structure, Manifold Template, In-Line Structures. Subsea exploration processes: Separation and pressure-boosting operations performed in subsea, whether downhole or on the seabed; two-phase and three-phase separation, Pressure-boosting using multiphase pumps and wet gas compressors, Water disposal and Reinjection.

OOE 802.2 Underwater Vehicle Systems

Operational Overview – Common to Both ROVs And AUVs:Connectors, Recovery,User error, Navigation – calibration / failures, Launch, Poor maintenance, Poor practices. System Software Architecture :Sub-system Interfaces, Architecture / Failure analysis, Health and Status data, Impact on data. Communication challenges.Weight and

Balance: Stability and Data impact. Data Analysis. Thrust and Altitude: Impact on instruments and data. System Safety: Personnel Safety and Consistency. ROV/AUV Maintenance Items in Common: Red Flags. ROV Operational Techniques: Vehicle class versus capability, Work space realm, Support, Modification/Upgrades, Form Factors, Costs. Control Room: Layout, Functions, Data capture vs real time display. Mission space (think ahead) On deck versus in water, Checklist, Buoyancy, Systems check, Limited Deck Operation. Maintenance considerations: Ground faults, DC versus AC. Lifting and Storage Facilities, Onshore and at Sea. Ancillary Equipment. Manipulators for ROV's, cameras for ROV's & AUV's. Dead Vehicle Recovery: What to do if your ROV is lost, Cost vs. risk. Location, Mission review, Boat instrumentation – monitoring. AUV Operational Techniques (Focus On Launch And Recovery Operations): Vehicle class versus capability, Work space realm, Support., Modification/Upgrades.

SUBSEA ENGINEERING COURSES

SSE 801: SUBSEA EQUIPMENT DESIGN MODULE

SSE 801.1: Introduction to Subsea Technology

Subsea production systems: Field architecture, Distribution systems, Subsea surveys, Installation and vessels; Flow assurance and system engineering: Subsea operators, commissioning and start-up, Production processing, Chemical injection, well testing, Inspection and maintenance; Subsea structures and equipment: Subsea manifold, Pipeline ends and in-line structures, Jumpers, Subsea wellheads, Subsea trees, Umbilical systems, Production risers; Subsea pipelines.

SSE 801.2: Subsea Components & Equipment Design

Subsea manifolds: Manifolds components, Manifolds design and analysis, Pile and foundation design, Installation of subsea manifolds; Pipeline ends and in-line structures: PLEM design and analysis, Design methodology, Foundation (Mudmat) sizing and design, PLEM installation analysis; Subsea connection and jumpers: Jumpers components and function, Subsea connections, Design and analysis of rigid jumpers, Design and analysis of a flexible jumpers, Subsea Wellheads and Trees: Subsea completion overview, Subsea wellhead system, Subsea Xmas trees; ROV Intervention and interface.

SSE 802: SUBSEA PROCESSING & ARTIFICIAL LIFTING MODULE

SSE 802.1: Subsea Field Development

Subsea field development overview, Deepwater or shallow- water development, Wet tree and dry tree-

systems, Subsea tie-back development, Stand-alone development, Artificial lift methods and constraints, Subsea processing, Template, clustered well system, and daisy chain, Subsea field development assessment.

SSE 802.2: Subsea Flow Assurance / Subsea Processing

Introduction to flow assurance, Flow assurance challenges, Flow assurance concerns, Typical flow assurance process: fluid condensation and property assessment, Steady-state hydraulic and thermal performance analysis, Transient flow hydraulic and thermal performance analysis; System design and operability: Well start-up and shut-down, Flowline blowdown, Hydrates, Wax and asphaltenes.,

PIPELINE ENGINEERING COURSES

PPE 801 PIPELINE FUNDAMENTALS, MATERIALS FABRICATION & WELDING MODULE

PPE 801.1: Pipeline Engineering, Hydraulics & Defect Assessment

Codes, standards in practice in pipeline engineering, Distribution Terminals, Measurement and flow control, Natural Hazards and Human Threats, Fire Hazards, Pipeline maintenance and repair techniques, Fluid Transients: Single liquid phase, Waterhammer, Two-phase vapour-liquid waterhammer, Non-condensable two-phase waterhammer, Defect assessment: visual examination, magnetic particle testing, liquid penetrant testing, radiographic testing, ultrasonic testing, eddy current testing, acoustic emission testing, thermography, pipeline pigs, smart pigs., leak and pressure tests.

PPE 801.2: Pipeline Materials, Fabrication & Welding Engineering

Pipeline materials: Ferrous and non-ferrous pipes, Mechanical properties: Strength, hardness, toughness, fracture toughness, fatigue strength, Physical properties, fabrication of steel pipe, fabrication of pipe fittings and components, Welding: shop and field welding, Welding processes, Weld defects, Codes, standards and practice, Post weld heat treatment, In-service welding, Surfacing techniques.

PPE 802: PIPELINE DESIGN & CONSTRUCTION / ASSET MANAGEMENT MODULE

PPE 802.1: Pipeline Design & Construction

Pipeline Design Considerations, Safety, Codes and standards, Pipeline coating, sizing, Internal and external pressure, over pressure protection, Valve spacing and rapid shut down, Pumps and pumping stations, Pigging, Subsea pipelines: Safety, Design

process, Internal pressure, External pressure, Pipe lowering, On-bottom stability, Pipeline floatation, fatigue design, Hook and pull, Scheduling, Preconstruction activities: Survey and mapping, Staging areas, Soil and geology studies; Construction: Movement and Staging of pipeline components and construction equipment, Clearing and grading, Stringing pipe joints along the ROW, Ditching, Pipe bedding material, Welding, Pipe bending, Pipe coating, Lowering the pipeline into the ditch/ ditch backfilling, Hydrostatic testing, Final Grading and reclamation.

PPE 802.2: Pipeline Asset Management

Pipeline asset integrity, Pipeline failures: causes, consequences and prevention; Threats to pipeline integrity, pipeline integrity management, Pipeline inspection, Emergency response, Developing an asset management plan, Implementing an asset management plan, financing an asset management plan, Government regulations, pipeline cost analysis, pipeline life cycle cost analysis and modeling.

TABLE 3: STAFF LIST – NAME, QUALIFICATION, DESIGNATION AND SPECIALIZATION

S/N	Academic	Qualification	Designation	Specialisation
1	Prof. R. Uhunmwangho	PhD	Professor	Power Systems Engineering
2	Prof. I. L. Nwaogazie	PhD	Professor	Water Resources Engineering
3	Prof. A. Dosunmu	PhD	Professor	Drilling Engineering
4	Prof. A.O. Kuye	PhD	Professor	Computational Skills & Methods
5	Prof. M. Onyekonwu	PhD	Professor	Petroleum Production
6	Prof S. Ejezie	PhD	Professor	Foundation and Structures
7	Prof. H.U. Nwosu	PhD	Professor	Production and Industrial Engineering
8	Prof. D. Appah	PhD	Professor	Petroleum Production
9	Prof. J. Akpobi	PhD	Professor	Applied Mechanics ad Design
10	Prof. T. A. Briggs	PhD	Professor	Industrial Engineering
11	Prof. C. V. Ossia	PhD	Professor	Applied Mechanics ad Design
12	Prof. A. O. Obi	PhD	Professor	Production and Maintenance Engineering
13	Prof. F. I. Abam	PhD	Professor	Industrial Engineering
14	Prof. Okonkwo	PhD	Professor	Management and Entrepreneurial Skills
15	Dr. Adgizi	PhD	Assoc.Prof..	Foundation and Structures
16	Dr. J. Ugbebor	PhD	Senior Lect.	HSE Skills
17	Dr. M.M. Ojapah	PhD	Senior Lect.	Energy and Thermofluids
18	Dr. E.O. Diemuodeke	PhD	Senior Lect.	Computational Skills & Methods
19	Dr. E.G. Saturday	PhD	Senior Lect.	Energy and Thermofluids
20	Dr. S. Sule	PhD	Senior Lect.	Foundation and Structures
21	Dr. A. Big-Alabo	PhD	Senior Lect.	Applied Mechanics ad Design
22	Dr. Akobundu	PhD	Senior Lect.	Management and Entrepreneurial Skills
23	Dr. S. Sule	PhD	Senior Lect.	Foundation and Structures
24	Dr. A. Big-Alabo	PhD	Senior Lect.	Applied Mechanics ad Design
25	Dr. Akobundu	PhD	Senior Lect.	Management and Entrepreneurial Skills
26	Dr. D. Aikhuele	PhD	Senior Lect.	Production and Maintenance Engineering
27	Dr. (Mrs.) A. Big-Alabo	PhD	Senior Lect	Power Systems Engineering
28	Dr. S. Esobinowu	PhD	Senior Lect	Power Systems Engineering
29	Dr. C. E. Ebieto	Ph.D	Lecturer I	Thermofluids and Combustion
External resource persons				
29	Dr. C. Akhigbemidu	PhD	CEO/PPML	Pipeline Engineering
30	Engr Dr. S.C. Ikpeseni	PhD	S/L DELSU	Corrosion Engineering
31	Dr. J. Andrew	PhD	C Lect./PTI	Marine Survey & Installations
32	Engr. J. Uzoewulu	MEng	Engrg Man./Shell	Marine Survey & Installations

33	Engr. Frank Egbon	MEng	Prod. Man./TOTAL	Offshore Drilling Engineering
34	Engr. T. Njoku	MEng	Design Engr/NNPC	Foundation and Structures

CATEGORY B

MSc Energy Access and Renewable Energy Technology

The M.Sc Programme in Energy Access and Renewable Energy Technology is designed to equip students with the advanced knowledge and skills to develop a successful career in the rapidly growing energy access sector of Nigeria and Sub-Saharan African in general. Candidates for the MSc

programme shall possess a bachelor's degree in Engineering with a minimum of second-class lower grade or postgraduate diploma (PGD) in engineering with a minimum CGPA of 3.5 on a 5-point scale. An applicant with a postgraduate diploma must possess a BSc/B.Eng degree with at least a third class. The duration of the programme is: **Full-Time:** 18 Calendar Months, **Part-Time:** 36 Calendar Months

COURSES

S/N	Course Code	Course Title	Credit Units
CORE COURSES			
1	RET 801.1	Energy Access and Energy systems	
2	RET 802.1	Renewable energy fundamentals	
3	RET 803.1	Energy Policy and Regulation	
4	SGS 801.1	ICT and Research Methods	
5	SGS 802.2	Entrepreneurship and Management	
6	RET804.2	Solar energy conversion technology	
7	RET805.2	Bio-Mass energy conversion technology	
8	RET 806.2	Hydro Power Technology	
9	RET 810.3	Energy systems modelling	
10	RET 811.3	Design project and graduate seminar	
11	RET 812.3	Internship	
12	RET 813.3	MSc Dissertation	
ELECTIVE COURSES			
13	RET 807.2	Wind energy conversion technology	
14	RET 808.2	Geothermal energy conversion technology	
15	RET 809.2	Offshore renewable technology	

Detailed Courses description and Learning Outcomes are provided in: www.earetuniport.com.ng.

C. Ph.D PROGRAMMES

Ph.D IN OFFSHORE ENGINEERING

Admission/Graduation Requirements and Programme Duration

Candidates applying for the Ph.D programme in Offshore Engineering must fulfil the following requirements:

- i. Meet the general University requirements for admission into Ph.D programmes;
- ii. The candidate should possess a Master's degree in any of the following fields of Engineering: (a) Offshore Engineering, (b) Subsea Engineering and (c) Petroleum Engineering with a minimum CGPA of 3.5 (on a 5.0 scale)

or its equivalent. Candidates with Master's degree in any of Chemical Engineering, Civil Engineering, Electrical/Electronic Engineering, Marine Engineering, Mechanical Engineering and Pipeline Engineering plus up to 5 years' experience in offshore operations may be considered.

- iii. Score at least 60% in a proposal presentation/admission screening interview to be organised by the Institute.

To be awarded the degree of Doctor of Philosophy (Ph.D) in Pipeline Engineering, the Ph.D student is required to score at least 50% (C grade) in all the taught courses, seminar presentations and the Ph.D

Thesis defence. In addition, the Ph.D student must have two publications from his/her research.

The programme shall last for a minimum of 24 calendar months and a maximum of 48 calendar months of full time study, or a minimum of 36 calendar months and a maximum 60 calendar months of part-time study.

COURSES

Table 5: List of courses, codes ad credit units

Course Code	Course Title	Credit Units
Taught Courses		
OTI 901	Advanced Research Methods and Entrepreneurial Skills	3
OTI 902	HSE in Oil and Gas Operations	3
OTI 903	Offshore materials & materials failure	3
OTI 904	Design of offshore fixed platforms	3
OTI 905	Government Policies in Offshore Operations	3
Seminar Courses and Ph.D Thesis		
OTI 906	Seminar I	3
OTI 907	Seminar II	3
OTI 908	Ph.D Thesis	9
Total Credit Units for each Ph.D Programme		30

NB: OTI 901, OTI 902 , OTI 906 OTI 907 and OTI 908 are common to all programmes

DESCRIPTION OF COURSES

OTI 901: Advanced Research Methods and Entrepreneurial Skills

Research design/execution with ICT tools; Advanced research and development techniques in engineering and physical sciences; Research design; Data types and data collection techniques; Quantitative and qualitative methods and data analysis; Scientific writing/presentation; Thesis (Report) writing. Entrepreneurial opportunities in the oil and as sector; Entrepreneurial skills required in oil and gas business; The Challenges of entrepreneurial activities in the oil and gas sector: Oil theft and pipeline vandalism; causes, preventive measures and way forward.

OTI 902: HSE in Oil and Gas Operations

Environmental considerations in oil and gas exploration and production, Health and safety considerations in oil and gas exploration and production, Safety regulations in the oil and gas sector, Fundamental safety measures in oil and gas operations, Avoidable safety cost components and their effect in oil and production in Nigeria.

OOE 903: Offshore Materials & Materials Failure

The course entails exploring different materials applied in offshore oil and gas operations – including their selection and design. Also materials testing, failure detection and prevention of offshore materials will be exhaustively covered. Students will be required to carry out mini projects on materials testing or failure analysis as part of the course assessment.

OOE 904: Design of Offshore Fixed Platforms

The course will cover the design of different fixed platforms in offshore oil and gas operations. Design against fatigue, static and cyclic loads of fixed structures such as pipelines and risers. Also, design against accidental loading will be covered. Students will carry out design of any selected fixed structure against any loading as part of the course assessment.

OTI 905: Government Policies in Offshore Operations

Overview of main offshore platforms/ownership, Main regulatory agencies of the oil and sector- their formulations, roles and duties, Government legislations governing the operation of offshore platforms, Management of offshore operations.

OTI 906: Seminar I

Seminar I will be presented between 9 months and 12 months of the start of programme. It will consist of chapters one and two (Introduction and Literature Review) of the student's work. Also, timelines for the remaining work to be carried out will be part of the presentation. This presentation will be scored and the minimum pass mark is 50. Successful candidates will be allowed to go with their researches. If any candidate is not successful at this stage, the candidate will be allowed to repeat the presentation within three months from the date of the first presentation.

OTI 907: Seminar II

Seminar II will be presented between 15 and 18 months into the programme. Seminar II will cover Chapter Three (Materials and Methods or Methodology) in addition to Chapters one and two which should be improved versions of what is contained in **Seminar I**. The Ph.D student can also present preliminary or selected or few results. If the presentation is successful, the candidate can go ahead with his or her research to conclusion and thesis write-up.

OTI 908: Ph.D Thesis

The Ph.D thesis presentation follows successful presentation of Seminar I and Seminar II. The thesis presentation has three stages: Presentation at the Institute where staff drawn from the Faculty of Engineering and the Industry will be the examiners,

presentation at the school of graduate studies, then the external (final) examination by an external examiner. The external examination will come between 30 months and 36 months into the programme for full time study.

Ph.D IN SUBSEA ENGINEERING

Admission/Graduation Requirements and Programme Duration

The programme duration and graduation requirements are similar to that of Offshore Engineering. The admission requirements are as follows:

- i. Meet the general University requirements for admission into Ph.D programmes;
- ii. The candidate should possess a Master's degree in any of the following fields of Engineering: (a) Subsea Engineering, (b) Offshore Engineering and (c) Petroleum Engineering with a minimum CGPA of 3.5 (on a 5.0 scale) or its equivalent. Candidates with Master's degree in Chemical Engineering, Civil Engineering, Electrical/Electronic Engineering, Marine Engineering, Mechanical Engineering and Pipeline Engineering plus up to 5 years' experience in Subsea operations may be considered.
- iii. Score at least 60% in a proposal presentation/admission screening interview to be organized by the Institute.

COURSES

Table 6: List of courses, codes and credit units

Course Code	Course Title	Credit Units
Taught Courses		
OTI 901	Advanced Research Methods and Entrepreneurial Skills	3
OTI 902	HSE in Oil and Gas Operations	3
OTI 913	Subsea components and equipment design	3
OTI 914	Flow assurance in subsea operations	3
OTI 915	Government Policies in Subsea Operations	3
Seminar Courses and Ph.D Thesis		
OTI 906	Seminar I	3
OTI 907	Seminar II	3
OTI 908	Ph.D Thesis	9
Total Credit Units for each Ph.D Programme		30

DESCRIPTION OF COURSES

See the descriptions for OTI 901, OTI 902, OTI 906 OTI 907 and OTI 908 in Ph.D Offshore Engineering above).

OTI 913: Subsea Components and Equipment Design

The course covers the operation, maintenance principles and the design of subsea components such as drilling systems, Christmas trees, wellhead systems, manifolds and jumper systems, Umbilical and riser systems., Tie-in and flowline systems, Control systems and instrumentation, and vessels. Students will carry out design of any selected subsea equipment as part of the course assessment.

OTI 914: Flow Assurance in Subsea Operations

The course covers multi-phase flow, the flow assurance process, flow assurance challenges – Asphaltene deposition, wax deposition, formation of hydrates, corrosion and erosion, emulsions and slugging. Flow assurance risk management will also be covered. Students will carry out flow assurance risk management on any project ongoing or perceived as part of the course assessment.

OTI 915: Government Policies in Subsea Operations

Overview of main subsea platforms, Main regulatory agencies of the oil and sector- their formulations, roles and duties, Government legislations governing subsea operations, Management of subsea operations.

Ph.D IN PIPELINE ENGINEERING

Admission/Graduation Requirements and Programme Duration

The graduation requirements and programme duration are the same as those in Offshore Engineering. The admission requirements are as follows:

- i. Meet the general University requirements for admission into Ph.D programmes;
- ii. The candidate should possess a Master's degree in any of the following fields of Engineering: (a) Pipeline Engineering, (b) Offshore Engineering (c) Mechanical Engineering, and (d) Petroleum Engineering with a minimum CGPA of 3.5 (on a 5.0 scale) or its equivalent. Candidates with Master's degree in any of Chemical Engineering, Civil Engineering, Electrical/Electronic Engineering, Marine Engineering and Subsea Engineering plus up to 5 years' experience in Pipeline operations may be considered.

Score at least 60% in a proposal presentation/admission screening interview to be organised by the Institute.

COURSES

Table 7: List of courses, codes ad credit units

Course Code	Course Title	Credit Units
Taught Courses		
OTI 901	Advanced Research Methods and Entrepreneurial Skills	3
OTI 902	HSE in Oil and Gas Operations	3
OTI 923	Pipeline Materials and Defect Assessment	3
OTI 924	Pipeline Design and Asset Management	3
OTI 925	Government Policies in Pipeline Installations & Operations	3
Seminar Courses and Ph.D Thesis		
OTI 906	Seminar I	3
OTI 907	Seminar II	3
OTI 908	Ph.D Thesis	9
Total Credit Units for each Ph.D Programme		30

DESCRIPTION OF COURSES

See the descriptions for OTI 901, OTI 902 , OTI 906 OTI 907 and OTI 908 in Ph.D Offshore Engineering above).

OTI 923: Pipeline Materials and Defect Assessment

The course covers the exploration of different materials for pipeline making and pipeline construction. It includes the testing of materials using modern test procedures and assessment of defects in pipeline materials. Students will be required to design tools for defect detection or modify existing tools for more efficient local applications as part of the course assessment.

OTI 924: Pipeline Design and Asset Management

Detailed design methodology of pipelines will be covered in this course. Also, the management of pipelines (procurement, inspection, estimation of failure times and maintenance) will be covered. Students will carry out design of pipeline network as part of the course assignment.

OTI 925: Government Policies in Pipeline Installations & Operations

Major oil and gas pipelines in Nigeria- their ownership, operations and challenges, Government agencies regulating pipeline construction & operations, Government legislations governing pipeline construction & operations, Management of pipeline operations.

TABLE 8: LIST OF STAFF FOR THE PHD PROGRAMMES

S/N	Name	Qualification	Designation	Specialisation	Affiliation
1	Prof. R. Uhunmwangho	B.Sc (Iasi), M.Tech, Ph.D (UST)	Professor	Electrical Engineering	UPH
2	Prof. J. A. Ajienka	B.Sc (UI), M.Eng, Ph.D (UPH)	Professor	Petroleum Engineering	UPH
3	Prof. I. L. Nwaogazie	B.Sc, M.Sc (Kansas) Ph.D (Oklahoma State)	Professor	Civil Engineering	UPH
4	Prof. H.U. Nwosu	B.Sc, M.Eng; D.Eng (Texas), MBA (Oklahoma)	Professor	Mechanical Engineering	UPH
5	Prof. D. Appah	B.Sc., Dip. Edu. (Baku), Ph.D (UPH)	Professor	Petroleum Engineering	UPH
6	Prof. S. U. Ejezie	B.Sc(UI), M.Sc (Cornell), Ph.D (Carnegie-Mellon)	Visiting Professor	Civil Engineering	UPH
7	Prof. A. O. Obi	B.Eng (Ilorin), M.Sc , Ph.D (ABU)	Professor	Mechanical Engineering	Umudike
8	Prof. B. Evbuomwan	B.Eng, M.Eng (Benin), Ph.D (FUTO)	Professor	Chemical Engineering	UPH
9	Prof. A. N. Okpala	B.Eng, M.Eng (FUTA), Ph.D (RSUST)	Professor / Industry	Mechanical Engineering,	NDU / Turret Engineering
10	Prof. T. A. Briggs	B.Eng, M.Eng (UPH) Ph.D (UNN)	Professor	Mechanical Engineering	UPH
11	Prof. C. V. Ossia	B.Tech, M.Tech (RSUST), Ph.D (Korea).	Professor	Mechanical Engineering	UPH
12	Prof. A. B. Oriji	B.Eng, M.Eng, Ph.D (UPH)	Professor	Petroleum Engineering	UPH
13	Dr. J. Ugbebor	B.Eng, M.Eng, Ph.D (UPH)	Reader	Environmental Engineering	UPH
14	Dr. E. Omorogiuwa	B.Eng, M.Eng, Ph.D (Uniben)	Reader	Electrical Engineering	UPH
15	Dr. A. Oji	B.Eng, M.Eng, Ph.D (UPH)	Reader	Chemical Engineering	UPH
16	Dr. E.O. Diemuodeke	B.Eng., M.Eng (UPH), PhD (Cranfield)	Reader	Mechanical Engineering	UPH
17	Dr. E.G. Saturday	B.Eng., M.Eng (UPH), PhD (Cranfield)	Senior Lect.	Mechanical Engineering	UPH
18	Dr. S. Sule	B.Tech, M.Tech (RSUST), Ph.D (FUTO)	Senior Lect.	Civil Engineering	UPH
19	Dr. A. Big-Alabo	B.Eng.(UPH), M.Sc., Ph.D (Glasgow)	Senior Lect.	Mechanical Engineering	UPH
20	Dr. D. O. Aikhuele	B.Eng (AAU), M.Sc (Teeside), PhD (Malaysia)	Senior Lect.	Mechanical Engineering	UPH
21	Dr. C. Akhigbemidu	B.Eng (UI), MEM, M.Eng, Ph.D (UPH)	Industry	Pipeline Engineering	Project Master Nigeria Limited
22	Dr. A. Umofia	B.Eng (UPH), M.Sc, Ph.D (Cranfield)	Industry.	Subsea / Offshore Engineering	Agip, Nig Ltd.
23	Dr. U. Umeda	B.Tech. M.Tech, Ph.D (RSUST)	Government	Petroleum Engineering	Ministry of Petroleum Resources

NLNG CENTRE FOR GAS, REFINING AND PETROCHEMICAL ENGINEERING

Introduction

The Centre was established in August 2013 with the aim of providing industry based training required for sound refining and processing of crude oil. The centre is a research hub and propagates the culture of excellence through sustained learning. It also seeks to facilitate the Nigerian local content initiative.

The Centre is a post graduate institute that is forging viable collaborations and partnerships with renowned industries and universities across the globe. The centre offers programmes which reflect the global realities and therefore attaches great importance to students' participation in courses as well as analytic tools of refining and petrochemicals.

The Teaching faculty is drawn from University of Port Harcourt, Industry Professionals with cognate experience and other collaborating institutions. The ratio of teaching staff from university is (60%), other institutions (10%) and the industry (30%). This principle guides the selection of resource persons to teach in the centre. There are 5 senior administrative staff headed by an administrative secretary and 4 junior staff in the centre. The centre has graduated three batches of 45 students since inception with outstanding performances. The batch 4 students have long started their lectures.

Philosophy

The culture of excellence in sustained learning, leadership, internationalism and professionalism advancement and propagation of knowledge in the petroleum industry form our philosophy.

Vision

The vision of the NLNG Centre for Gas, Refining and Petrochemical Engineering is to become the foremost International Centre of Excellence in Gas Engineering, Petroleum Refining, and Petrochemicals Technology in Africa.

Mission

The mission of the Centre is to meet the needs of the petroleum industry through a commitment to excellence in training, applied research, continuing education, and capacity building.

PGD in Gas, Refining and Petrochemical Engineering

Admission Requirements

Candidates must possess a bachelor's degree in Engineering with minimum of Third Class Honours in Chemical Engineering, Petrochemical or Gas

Engineering and Second Class Honours (Lower Division) in other engineering disciplines from recognized universities. Industry/ company workers with 5 years cognate refining experience who possess third class honours with cumulative grade point average,(CGPA) of 1.5 or above will also be considered. Candidates must have also finished the National Youth Service Corps (NYSC) program as at the time of application.

Programme Duration

The duration of the programme will be 6-Calender months of intensive full time study. Industry/ company workers can equally attend modular/sandwich programmes and accumulate credits.

Graduation Requirement

Successful students at the end of the programme shall receive a PGD in Gas, Refining and Petrochemicals from the University of Port Harcourt.

List of Courses

The PGD programme is designed to be a 6 months intensive full time study which is structured into four (4) modules.

Table1: List of courses

Course Code	Course Title	Credit Units
GENERAL MODULE		
RPE 701	Basic Engineering Mathematics	2
RPE 702	Technical report writing and presentation	2
RPE 703	IT skills	2
RPE 704	Basic statistics	2
RPE 705	Entrepreneurial Management	2
PROCESS MODULE		
RPE 706	Process Engineering Analysis	2
RPE 707	Engineering Thermodynamics	2
RPE 708	Process reactor design, kinetics and catalysis	2
RPE 709	Process separation	2
RPE 710	Process control and dynamics	2
RPE 711	Heat and Mass transfer operations	2

RPE 712	Process Optimization	2
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REFINING & PETROCHEMICAL PROCESS APPRECIATION MODULE		
RPE 713	Introduction to distillation system design	2
RPE 714	Introduction to Polymer Technology	2
RPE 715	Laboratory practices	2
RPE 716	Introduction to refining operation	2
RPE 717	Introduction to basic petrochemical processes	2
PROJECT MODULE		
RPE 718	Group design project	2
RPE 719	Individual project	4
Total		40

Course Description

RPE 701: Basic Engineering Mathematics

Differential Equations (Ordinary Differential Equations and Partial Differential Equations): Analytical and Numerical Solutions. Gradient solution of system of linear equations.

RPE 702: Technical report writing and presentation

Teach students to write in clear, concise and effective way. Understand basic Presentation skills

RPE 703: ICT skills

Computer appreciation which covers MS Word, MS Excel, MS Project, Power Point. Basic knowledge on application of computer skills in Engineering.

RPE 704: Basic Statistics

Regression analysis, T-test, Z-test, ANOVA, correlation, Chi-square, statistical test of significance, experimental design and other relevant statistical tools and their application

RPE 705: Entrepreneurial Management

Business start up, Business idea generation, fund raising, cash flow, SWOT analysis, Pestle analysis, Team work, Leadership.

RPE 706: Process Engineering Analysis

Introduction to process engineering. The role of Engineers in the society. Application of chemical science and engineering to socially and economically significant problems. Material and Energy balances on batch and flow systems in steady or unsteady state. Thermodynamic properties of gases, liquids, solids and mixtures; and their

application to the chemical process industries, sources of data, use of table and graphs; iteration methods; dimensional analysis.

RPE 707: Engineering Thermodynamics

Study of energy, entropy and equilibrium: their interrelations and the engineering relationships to which they give rise. Thermodynamics of energy conversion and fluid flow; physical and chemical equilibria in multi-component systems. Partial molar Gibbs free energy and the chemical potential. Ideal and non-ideal solution behavior. Phase separation and equilibrium between phases for reacting chemical and electrochemical systems. Surface chemistry

RPE 708: Process reactor design, kinetics and catalysis

General principles of reaction kinetics, Chemical Kinetics of elementary steps, transition state theory, thermodynamics formulation of rates, rates in solution. Steady-state approximation; catalysis systems, chain reactions, homogeneous and heterogeneous catalysis; Graphical treatment of complex kinetics. Analysis and design of reactors.

RPE 709: Process Separation

General view of separation. Motion of particles in fluid. Mixing and agitation; size reduction of solids (comminution); atomization, droplets and aerosols. Classification, separation and size measurement, sedimentation, flocculation. Thickener calculations; centrifugation; cyclone separation, flow through packed bed, fluid-solid, conveying filtration. Centrifugation filtration, fluidization, fluid-solid conveying. Pneumatic / Hydraulic Transportation. Fluid cleaning, electrostatic precipitator.

RPE 710: Process control and dynamics

Block and signal flow diagrams, proportional integral derivative controllers, frequency response techniques, analytical and graphical stability criteria. Introduction to modern control theory. Analog computation, time domain analysis, control of complex chemical systems, control of sample data system.

RPE 711: Heat and Mass transfer operations

Fluid mechanics, momentum transfer in fluids in laminar and turbulent flow, microscopic and macroscopic material, momentum and energy balances. Rheology, dimensional analysis; flow in conduits, pumps; fluid metering. Heat and mass transfer; heat transfer rate; conduction, convection and radiation mechanisms of heat transfer, heat exchanger design. Molecular diffusion, mass transfer mechanisms, phase mass transfer coefficients, prediction of mass transfer rates.

Momentum, energy and mass transfer in solids, laminar and turbulent fluid and between two phases, theory of molecular and eddy viscosity, thermal conductivity, air diffusivity, microscopic and macroscopic equations of motion, radiant heat transfer.

RPE 712: Process Optimization

Treatment of popular forms of the calculus of variations, maximum principles, dynamic programming, optimization of stage systems, optimum seeking methods. Network analysis and queuing theory.

RPE 713: Introduction to distillation system design

Solvent extraction. Distillation of multi-component mixtures. Computational procedures for rectification column. Extractive and azeotropic distillation. Multicomponent absorption and extraction design procedures crystallization.

RPE 714: Introduction to Polymer Technology

Polymer types, polymerisation mechanism, polymer modification and functionalization.

RPE 715: Laboratory practices

Introductory laboratory practices with inherent characteristics of inculcating the spirit of team work. Carry out basic laboratory operations, chemical storage, risk assessment, and prepare standard solutions. Use measuring and instrumentation equipment. Use of analytical equipment such as: Gas Chromatograph (GC), Fourier Transform Infra red (FTIR), X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM)

RPE 716: Introduction to refining operation

Principles and processes of refining operations in Nigeria. Integrated refining operations, desalting, and refining margins.

RPE 717: Introduction to basic petrochemical processes

Basic knowledge of the petrochemical technologies, petrochemical industry in Nigeria. Properties of various feedstocks and their products.

RPE 718 & 719: Group design project and Individual project

Students will be required to carry out research as a group and as individuals

STAFF LIST FOR THE PROGRAMME

S/N	Name	Qualification	Specialization	Designation
1	Kuye, A. O.	B.Sc ,M.Sc , Ph.D . FNShE, MNSE, R.Eng(3290)	Computer-aided design	Professor
2	Nwaogazie, I. L.	B.Sc ,M.Sc , Ph.D , FNSE, FNICE, FWAMASON, R.Eng.	Mathematical Modelling, Hydrology	Professor
3	Onyekonwu, M. O.	B.Sc, M.S, Ph.D, R. Eng (3536)	Reservoir & Gas Engineering	Professor
4	Dosunmu, A.	B.Sc, M.EngPh.D, MNSE, R.Eng (3562)	Drilling & Gas Engineering	Professor
5	Appah, D.	M.Sc, Dip.Edu., Ph.D, MNSE, R.Eng (79614)	Formation Evaluation	Professor
6	Iledare, O. O.	B.Sc, MS Ph.D	Oil & Gas Economics	Professor
7	Chukwuma, F. O.	B.Sc , M.Sc, Ph.D, MNSChE	Separation Processes and Process Control	Professor
8	Joel, O. F.	B. Tech, M.ScEng Mgt., Ph.D	Drilling & Environmental Engineering	Professor
9	Kemjika, O. C.	B.Sc , M.Sc, Ph.D	Education	Professor
10	Ikiensikimama, S. S.	B.Eng., M.Eng., Ph.D.	Reservoir Engineering	Professor
11	Okoye, I. P.	B.Sc , M.Sc, Ph.D	Industrial Chemistry	Professor
12	Nwaozuzu, C.	B Sc, MSc, PhD,	Petroleum Economics	Professor
13	Uyigwe, L.	B.Sc , M.Sc, Ph.D MNSE, R.158615	Polymer/Biodiesel Eng.	Associate Professor
14	Evbuomwan, B. O.	B.Sc , MEng, Ph.D, MNSChE , R. 13727	Separation Processes.	Associate Professor
15	Otaraku, I. J.	M.Sc, Ph.D, mAChE, Msic	Petrochemical, Reaction/Catalysis.	Senior Lecturer

MASTERS IN GAS, REFINING AND PETROCHEMICAL ENGINEERING

Objectives:

The objective of this graduate programme is to commit the student's talents to:

Understand different energy types and role of fossil fuels in global energy mix.

Grasp hydrocarbon chemistry and sequence of crude oil processing operations, including crude oil distillation, refinery equipment and flow sheet.

Work on systems of energy recovery networks for refinery and petrochemicals, including monitoring tools.

Learn about petrochemical and natural gas industry and processes, including economic and contractual aspects of the natural gas industry.

Understand major polymer types, plastics, additives and modifiers.

Appreciate conversion processes, including catalytic reforming and effect of catalysis on reaction rates.

Work on heat exchangers and their design systems.

Understand reaction systems, including process flow and control, corrosion and maintenance of equipment

Practice process modeling and simulation of refinery/petrochemical system.

Understand key goal settings in project management, process system optimization, energy economic and supply chain management, entrepreneurship, and some business theories and models.

Process of Curriculum Design

The MSc programme is designed to be a 12-month intensive full-time study which is structured into modules. This is done in compliance with the benchmark minimum academic standards (BMAS).

COURSES OFFERED

MODULE 1: GENERAL MODULE

Course Code	Course Title
RPE801	Team Building and Leadership Skills
SGS 801.1	ICT and Research Methods
RPE 803	Writing Skills /Technical Report
SGS 801.2	Management and Entrepreneurship
RPE 805-1	Applied Mathematics for Engineers
RPE 805-2	Applied Statistics for Engineers
RPE 806	Introduction to Oil & Gas Industry

MODULE 2: REFINING MODULE

Course Code	Course Title
RPE 807-1	Hydrocarbon Chemistry and Sequence or Processing Operation
RPE 807-2	Crude Oil distillation & Introduction to Refinery Equipment
RPE 807-3	Hydro-processing& Integrated Refinery Operations
RPE 807-4	Catalytic Cracking, Alkylation, Reforming Catalysis
RPE 808-1	Energy Systems

MODULE 3: GAS & PETROCHEMICAL MODULE

Course Code	Course Title
RPE 809-1	Crude Oil and Natural Gas Chain
RPE 809-2	LNG Chain, GTL vs. LNG exports
RPE 810-1	Polymer Technology
RPE 811-1	Reaction Kinetics & Catalysis
RPE 811-2	Conversion and Petroleum Processes

MODULE 4: MODELLING AND DESIGN MODULE

Course Code	Course Title
RPE 812-1	Distillation System Design
RPE 812-2	Heat Integration of Distillation Columns
RPE 813	Shell & Tube H/E: Reboilers, Condensers, Cooling Towers
RPE 814-1	Process Flow and Control
RPE 814-2	FCC Detailed Plant Analysis
RPE 814-3	Process variables and operating procedures
RPE 814	Reaction System Design
RPE 815	Process Modelling & Simulation

MODULE 5: PROJECT MODULE

Course Code	Course Title
RPE 816	Process System Optimization
RPE 817-1	Economics of Oil, Gas, and Energy
RPE 817-2	Energy Management
RPE 818-1	Reliability, Maintenance, Shutdown management
RPE 818-2	Environ. Management, Quality Control, Process Plant efficiency
RPE 819-1	Individual Research
RPE 819-2	Internship Training

Student Admission, Retention and Graduation Policy.

Candidates must possess a bachelor's degree in chemical/petrochemical engineering, gas

engineering, or related courses with a minimum of second-class lower division. Industry/ company workers with 5 years cognate refining experience may also be considered for admission.

Duration Of Programme

The duration of the programme will be 12-calender months of intensive full-time study. Industry/ company workers can equally attend modular/sandwich programmes and accumulate credits that will count towards graduation.

Criteria/Procedure for the Award of Degree

Successful students at the end of the programme shall receive an M.Sc. in Gas, Refining and PetrochemicalEngineering from the University of Port Harcourt.

Grading system

All examinations are graded out of 70% while continuous assessment same as home work (including paper) is out of 30%. The project (group or individual) is graded in two parts, viz: 50% for documentation submitted as technical report for group project or dissertation report as individual projects; and 50% presentation/defence. The defence whether internal or external (with external examiner) will involve a number of lecturers for the purpose of scoring. The total score for any examination attracts a letter grade. The distribution of letter grades are as follow:

S/N	SCORES	LETTER GRADE
i	70-100	A
ii	60-69	B
iii	50-59	C
iv	0-49	F

LIST OF ACADEMIC STAFF IN THE PROGRAMME

S/N	NAME	QUALIFICATION	SPECIALIZATION	DESIGNATION
1	Oji, Akuma Agwu	B.Eng., M.Eng., PhD ChE, MNSE, R. Eng. ()	Biochemical Engineering & Renewable Energy	Senior Lecturer/ Acting Director
2	Kuye, A. O.	B.Sc ,M.Sc , Ph.D . FNSChE, MNSE, R. Eng. (3290)	Computer-aided design	Professor
3	Nwaogazie, I.L.	B.Sc , M.Sc , Ph.D , FNSE, FNICE,FWAMASON, R.Eng.	Mathematical Modelling, Hydrology	Professor
4	Onyekonwu, M. O.	B.Sc, M.S, Ph.D, R. Eng (3536)	Reservoir & Gas Engineering	Professor
6	Ajienka, J. A.	B. Sc., M. Eng., Ph.D., R. Eng. (5285)	Petroleum Production Eng/Multiphase Fluid Flow in Pipes	Professor
7	Dosunmu, A.	B.Sc, M.EngPh.D, MNSE, R.Eng (3562)	Drilling & Gas Engineering	Professor
8	Appah, D.	M.Sc, Dip.Edu., Ph.D, MNSE, R.Eng (79614)	Formation Evaluation	Professor
9	Chukwuma, F. O.	B.Sc , M.Sc, Ph.D, MNSChE, R. Eng. (16966)	Separation Processes and Process Control	Professor
10	Joel, O. F.	B. Tech, M.Sc Eng Mgt., Ph.D	Drilling & Environmental Engineering	Professor
11	Otaraku, I. J.	M.Sc. (Combined Honours with Distinction), PhD ChE MNSE, mAIChE, mSCI, R. Eng (45540)	Process and Fine Chemical Engineering	Professor
12	Ugwu, A. N.	B.Sc , M.Sc, Ph.D	Education	Senior Lecturer
13	Ikiensikimama, S. S.	B.Eng., M.Eng., Ph.D.	Reservoir Engineering	Professor
14	Okoye, I. P.	B.Sc , M.Sc, Ph.D	Industrial Chemistry	Professor
15	Uyigwe, L.	B.Sc , M.Sc, Ph.D MNSE, R.158615	Polymer/Biodiesel Eng.	Professor

16	Enbuomwan, B. O.	B.Sc , MEng, Ph.D, MNSChE , R. 13727	Separation Processes.	Professor
17	Oduola, M. K.	M.Sc., Ph.D R Eng. 18680`	Reaction Engineering/Energy Management	Senior Lecturer
18	Nwaozuzu, C.	B Sc, MSc, PhD,	Petrol. Economics	Senior Lecturer
19	Orij, A. B.	B.Eng. M.Eng. Ph.D	Drilling Engineering	Professor
20	Joseph, A.	B.Eng.,M.Sc., Ph.D	Pet. Prod. Eng.& Pet. Econ	Senior Lecturer
21	Josiah, P. N.	B.Eng, M.Sc., MNSE	Chem. Engineering	Lecturer 1
22	Nwambo, P Y	B.Eng, M.Eng, MNSE	Chem. Engineering	Lecturer 1
23	Ajoku, GAO	B.Eng, M.Eng, MNSE	Chem. Engineering	Lecturer 1
24	Wachuku. P. O.	B.Eng., M.Eng., PhD	Reservoir Engineering.	Lecturer 1
25	Jerome, U.	B.Eng., M.Eng.	Chem. Engineering	Lecturer 11
26	Avwiri, E.	B Sc, MSc, PhD,	Education	Lecturer 1`
27	Ahaotu, J.O.	BA, MA	Humanities/Mgt.	Lecturer 11`
28	Muwarure, P. O.	B.Eng. ChE, M.Sc., GRPE	Process Simulation	Consultant
29	Mamman, Ajee	B.Sc. , M.Sc., Ph.D	Petrochemical Engr.	Consultant
30	Ogbonna, I.	B.Sc. , M.Sc., Ph.D	Env. Mgt.	Consultant
31	Olumati, I.	B.Sc. , M.Sc.,	Petrol. Refining	Consultant
32	Onyekwere, L.	B.Eng., MEng.	Chem. Engineering	Consultant
33	Dokubo, T. C.	B.Eng., MEng.	Chem. Engineering	Consultant
34	Okoro, E.	B.Eng., MEng.	Chem. Engineering	Consultant
35	Akoh, P.E.	Dipl., M.Sc.	Metallurgy/Heat Int.	Consultant
36	Ubaka, C.	B.Eng. ChE, M.Eng.(in view)	Process Simulation	Consultant

Ph.D. PROGRAMME IN CHEMICAL ENGINEERING OPERATIONS (GAS PROCESSING, REFINING AND PETROCHEMICAL OPTIONS)

The objectives of this programme are to commit the students' talents to:

- Develop different energy strategies/plans to sustainably utilise fossil fuels in the global energy mix.
- Analysis and evaluate hydrocarbon chemistry and sequence of crude oil processing operations, including crude oil distillation, refinery equipment and flow sheet.
- Co-create energy recovery networks for case studies on refinery and petrochemicals.
- Adequately apply economic and contractual knowledge to address technical challenges in the petrochemical and natural gas industry.
- Evaluate the major polymer types, plastics, additives and modifiers in the context of natural gas utilisation.
- Develop efficient and cost effective crude and natural gas conversion processes
- Technical and economic evaluations of catalytic reforming process and unit for improved product yield.
- Apply in-depth knowledge of process unit operations to design, analysis and evaluate heat exchangers.
- Develop in-depth understanding of reaction systems, including process flow and control, corrosion and maintenance of equipment, for technical improvement.
- Apply the knowledge of process modelling and simulation to improve refinery/petrochemical systems.
- Develop advanced skills and competencies in project management, process system optimization, energy economic and supply chain management, entrepreneurship, and business theories and models.

Admission Requirements

To be admitted into the PhD programme in Gas, Refining and Petrochemical Engineering Operations, each applicant must fulfil the following requirements:

- Satisfy the general University requirements for admission into PhD programmes.
- Possess a Master's degree in Gas, Refining and Petrochemical Engineering, and related disciplines acceptable to the Centre such as Chemical Engineering, Gas Engineering, Petrochemical Engineering, Industrial

- Chemistry, with a minimum CGPA of 3.5 (on a scale of 5.0) or a minimum score of 60% obtained from a recognized university.
- iii. Be successful in a proposal presentation/admission interview in the Centre.

Every candidate coming for the interview is expected to bring along the following:

- a) Two letters of reference from persons qualified to comment on his or her academic work.
- b) Four copies of his or her proposed research plan in the selected area of specialization.

1. Programme Duration

The programme shall last for a minimum of 36-calendar months (3 years) and maximum of 60-calendar months (5 years) of full-time study, or a minimum of 60-calendar months (5 years) and a maximum of 86-calendar months (7 years) of part-time study.

2. Graduation Requirement

The Gas, Refining and Petrochemical Engineering PhD programme consists of coursework and a thesis. The degree is awarded primarily on the basis of research conducted by the student, after he or she has fulfilled the general University requirements for the programmes leading to the Ph.D. degree. The following specific conditions apply:

- a. On provisional admission, the candidate is required to pass the taught coursework to continue the PhD. programme. It is compulsory for candidates to take the generally taught courses and any other course in the area of specialization. However, where the need arises the Centre would advise students to audit some relevant courses.
- b. The Centre shall also require the Ph.D. student to audit or select, in consultation with his/her supervisor, courses which will best assist him/her pass the taught courses and succeed in the research work and thesis in the area of specialization.
- c. Prior to being formally admitted to the candidacy of the PhD programme, the prospective student must demonstrate his or her knowledge of the engineering fundamentals by passing the qualifying examination to assess his/her eligibility for the programme.
- d. A successful Ph.D. candidate will be expected to present a research proposal not later than 3 months after the qualifying examination.
- e. A Ph.D. Student is expected to participate in seminar and should present at least three seminar papers in the course of the research work to the Centre.
- f. To qualify for the award of Ph.D, the candidate must publish at least three technical papers, two of which must be publications in reputable

- journals and one conference paper. In addition, or in the place of one journal article, candidates may have at least one patent
- g. On provisional completion of the research work, the candidate will be required to present a thesis based on the outcome of the research. He/she shall present the work in the following order:
 - i. Graduate Board of the Centre;
 - ii. Faculty Graduate Board; and
 - iii. School of Graduate Studies.
 Finally, upon presentation of the seminars, successful candidate will take an oral external defence of the work before a Board of examiners setup in accordance with the regulations of School of Graduate Studies.
 - h. The Ph.D. degree is awarded upon satisfactory performance in the oral examination and fulfilment of all University and Centre requirements.

Course List

The courses which will be taught on Modular basis are listed as shown in Table 1. One course will be taught in one month and the examination/assessment taken first week of the next month.

Table 1: List of courses

S/N	Course Code	Course Title	Unit
1	RPE 901	Research Methods	3
2	RPE 902	Energy/Environmental/ Project & Safety Policy	3
3	RPE 903	Advanced Oil and Gas Industry Management	3
4	RPE 904	Advanced Gas Processing/ Advanced Refining Operation/ Advanced Petrochemical Operation	3
5	RPE 905	Seminar I	3
6	RPE 906	Seminar II	3
7	RPE 907	Seminar III	3
8	RPE 908	PhD Thesis	6

11. Course Description

RPE 901: Research Methods

Course objectives: To give students in-depth knowledge on how to conduct, analyze and report their research results

Course content:

- Understanding the concept of research
- Choice and statement of a research problem,
- Research design
- Literature survey,

- Elementary scientific methods,
- Design of experiment and apparatus
- Statistical analysis of experimental data and associated error
- Mathematical modelling
- Report writing

RPE 902: Energy/Environmental/Project & Safety Policy

Course objectives: To critically evaluate energy, environment and safety policies in projects and develop strategies to energy, environmental and energy policies nationally and internationally. In addition, to adequately highlight the need for environmental protection

Course content:

- Energy industry (National and International): energy systems and management, legal framework, regulatory process and processes, regulatory bodies and roles, energy pricing and implications, Nigerian gas master plan and policies, renewable energy policy drive and its implications on future energy development and climate change, review of energy policies
- Environmental considerations and management in mid/downstream oil and gas industry operation
- Health and Safety consideration and management in mid/downstream oil and gas industry operation
- Process and project management in the mid/downstream oil and gas industry operation

RPE 903: Advanced Oil and Gas Industry Management

Course objective: To give students an in-depth knowledge and capacity to address strategic challenges of the oil and gas industry in Nigeria. To equip students with the requisite skills, character and frame to make positive impacts on the industry.

Course content

- Overview of the oil and gas industry
- Competitive issues and challenges
- Portfolio management issues and challenges
- Conflict management in the oil and gas industry
- Prospects and challenges of the oil and gas industry
- Economics of the oil and gas industry
- Energy mix and climate change mitigation technologies
- Entrepreneurial skills and financial management in the oil and gas industry

RPE 904: Advanced Gas Processing (Option)/ Advanced Refining Operation(Option)/ Advanced Petrochemical Operation(Option)

Course objective: To give students an in-depth knowledge and capacity to address strategic

challenges of the gas, refining, and petrochemical industries in Nigeria.

Course content

- Advanced knowledge of gas processing technology management and operation in Nigeria
- Advanced knowledge of refining operation technology and management in Nigeria
- Advanced knowledge of petrochemical technology operation and management in Nigeria
- Advanced process control and optimisation of gas and petrochemical plants

RPE 905 Seminar I

Seminar I, Research Proposal Defence will be presented between 6 months and 12 months of the start of programme. It will consist of critical literature review and gaps in the subject area of the topic. Also, timelines for the remaining work to be carried out will be part of the presentation. This presentation will be scored and the minimum pass mark is 50. Successful candidates will be allowed to go with their researches. If any candidate is not successful at this stage, the candidate will be allowed to repeat the presentation within three months from the date of the first presentation.

RPE 906 Seminar II

Seminar II will be presented between 12 and 15 months into the programme. Seminar II will cover Chapter Three (Materials and Methods or Methodology) in addition to Chapters one and two which should be improved versions of what is contained in Seminar I. The Ph.D student can also present preliminary or selected or few results. If the presentation is successful, the candidate can go ahead with his or her research to conclusion and thesis writeup.

RPE 907 Seminar III

The Third seminar will be presented after the successful presentation of Seminar I and Seminar II. This will include the full thesis presentation. After a successful presentation the student has three stages: Presentation to the Faculty of Engineering and the school of graduate studies, then the external (final) examination will follow.

RPE 908 Seminar IV

The Ph.D thesis presentation follows successful presentation of Seminar I and Seminar II. The thesis presentation has three stages: Presentation at the Institute where staff drawn from the Faculty of Engineering and the Industry will be the examiners, presentation at the school of graduate studies, then the external (final) examination by an external examiner. The external examination will come

between 30 months and 36 months into the programme for full time study.

LIST OF STAFF FOR THE PROGRAMME

S/N	Name	Qualification	Specialization	Designation
1	Kuye, A. O.	B.Sc,M.Sc(Unilag), Ph.D (UniStretclyde). FNSE, MNSE, R.Eng	Computer-aided design	Professor
2	Ajienka J. A	B.Sc.(UI),M.Eng., Ph.D(UPH),FNSE, FNIPetEFAEng, FIPS, R.Eng	Production Engineering	Professor
3	Nwaogazie, I. L.	B.Sc, M.Sc (Kansas) , Ph.D(Oklahoma State Uni), FNSE, FNICE, FWAMASON, R.Eng.	Mathematical Modelling, Hydrology	Professor
4	Chukwuma, F. O.	B.Sc , M.Sc, Ph.D (Tulsa), MNSChE. R.Eng	Separation Processes and Process Control	Professor
5	Joel, O. F.	B. Tech(RSU), M.Sc Eng Mgt.(UNIBEN), Ph.D(RSU), R.Eng	Drilling & Environmental Engineering	Professor
6	Ikiensikimama, S. S.	B.Eng., M.Eng. (UPH), Ph.D(UNILAG). R.Eng	Reservoir Engineering	Professor
7	Uyigüe, L.	B.Sc(UPH), M.Sc (UNIBEN), Ph.D (UPH) MNSE, R.Eng	Polymer/Biodiesel Eng.	Professor
8	Evbuomwan, B. O.	B.Sc , Meng (UNIBEN), Ph.D(FUTO), MNSChE , R.Eng	Separation Processes.	Professor
9	Otaraku, I. J.	M.Sc, Ph.D(Volgograd, USSR), mAChE, Msc, R.Eng	Petrochemical, Reaction/Catalysis.	Professor
10	Onyekonwu, M. O.	B.Sc,(UI) M.S, Ph.D(Stanford), R. Eng, R.Eng	Reservoir & Gas Engineering	Visiting Professor
11	Dosunmu, A.	B.Sc, M.EngPh.D, MNSE, R.Eng (3562)	Drilling & Gas Engineering	Visiting Professor
12	Oduola, M. K.	M.Sc.,Ph.D(Lviv, UKRAINE) R Eng.	Reaction Engineering/Energy Management	Senior Lecturer
13	Oji, A. A.	B.Eng(FUTY), M.Eng, Ph.D(UPH) MNSE. R.Eng	Chem. Engineering	Senior Lecturer
14	Edeh I.	B.Eng(ESUT), M.Eng(UPH), Ph.D (Birmingham) MNSE. R.Eng	Chem. Engineering	Senior Lecturer
15	Okeke, E.	B.Sc.(UI), Ph.D (Strathclyde)	Process Simulation	Industry Lecturer

16	Mamman, Ajee	B.Sc. (Cults, Scotland) , M.Sc., Ph.D (Swansea)	Petrochemical Engr.	Industry Lecturer
17	Diemuodeke E.O.	B.Eng, M.Eng(UPH), Ph.D (UK)	Mechanical Engineering	Senior Lecturer
18	Iyalla A.	B.Sc.(UPH) , M.Sc. PhD(RGU),	AI	Visiting Lecturer
19	Viele E.	B.Sc., M.Sc. PhD(UPH),	Polymer	Industry Lecturer
20	Ndunagu U. P.	B.Sc, FUTO, M.Sc - IPS, UPH., PhD - CEFOR, UPH.	Simulation and FCC	Industry Lecturer
21	Omowunmi B. A.	BEng FUTO, MSc, PhD(Manchester)	Refinery Process Optimization	Industry Lecturer
21				

NB: Lecturers are drawn from University of Port Harcourt (60%); other collaborating institutions (10%) and industry (30%)

CENTRE FOR GEOTECHNICAL AND COASTAL ENGINEERING RESEARCH (CGCER)

Introduction

The Center for Geotechnical and Coastal Engineering Research, domiciled under the Department of Civil and Environmental Engineering, University of Port Harcourt proposes to revise the existing Graduate programmes for in Geotechnical and Coastal Engineering at Post Graduate Levels as part of its mandate on human capital development through research in the Geotechnical & Coastal Environment.

Philosophy

The Philosophy of the Graduate Programme is anchored on the drive of initiating, encouraging, promoting and sustaining advanced applied research and development in the various aspects of Geotechnical Engineering, Coastal Engineering.

Vision

To turn in internationally recognized Graduates whose professionalism would be of immense benefit in tackling the problems associated with the Geotechnical and Coastal Environments., in addition, the Programmes also have the vision of preparing interested Graduates for further studies.

Mission

To create, preserve and apply knowledge obtained through applied research to the service of humanity through comprehensive research and development in the Geotechnical and Coastal Engineering fronts.

Justification /Rationale

Flood, Erosion and Ocean encroachment around Coastlines have made infrastructural development in such environment highly challenging, hence man is forced to thinker ways of living with the Sea environment. Exploring challenging Soils, Marine and Coastal environment therefore becomes inevitable, both for Geotechnical research and Infrastructural development.

Besides, the harsh Onshore Oil and Gas exploration, exploitation and processing activities deriving from Security threats and militancy in the host Onshore communities has forced International Oil and Gas companies (IOCs) to extend the frontiers of their activities Offshore, into the deep waters region. This further necessitates advanced research activities into the Coastal environment.

Aim

The aim of the MSc programme in Geotechnical and Coastal Engineering is to prepare students for professional work in the respective research areas or

for further studies leading to the Doctor of Philosophy (Ph.D) in the relevant areas.

Objectives

To achieve the aim of the Post Graduate Diploma Programme in Geotechnical & Coastal Engineering, the following under listed objectives will be pursued:

1. Sourcing of highly qualified resource persons from both the academic and industrial worlds to deliver knowledge filled and experienced based lectures.
2. Organization of conferences, seminars and workshops in the relevant areas of interest.
3. Providing Internship opportunities for interested students in recognized industries.

Course Delivery

All lectures for every Programme shall be administered / delivered on modular basis from 08.00am to 04.00pm (with One Hour (12.00-01.00) break) from Mondays to Fridays. That is, 40 hours lecture per week per Course which is approximately equal to 14 weeks Semester of Academic work for a 3 Credit Units (2-Hours lecture plus one Hour Practical or Tutorial per week) Course. Examination for a Course is taken after the Lectures on Saturdays, while the Continuous Assessment is done within the lecture periods as Practical reports, Test, Group Discussions, Field Trips reports and Assignments.

Examination Regulations & Scoring / Grading System

To qualify for sitting for a final Examination in a Course student is expected to have 75% lectures attendance of ALL lectures in that Course. The overall Examination score in a Course shall be 100% which shall comprise of:

Examination	-	70%
Continuous Assessment	-	30%

Every student is expected to score a minimum of 50% in the overall evaluation for a Course in order to PASS; otherwise he or she shall be deemed to have failed the Course. In which case, the student is allowed a second final chance to retake a Supplementary Examination in the Course which cannot be scored above a C-Grade. The Examination Grading shall be:

Score (%)	Grade	Grade Points
70 – 100	A	5.00
60 – 69	B	4.00
50 - 59	C	3.00
0 - 49	F	0.00

Programme Structure

1. The full-time option is for a minimum of 12 calendar months and a maximum of 24 calendar months
2. The part-time option is for a minimum of 24 calendar months and maximum of 48 calendar months.

Career Opportunities

The main aim of the programmes of the Center is to produce a hands-on, Industry-ready Geotechnical Engineers and Coastal Engineers with a wide-range of Job Opportunities in Marine & Coastal Environment, Shore Protection, Artificial Intelligence, Dams, Port & labour, Geotechnical Services, Ocean Survey, Construction, Consultancy, and Coastal Infrastructure Research & Development.

Programme Requirement and Criteria for the Award of the PGD, MSc. And PhD Certificates

To realize the above objectives and qualify for the award of Graduate Certificates, students must take and pass all the prescribed courses in the chosen area of study, participate in any required field study, present research seminars and produce a supervised project, dissertation and thesis on an approved research topic relevant to the aim and purpose of the Center's establishment.

PGD in Geotechnical & Coastal Engineering Entry /Admission Requirements

To be admitted into the PGD in Geotechnical & Coastal Engineering programme a candidate must have graduated with at least a Third Class Degree in Civil, Mechanical, Marine Engineering or any other related Engineering and Physical Science discipline from any NUC Accredited University.

Course Listings

The course listing for the Post Graduate Diploma (PGD) programme consists of Compulsory and Electives Courses in Geotechnical & Coastal Engineering.

13.1 Course listing for Post Graduate Diploma (PGD) in Geotechnical & Coastal Engineering

These include:

Course Code	Course Title	Credit Units
GCE 701	Introduction to Geotechnical Engineering	3
GCE 702	Basic Coastal Engineering	3
GCE 703	Basic Structural Analysis	3
GCE 704	Basic Fluid Mechanics	3
GCE 705	Numerical Methods and Mathematical Modelling	3
GCE 706	Applied Statistics and Data Analysis	3

GCE 707	Engineering Geology	3
GCE 708	Engineering Hydrology and Hydrogeology	3
GCE 709	Foundation and Geotechnical Engineering Design	3
GCE 710	Coastal Engineering Design	3
GCE 711	Dynamics and Vibrations of Structures	3
GCE 712	Computer Aided Design in Coastal and Geotechnical Engineering	3
SGS 702	Management and Entrepreneurship	2
GCE 713	Technical Seminar	3
GCE 700	Research Project	6
TOTAL		45

PGD Geotechnical & Coastal Engineering Programme Course Details

GCE 701 - Basic Coastal Engineering (3 Credits).

Mechanics of wave motion; wave refraction, diffraction and reflection; wave forecasting; shore processes; planning of coastal engineering projects; design of seawalls, breakwaters, beach nourishment and fixed and floating installations; dredging; risk analysis.

GCE 702 – Introduction to Geotechnical Engineering (3 Credits).

Physical properties of soils, classification systems, soil exploration, permeability, consolidation, compaction, and shear strength; laboratory tests conducted to determine the physical and engineering soil properties needed for application in geotechnical engineering design.

GCE 703 - Basic Structural Analysis (3 Credits).

Introduction to structural analysis; classification of structures; general description of plane frame; joints; supports; stability and determinacy; Basic concepts and assumptions for structural analysis; Equilibrium; Analysis of Statically Determinate Structures. Plane trusses. Beams and Frames (Axial force, shear force and moment diagrams in beams and frames). Deflections, Method of Superposition, principles of virtual displacement; principle of virtual force using energy method in beams, frames and trusses, Influence lines and moving loads, Analysis of statically indeterminate structures; by force method (method of consistent deformation) – frames and trusses, Introduction to stiffness method of analysis; slope deflection method; Moment distribution method, introduction to matrix methods; 1 DOF systems, trusses. Sway in moment distribution; yield line analysis and strip methods for slabs. Plastic methods of structural analysis. Introduction to limit state analysis of reinforced concrete and steel structures.

GCE 704 – Basic Fluid Mechanics (3 Credits).

Fluid properties; statics; kinematics; ideal gas law; conservation of mass; linear momentum and Newton's Second Law; conservation of energy; Bernoulli's equation; control volume analysis, similitude and hydraulic models; homogeneous flow in pipes; fluid drag, boundary layer basics. Fluid measurements; determination of fluid properties; visualization of types of flow; experiments in closed conduit flow turbo machinery tests; open channel and gravity wave demonstrations

GCE 705 - Numerical Methods and Mathematical Modelling (3 Credits).

Application of numerical methods to geotechnical-related engineering problems; development, evaluation and comparison of various techniques for root finding, curve fitting, numerical integration, simultaneous linear algebraic equations, matrix methods; probability and statistics and ordinary differential equations in geotechnical-related engineering applications.

GCE 706 - Applied Statistics & Data Analysis (3 Credits).

An introduction to applied data analysis, designed to enable students to effectively collect data, describe data, and make appropriate inferences from data. Students are expected to communicate effectively about statistical results and to use a statistical software package for data analysis

GCE 707 – Engineering Geology (3 Credits).

Principles of physical and engineering geology; properties of minerals, rocks and soils; active surface and subsurface processes; applications to the siting, design, construction, operation and maintenance of engineered works and the protection of the environment. A three day field trip is required (a field trip fee is charged at registration).

GCE 708 - Engineering Hydrology & Hydrogeology (3 Credits).

Occurrence, distribution and properties of natural waters of the earth; measurement and engineering analysis of hydrologic phenomena including precipitation, stream flow and groundwater, hydrologic design of water resources development and management projects. Geologic conditions determining the distribution and movement of ground water and their effect on the hydrologic properties of aquifers.

GCE 709 - Foundation and Geotechnical Engineering Design (3 Credits).

A design course covering prediction of settlement, analysis of the stability of slopes, prediction of bearing capacity of shallow and deep foundation and determination of earth pressure acting on retaining

structures. A general course in Geotechnical Engineering design for undergraduate and for graduate students not primarily interested in the Geotechnical field but desiring additional study beyond the introductory undergraduate level.

GCE 710 - Coastal Engineering Design (3 Credits).

Loadings and Functions of ocean engineering structures, including sea walls, harbor structures, sea-going vessels, offshore structures and underwater vehicles; analysis of structures including trusses, beams, plates, shells and arches; introduction to stress and failure analysis; introduction to finite element analysis (FEA) including computational mechanics of ocean engineering structures, using FEA.

GCE 712 - Computer Aided Design in Coastal and Geotechnical Engineering (3 Credits).

The use of computer aided design packages in Coastal and Geotechnical engineering design – hydraulics, geotechnical engineering, work scheduling.

SGS 702 - Management and Entrepreneurship (3 Credits).

Business Environment, General Management, Financial Management, Entrepreneurship Development, Feasibility Studies, Marketing & Managerial Problem Solving.

GCE 713 – Technical Seminar (3 Credits).

Responsibilities and obligations of new Geotechnical & Coastal Engineers; professional ethics; membership in professional societies and professional registrations; case studies and lectures presented by staff and practicing engineers.

GCE 700 – Research Project (6 Credits).

Every Student will be required to carry out a Research Project related to Geotechnical and/or Coastal Engineering under the close Supervision of a Supervisor. This Research Project will be examined at the end of its completion.

Graduation Requirements

To be awarded the PGD degree in Geotechnical & Coastal Engineering, students must have passed all prescribed courses with a total credit unit of 66 units.

Masters of Science (MSc) Degree Programme in Geotechnical and Coastal Engineering

Programme Requirements & Criteria for the Award of the MSc Degree

To achieve the above objectives and qualify for the award of the MSc degree, the student must complete and pass all the prescribed courses in the chosen area

of interest, participate in and present seminars and produced a well supervised dissertation on an approved research topic relevant to the interest of the Center.

Entry / Admission Requirements

To be admitted into the MSc Degree in Geotechnical and Coastal Engineering research programme of the Center, a candidate must have one of the following;

- a. First Degree in Civil Engineering or other relevant Engineering and Physical Science disciplines from any NUC Accredited University with a Second Class Lower Division;
- b. PGD in Civil Engineering or Geotechnical and Coastal Engineering with a minimum CGPA of 3.00.

Course Listings

The course listings consist of compulsory courses and electives.

13.1 Course Listings for MSc in Geotechnical and Coastal Engineering Programme

Course Code	Course Title	Credit Unit
GCE 801	Finite Element Method and Mathematical Modeling	3
GCE 802	Engineering Behavior and Properties of Soils	3
GCE 803	Earth Structures & Slopes	3
GCE 804	Embankments, Dam Engineering & Seepage	3
GCE 805	Rocks and Tropical Soil Engineering	3
GCE 806	Soil Dynamics & Earthquakes Engineering	3
GCE 807	Probabilistic & Reliability Methods in Geotechnical Engineering	3
GCE 808	Geotechnical Investigation & Monitoring	3
GCE 809	Introduction to Coastal Engineering	3
GCE 810	Coastal Infrastructure	3
GCE 811	Dynamics of Coastal Structures	3
GCE 812	Applied Modeling of Nearshore Processes & Transport	3
GCE 813	Coastal Engineering Measurements and Data Analysis	3
SGS 801.1	ICT & Research Methodology	2
SGS 801.2	Management & Entrepreneurship	2
GCE 8XX	Elective	3

GCE 814	Internship Seminar	3
GCE 800	Dissertation	6
TOTAL		55

GCE 815	Tunnel (Underground) Engineering	3
GCE 816	Special Topics in Geotechnical Engineering	3
GCE 817	Groundwater Hydrology & Exploration	3
GCE 818	Numerical Solutions of Differential Equations	3
GCE 819	Hydrodynamics for Coastal Engineers	3
GCE 820	Computer Programme for Oceanographers	3

M.Sc Geotechnical and Coastal Engineering Course Details

GCE 801-Finite Element Method & Mathematical Modelling (3 Credits)

Finite Element Methods; discretization of domains; Elements numbering techniques; Element Assembly and Solution of banded matrices, tridiagonal, pentadiagonal, etc 1-D, 2-D, and 3-D elements, Galerkin’s weighted Residual Method (GWRM), collocation method, etc. Local and Global coordinates. Modeling, calibration, verification/validation and prediction. Computer/software applications to field and idealized problems, input data, output data interpretation with respect to. Geotechnical and Coastal Engineering problems for instance, flood prediction, solute transport wave prediction, stress and strains in structures.

GCE 802 – Engineering Behavior and Properties of Soils (3 Credits)

Continuum mechanics: principles, parameters and representation of soil properties; spaces, Framework of Critical state soil Mechanics; Behavior of simple soils; Critical state models; Quantitative models of pore pressure; Strength behavior of Dilative Soils; Residual strength; failure theories, strength behavior of simple contractive soils; stress-strain relationships of soils; Constitutive models; Effective stress design methods, SHANSEP Soil physics, Chemistry and Mineralogy; Conduction Phenomena: coupled and uncoupled consolidation, compression, creep, time effects, sensitive soils; sampling and disturbances; Transient and Dynamic loading response; Effective of cycle loading; Graduate soil laboratory.

GCE 803 - Earth Structures & Slopes (3 Credits)

Equilibrium of Retained soil:- Limiting equilibrium analysis; Earth pressure theories; Lateral earth;

Rigid retaining walls; sheet pile walls; anchored bulkhead. Deep excavations in soil; pressure distribution, base instability, bracing and other support methods; Earth anchored excavation; concrete diaphragm walls; Reinforced earth walls; cellular cofferdams; soft ground tunneling; Ground movement accompanying excavations and tunneling operations; Slope stability:- Design and analysis of slopes and embankments, circular and non-circular failure surfaces, concept of safety; Probabilistic slope stability analysis; stress strain and time-dependent behavior; Identification and control of slope stability problems; Graduate soil Laboratory.

GCE 804 - Embankments, Dam Engineering & Seepage (3 Credits)

Types of Dams, Design consideration; design details; site explorations; behavior of rockfills; stress-strain modeling, Finite element modeling, stresses, load transfer; Cracking; pore pressure; observations / monitoring; inspection and maintenance; foundation and abutment treatment, cut-off; causes of failure; Trailings dam, Permeability, flow equations; flow nets. Numerical analyses, Seepage analogies; unknown boundaries; Transfer conditions; Anisotropic seepage; layered systems; piping filters.

GCE 805 - Rock & Tropical Soil Engineering (3 Credits)

Introduction: Rock as an Engineering material; Geological classification; Engineering classification of intact Rocks; structural features in Rock masses; Engineering classification of in-situ Rock masses; in-situ state of stress; stress - strain - strength behavior. Analyses of stress and strain, Elastic relationships (isotropic, anisotropic); Deformability of discontinuities; failure criteria (intact, anisotropic, jointed); Property evaluation and Measurement:- Laboratory, field; Tropical soils: Chemical, physical, textural and engineering properties; Remote sensing and air photo applications to Tropical soils engineering properties; geophysical techniques in tropical site characterization; Prediction of Engineering performance of tropical soils. Case histories.

GCE 806 - Soil Dynamics & Earthquakes Engineering (3 Credits)

Introduction: Dynamic response characteristics, wave propagation; Dynamic soil properties; Foundation response to vibrations, Blasting vibrations, Seismic slope stability analyses, Seismic design of retaining walls; Liquefaction; Seismic response of clays; Risks analyses and stability; Offshore dynamics. Engineering earthquakes from engineering point of view; Earthquake mechanism; Basic characteristics of strong ground motion; Response of simple systems to earthquakes; structural design for earthquakes, Seismic codes;

Earthquake resistant designs; site effects; soil amplifications; Seismic risks & design decisions; Soil-structure interactions; nuclear reactor containment structures; Earth- - Dam Design (Seismic); fluids in tanks & reservoirs, blast loading.

GCE 807 - Probabilistic & Reliability Methods in Geotechnical Engineering (3 Credits)

Basic probability theory & applications; Common probability distributions and Geotechnical applications, Joint distributions; Moment approximations; Reliability of soil structures; system reliability and applications; Geotechnical applications of entropy and test biased distribution, the hazard function; Applications of diffusion theory to subsidence, consolidation and stress distribution (Probability consolidation, Probabilistic stress distribution); Markov Process and progressive slope failure; Time series analyses and groundwater fluctuation; Uncertainty and soil parameters; Decision making under uncertainty, site characterization.

GCE 808 - Geotechnical Investigation and Monitoring (3 Credits)

Site Planning and design density of boreholes, sampling technology and disturbance, in-situ and laboratory testing, geophysical methods. Various aspects of ground instrumentation - monitoring of ground movements, drawdown, excess pore pressures, strut forces, wall deflection and observational methods.

GCE 809 - Introduction to Coastal Engineering (3 Credits)

Characteristics & Physical behavior of the Coastal Environment; Two dimensional wave equations & wave characteristics; Wave refraction, diffraction & reflection; Coastal sediment transport including nearshore currents, longshore onshore-offshore transport, and shoreline configuration; equilibrium beach profile concept with application to shore protection; shoreline modeling; tidal inlet hydrodynamics and inlet stabilization; design criteria for soft structures; Coastal zone processes & field Investigations - Wind wave measurements, Wave investigation facilities.

GCE 810 - Coastal Infrastructure (3 Credits)

Planning and design criteria of coastal infrastructure, including breakwaters, jetties, sea walls, groins, piers, submerged pipelines, harbor design, and tsunami defense. Use of laboratory models, numerical simulations, and field observations for design.

GCE 811 - Applied Modeling of Nearshore Processes & Transport (3 Credits)

Numerical modeling of the nearshore ocean, Numerical models for wave propagation, nearshore

circulation, platform shoreline evolution and bathymetric profile evolution. Application to coastal phenomena, and the interpretation of model results; Coastal features - Nearshore morphology, Crenulate bays, Sand waves, Beach cusps, Offshore sandbars; Equilibrium beach profiles; Sediment Characteristics & Transport; Long-Term Processes, Analyses, Modeling and Predictions of beaches & Shorelines; Shoreline Modification & Analyses.

GCE 812 - Dynamics of Coastal Structures (3 Credits)

Different types of Coastal structures and Compliant towers; New generation Offshore & Coastal structures; Environmental forces & Currents; Characteristics of single degree-of-freedom (DOF) models; Free, Forced, Underdamped & Damped single DOF systems; Two DOF systems; Eigenvalues & Eigenvectors & Orthogonality of modes; Multi-DOF systems - Natural frequencies & Mode shapes; Stadia, Raleigh-Ritz & Influence Coefficient methods; Continuous systems; Fluid - Offshore structures interactions (Jackets, Platforms, etc); Dynamic analyses of Articulated towers; Iterative frequency domains; Experimental & Analytical studies of Multi-legged articulated towers (MLAT); Tension legged Platforms (TLP) - Geometrical optimization and Dynamic analyses; TLPs under seismic excitation & Direct integration method; Stochastic Dynamics of Coastal structures - Response spectrum & Narrow band process; Return periods & Fatigue prediction; Modal response method, Modal mass contribution & Missing mass correction; Duhamel's integrals.

GCE 813 - Coastal Engineering Measurements & Data Analysis (3 Credits)

Coastal Engineering Measurements: Hands-on experience in the conduct of field & laboratory observations, including waves, currents, wind, tides, tsunami, sediments, bathymetry, shore profiles, wave forces on structures, and structural response. Online data archival & retrieval systems. Data Analysis: Fourier transform applications to the processing of Coastal engineering related types of signals. Introduction to probability and statistics. Digital processing techniques. Laboratory work involving analysis of Coastal engineering-related signals using modern data acquisition systems.

SGS 801.1 - ICT & Research Methodology (2 Credits)

Essentials of Spreadsheets, Internet Technology, Statistical Packages, Precision & Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation & Testing, Organisation of Research & report Writing.

SGS 801.2 - Management & Entrepreneurship (2 Credits)

Business Environment, General Management, Financial Management, Entrepreneurship Development, Feasibility Studies, Marketing & Managerial Problem Solving.

GCE 815 - Tunnel (Underground) Engineering (3 Credits)

Tunnel characteristics, clearances and ; Tunnel survey and preliminary investigation; soft ground tunneling; shield tunneling; Rock tunnels; mixed face tunneling, Tunnel-boring machines; Material handling and construction plant; shotcrete; cut and cover construction; safety provisions; drainage systems; tunnel operation and maintenance.

GCE 816 - Special Topics in Geotechnical Engineering (3 Credits)

Review of site appraisal & Engineering behavior of soils, foundation for structures - shallow foundations, deep foundations: piles, piers (caissons), bridge supports, Foundations in difficult ground conditions; Deep basements; Geotechnical Structures, Offshore Geotechnical Engineering; Offshore structures, Soil and Ground improvements; land reclamation; Earthworks & Soil stabilization, Geotextiles and Geosynthetics; Environmental Geotechnical Engineering - ground movements (subsidence); Effects of pollution on the properties & engineering behavior of soils, Advanced Soil Mechanics, laboratory principles & procedures.

GCE 817 - Groundwater Hydrology & Exploration (3 Credits)

Groundwater as a renewable resource; occurrence, disposal and historic background; types of aquifers; measurement of soil moisture; unsteady flows and measurement of hydraulic conductivity, transivity, and specific yield/storage coefficients; well hydraulics with considerations to Theis Jacob, Chow and Hantush methods; leaky aquifer, recovery methods, and Bolton's flow around fully and partially penetrating wells and well losses; well construction and drilling methods. Groundwater quality analyses, artificial recharge; surface and subsurface investigations and sea water intrusions.

GCE 818 - Numerical Solutions of Differential Equations (3 Credits)

Introduction, Gaussian elimination, LU factorization & Cholesky factorization; Mathematical preliminaries on linear space, QR factorization by Gram-Schmidt & Householder transformation; Least squares fitting, condition number and stability; Iterative methods for linear systems, conjugate gradient method; Eigenvalue & eigenvector problem; Initial value problem of Ordinary Differential Equations. Euler's method, Explicit Runge-Kutta methods, convergence rate

analysis, stiff equations & absolute stability; Quadrature integration & Implicit Runge-Kutta and multistep methods; Two point boundary value problems, finite difference & shooting methods. Partial Differential Equation -1: Poisson equations; Partial Differential Equation 2: Diffusion equations, consistency, order & stability. Lax Equivalence Theorem; Partial Differential Equation - 3: Stability analysis: eigenvalue approach & Fourier transform approach, advection equations.

GCE 819 - Hydrodynamics for Coastal Engineers (3 Credits)

Periodic wave pattern: the approach of differential calculus, the control volume approach. Wave effects on coasts. Wind generated waves: basic concepts. Analysis of the sea states: the time domain. The wave climate. Design waves and risk analysis. Analysis of the sea states in the space-time. The theory of Quasi- Determinism theory. Analysis of the wave forces on offshore structures. Stability analysis of coastal structures. Introduction to wave mechanics, a review of hydrodynamics and vector analysis, small amplitude water wave theory, formulation and solution, engineering wave properties, long waves, wave statistics and spectra, wave forces, waves over real sea beds, nonlinear properties derivable from small amplitude waves, nonlinear waves, a series of experiments for a laboratory course component in water waves.

GCE 820 – Computer Programme for Oceanographers (3 Credits)

Introduction to MATLAB desktop environment, Basic programming and data analysis skills, Matrix algebra & Vectorization of functions, Writing optimized routines to analyze data sets, Basic graphics & visualization, Two- dimensional & three-dimensional Graphing, Contouring & Movies; Scalar & Vector Space - Time Series at fixed locations & Moving locations (Shipboard surveys), Oceanographic characteristics varying in both three-dimensions & Time; Matlab-based Processing, Analyses & Visualization of large Oceanographic data-sets;

Graduation Requirements

To be awarded the MSc degree in Geotechnical and Coastal Engineering students must have passed all prescribed courses.

MSc Degree in Coastal Technology Management

Entry / Admission Requirements

To be admitted into the MSc Degree in Coastal Technology Management programme of the Center, a candidate must have one of the following;
a. First Degree in Engineering or other relevant Physical and Environmental Science disciplines

from any NUC Accredited University with a Second Class Lower Division;

- b. PGD in Civil, Geotechnical and Coastal Engineering or other related Physical and Environmental Science disciplines with minimum CGPA of 3.00.

Course Listings

The course listings consist of compulsory courses and electives.

13.1 Courses Listing for MSc in Coastal Technology Management

Course Code	Course-Title	Credit Unit
CTM 801	Finite Element and Mathematical Modeling	3
CTM 809	Introduction to Coastal Engineering	3
CTM 821	Coastal Vulnerability and Adaption Strategy	3
CTM 810	Coastal Infrastructure	3
CTM 812	Applied Modeling of Nearshore Processes & Transport	3
CTM 811	Dynamics of Coastal Structures	3
CTM 813	Coastal Engineering Measurements & Data Analysis	3
CTM 822	Coastal Hazard Analysis	3
CTM 820	Computer Programme for Oceanographer	3
CTM 823	Project Management	3
CTM 824	Coastal Risk Management	3
SGS 801	ICT & Research Methodology	2
SGS 802	Management & Entrepreneurship	2
CTM 83X	Technical Elective	3
CTM 814	Internship Seminar	3
CTM 800	Dissertation	6
TOTAL		

TECHNICAL ELECTIVES (CHOOSE ONE)

- CTM 818 Numerical Solutions of Differential Equations
- CTM 819 Hydrodynamics for Coastal Engineers

MSc Coastal Technology Management Course Details

CTM 801 - Finite Element and Mathematical Modeling (3 Credits)

Finite Element Methods; discretization of domains; Elements numbering techniques; Element Assembly

and Solution of banded matrices, tridiagonal, pentadiagonal, etc 1-D, 2-D, and 3-D elements, Galerkin's weighted Residual Method (GWRM), collocation method, etc. Local and Global coordinates. Modeling, calibration, verification/validation and prediction. Computer/software applications to field and idealized problems, input data, output data interpretation with respect to Geotechnical and Coastal Engineering problems for instance, flood prediction, solute transport wave prediction, stress and strains in structures.

CTM 809 - Introduction to Coastal Engineering (3 Credits)

Characteristics & Physical behavior of the Coastal Environment; Two dimensional wave equations & wave characteristics; Wave refraction, diffraction & reflection; Coastal sediment transport including nearshore currents, longshore onshore-offshore transport, and shoreline configuration; equilibrium beach profile concept with application to shore protection; shoreline modeling; tidal inlet hydrodynamics and inlet stabilization; design criteria for soft structures; Coastal zone processes & field Investigations - Wind wave measurements, Wave investigation facilities.

CTM 821 - Coastal Vulnerability and Adaption Strategy (3 Credits)

The nature of the coastal environment. Coastal zones in the Niger Delta and Nigeria. Coastal resources; the nature and status of coastal resources. Coastal zones classification. Coastal zone management. Vulnerability assessment of coastal zones. Risk associated with Coastal development. Coastal zone adaptation planning. Adaptation strategies in the Coastal environment. Present climate realities and the coastal environment.

CTM 810 - Coastal Infrastructure (3 Credits)

Planning and design criteria of coastal infrastructure, including breakwaters, jetties, sea walls, groins, piers, submerged pipelines, harbor design, and tsunami defense. Use of laboratory models, numerical simulations, and field observations for design.

CTM 812 - Applied Modeling of Nearshore Processes & Transport (3 Credits)

Numerical modeling of the nearshore ocean, Numerical models for wave propagation, nearshore circulation, platform shoreline evolution and bathymetric profile evolution. Application to coastal phenomena, and the interpretation of model results; Coastal features - Nearshore morphology, Crenulate bays, Sand waves, Beach cusps, Offshore sandbars; Equilibrium beach profiles; Sediment Characteristics & Transport; Long-Term Processes,

Analyses, Modeling and Predictions of beaches & Shorelines; Shoreline Modification & Analyses.

CTM 811 - Dynamics of Coastal Structures (3 Credits)

Different types of Coastal structures and Compliant towers; New generation Offshore & Coastal structures; Environmental forces & Currents; Characteristics of single degree-of-freedom (DOF) models; Free, Forced, Underdamped & Damped single DOF systems; Two DOF systems; Eigenvalues & Eigenvectors & Orthogonality of modes; Multi-DOF systems - Natural frequencies & Mode shapes; Stadia, Raleigh-Ritz & Influence Coefficient methods; Continuous systems; Fluid - Offshore structures interactions (Jackets, Platforms, etc); Dynamic analyses of Articulated towers; Iterative frequency domains; Experimental & Analytical studies of Multi-legged articulated towers (MLAT); Tension legged Platforms (TLP) - Geometrical optimization and Dynamic analyses; TLPs under seismic excitation & Direct integration method; Stochastic Dynamics of Coastal structures - Response spectrum & Narrow band process; Return periods & Fatigue prediction; Modal response method, Modal mass contribution & Missing mass correction; Duhamel's integrals.

CTM 813 - Coastal Engineering Measurements & Data Analysis (3 Credits)

Coastal Engineering Measurements: First hands-on experience in the conduct of field & laboratory observations, including waves, currents, wind, tides, tsunami, sediments, bathymetry, shore profiles, wave forces on structures, and-structural response. Online data archival & retrieval systems.

Data Analyses: Fourier transform applications to the processing of Coastal engineering related types of signals. Introduction to probability and statistics. Digital processing techniques. Laboratory work involving analysis of Coastal engineering-related signals using modern data acquisition systems.

CTM 822 - Coastal Hazards Analysis (3 Credits)

Cascade of Natural, Biological & Human induced hazards; Perspectives on Coastal & Marine Hazards & Disasters; Tsunami Dynamics, forecasting & mitigations; Paleostorm surges & inundations; Storm surge warning, mitigation & adaptation; Sea level rise - Causes, impacts & scenarios for change; Storm induced morphology changes; Extreme waves, Rip currents; Sea Ice - hazards, risks & implications; Remote sensing of Coastal hazards; Mangroves, tropical cyclones & risk reduction; Coral reefs, Threats to marsh resources & mitigation; Living with harmful algae blooms.

CTM 820 - Computer Programme for Oceanographers (3 Credits)

Introduction to MATLAB desktop environment, Basic programming and data analysis skills, Matrix algebra & Vectorization of functions, Writing optimized routines to analyze data sets, Basic graphics & visualization, Two-dimensional & three-dimensional Graphing, Contouring & Movies; Scalar & Vector Space - Time Series at fixed locations & Moving locations (Shipboard surveys), Oceanographic characteristics varying in both three-dimensions & Time; Matlab-based Processing, Analyses & Visualization of large Oceanographic data-Sets;

CTM 823 - Project Management (3 Credits)

Project Management Overview; Identify project management processes, professional and social responsibilities, interpersonal skills required for a project management. Project Management Methodology, Project Management

Project management content, Examine project selection, Prepare a project statement of work, Create a project charter, Identify project stakeholders. The Planning Phase; Identify elements of the project management plan, Document stakeholder requirements, Create a scope statement, develop a work breakdown structure. Development Project Schedules; Create an activity list, Create a project charter, Identify the critical path, Optimize the project schedule, Establish a schedule baseline. The analysis phase, the design phase, the implementation phase, Evaluation phase, Changing information systems and Project management assessment.

CTM 824 – Coastal Risk Management (3 Credits)

Principles of Risk and Risk Management; introduction to the principles and concepts of risk and risk management, Identify the risk associated with the goals of an organization, history of risk management, development and impact of international standards. Practice of Risk Management; explores the impact of the global business environment on risk, examines issues relevant to specific sectors and geographical areas and the needs and demands of various stakeholder groups, including regulatory authorities. Risk Assessment; To quantify and prioritize the risk, nature of risk- losses and opportunities, sources and types of risk information that help identify, record and communicate risk effectively, examine the different techniques for identifying risks and explore common methods for analyzing risks and uncertainties. Risk Treatment; To develop appropriate responses to the prioritized risk. Role of risk treatment within the wider enterprise, risk management framework, different approaches to effectively respond to opportunities and treat threats, evolving risk management fundamental tools, monitoring the impact of risk on the organization. Risk, Governance and Culture; Examines issues of

corporate governance, risk oversight, internal control and assurance in a global marketplace. Role of the board and key stakeholders in ensuring that risk is integrated with strategy. Critical elements of organizational behaviours including culture, corporate social responsibility and business ethics. Crises, Resilience and Future Risks; A demonstration exercise to develop a framework to help organisations strengthen their resilience at strategic, tactical and operational levels to face current and future risks. Using case studies from different business sectors and geographical regions to analyze how crises are managed.

SGS 801.1 - ICT & Research Methodology (2 Credits)

Essentials of Spreadsheets, Internet Technology, Statistical Packages, Precision & Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation & Testing, Organisation of Research & report Writing.

SGS 801.2 - Management & Entrepreneurship (2 Credits)

Business Environment, General Management, Financial Management, Entrepreneurship Development, Feasibility Studies, Marketing & Managerial Problem Solving.

CTM 818 - Numerical Solutions of Differential Equations (3 Credits)

Introduction, gaussian elimination, LU factorization & Cholesky factorization; Mathematical preliminaries on linear space, QR factorization by Gram-Schmidt & Householder transformation; Least squares fitting, condition number and stability; Iterative methods for linear systems, conjugate gradient method; Eigenvalue & eigenvector problem; Initial value problem of Ordinary Differential Equations. Euler's method, Explicit Runge-Kutta methods, convergence rate analysis, stiff equations & absolute stability; Quadrature integration & Implicit Runge-Kutta and multistep methods; Two point boundary value problems, finite difference & shooting methods. Partial Differential Equation -1: Poisson equations; Partial Differential Equation 2: Diffusion equations, consistency, order & stability. Lax Equivalence Theorem; Partial Differential Equation - 3: Stability analysis: eigenvalue approach & Fourier transform approach, advection equations.

CTM 819 - Hydrodynamics for Coastal Engineers

Periodic wave pattern: the approach of differential calculus, the control volume approach. Wave effects on coasts. Wind generated waves: basic concepts. Analysis of the sea states: the time domain. The wave climate. Design waves and risk analysis. Analysis of the sea states in the space-time. The

theory of Quasi- Determinism theory. Analysis of the wave forces on offshore structures. Stability analysis of coastal structures.

Introduction to wave mechanics, a review of hydrodynamics and vector analysis, small amplitude water wave theory, formulation and solution, engineering wave properties, long waves, wave statistics and spectra, wave forces, waves over real sea beds, nonlinear properties derivable from small amplitude waves, nonlinear waves, a series of experiments for a laboratory course component in water waves.

Graduation Requirements

To be awarded the MSc degree in Coastal Engineering Technology, students' must have passed all prescribed courses.

Doctor of Philosophy (PhD) Degree Programme in Geotechnical and Coastal Engineering

Course Delivery

All lectures for every Programme shall be administered / delivered on modular basis from 08.00am to 04.00pm (with One Hour (12.00 - 01.00) break) from Mondays to Fridays. That is, 40 hours lecture per week per Course which is approximately equal to 14 weeks Semester of Academic work for a 3 Credit Units (2-hours lecture plus 1 hour Practical or Tutorial per week) Course. Examination for a Course is taken after the Lectures on Saturdays, while the Continuous Assessment is done within the lecture periods as Practical reports, Test, Group Discussions, Field Trips reports and Assignments.

Programme Duration

1. The full-time candidates will be required to spend a minimum of 2 years and a maximum of 5 years.
2. The part-time candidates will be required to spend a minimum of 3 years and a maximum of 7 years.

Entry /Admission Requirements

To be admitted into the PhD Degree programme in Geotechnical and Coastal Engineering, candidates must satisfy one of the following categories;

- a. Candidates must have successfully completed the relevant M.Sc degree in the University of Port Harcourt with a minimum CGPA of 3.5 on a 5 point scale in Geotechnical and Coastal Engineering or any other relevant discipline.
- b. Candidates with equivalent qualifications from other Universities are also considered for admission.
- c. Qualified industry staff with relevant M.Sc. (in Civil Engineering or any other closely related discipline) degree can apply.

- d. Shortlisted candidates will be invited for interview /presentation of research proposals. Limited sponsorship opportunity is available for students however, candidates are encouraged to seek for sponsorship from other sponsoring agencies and employers.

Programme Requirements & Criteria for the Award of the PhD Degree

To achieve the above objectives and qualify for the award of the PhD degree, the student must complete and pass all the prescribed courses in the chosen area of interest, participate in and present seminars and produced a well supervised dissertation on an approved research topic relevant to the interest of the Center.

Course Listings

The course listings consist of: Compulsory courses and Electives. Details of the Courses are presented subsequently for the two research areas of the Center.

Courses Listing for PhD in Geotechnical and Coastal Engineering

Module Code	Module Title	Credit Unit
GCE 910	Advanced Concepts in Engineering Behavior of Soils	3
GCE 912	Finite Element and Mathematical Modelling Techniques in Geomechanics	3
GCE 913	Advanced Probability and Reliability of Geotechnical Systems	3
GCE 915	Advanced Earthquake Engineering and Foundation Vibrations	3
GCE 916	Advanced Earth Structures and Slopes	3
GCE 917	Advanced Concepts in Theoretical Soil Mechanics	3
GCE 918	Advanced Dam Engineering, Embankments and Seepage	3
GCE 920	Advanced Project Management	3
CTM 902	Advanced Coastal Infrastructure	3
CTM 904	Advanced Coastal Measurement and Data Analysis	3
GCE 905	ICT/Big Data Analysis	3
GCE 901	Technical Seminar	3

GCE 902 Thesis	6
TOTAL	42

COURSE DESCRIPTION

GCE 910 - Advanced Concepts in Engineering Behavior of Soils (3 Credits).

Parameters and representation of soil properties. Advanced concepts in Critical State Soil Mechanics – Limit and Critical State Models. Strength behavior of simple contractive soils. Strength behavior of dilative soils. Behavior of heavily over-consolidated clays including residual strength. Quantitative models of pore pressure. Volume change and compressibility behavior: Consolidation, compression, creep and other time effects. Conduction phenomena-uncoupled and coupled. Sensitive soils. Stress-Deformation of soils. Models for stress-strain and other constitutive laws. Transient and dynamic loading response. Effects of cyclic loading. Failure theories.

GCE 912 - Finite Element and Mathematical Modelling Techniques in Geomechanics

Introduction: Geotechnical Modelling of soil behaviour – Limit and Critical States (a Review); Constitutive Modelling: Elastic, elastic – plastic models; Numerical modelling: Finite Element modelling, Finite differences; Physical Modelling: Dimensional analysis, Soil – Structure Interaction; Centrifuge Modelling; Theoretical Modelling; Application of Modelling techniques in solving soil – Structure Interaction Problems.

GCE 913 - Advanced Probability and Reliability of Geotechnical Systems (3 Credits).

Basic probability theory and applications; common probability distributions and geotechnical applications; joint distributions; moment approximations; Reliability of soil structures; system reliability and applications; Geotechnical applications of entropy and least biased distribution, the hazard function; Applications of diffusion theory to subsidence, consolidation and stress distribution (Probability consolidation, probabilistic stress distribution); Markov Process and progressive slope failure; Time series analysis and groundwater fluctuation; Uncertainty and soil parameters; Decision making under uncertainty; site characterization.

GCE 915 - Advanced Earthquake Engineering and Foundation Vibrations (3 Credits).

Introduction: Dynamic Response Characteristics; Wave Propagation; Dynamic Soil properties; Foundation response to vibrations, Blasting Vibrations; Seismic slope stability analysis; Seismic design of retaining walls; Liquefaction; Seismic

response of clays; Risk analysis and stability; offshore dynamics. Engineering earthquakes from engineering point of view; Earthquake mechanism; Basic characteristics of strong ground motion; Response of simple systems to earthquakes; structural design for earthquakes; seismic codes; earthquake resistant design; site effects; soil amplification; seismic risk and design decisions; Soil-structure interaction; nuclear reactor containment structures; earth dam design (seismic); fluids in tanks and reservoirs; Blast loading.

GCE 916 - Advanced Earth Structures and Slopes (3 Credits).

Equilibrium of Retained soil: Limiting equilibrium analysis; Earth pressure theories; Lateral earth; Rigid retaining walls; sheet pile walls; anchored bulkhead. Deep excavations in soil; pressure distribution, base instability, bracing and other support methods; Earth anchored excavation; concrete diaphragm walls; Reinforced earth walls; cellular cofferdams; soft ground tunneling; Ground movement accompanying excavations and tunneling operations; Slope stability:- Design and analysis of slopes and embankments, circular and non-circular failure surfaces, concept of safety; Probabilistic slope stability analysis; stress strain and time-dependent behavior; Identification and control of slope stability problems; Graduate soil Laboratory.

GCE 917 - Advanced Concepts in Theoretical Soil Mechanics (3 Credits).

Stress distribution in soil: Concept of stress and strain; Elastic equations; Applications to various loading and boundary conditions in soil. Stability problems in soil: - Failure theories; Development of conventional stability methods; Effects of retaining wall movements; Sokolovski's methods of characteristics. Consolidation:-Theoretical development and solution of one dimensional consolidation; Higher-dimensional consolidation. Seepage: -Theory of groundwater movement; method of fragments.

GCE 918 - Advanced Dam Engineering, Embankments and Seepage (3 Credits).

Types of Dams, Design consideration; design details; site explorations; behavior of rockfills; stress-strain modeling, Finite element modeling, stresses, load transfer; Cracking; pore pressure; observations / monitoring; inspection and maintenance; foundation and abutment treatment, cut-off; causes of failure; Trailings dam, Permeability, flow equations; flow nets. Numerical analyses, Seepage analogies; unknown boundaries; Transfer conditions; Anisotropic seepage; layered systems; piping filters.

GCE 920 – Advanced Project Management (3 Credits).

Project Management overview: Identify project management processes, professional and social responsibilities, interpersonal skills required for a project management. Project Management Methodology. Project Management Toolset. Project Management Documentation. System Development Life Cycle. Initiating a project: Examine the project management content, examine project selection, prepare a project statement of work, create a project charter, Identify project stakeholders. The Planning Phase: Identify elements of the project management plan, Document stakeholder requirements, create a scope statement, develop a work breakdown structure.

CTM 902 - Advanced Coastal Infrastructure (3 Credits).

Review of planning and design of critical coastal infrastructure. Review of design criteria. Advanced design of break waters, jetties, seawalls, groins, piers, submerged pipelines, harbor design and Tsunami defense. Use of laboratory models, numerical simulation and observation for design.

CTM 904 - Advanced Coastal Management and Data Analysis (3 Credits).

Advanced coastal measurement. Advanced bathymetric survey. Online data archival and retrieval systems. Data analysis: Fourier transform applications to the processing of coastal related types of signal. Advanced statistics. Digital processing technique. Laboratory work involving analysis of coastal related signals using modern data acquisition systems.

GCE 905 – ICT/Big Data Analysis (3 Credits).

Overview of Big Data. Using Big Data in Businesses. Technologies for Handling Big Data. Understanding Hadoop Ecosystem. Dig Deep to understand the fundamental of MapReduce and HBase. Understanding Big Data Technology Foundations. Databases and Data Warehouses. Using Hadoop to store data. Learn to Process Data using Map Reduce. Testing and Debugging Map Reduce Applications. Learn Hadoop YARN Architecture. Exploring Hive. Exploring Pig. Exploring Oozie. Learn NoSQL Data Management. Integrating R and Hadoop and Understanding Hive in Detail.

GCE 901 - Technical Seminar (3 Credits).

This is a required course for all graduate students. Intensive review of the literature in the student area of specialization will be required. Series of seminars will be delivered by students in topic of interest.

GCE 902 - Research and Dissertation (6 Credits).

This is a directed research on problems in the student's area of specialization. Emphasis will be on the use of research methodology for scientific investigation leading to a written thesis.

Graduation Requirements

To be awarded the PhD degree in Geotechnical and Coastal Engineering, the student must fulfill the following requirements.

- Be registered in the School of Graduate Studies for equivalent of twenty-four (24) calendar months for full-time mode of study.
- Complete a total of forty-two (42) credit units. At least 6 credits must be on a dissertation devoted to managing Geotechnical and Coastal Engineering problems.
- Complete eight (8) core Geotechnical and Coastal Engineering courses and a graduate seminar course with at least a 'C' grade.

Resource Persons

Preamble

The resource persons for the PhD programme in Geotechnical and Coastal Engineering are a blend of university academics, industry and government representatives. The teaching is not only theory based but practical and industrial trainings. The ratio shall be 60% academics, 30% industry facilitators and 10% government representatives.

Doctor of Philosophy (Ph.D) Degree Programme in Coastal Technology Management

Course Delivery

All lectures for every Programme shall be administered / delivered on modular basis from 08.00am to 04.00pm (with One Hour (12.00 - 01.00) break) from Mondays to Fridays. That is, 40 hours lecture per week per Course which is approximately equal to 14 weeks Semester of Academic work for a 3 Credit Units (2-hours lecture plus 1 hour Practical or Tutorial per week) Course. Examination for a Course is taken after the Lectures on Saturdays, while the Continuous Assessment is done within the lecture periods as Practical reports, Test, Group Discussions, Field Trips reports and Assignments.

Programme Duration

- The full-time candidates will be required to spend a minimum of 2 years and a maximum of 5 years.
- The part-time candidates will be required to spend a minimum of 3 years and a maximum of 7 years.

Entry /Admission Requirements

Candidates for admission into the Ph.D programme in Coastal Technology Management must possess a Masters of Engineering or Science degree in any related Engineering, Physical and Environmental Science disciplines from the University of Port Harcourt or any other recognized University with at least a CGPA of 3.5. In addition, every applicant must provide:

- a. Two letters of reference (at least) from persons qualified to comment on his or her academic work (preferably, the supervisor of the Masters' programme should be one of the referees;
- b. A copy of his or her Master's degree transcript;
- c. Four copies of his or her proposed research plan.

Final selection of candidates will be based on the evaluation of the above documents as well as performance at interview.

Programme Requirements & Criteria for the Award of the PhD Degree

To achieve the above objectives and qualify for the award of the PhD degree, the student must complete and pass all the prescribed courses in the chosen area of interest, participate in and present seminars and produced a well supervised dissertation on an approved research topic relevant to the interest of the Center.

Course Listings

The course listings consist of: Compulsory courses listed below:

Course Listing for Ph.D. in Coastal Technology Management

Module Code	Module Title	Credit Unit
CTM 901	Advanced Modelling Techniques in Coastal Technology	3
CTM 902	Advanced Coastal Infrastructure	3
CTM 903	Advanced Vulnerability and Adaptation Strategy	3
CTM 904	Advanced Coastal Measurement and Data Analysis	3
CTM 905	Advanced Reliability and Risk Management	3
CTM 906	Advanced Programming in Oceanography	3
CTM 907	Coastal Hazard Analysis	3
CTM 908	Advanced Hydrodynamics for Coastal Engineering	3
CTM 909	Advanced Project Management	3
CTM 911	Advanced Statistics	3
CTM 912	ICT/Big Data Analysis	3
CTM 910	Technical Seminar	3
CTM 930	Thesis	6
TOTAL		42

COURSE DESCRIPTION

CTM 901 - Advanced Modeling Techniques in Coastal Technology (3 Credits).

Review of finite element; Discretization of river and coastal domains. Element numbering technique in

coastal environment. Element assembly and solution of banded matrices, tridiagonal, pentadiagonal etc. 1-D, 2-D, and 3-D elements. Computer/software application to field and idealized problems, input data, interpretation with respect to coastal environment for instance flood prediction, solute transport wave prediction.

CTM 902 - Advanced Coastal Infrastructure (3 Credits).

Review of planning and design of critical coastal infrastructure. Advanced design of break waters, jetties, seawalls, groins, piers, submerged pipelines, harbour design and Tsunami defense. Use of laboratory models, numerical simulation and observation for design.

CTM 903 - Advanced Vulnerability and Adaptation Strategy (3 Credits).

The nature of the coastal environment. Coastal zones in Nigeria. Coastal resources: the nature and status. Coastal zones classification. Coastal zone management. Vulnerability assessment of coastal zones. Risk associated with Coastal development. Coastal zone adaptation planning. Adaptation strategies in the Coastal environment. Present climate realities and the coastal environment.

CTM 904 - Advanced Coastal Management and Data Analysis (3 Credits).

Advanced coastal measurement. Advanced bathymetric survey. Online data archival and retrieval systems. Data analysis: Fourier transform applications to the processing of coastal related types of signal. Digital processing technique. Laboratory work involving analysis of coastal related signals using modern data acquisition systems.

CTM 905 - Advanced Reliability and Risk Management (3 Credits).

Review of state of the art computer methods, soft wares on structural reliability modelling; Principles of structural reliability analysis; Destructive and non-destructive examinations; and case studies. Advanced principle in risk management, history of risk management, development and impact of international standard. Review of risk assessment. Review of risk treatment. Review of risk, governance and culture.

CTM 906 - Advanced Programming in Oceanography (3 Credits).

Introduction to MATLAB desk environment. Advanced programming and data analysis skills, matrix algebra and vectorization of functions, writing optimized routines to analyze data sets, basic graphics and visualization. Oceanographic

characteristics varying in both three dimensions and time. MATLAB processing, analysis and visualization of large oceanographic data sets.

CTM 907 - Coastal Hazard Analysis (3 Credits).

Cascade of natural, biological and human induced hazards. Perspective on coastal hazard and disasters. Forecasting and mitigations. Sea level rise causes, impact and scenarios for change. Storm induced morphology changes. Remote sensing of coastal hazard.

CTM 908 - Advanced Hydrodynamics for Coastal Engineering (3 Credits).

Periodic wave patterns: the approach of differential calculus, the control volume approach. Waves effect on coasts. Wind generated waves. Advanced wave mechanics. Review of hydrodynamics and vector analysis.

CTM 909 – Advanced Project Management (3 Credits).

Project Management overview: Identify project management processes, professional and social responsibilities, interpersonal skills required for a project management. Project Management Methodology. Project Management Toolset. Project Management Documentation. System Development Life Cycle. Initiating a project: Examine the project management content, examine project selection, prepare a project statement of work, create a project charter, Identify project stakeholders. The Planning Phase: Identify elements of the project management plan, Document stakeholder requirements, create a scope statement, develop a work breakdown structure.

CTM 911 - Advanced Statistics (3 credits).

Linear statistical models. General regression theory and industrial applications. Design of orthogonal experiments and industrial applications. Correlation coefficient analysis. Elementary time series analysis. Finite population sampling and survey methods.

CTM 912 – ICT/Big Data Analysis (3 Credits).

Overview of Big Data. Using Big Data in Businesses. Technologies for Handling Big Data. Understanding Hadoop Ecosystem. Dig Deep to

understand the fundamental of MapReduce and HBase. Understanding Big Data Technology Foundations. Databases and Data Warehouses. Using Hadoop to store data. Learn to Process Data using Map Reduce. Testing and Debugging Map Reduce Applications. Learn Hadoop YARN Architecture. Exploring Hive. Exploring Pig. Exploring Oozie. Learn NoSQL Data Management. Integrating R and Hadoop and Understanding Hive in Detail.

CTM 910 - Technical Seminar (3 Credits).

This is a required course for all graduate students. Intensive review of the literature in the student area of specialization will be required. Series of seminars will be delivered by students in topic of interest.

CTM 930 - Thesis (6 Credits).

This is a directed research on problems in the student's area of specialization. Emphasis will be on the use of research methodology for scientific investigation leading to a written thesis.

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- f. Complete eight (8) core Coastal Technology and Management courses and a graduate seminar course with at least a 'C' grade.

Resource Persons

Preamble

The resource persons for the PhD programme in Coastal Technology Management are a blend of university academics, industry and government representatives. The teaching is not only theory based but practical and industrial trainings. The ratio shall be 60% academics, 30% industry facilitators and 10% government representatives.

PARTICIPATING LECTURERS/INSTRUCTORS

S/Nos	Names	Qualifications	Specialization	Rank
1	Ejezie, S.U.	Ph.D, MSc., BSc., R.Engr (COREN).	Geotechnical Engineering	Visiting Professor
2	Nwaogazie, I.L.	Ph.D, MSc., BSc., R.Engr (COREN).	Engineering Modeling	Professor
3	Teme, S.C.	Ph.D, MSc., BSc., (FNMGS).	Geology & Geotechnical Engg	Visiting Professor
4	Jimoh, Y.	Ph.D, MSc., BSc., R.Engr (COREN).	Geotechnical Engg	Visiting Professor
5	Johnary, T.	Ph.D, MSc., BSc., R.Engr (COREN).	Engineering Structures	Visiting Professor
6	Igwe, E.A.	Ph.D. MTech., BTech., R.Engr (COREN)	Highway Engineering	Visiting Professor
7	Ossia, O.V.	Ph.D, MTech.,BTech., R.Engr (COREN).	Applied Mechanics	Professor
8	Nwofor, T. C.	Ph.D, M.Tech.,B.Tech. R.Engr (COREN).	Engineering Structures	Reader
9	Eme, D.B.	Ph.D, M.Te.ch.,B.Tech., R.Engr (COREN). •	Highway Engineering	Reader
10	Nwaobakata, E.	Ph.D, M.Tech.,B.Tech., R.Engr (COREN).	Highway Engineering	Reader
11	Sule, S.	Ph.D, M.Tech., B.Eng., R.Engr (COREN).	Engineering Structures	Reader
12	Orji, C.U.	Ph.D, MSc., BTech., R.Engr (COREN)	Marine Engineering	Senior Lecturer
13	Tamunodukobipi, D.	Ph.D, MTech.,BTech., R.Engr (COREN).	Applied Rotodynamics	Senior Lecturer
14	Akandu, E.	Ph.D, MTech., BTech	Marine & Offshore Structures	Senior Lecturer
15	Awodigi, C. T.	Ph.D, M.Eng., B.Eng., R.Engr (COREN).	Engineering Structures	Senior Lecturer
16	Ugwoha, E.	Ph.D, MSc, BTech., R.Engr (COREN)	Environmental Engineering	Senior Lecturer
17	Kamalu, U.A.	Ph.D, MEng., BEng., R.Engr (COREN)	Electronics Engineering	Senior Lecturer
18	Ukpong, E.U.	Ph.D, MSc, BSc., R.Engr (COREN)	Geotechnical Engineering	Senior Lecturer
19	Ikebude, C.	Ph.D., MEng., BEng., R.Eng (COREN)	Water Resources	Senior Lecturer
20	Nwaigwe, C.	Ph.D, MSc., BSc.	Computation Fluid Dynamics	Lecturer-1
21	Ibekwe, A.U.	Ph.D, M.Tech.,B.Tech., R.Engr (COREN).	Marine Engineering Platforms	Industry

22	Tam-Jones, Atuboyedia	Ph.D, M.Tech., B.Tech., R.Engr (COREN)	Highway Engineering	Industry
23	Henshaw, T.	Ph.D., MEng., BEng., R.Eng (COREN)	Water Resources	Industry

Personnel

Being multi-disciplinary in nature, academic Faculty is drawn from different academia and from relevant disciplines at the University of Port Harcourt, other Sister Universities and Industry. The current list of proposed teaching faculty is shown above. However, more Teachers, Instructors and Researchers of high professional repute shall be co-opted as collaborators to build a center of Excellence in Geotechnical and Coastal Engineering. Besides, there are two Professorial Chairs domiciled in the Center, namely: Enoch George Professorial Chair in Geotechnical Engineering and the Gesi Assamaowei Professorial Chair in Coastal Engineering Research.

CENTRE FOR OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENT (OHSE)

POST GRADUATE DIPLOMA (PGD) IN OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT (OHSE) AT THE CENTRE FOR OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT (COHSE)

1. INTRODUCTION

The programme is designed for candidates seeking to remedy their deficiencies to qualify for a master's degree in either Environmental Technology and Management (ETM) or Occupational Health and Safety (OHS) as well as others intending to improve their professional skills for better performance in the industry.

2. PHILOSOPHY

The philosophy of the postgraduate diploma programme is to provide postgraduate training in Occupational Health, Safety and Environment for bachelor's degree and HND holders in Science, Engineering and related disciplines who do not qualify for admission into master's degree programme in Occupational Health, Safety and Environment.

3. VISION

To produce PGD graduates in Occupational Health, Safety and Environmental who can design safe work procedures and provide safe working environment for safe operations in workplaces.

4. MISSION

To provide postgraduate diploma training that will enable beneficiaries to be more effective in their workplaces.

5. RATIONALE

The programme will provide opportunity for individuals with 3rd Class degrees in Science, Engineering and related disciplines who desire to remedy their bachelor's degrees in order to pursue higher degrees in Occupational Health, Safety and Environment. It will also provide opportunity for HND holders with Upper Credit to equally pursue higher degrees in Occupational Health, Safety and Environment.

6. AIM AND OBJECTIVES

The aim of the programme is to provide PGD graduates of Occupational Health, Safety and Environment (OHSE) with broad based training required in industrial safety and environmental management.

The objectives of the PGD programme are to train graduates to perform the following:

- Promote health and safety awareness among workers;
- Prescribe suitable means for the evaluation and control of hazards;
- Provide guidance for compliance with global, federal, state, and local regulations;
- Drive purposeful environmentally friendly projects.

7. ADMISSION REQUIREMENTS

Candidates who possess a bachelor's degree from a recognized University with a minimum of 3rd Class and candidates who possess Higher National Diploma (HND) from a recognized Polytechnic with a minimum of Upper Credit, would be considered for admission.

8. PROGRAMME DURATION

The programme is for one-year, during which students are expected to take the complete modules and carry out individual projects.

9. GRADUATION REQUIREMENTS

A student is presented for graduation after passing all fourteen courses as well as settling all fees.

10. COURSE OUTLINE

Course Code	Course Title	Credit Unit
HSE 701	Entrepreneurship and Management	2
HSE 702	Introduction to Health, Safety and Environment	3
HSE 703	HSE Audits and Monitoring	2
HSE 704	Accident Investigation and Reporting	2
HSE 705	Occupational Health, Diseases and Hygiene	2
HSE 706	Introduction to Ergonomics	2
HSE 707	HSE Management System	2
HSE 708	Introduction to Environmental Pollution	2
HSE 709	Introduction to Environmental Management	2
HSE 710	Introduction to Water and Wastewater Treatment	2
HSE 711	Technical Writing and Presentation	3
HSE 712	Statistics	3
HSE 713	ICT and Research Method	3
HSE 714	Individual Project	6
	Total	36

11. COURSE DESCRIPTION

HSE 701 - Entrepreneurship and Management (2 units)

Meaning of entrepreneurship. Entrepreneurship mind-set. Evolutionary trend of entrepreneurship. Identifying and recognizing opportunities. Entrepreneurship process. Issues and challenges. Business plan, model & financing. How to setup a business with little capital. How to grow a business.

HSE 702 - Introduction to Health, Safety and Environment (3 units)

Basic Definitions for HSE and HSE terminologies. Health & Safety Foundations. Moral, Social & Economic Reasons for HSE at Work. Introduction to Major Occupational Health & Safety management System. The Nature & Sources of HSE Information. The Legal Framework for HSE management & the role of national government / agencies and international bodies in formulating a framework for the regulation of HSE. HSE policy. The Roles, Responsibilities & functions of HSE Practitioners and advisers. Hazard identification, Risk Assessment and Principles of Control. Promoting a positive Health & Safety Culture. Introduction to Manual handling & control of substances Hazardous to Health- (COSHH)

HSE 703 – HSE Audits and Monitoring (2 units)

Why Measure HSE Performance. The traditional Approach to Measuring HSE performance. Proactive/Active Monitoring. Reactive Monitoring. Frequency of monitoring & Inspections. How to conduct an HSE Audit. Preparing & writing Audit reports. Presentation of Audit Findings. The place of Audit & monitoring in the HSE Management System.

HSE 704 - Accident Investigation and Reporting (2 units)

Reasons for incident/accident investigation. Which incidents/accidents should be investigated/ reported. Loss causation and analysis. Explanation of Domino and multi-causality theories & Swiss cheese model. Immediate and underlying/Root causes of accidents. Introduction to Incident/Accident Investigation Methods & Procedures. Reporting & recording of injuries, ill health & dangerous occurrences. Accident investigation preparation & reporting. Internal systems for collecting and analyzing incident data.

HSE 705 - Occupational Health, Diseases and Hygiene (2 units)

Why occupational health & hygiene. Occupational diseases and steps for the prevention of occupational diseases. The costs of occupational and work-related diseases. Health promotion programmes at work places. Introduction to Work

place stress and work-related stress. Occupational health hazards and risks across major industries. Introduction to Musco-skeletal disorders and the causes. Impact of Occupational health and Occupational disease on HSE performance.

HSE 706 – Introduction to Ergonomics (2 units)

What is behaviour based safety (BBS). Why adopt behaviour based safety. Introduction to behaviour based safety process. Introduction to behaviour based safety implementation process. Introduction to critical safe behaviours needed at work. Why BBS programmes may fail. How to sustain BBS programs. Introduction to ABC Tool. BBS and HSE Performance. BBS and Work place culture.

HSE 707 - HSE Management System (2 units)

Reason for the implementation of HSE-MS. Introduction to HSG 65. Introduction to OHSAS 18001:2007 & Gap Analysis with ISO 45001:2018. Introduction to ISO 45001:2018. Introduction to ISO 14001:2015. Introduction to HSE Performance Improvement. Introduction to HSE-MS Certification/Audits. HSE policy & HSE systems documents.

HSE 708 – Fundamentals of Environmental Pollution (2 units)

The Meaning of Pollution. Types of environmental pollution. Types of pollutants and factors facilitating the spread of pollutants. The sources of pollution. Environmental components & their vulnerability to pollution. Introduction to air, water and land pollution. Introduction to environmental nuisance- noise and odour. Past incidents and case studies of environmental pollution. Introduction to the impacts of pollution and the importance of pollution prevention.

HSE 709 - Fundamentals of Environmental Management (2 units)

Reasons for environmental management. Introduction to environmental management tools. Introduction to best available techniques. Waste management options- an introduction. Environmental risk assessment. Principles of Environmental sustainability & Introduction to sustainable development. Environmental Performance Monitoring & Performance indicators. Introduction to ISO 14001 as an Environmental Management tool.

HSE 710 - Fundamentals of Water and Wastewater Treatment (2 units)

Introduction to water supply and wastewater. Why treat water and wastewater. Water quality parameters and standards. Sedimentation, flocculation & filtration. Chemical treatment by softening, adsorption and ion exchange.

Disinfection, wastewater screening and primary treatment. Biological reaction kinetics. Activated sludge treatment. Trickling filters, biological contactors. Sludge handling and sludge digestion. Stabilization ponds & nutrient removal.

HSE 711 - Technical Writing and Presentation (3 units)

Basic definitions for technical writing and presentation. Principles of technical writing. The seven Cs of technical documents. Organization and delivery of technical reports. Principles of presentation. Using the “You Attitude”. Graphics in technical documents. Introduction to interpersonal communication skills. Various methods adopted for presentation. The art of public speaking. Channels of presentation.

HSE 712 – Statistics (3 units)

Basic probability concepts. Probability distributions and analyses. Basic statistics: an approach to data analysis. Regression and

correlation: an approach to mathematical modeling. Test of hypothesis and significance. General approaches to data analyses.

HSE 713 - ICT and Research Method (3 units)

Use of computer programs and softwares. Methods of data collection. Methods of data analysis. Meaning, scope and functions of occupational health, safety and environment (OHSE) research. Types and examples of research in OHSE. Sampling techniques. Tools and methods of data collection. Basic statistical concepts and their application in OHSE. Techniques of data interpretation. Reporting research results.

HSE 714 - Individual Project (6 units)

A guided scientific investigation of a selected topic. This involves the identification of researchable topic, statement of specific objectives and hypotheses, data collection and analysis. These processes will lead to an individual project report.

12. LIST OF ACADEMIC STAFF

12.1. Uniport Staff

S/No	Name	Qualification	Field of Specialization	Designation
1	Nwaogazie, I. L.	B.Sc; M.Sc (Kansas); Ph.D (Oklohoma State)	Hydrology/Water Resources and Mathematical Modeling	Professor
3	Abu, G.O.	B.Sc (ABU) Ph.D (Maryland)	Environmental Microbiology & Biotech. Designation	Professor
5	Nwachukwu, E.O.	B.Sc (IMO); M.Sc & Ph.D (UPH)	Mycology / plant pathology and Environmental Management	Professor
7	Joel, O. F.	B.Tech, Chem. Engg. (UST), M.Sc Eng Mgt. (UNIBEN), Ph.D (Pet./Chem. RSU)	Drilling & Environmental Engineering	Professor
8	Ugbebor, J. N.	B.Sc (UPH); M.Sc (UPH); Ph.D (UNN)	Safety, Environmental Issues and Pollution Control in the Oil and Gas Industry	Reader
9	Douglas, K.E.	MBBS (UPH); FMCPA (Nigeria); DOceMed (London)	Occupational Health Hygiene	Professor
10	Alabere, I.D.	MBBS (Ibadan); MPH (Iagos); FMCPH (Nigeria)	Epidemiology	Professor
11	Ugwoha, E.	B.Tech (RSU); M.Sc (Newcastle); Ph.D (Nottingham)	Fate and Transport of Contaminants in the Environment	Reader
12	Momoh, Y.	B.Sc (UNIBEN); M.Sc (UPH); PhD (UNIBEN)	Bioenergy, Biofuels, and Bio-remediation	Senior Lecturer
13	Moore, B.M.	MBBS (Ibadan); MPH (UPH)	Biostatistics	Lecturer I

14	Amah, V.E..	B.Eng, M.Eng (UPH)	Environmental Engineering/Water Resources	Lecturer I
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12.1. Visiting Lecturers

S/No	Name	University	Field of Specialization	Designation
1	Agunwamba, J.C	University of Nigeria, Nsukka	Civil/Environmental Engineering	Professor
2	Okereke, C.D.	Federal University of Technology Owerri	Environmental Engineering	Professor

12.3. Industry Facilitators

S/No	Name	Occupation
1.	Dr. G.I. Oyet	GM, HSE Oando OBH Energy
2.	Dr. C. Anyanwu	President, Nigeria Industrial Safety Council of Nigeria. Accident investigation expert.
3.	Mrs. C.J. Eze	Research Consultant, EU water project in Anambra State
4.	Mr. F. Onuoha	Chairman, Institute of Safety Professionals of Nigeria, Rivers Branch
5.	Mr. R. Obele	Chairman, Institute of Safety Professionals of Nigeria, Bayelsa Branch
6.	Mr. S. Ayoola	MD, Fire Training Centre, Port Harcourt
7.	Mr. L.C. Akubue	Computer Analyst, Centre for Petroleum Geoscience

13. FACILITIES

The university library stocks varieties of books. In addition, students can assess electronic journals, databases and e-books via the university portal. The Centre also has a library, computer studio, Environmental & Safety laboratory and conducive lecture rooms.

POST GRADUATE MASTERS PROGRAMMES IN OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT (COHSE) AT THE CENTRE FOR OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT (COHSE)

1. INTRODUCTION

The programme is designed for candidates seeking to qualify for a master's degree in either Environmental Technology and Safety (ETS) or Occupational Health and Safety (OHS) as well as others intending to improve their professional skills for better performance in the industry.

2. PHILOSOPHY

The philosophy of the postgraduate masters programme is to provide postgraduate training in Occupational Health, Safety and Environment for bachelor's degree holders in Science, Engineering and related disciplines who qualify for admission into the master's degree programme.

3. VISION

To produce MSc graduates in Occupational Health, Safety and Environment who can design

safety work procedures and provide safe working environment for safe operations in workplace

4. MISSION

To provide postgraduate MSc training that will enable beneficiaries to be more effective in their workplace.

5. RATIONALE

The programme will provide opportunity for individuals with low 2² (CGPA = 3.00) bachelor's degree in Science, Engineering and related disciplines who desires to pursue higher degrees in Occupational Health, Safety and Environment.

6. AIM AND OBJECTIVES

The aim of the programme is to provide Bachelor degree graduate and holders of Post graduate diploma in Occupational Health, Safety and Environment (OHSE) with broad based training required in the Safety and Environmental industries.

The objectives of the MSc programme are to train graduates to perform the following:

- Promote health and safety awareness among workers;
- Prescribe suitable means for the evaluation and control of hazards;
- Provide guidance for compliance with global, federal, state, and local regulations;
- Drive purposeful environmentally friendly projects.

7. ADMISSION REQUIREMENTS

Candidates who possess a Bachelor's degree from a recognized University with a minimum 2.2 or who possess Post Graduate Diploma (PGD) of a related course with 3.5 CGPA in 5.0 from a recognized University would be considered for admission.

8. PROGRAMME DURATION

The programme is for one-year, during which students are expected to take the complete modules and carry out individual projects.

9. GRADUATION REQUIREMENT

A student is presented for graduation after passing all Twenty-six courses as well as settling all fees.

10. COURSE OUTLINE AND COURSE CODES.

GENERAL COURSES FOR BOTH OHS AND ENS

Module Code	Module Title	Credit Unit
SGS 801.1	ICT and Research Methodology	2
SGS 801.2	Management and Entrepreneurship	2
HSE 802	Environmental Concept and Issues	1
HSE 803	Safety and Environmental Laws	1
HSE 804	Chemical Handling and Toxicology	1
HSE 805	Waste Management and Sustainable Development	1
HSE 806	Hazard and Risk Assessment Techniques	1
HSE 807	HSE-MS, Standards and Tools	1
HSE 808	Human Factor and Behavior Based Safety	1
HSE 809	Process Safety Management and Audit	2
HSE 810	Incident Management	2
HSE 811	Disaster Management	2
HSE 812	Transport Safety and Journey Management	2
HSE 813	Fire Safety and Management	2
HSE 814	Construction Safety	2
HSE 815	Statistical Methods and Software Applications	2
HSE 816	Group Project	3
ETS/OHS 824	MSc Dissertation	6
TOTAL		34

COHSE Specific Environmental Technology and Safety (ETS) MSc Courses

Module Code	Module Title	Credit Unit
ETS 817	Environmental Impact Assessment and Audit	2
ETS 818	Environmental Pollution and Remediation	2
ETS 819	Noise Pollution and Vibration	2
ETS 820	Air Pollution and Climate Change	2
ETS 821	Water Treatment and Supply	2
ETS 822	Wastewater and Sludge Treatment	2
ETS 823	Environmental Modelling	2
TOTAL		14
GRAND TOTAL		48

COHSE Specific Occupational Health and Safety (OHS) MSc Courses

Module Code	Module Title	Credit Unit
OHS 817	Occupational and Industrial Hygiene	2
OHS 818	Noise Induced Hearing Lost and Indoor Air Quality	2
OHS 819	Epidemiology	2
OHS 820	Biostatistics	2
OHS 821	Medical Care Management and Emergency Response	2
OHS 822	Radiology and Occupational Rehabilitation	2
OHS 823	Public Health and Safety	2
TOTAL		14
GRAND TOTAL		48

COURSE OUTLINE AND COURSE CODES.

GENERAL COURSES FOR BOTH OHS AND ENS

SGS 801.1: ICT and Research Methodology

This course covers essentials areas of general Introduction to ICT (focus on emerging trends in ICT), Hardware/software fundamentals, Internet / online tools (focus on search engine), productivity tools (google suite), word processing (Ms word), data processing (Ms Excel), data analysis (Ms Excel/SPSS), introduction to computer programing (Excel VBA/ macros), presentation tools (Ms power point), graphics (focus on infographics), group work, presentation

It also covers what is research, research process and characteristics, types of research, formulating a research problem, research design, principles of

scientific research, concepts of hypothesis , research techniques, formulation and testing, organization of research and report writing, literature review, document management – content and layout in report writing , understanding data and data types, referencing and bibliography.

SGS 801.2: Management and Entrepreneurship

This course covers business Environment, general Management, financial Management, entrepreneurship Development, feasibility Studies, marketing and managerial problem solving

HSE 802: Environmental Concepts & Issues

This module seeks to introduce students to contemporary environmental concepts and issues. It will cover introduction to environment & sustainable development, understanding the biophysical and socio-economic environment, introduction to global warming and climate change, biodiversity conservation, principles of environmental chemistry, introduction to contamination and types of environmental pollution & pollutants, environmental quality monitoring and assessment, introduction to environmental biology & microbiology, introduction to environmental performance indicators.

HSE 803: Safety Environmental Laws

This module seeks to align students to basic principles of environmental law and how to manage environmental cases. It will acquaint students to both local and international environmental legislation. It covers introduction to the fundamental principles and concepts of environmental law, introduction to applicable legal and other requirements in Nigeria, introduction to environmental regulatory agencies in Nigeria (FMEnv, NESREA, and DPR), introduction to EGASPIN and the EIA act (Decree 86 of 1992), historical evolution of environmental law (Local and international), introduction to major multilateral environmental agreements, decisions, treaties and conventions, environmental law implementation and compliance enforcement, civil liability in relation to environmental pollution-duties owed and defenses in common law.

HSE 804: Chemical Handling and Industrial Toxicology

This course covers what is toxicology/ history of toxicology/ the dose makes the poison as the concept of toxicology, industrial toxicology and occupational toxicology-man made toxins/ : environmental toxicology/ animal and plant toxins, toxicity/ types of toxicity, xenobiotics and toxicity/ factors governing toxicity/ fundamental rules of toxicity, the exposure concept-route, amount,

duration / dose response curves, toxicological experimentation/ body metabolism of xenobiotics/ role of a toxicologist in the society, work place chemicals/ workplace exposure limits/ chemical handling hazard awareness, identifying chemicals/ forms of chemical and biological agents/ signage / labeling and storage requirements, disposal of hazardous chemicals/ hazard control / risk assessment/, routes of entry/ health hazards of specific agents, understanding emergency procedures for spills and exposures, personal protective equipment (PPE)/emergency first aid/ emergency procedures, developing standard operating procedures (SOPs), safety and legislation / safety data sheets (SDS).

HSE 805: Waste Management and Sustainable Development

This module will introduce to students the basic concerns of waste management especially as it relates to solid and hazardous waste. It covers Introduction to basic principles of waste management (The waste management hierarchy and basic definitions), waste categorization and waste classification, applicable laws and regulatory requirement for the management of solid and hazardous wastes, duty of care (generator/producer, transporter, contractor etc), solid and hazardous waste treatment and disposal methods, electrical and electronic wastes, health care wastes, waste management plan for solid and hazardous wastes, handling & management of waste from source to disposal- A life cycle assessment of waste, waste to wealth & economics of waste management, introduction and history: Brundtland, Rio, SDGs, basic concepts, strategies and measurement, instruments for SD, climate change, biodiversity.

HSE 806: Hazard and Risk Assessment Techniques

This module seeks to guide students on how to conduct an HSE Risk assessment for different activities and work. It will also acquaint students with the risk assessment process steps and methodology. Through this module students will come to terms with the meaning and examples of occupational health and safety hazards & risks associated with different work activities. This will covers introduction to risk assessment and risk management, what is a hazard and what is a risk, risk assessment process and methodology, the place of risk assessment in the HSE- MS model, why risk assessment: A legal framework, hazard Identification & classification, HSE risk management process, defining controls from risk assessment, occupational Health & Safety Hazards/ risks for selected work and processes, environmental aspects & environmental impact assessment.

HSE 807: HSE-MS Standards & Tools

This module seeks to align students with the management system standards and tools used in solving HSE problems in the workplace. It will also define basic practical applications of such standards and tools in the workplace. Courses covered will include introduction to EMS ISO 14001:2015, Introduction to ISO 45001:2018, gap analysis and comparison between ISO 14001:2004 and 14001:2015, gap analysis and comparison between ISO OHSAS 18001: 2007 and ISO 45001:2018, introduction to HSE MS tools & documents, work procedures & work Instructions, HSE Plan & HSE supervision, HSE policy, HSE reporting, safe systems of work, introduction to HSE performance indicators and statistics, HSE audits & Inspections, HSE training, HSE Information communication – tool box talk, induction etc.

HSE 808: Human Factor & Behaviour Based safety

This module seeks to create a sound understanding on the role of human factor element and behaviors in workplace safety. It focuses strongly on understanding the reasons behind behaviours, the fact that 90% of accidents are due to behaviours. This course will cover ABC analysis, why adopt behaviour based safety, introduction to behaviour based safety implementation process, understanding BBS and OHS performance, introduction to human failure (Errors & violations), risk perception, analysis of contribution of human error to major disasters, probability of human failure based on organizational and job factors.

HSE 809: Process Safety Management and Audit

This module seeks to guide students with fundamental knowledge and issues regarding process safety management. It will discuss key process safety methods and their industry-wide applications and future opportunities. The courses include introduction to risk assessment methods, introduction to Hazard Identification (HAZID) and detection, introduction to HAZOP, introduction to failure tracing methods - fault tree & event tree analysis (FTA/ETA), introduction to FMECA, introduction to safety integrity level (SIL), introduction to layers of protection analysis (LOPA), process audit.

HSE 810: Incident Management

This module seeks to introduce the basics of incidents management including accident investigation and reporting and the various accident causation theory. It covers introduction to loss causation and analysis, explanation of domino

and multi-causality theories & swiss cheese model, immediate and underlying/root causes of accidents, introduction to incident/accident investigation methods & procedures, introduction to event tree and fault tree analysis, accident investigation reporting and report template, introduction to root cause analysis method, steps to investigate a loss event & Interview tips.

HSE 811: Disaster Management & Emergency Preparedness/ Response

In this module, the students are taught to understand how to prepare and how to deal with, and manage or handle every crisis situation, disasters and emergencies that may arise during everyday activity. This course will cover what is disaster & crisis situation, introduction disaster management, types and classification of disasters and emergencies, causes of disasters and emergencies, proactive methods for disaster prevention and control, disaster prediction and its benefits, preparing for emergencies and responding to emergencies, the composition of disaster and emergency management team, responsibilities of disaster management personnel and emergency responders, an introduction to NEMA- National Emergency Management Agency, emergency preparedness, planning and personnel competence development.

HSE 812: Transportation Safety & Journey management

This module will bring to the students an opportunity to ensure that planning for the movement of people and materials through the road, air and water are safe and adequate. It covers introduction to transportation safety management system requirement, introduction to land transport safety, land transportation safe practices and lifesaving rules, introduction to marine transportation safety, introduction to air transportation safety, introduction to journey planning and journey management, OHS hazards and risks of transportation, transportation incidents and human factor contributions, elements of a proactive journey management plan & Introduction to a perfect trip.

HSE 813: Fire Safety and Fire Risk Assessment

This module seeks to introduce to students basic fire prevention methods and a proactive way to identify the risk of fire and actions to take for control. This course will cover introduction to fire safety, introduction to basic principles of fire, classification and extinction methods, fire hazards and causes of fire, heat transmission and mechanisms for fire spread, fire detection, warning and emergency response, fire risk assessment, principles of fire protection in buildings, basic firefighting techniques, maintenance and testing of

firefighting equipment and types of extinguishers, fire emergency preparedness, planning and personnel competence development.

HSE 814: HSE-MS in Construction & Manufacturing Industry

This module seeks to equip students with basic construction and manufacturing industry HSE risks and hazards and best approach to manage them within the HSE-MS standards and guidelines. This course will cover introduction to construction & manufacturing Industry: types & categories, learning from past construction industry HSE incidents, construction & manufacturing industry hazards and risks, why HSE-MS in construction & manufacturing industry, HSE risk assessment for construction projects, construction industry safe systems of work- PTW, JSA, introduction to excavation safety, introduction to work at height safety, introduction to confined space entry safety, introduction to lifting operations and lifting equipment regulations (LOLER) and safe practices, introduction to manual handling and work place ergonomics, environmental aspects of construction and manufacturing industry, construction Industry work equipment hazards and control, emergency preparedness & response on construction sites, HSE management during construction- planning, inspection, audit, procurement, electrical & fire safety in construction sites.

HSE 815: Statistical Methods & Software Applications

This course covers experimental design and statistics, data Collection and Statistics, introduction to basic computing, activation of excel service pack II, basic computing using excel, writing of basic formulae, computing of data (Measure of Central Tendency-Mean, Median, Mode), computation of data (Measure of Dispersion-Standard Deviation, Standard Error of the Mean), 95% Confidence Interval, test of hypothesis-Chi, ANOVA, student t-test, data conformity, normality, separation of means, plotting of charts, insertion of error bars from standard error of the mean.

COHSE SPECIFIC ENVIRONMENTAL TECHNOLOGY AND SAFETY (ETS) MSc COURSES

ETS 817: Environmental Impact Assessment & Audits

This module seeks to equip students with basic understanding and skills to carry out environmental assessment and audit. This course will covers introduction to environmental assessment methodologies, introduction to

environmental audits, environmental impact assessment (EIA), introduction to EMS 14001:2015 auditing, environmental aspects, hazards and risks, introduction to environmental compliance monitoring, life cycle analysis (LCA).

ETS 818: Environmental Pollution and Remediation

This module seeks to align students to key issues related to soil and water contamination and possible remediation methods. The course covers definition of contaminated land, sources of contamination and types of contaminants, principles of soil and water remediation, methods of investigation for contaminated soil and water, remedial techniques for contaminated soil and water, introduction to contaminant flow and dispersion, parameters for the assessment of soil/water contamination, the role of local authorities (regulatory authorities) to remediation & Issuing of remediation notices.

ETS 819: Noise Pollution and Vibration

This module seeks to equip students with basic understanding and skills to carry out air quality and noise level assessment and audits as well as pollution prevention and control with special focus on air pollution and noise pollution. It will cover introduction and characteristics of noise, sound pressure level, intensity and power levels, noise spectrum and sound propagation, the Ear- outline of the anatomy, loudness, annoyance, basic sound level meter, type of noise, environmental Noise, effects of noise on man, industrial noise control.

ETS 820: Air Pollution & Climate Change

This module seeks to equip students with basic understanding and skills to carry out air quality and noise level assessment and audits as well as pollution prevention and control with special focus on air pollution. This course will cover the concept of environmental pollution (definitions, types, causes etc), introduction to atmospheric/air pollution, types of emissions & particulate releases to the atmosphere, air quality objectives & air quality standards, sampling and monitoring for atmospheric emissions, air pollutants and methods for analysis, air pollution prevention and control techniques, duties of local authorities to air pollution prevention, introduction to climate change science and impacts, introduction to climate change risks and management, climate change mitigation, climate change adaptation.

ETS 821: Water Treatment & Supply

This course seeks to provide a conceptual understanding of the legal, health, and technical aspects of treating water for drinking and industrial purposes. It will introduce to the student's important aspects regarding design and selection

of unit processes for a water treatment plant. It covers introduction to water demand and supply, introduction to water quality and pretreatment, water supply sources - ground water and surface waters, management of domestic, industrial and municipal water supply, population forecasting, pumps and pumping, conveyance of water, water treatment processes, water stability, water treatment plant design.

ETS 822: Wastewater & Sludge Treatment

This course seeks to create an understanding wastewater management and treatment of effluents and sludge. This will include topics as introduction to wastewater treatment technologies, why treat wastewater? water quality parameters and standard, basic sanitary microbiology, pollution parameters, principles of wastewater treatment, preliminary treatment units, primary treatment units, reactions & reactors, basic bio-kinetics, VIP & septic tank system, waste stabilization ponds, trickling filters, activated sludge process, anaerobic wastewater treatment principles, sludge treatment.

ETS 823: Environmental Modelling

This module seeks to equip students with basic understanding and skills to create models and make future predictions and projections on various environmental scenarios. This will cover introduction to environmental modelling (benefits, challenges, conceptual.), types of models (qualitative and quantitative), introduction source-pathway- receptor conceptual model, introduction to GIS and computer based software modelling, introduction to air pollutant dispersal models, contaminant migration models in water environment and soils, human exposure models from contaminated land, basis for uncertainty and reliability of environmental models.

COHSE SPECIFIC OCCUPATIONAL HEALTH AND SAFETY (OHS) MSc COURSES

OHS 817: Occupational Hygiene and Diseases

This course seeks to create an understanding of the principles of occupational Health and Hygiene and how to reduce Occupational diseases in the workplace. It will cover topics as introduction to Occupational Health and hygiene- Why Occupational health & hygiene, Occupational diseases and steps for the prevention of occupational diseases, the costs of occupational and work-related diseases, health promotion Programmes at work places, introduction to Work place stress and work-related stress, occupational health hazards and risks across major industries - construction, petroleum, aviation, banking, transport, introduction to musco-skeletal disorders

and the causes, impact of Occupational health and Occupational disease on HSE performance.

OHS 818: Noise Induced Hearing Loss and Indoor Air Quality

This course will cover what is noise-induced hearing loss, who is affected by NIHL, what causes NIHL, how can noise damage our hearing, what are the effects and signs of NIHL, can NIHL be prevented, main course source of noise at work, how can noise-induced hearing loss be treated, introduction to Indoor air quality air quality, fundamentals of indoor air quality, key Indoor air quality parameters, internal dour sources, thermal comfort in indoor environment, volatile organic compounds (VOCs) in indoor air quality, case studies and remedies.

OHS 819: Epidemiology

The course covers definition, objectives, uses and aims of epidemiology, epidemiological strategy, approach and history, measures of diseases frequency in a population, concept of risk measurement, concept of epidemics and epidemiological transition, steps in investigation and control of epidemics, epidemiological study design, screening and diagnostic epidemiology, concept of monitoring and evaluation in epidemiology, analytic epidemiology, criteria for judging causality in epidemiology, principles of disease prevention and control, non-communicable disease epidemiology, occupational health epidemiology, course seminar presentation, general revision.

OHS 820: Biostatistics

The course will cover notion, definition and Importance of biostatistics, levels of measurement, sources and types of data, data summarization and presentation, measures of central tendency, measures of dispersion, introduction statistical test, procedure for testing statistical hypothesis, choosing appropriate statistical test (parametric and Non parametric), the Chi-square test, students t-test, test for strength of relationship, regression, analysis of variance, introduction to SPSS, introduction to Epi- Info.

OHS 821: Medical Care Management and Emergency Response

This course covers definition of HealthCare management and HealthCare managers, functions of Healthcare managers and key competencies of effective managers, importance of interpersonal skills in healthcare management, models of organizational design in healthcare management, healthcare managers role in ensuring high performance, what are medical emergencies, where do medical emergencies occur, how do we

respond to medical emergencies, how do we prepare medical emergencies.

OHS 822: Management of Psychosocial Risk/Stress and Occupational Rehabilitation

This course covers definition of psychosocial risk management overview, policy and key principles, The psychosocial risks management process, Monitoring performance and management review, Understanding work-related stress and its causes, The effects of work-related stress (symptoms), Managing work-related stress (at organizational, management and individual levels), Depression and suicide, Definition of occupational rehabilitation terms, Occupational Rehabilitation, Occupational Rehabilitation Process, Assessment of Workers and Workplace, Return to Work Programmes.

This module seeks to introduce to students basic principles required for the practice and administration of OHS in the workplace. It will cover introduction to OHS practice and administration- The Plan-do-Check-Act cycle, foundations of Occupational Health & Safety, framework for the management of health and safety – (Hazards and Risk awareness), sources of health & safety Information, roles and responsibilities of health and safety practitioners, the role of communication, training/awareness and competence in HSE administration, measuring health & safety performance- Need for continual Improvement, management of health and safety violations- Consequence management, HSE reporting, implementation of principles of control, cost benefit analysis of OHS, integration of OHS in project design, construction/production and decommissioning stages.

OHS 823: Public Health and Safety

LIST OF ACADEMIC STAFF

UNIPORT STAFF

S/NO	Name	Qualification	Field of Specialization	Designation
1	Nwaogozie, I.L.	BSc., MSc. (Kansas); Ph. D. (Oklohoma state)	HYDROLOGY/ water resources and mathematical modelling	Professor
2	Abu, G.O.	BSc. (ABU); MSc. (Maryland)	Environmental microbiology and biotech. Designation	Professor
3	Nwachukwu, E.O.	BSc. (IMO); PGD., MSc. & Ph.D. (UPH)	Mycology/plant pathology and environmental management	Professor
4	Joel, O.F.	B.Tech, Chem. Eng. (UST), MSc. Engr Mgt. (UNIBEN), Ph.D. (Pet./Chem. RSU)	Drilling and Environmental Engineering	Professor
5	Mmom, P.C	BSc. (Ibadan), MSc (UPH), PhD Environmental Resource Planning and Management (Uncial).	Professor of Environmental Management. Dean Faculty of Social Sciences, Fellow, Nigerian Environmental Society.	Professor
6	Ibisime, E.	BSc. (RSU), MSc. (RSU), Ph.D. (UNIBEN).	Research Prof. of Ruminant Nutrition and Production	Professor
7	Adesope O.M.	BSc. (UI) MSc. (FUTO), Ph.D. (FUTO).	ICT in Agriculture and Cert. Project Design expert.	Professor
8	Ugbebor, J.N.	BSc. (UPH); MSc. (UPH); Ph.D. (UNN)	Safety, Environmental Issues and Pollution Control in the Oil and Gas industry	Reader
9	Douglas, K.E.	MBBS (UPH); FMCPA (Nigeria); DOceMed (London)	Occupational Health Hygiene	Professor
10	Alabere, I.D.	MBBS (Ibadan); MPH (Lagos); FMCPH (Nigeria)	Epidemiology	Professor
11	Momoh, Y.	BSc. (UNIBEN); MSc. (UPH), Ph.D. (UNIBEN)	Bioenergy, biofuels, and Bioremediation	Senior lecturer

12	Ugwoha, E.	B. Tech (RSU); MSc. (Newcastle); Ph.D. (Nottingham)	Fate and transport of contaminants in the environment	Reader
13	Moore, B.M.	MBBS(IBADAN); MPH (UPH)	Biostatistics	Senior lecturer
14	Bolaji, B.	BSc. (UI), MSc. (UI), Ph.D. (UPH),	Radiation Toxicology	Reader
15	Stanley, O.	BSc. (UNICAL), MSc. (AAU), Ph.D. (RSU).	Forestry and Environment, Environmental Management, Health Education	Professor
16	Patrick Iwuanyanwu, K. C.	BSc., MSc. (UPH), Ph.D.	Nutritional Biochemistry/Toxicology	Senior lecturer
17	Ogugbue, C.J	BSc. (Uterus), MSc., Ph.D. (UPH),	Bioremediation and Contaminated lands treatment	Professor
18	Amah, V.E.	B.Eng, M.Eng (UPH)	Environmental Engineering/Water Resources	Lecturer 1

VISITING LECTURERS

S/N	Name	Qualifications	University	Field of Specialization	Designation
1	Igoni, A.H.	Ph.D. (RSUST), MSc. (Uniben), BTech. (RSUST)	Rivers State University of and Technology Science	Environmental and Waste Management.	Professor
2	Agunwamba, J.C.	B.Eng., M. Eng., Ph.D. (Nsukka),	University of Nigeria, Nsukka	Civil and Environmental Eng.	Professor

INDUSTRY FACILITATORS

S/NO	NAME	Qualifications	Occupation
1	Dr. G.I. Oyet	BSc., MSc. Food Process Technology (UST), Ph.D. Environmental Management (UST)	GM, HSE Oando OVH Energy, Alumini Harvard Kennedy School of Government. Alumini of London School of Economics. Alumini of Lagos Business
2	Dr. Nnadeke Kasarachi	B.Eng. (UPH), MSc. (Portsmouth, UK), MSc. (Edinburgh, UK) MSc. - Safety Engineering (Mississippi, USA), Ph.D. – Safety Sciences & Technology (Pennsylvania, USA)	HSE ONNE Superintendent Technical Services TOTAL E&P Nigeria Limited (TEPNG)
3	Dr. (Sir) Patricks-E, Chinemerem	BSc. (Unical), M.Phil (RSU), PhD (Milan), EnvDipNEBOSH, MITD, MNMGS, MNES, HAZOP specialist ISO14001 EMS Lead Auditor	Environment & Millennium Targets, Foreign Programmes Consultant: Climate Solutions/EHS/BBS Research and Knowledge Exchange
4	Dr. C. Anyanwu		President, Nigeria Industrial Safety Council of Nigeria. Accident investigation expert.
5	Mrs. C.J. Eze	B.Eng. (UNIZIK), MSc. (Nottingham)	RESEARCH Consultant, EU water project in Anambra State
6	Dr. F. Onuoha	BSc. (UNIBEN), MSc. (FUTO)	Chairman, Institute of Safety Professionals of Nigeria, Rivers Branch. ISO 45001:2018, Nebosh Tutor, Environmental Management System Auditor, OSHAcademy USA

			Tutor, IRCA Tutor, Quality Management System Auditor
7	Dr. R. Obele	NCE, BSc. (R.College of Education) MSc. (RSU), MSc., Ph.D. (UPH)	Chairman, Institute of Safety Professionals of Nigeria, Bayelsa Branch
8	Mr. S. Ayoola	Fire Safety and Security Diploma.	MD, Fire Training Centre, Port Harcourt
9	Dr. Bara Brown	BSc. (RSU), MSc. Occupational Safety and Health (University Utara Malaysia), PhD Occupational Safety and Health (University Utara Malaysia)	Behavioural based Safety (BBS) Occupational Health and Safety Consultant.
10	Mr. L. C. Akube	B.Eng., MSc. (UPH), Ph.D. in view (UPH)	Computer analyst, Centre for Petroleum Geosciences
11	Mr. F. O. Iwu	BSc. (RSU), MSc. (UPH), Ph.D. in view (UPH).	MD Fintserv, Port Harcourt, CIEH certified trainer, Nebosh Certified Tutor
12	Dr. Ahiamadu, N.M	B.Sc (UPH), M.Phil (Nottingham), PhD (UPH)	Community Affairs Manager, TOTAL E&P Nigeria Limited (TEPNG)

FACILITIES

The University library stocks varieties of books. In addition, students can assess electronic journals, databases and e-book via the university portal. The Centre also has a library computer studio, Environmental and Safety Laboratory and conducive lecture rooms.

GRADUATE DOCTORATE PROGRAMMES IN OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT (COHSE) AT THE CENTRE FOR OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT (COHSE)

1. INTRODUCTION

The programme is designed for candidates seeking to qualify for a Doctorate degree in either Environmental Technology and Safety (ETS) or Occupational Health and Safety (OHS) as well as others intending to improve their professional skills for better performance in the industry.

2. PHILOSOPHY

The philosophy of the Postgraduate Doctorate programme is to provide postgraduate training in Occupational Health, Safety and Environment for master's degree holders in Science, Engineering and related disciplines who qualify for admission into the Doctorate degree programme.

3. VISION

To produce PhD graduates in Occupational health and safety, and Environment and safety professional who meet the needs of the industry and society at large in the area of occupational Health, Safety and Environment through commitment to excellent training, applied research, continuing education and capacity building.

4. MISSION

To provide postgraduate PhD training that will enable beneficiaries to be more effective in their workplace.

5. RATIONALE

The programme will provide opportunity for individuals with Upper Credit (CGPA = 3.5) Master's degree in Science, Engineering and related disciplines who desires to pursue higher degrees in Occupational Health, Safety and Environment.

6. AIM AND OBJECTIVES

The aim of the programme is to provide Master's degree graduate in Occupational Health, Safety and Environment (OHSE) / other related field with broad based training required in the Safety and Environmental industries.

The objectives of the PhD programme are to train graduates to perform the following:

- e. Promote health and safety awareness among workers;
- f. Prescribe suitable means for the evaluation and control of hazards;
- g. Provide guidance for compliance with global, federal, state, and local regulations;
- h. Drive purposeful environmentally friendly projects.

7. ADMISSION REQUIREMENTS

Candidates who possess a Master's degree with a minimum CGPA of 3.50 in a 5.0-point scale in Science, Engineering, Occupational Health and Safety (OHS), Environment and Safety (ENS) and related disciplines from a recognized University would be considered for admission.

8. PROGRAMME DURATION

The programme: full-time option, a minimum of 24 calendar month; and part-time option for minimum of 36 calendar months.

9. GRADUATION REQUIREMENT

A student is presented for graduation after passing all Nine course as well as settling all fees.

10. COURSE OUTLINE AND COURSE CODES.

Revised Course Outline & Curriculum for PhD Programme for Occupational Health Safety and Environment (COHSE)

Course Code	Course Title	Credit Load
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Occupational Health and Safety (OHS)

HSE 901	ICT and Research Methods	2
HSE 902	Statistical Methods & Modelling	2
HSE 903	Air quality and Noise Pollution	2
HSE 904	Fire Safety Management	1
HSE 905	Incident Management	1
HSE 906	Safety & Environmental Risk Assessment and Management	2
OHS 907	Applied Occupational Health & Safety Management System	2
OHS 908	Psychosocial Stress Management and Musculoskeletal Disorders	2
OHS 909	PhD Thesis	12
Total credit		26

Environmental Technology and Safety (ETS)

HSE 901	ICT and Research Methods	2
HSE 902	Statistical Methods & Modelling	2
HSE 903	Air quality and Noise Pollution	2
HSE 904	Fire Safety Management	1
HSE 905	Incident Management	1
HSE 906	Safety & Environmental Risk Assessment and Management	2
ETS 907	Environmental Assessment and Remediation Techniques	2

ETS 908	Processes in Water and Wastewater Treatment	2
ETS 909	PhD Thesis	12
Total credit		26

GENERAL COURSES FOR BOTH OHS AND ENS

HSE 901: ICT and Research Methods

This course covers; **Part A- Thinking Skills for Conduct of Research:** What is thinking, approaches to truth and Knowledge, what is critical thinking, critical and uncritical thinkers, applying critical thinking, meaning and nature of research, objective of research, types of research, criteria for good research, research processes, research problem, literature review, formulation of hypothesis, hypothesis testing, research design, sampling design, data collection, analysis of data, Preparation of reports/thesis, deductive and inductive reasonings, precision and accuracy.

Part B - Proposal writing: the art of proposal writing (Part I), Creating log frame and project budget (Part II), Approach for project implementation (Part III)

HSE 902: Statistical Methods & Software Applications

This module covers; **Part A-** Basic Statistics for Data Analysis, Regression and Correlation, Auto – and Cross- Correlation, Test of Significance (Full Option), Test of Significance (Abridged), Moving Averages and Trend Analysis, 95% Confidence Interval, Research Design & Sample Size Estimation, Sampling Techniques (Probability & Non-Probability), Random Sampling – Simple/Systematic/Stratified/cluster, Non-Probability Sampling – Convenience/ Quota/ Purposive/ Snowball, Parametric/Non Parametric Statistical Methods, Test of Normality-Shapiro Wilks (w-s) Test, Non Parametric-Spearman’s method/Kendall’s coefficient of Concordance/ Kruskal-Wallis ANOVA method/Friedman’s test, Principal Component Analysis (PCA) & Regression (PCR), Basic Concepts: How to Run PCA/PCR using XLSTAT.

Part B- Software Applications: Research, Quantification and Digital Analysis – Nexus of Relationships. Descriptive and Inferential Statistics, Sample Size determination, Sampling Techniques and Research Designs, Instrumentation – Use of Interview design and Questionnaires, Qualitative & Quantitative use of Rating Scales, Characteristics of Data- Levels of measurement; Discrete and continuous data; Individual and Group Data sets, Hypothesis Testing and Associated Errors- Type 1 & 2 errors; levels of significance of a test; one and two tail tests, Parametric and Non- Parametric Statistical

tests- Independent t test, Paired 't' test, Chi-Square test, Kendal Tau test; Analysis of Variance (ANOVA), Measures of Correlation; Simple and Multiple Linear Regression, Principal Component and Factor Analysis, Application of the Statistical Package for the Social Sciences (SPSS) for resolving Parametric and Non Parametric tests, Practicum on SPSS Applications.

HSE 903: Air Quality and Environmental Noise

Air pollution system, sources and effects of air pollution, air quality standards and index, air pollution measurement and monitoring, Meteorology and air pollution dispersion models, abatement of air pollution. Noise sources, characteristics, and propagation. Human hearing sensitivity, noise measurements, noise metrics and effects of noise. Noise exposure and administrative/engineering control.

HSE 904: Fire Safety Management

This module seeks to introduce to students basic fire safety principles including prevention methods fire fighting and a proactive way to identify the fire hazards and fire risks including actions to take during fire related emergencies; The module covers- Basic fire safety principles: To include Fire triangle, types/class of fire, fire extinction, mechanisms of fire spread, Principles of fire prevention, Fire hazards and fire risk assessment, Heat transmission and mechanisms for fire spread, Firefighting & Fire control techniques: To include types of extinguishers, FM-200/Fire suppression system, the PASS Rule, Rig fire, aviation and ship yard firefighting, Fire incident and fire emergency preparedness and response, Fire incident case study analysis across industries, maintenance and testing of firefighting equipment, fire personnel competence development and requirement, Introduction to the roles and responsibilities of the Federal fire service commission of Nigeria.

HSE 905: Incident Management

This module seeks to introduce to students the proactive approach to incident management including investigation, reporting and emergency management for effective response. The module covers; Explanation of Domino and multi-causality theories & Swiss cheese model for incident causation, incident Root Cause Analysis; Incident/Accident Investigation Methods & Procedures including steps to conducting investigation & Interview tips; Accident investigation reporting and report template; Introduction to event tree and fault tree analysis; Crisis management and emergency preparedness and response for fire incidents, vehicular/traffic incidents, oil spill incidents, man-over board and fall from height, chemical incidents etc.

HSE 906: Safety & Environmental Risk Assessment and Management

This module seeks to create an understanding of the various risk assessment methods and failure tracing techniques that are applied to solve different industries occupational health and safety and environmental risks. The course covers; Definition and importance of Risk assessment and management, The Place of Risk Assessment in OHS & Environment Management Systems, Basic Risk assessment Steps, Risk Assessment Methods and Techniques, Introduction to Hazard Identification (HAZID) and detection, Introduction to Job Hazard Analysis- (JHA/JSA), Risk Computation & Risk Assessment matrix, Introduction to advanced failure tracing and process system safety/environmental risk assessment methods, Fault Tree & Event Tree Analysis (FTA/ETA) and EIA, Hazard & Operability Studies – HAZOP), Layers of Protection Analysis-(LOPA) & Hierarchy of Control, Failure Mode Effects Analysis (FMEA & FMECA), Introduction to Last Minute Risk Assessment, Risk Assessment & Incident Prevention, Value chain analysis.

Occupational Health and Safety (OHS) courses

OHS 907: Applied Occupational Health & Safety Management System

This course seeks to create an understanding of the various applied aspects of occupational health and safety. The course will also inspire and stimulate research students to develop research titles and themes that will aid occupational health and safety problem solving across different industries. It is a graduate discussion and research-based course that will draw from current references and case studies on occupational health and safety matters. This covers; Historical overview and Perspectives of OHS, Reasons for OHS-MS application across industries, Introduction to major OHS-MS Standard applied across industries (18001:2007 & ISO 45001:2018 AND EMS ISO 14001:2015), OHS-MS Application Across major Industries, OHS-MS in Procurement & Contractor Selection (HSE in Bid), OHS-MS in Project Design & Project Management, OHS-MS application in Construction & Manufacturing Industry, OHS-MS application in Oil & gas industry, OHS Performance indicators and role in organizational Performance Improvement, OHS-MS application in Employee Competence Development, Risk Assessment Methods: Job Hazard Analysis (JHA), HAZOP & FTA, Introduction to Process Safety Management (PSM) and Safe systems of work (SSoW), Introduction to Behavioural safety, Life Saving Rules, Introduction to Incident Management, Introduction to basic and minimum Industry OHS Practitioner competence

certifications, Occupational Health & Safety Research Focus.

OHS 908: Psychosocial Stress Management and Musculoskeletal Disorders

This Module covers; Psychosocial risk management overview, policy, and key principles, The psychosocial risks management process, Monitoring performance and management review, Understanding work-related stress and its causes, The effects of work-related stress (symptoms), Musculoskeletal imaging in Occupational Rehabilitation, Managing work-related stress (at organizational, management and individual levels), Depression and suicide, Definition of occupational rehabilitation terms, Occupational Rehabilitation process, Assessment of Workers and Workplace, Return to Work Programme.

Environmental Technology and Safety (ETS) courses

ETS 907: Environmental Assessment and Remediation Techniques

This module seeks to equip students with basic understanding and skills to carry out environmental assessment and audit. The course will cover; **Part A:** Principles of environmental field studies and Environmental assessment methodologies, Strategic environmental assessment and Life Cycle Analysis (LCA), Site selection, sample collection, sample treatment, sample handling and sample integrity, Environmental Impact Assessment (EIA)- Process

and practice in Nigeria, Environmental Audits, Post Impact Assessment and Impact Mitigation monitoring, Methods of assessment of contaminants soil and water, Remedial Techniques for contaminated soil and water, Basic principles of Environmental chemistry and microbiology, Quality assurance and Control, Ecosystem Restoration And Ecological Engineering.

Part B: Environmental Legislation and Policy-Fundamentals of environmental law and policy, Environmental regulation: past, present, and future, Nigerian environmental laws and policies (FMEnv, NESREA, and DPR), introduction to EGASPIN and the EIA act (Decree 86 of 1992), Environmental policy and planning, Social, political and economic aspects of environmental legislation and policy formulation, Enforcement and Implementation of environmental laws and policies.

ETS 908: Processes in Water and Wastewater Treatment

Water treatment schemes, aeration and gas stripping, coagulation and flocculation, sedimentation and flotation, filtration, adsorption, disinfection, softening, micro-and ultrafiltration, nanofiltration and reverse osmosis. Industrial water treatment. Review of wastewater treatment processes, chemical reactions and reactors, biokinetic models and applications in trickling filters and activated sludge systems. Anaerobic wastewater treatment systems, and sludge management.

LIST OF ACADEMIC STAFF

UNIPORT STAFF

S/NO	Name	Qualification	Field Of Specialization	Designation
1	Nwaogazie, I.L.	BSc., MSc. (Kansas); Ph. D. (Oklohoma state)	HYDROLOGY/ water resources and mathematical modelling	Professor
2	Abu, G.O.	BSc. (ABU); MSc. (Maryland)	Environmental microbiology and biotech. Designation	Professor
3	Nwachukwu, E.O.	BSc. (IMO); PGD., MSc. & Ph.D. (UPH)	Mycology/plant pathology and environmental management	Professor
4	Joel, O.F.	B.Tech, Chem. Eng. (UST), MSc. Engr Mgt. (UNIBEN), Ph.D. (Pet./Chem. RSU)	Drilling and Environmental Engineering	Professor
5	Mmom . P.C	BSc. (Ibadan), MSc (UPH), PhD Environmental Resource Planning and Management (Uncial).	Professor of Environmental Management. Dean Faculty of Social Sciences, Fellow, Nigerian Environmental Society.	Professor
6	Ibisime, E.	BSc. (RSU), MSc. (RSU), Ph.D. (UNIBEN).	Research Prof. of Ruminant Nutrition and Production	Professor

7	Adesope, O.M.	BSc. (RSU) MSc. (RSU), Ph.D. (RSU).	ICT in Agriculture and Cert. Project Design expert.	Professor
8	Ugbebor, J.N.	BSc. (UPH); MSc. (UPH); Ph.D. (UNN)	Safety, Environmental Issues and Pollution Control in the Oil and Gas industry	Reader
9	Douglas, K.E.	MBBS (UPH); FMCPA (Nigeria); DOceMed (London)	Occupational Health Hygiene	Professor
10	Alabere, I.D.	MBBS (Ibadan); MPH (Lagos); FMCPH (Nigeria)	Epidemiology	Professor
11	Momoh, Y.	BSc. (UNIBEN); MSc. (UPH), Ph.D. (UNIBEN)	Bioenergy, biofuels, and Bioremediation	Senior lecturer
12	Ugwoha, E.	B. Tech (RSU); MSc. (Newcastle); Ph.D. (Nottingham)	Fate and transport of contaminants in the environment	Reader
13	Moore, B.M.	MBBS(IBADAN); MPH (UPH)	Biostatistics	Senior lecturer
14	Bolaji, B.	BSc. (UI), MSc. (UI), Ph.D. (UPH),	Radiation Toxicology	Reader
15	Stanley, O.	BSc. (UNICAL), MSc. (AAU), Ph.D. (RSU).	Forestry and Environment, Environmental Management, Health Education	Professor
16	Patrick Iwuanyanwu, K. C.	BSc., MSc. (UPH), Ph.D.	Nutritional Biochemistry/Toxicology	Senior lecturer
17	Ogugbue C. J	BSc. (Uterus), MSc., Ph.D. (UPH),	Bioremediation and Contaminated lands treatment	Professor

VISITING LECTURERS

S/N	Name	Qualifications	University	Field of Specialization	Designation
1	Igoni, A.H.	Ph.D. (RSUST), MSc. (Uniben), BTech. (RSUST)	Rivers State University of and Technology Science	Environmental and Waste Management.	Professor
2	Agunwamba, J.C.	B.Eng., M. Eng., Ph.D. (Nsukka),	University of Nigeria, Nsukka	Civil and Environmental Eng.	Professor
3	Okereke, C.D.	BSc (ABU Zaria), MSc. (Birmingham), PhD (FUTO)	Federal University of Technology, Owerri	Public Health Engineering	Professor

INDUSTRY FACILITATORS

S/NO	Name	Qualifications	Occupation
1	Dr. G.I. Oyet	BSc., MSc. Food Process Technology (UST), Ph.D. Environmental Management (UST)	GM, HSE Oando OVH Energy, Alumini Harvard Kennedy School of Government. Alumini of London School of Economics. Alumini of Lagos Business
2	Dr. Nnadede O. Kasarachi	B.Eng. (UPH), MSc. (Portsmouth, UK), MSc. (Edinburgh, UK) MSc. - Safety Engineering (Mississippi, USA), Ph.D. –	HSE ONNE Superintendent Technical Services TOTAL E&P Nigeria Limited (TEPNG)

		Safety Sciences & Technology (Pennsylvania, USA)	
3	Dr. (Sir) Patricks-E, Chinemerem	BSc. (Unical), M.Phil (RSU), PhD (Milan), EnvDipNEBOSH, MITD, MNMGS, MNES, HAZOP specialist ISO14001 EMS Lead Auditor	Environment & Millennium Targets, Foreign Programmes Consultant: Climate Solutions/EHS/BBS Research and Knowledge Exchange

FACILITIES

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CENTRE FOR PETROLEUM GEOSCIENCES (CPG)

BACKGROUND

The energy industry is a thriving sector, which graduates with requisite qualifications seek earnestly to be key players and drivers a new economy. The Centre for Petroleum Geosciences (CPG) was established in 2011 as a Centre of Excellence to “cater for the geosciences skill needs of the Petroleum industry. To achieve this, the M.Sc. in Petroleum Geosciences Programme was started to drive an excellent support for the Oil and Gas Industry by training manpower with requisite knowledge and practical competences in Petroleum Exploration for the industry.

With the large assay of high profile teaching personnel and the state-of-the-art equipment and tools available to produce high level man-power for the petroleum industry, the Centre is well-prepared to admit PGD and Ph.D students, at both full time and part time levels, to enable candidates improve their professional skills and performance in the industry.

The academic programme for the PGD and Ph.D. degree was drawn in consultation with the petroleum industry. The training is delivered jointly by lecturers from the University of Port Harcourt, other universities and experts from the Petroleum Industry. The training incorporates extensive practical assignments and involvement in the petroleum sector and field training in different geological settings.

VISION

To produce PGD, M.Sc., and Ph.D. graduates in Petroleum/Energy Geosciences who will be able to meet the needs of the petroleum/energy industry through commitment to proper training, applied research and capacity building.

MISSION

To become a top international Centre of Excellence in Petroleum/Energy Geosciences by providing PGD, M.Sc., and PhD training, which will enable beneficiaries to be the most effective in their workplaces.

GOAL

Our Centre is driven by the critical need to develop quality geosciences manpower readily deployable to achieve the corporate philosophy of the oil and gas companies which are rooted in;

- Increasing hydrocarbon reserves
- Reducing funding cost and unit operating cost
- Improving both the life-cycle asset management and,
- Environmental friendliness of their operations

The key to achieving all these goals is quality and competence of the workforce.

PHILOSOPHY

- Our trainees should be able to promote culture of excellence in sustained learning, leadership, internationalism and professionalism.
- Our trainees should be able to pursue advancement and propagation of knowledge in the Petroleum and Energy Industry.

AVAILABLE RESOURCES FOR TEACHING AND LEARNING

- a) Laboratories and Class Rooms
- b) Workstation
- c) Library and Information Resources
- d) Soft wares

STRUCTURE OF PROGRAMME

POSTGRADUATE DIPLOMA (PGD) IN PETROLEUM GEOSCIENCES

PROGRAMME DURATION

Full time: 12 months

Part time: 18 months

AWARD OF DEGREE

Successful students at the end of the programme shall receive a Post Graduate Diploma Degree in Petroleum Geosciences of the University of Port Harcourt.

AREA OF SPECIALIZATION

Petroleum Geosciences, Petroleum Geoengineering, Energy Geosciences, Integrated Petroleum Geosciences and Oil and Gas Enterprises Management.

ADMISSION REQUIREMENTS

The requirements for admission into the Post Graduate Diploma (PGD) programme in conjunction with standard School of Graduate Studies procedures are as follows:

1. First degree holders, from recognized Universities with minimum of third class or Higher National Diploma holders, from recognized Institutions of higher learning, with minimum of Upper Credit in Petroleum Geosciences, Geology, Geophysics, Petroleum Engineering, Gas Engineering, and Geo-mining Technology are invited to apply.
2. Holders of Higher National Diploma certificates, from recognized Institutions of higher learning, with minimum of Lower Credit in the areas above and possess

cognate experience in the oil and gas industry are eligible to apply.

All candidates of Nigerian origin resident in Nigeria must have obtained their NYSC discharge certificates.

MODE OF STUDY AND EXAMINATION

The Mode of Study is flexible and consist of both Modular hybrid of onsite and online components. Students are expected to offer and pass all taught courses, field/laboratory work/visits, and seminar and team/individual continuous assessments. Examinations will be administered at the end of each module onsite and online as applicable.

Full-time: Physical classroom with real-time online video conferencing (Monday to Friday, 8 a.m. to 4 p.m.).

Part-time: Virtual classroom with real-time online video conferencing (Monday to Friday, 5 p.m. to 8 p.m.); and Physical classroom (Saturdays, 8 a.m. to 4 p.m.)

COURSE DELIVERY

The students are taught by instructors from the University of Port Harcourt, and experts from the petroleum and energy industry.

GRADUATION REQUIREMENTS

To qualify for an award of the Post Graduate Diploma in Petroleum Geosciences, a student must meet the following requirements:

1. The student must have successfully completed and passed all the prescribed courses in the programme with at least C grades;
2. The student must have met other requirements of the School of Graduate Studies and the University of Port Harcourt.

COURSEWORK GRADING SYSTEM

The coursework grading system shall be as follows:

70 and above	A	5.00
60 - 69	B	4.00
50 - 59	C	3.00
0 - 49	F	0

PGD COURSE OUTLINE

S/N	MODULE		COURSE		CREDIT UNITS
	MODULE CODE	TITLE	COURSE CODE	TITLE	
1	CPG 701	Basic Module	CPG 701.1	Introduction to Programming, Research Writing and Presentation Skills	2
			CPG 701.2	Introduction to Oil & Gas Entrepreneurship Skills	2
			CPG 701.3	Introduction to Oil and Gas industry	2
			CPG 701.4	Introduction to Artificial Intelligence, Machine Learning, (AI), Big Data, Internet of Things (IoT) and Blockchain in the Oil and Gas Industry	3
			CPG 701.5	Introduction to Renewable Energy Technologies and Environmental Sustainability	2
			CPG 701.6	Introduction to Remote Sensing and Geographic Information Systems (GIS) in the Oil/Gas Industry.	3
2	CPG 702	Geosciences Module	CPG 702.1	Introduction to Petroleum Geology	2
			CPG 702.2	Introduction to Petroleum Geophysics	2
			CPG 702.3	Introduction to Environmental Science Management, Planning, Ethics, EIA and Sustainable Development	2
			CPG 702.4	Introduction to Structural Analysis	2
			CPG 702.5	Introduction to Mining Exploration and Processing	2
3	CPG 703	Reservoir Module	CPG 703.1	Introduction to Reservoir Petrophysics	3
			CPG 703.2	Introduction to Well Log Interpretation	3
			CPG 703.3	Introduction to Core Analysis I & II (Two Weeks)	3
			CPG 703.4	Introduction to Seismic Data Interpretation	3

			CPG 703.5	Introduction to Static Modeling and Reservoir Characterization	3
			CPG 703.6	Introduction to Dynamic Modeling.	3
4	CPG 704	Field Work, Seminar & Project Module	CPG 704.1	Geoscience Field Trip (Geology & Geophysics)	2
			CPG 704.2	Seminar	2
			CPG 704.3	Project Defence	6
TOTAL					52

COURSE CONTENTS

CPG 701: BASIC MODULE

CPG 702.1: Introduction to Programming, Research Writing and Presentation Skills (2 Units)

Introduction to Basic Computer Programming using Microsoft office suite, Q Basic, Visual Basic CT, CH and Matlab. Research writing and presentation skills.

CPG 701.2: Introduction to Oil and Gas Entrepreneurship (2 Units)

Oil and gas entrepreneurship ideas & pitfalls, upstream and downstream oil and gas sector, opportunities in the oil and gas industry (Maintenance and servicing, blogging, Legal Services, Spill Cleaning, Consulting, Petroleum Refining, Crude oil Shipping, Refinery and Tank Farm Construction, Lubricant Production, Procurement, Production and supply of Gas Pipelines, Natural Gas Marketing, Sale of Petroleum Tankers, Manufacturing and sale of Cooking Gas cylinders, Oil and Gas Pipeline Security, Petrol Station Construction, Oil and Gas Enterprise software Applications, Offshore Boat and Helicopter Transportation, Manufacturing and supply of Barrels or Drums, Petroleum Products Procurement and Supplies, Haulage and Logistics, Equipment Leasing, Oil Farm/Depot, Investment in Oil Companies via shares, Kerosene Retail, Cooking Gas wholesale and Retail).

CPG 701.3: Introduction to the Petroleum and Gas Industry / Hse Overview (2 Units)

Introduction. Basic Structure of Oil and Gas industry worldwide. The Nigerian oil and gas industry. Basic geology as relates to oil and gas reservoirs. Origin and formation of oil and gas. Reservoir fluid and rock properties, Formation Evaluation. Drilling, completion and Production operation Concepts of offshore operation. Terminology of exploration and production operation. Introduction to (HSE – MS). HSE Legislation/Policies. Security Management. Accident Prevention, Reporting and Investigation. Health Risk Assessment. HSE Auditing. Hazard

Management Tools. Contingency Management and basic entrepreneurship skills.

CPG 701.4: Fundamentals of Artificial Intelligence (AI), Machine Learning, Big Data, Internet of Things (IOT), Blockchain, Cloud Computing and Cybersecurity in the Oil and Gas Industry (3 Units)

There's a digital revolution underway. To stay ahead, today's leaders need a thorough understanding of the rapid—and sometimes radical—developments that are shaping this transformation. This course will focus on the seven biggest technologies that are shifting the economic landscape—blockchain, artificial intelligence, Machine Learning, Big Data, Cloud Computing, Internet of Things, and Cybersecurity.

Note: This is a hands-on course; students will learn by doing some basic coding.

CPG 8701.5: Introduction to Renewable Energy Technologies and Environmental Sustainability (2 Units)

Introduction to renewable energy technology: solar energy, wind energy, biomass, hydropower, wave energy, ocean thermal energy conversion, tidal energy, geothermal energy, renewable hydrogen. Fundamentals and main characteristics of renewable energy sources and their differences compared to fossil fuels. Technological basis for harnessing renewable energy sources, main components of different renewable energy systems, techno-economical assessments of renewable energy systems for specific energy demands that are economically feasible and have a minimal impact on the environment. Best combination of technological solutions to minimize the emission of greenhouse gases and increase the sustainability of energy system.

CPG 701.6: Introduction to Remote Sensing And Geographic Information Science (GIS) in the Oil and Gas Industry (3 Units)

Introduction to remote sensing and Geographic information system (GIS) and its deployment through the oil/gas field life-cycle in prospect analysis, data acquisition, data interpretation, data Index Map creation, Automated Map Production and Visualization, Exploration Survey, Thematic

Maps, Acreage Analysis, Basin Analysis, Play Analysis, Block Ranking, Well Planning, Pipeline Management, Pipeline Routing, Field Operations, Distribution Management, Drilling Operations, Asset Management, Facilities Management, Land Management, Vessel Tracking, Vehicle or Fleet Tracking, Production Monitoring, Well Log Digitization, Environmental Monitoring, Environmental Management, Remote Sensing for Terrain Stability, Disaster Management, Emergency Response, and Decommissioning.

Note: This is a hands on course. ArcGIS 10.5 or latest ArcGIS software is required.

CPG 702: GEOSCIENCES MODULE

CPG 702.1: Introduction to Petroleum Geology (2 Units)

Introduction to Basic Geology, Plate tectonics, Sedimentary processes. Textures of sediments, Environment of deposition and Sedimentary Basin of Nigeria. Reservoir rocks and their Petrophysical Properties. Types and Properties of Hydrocarbons. Origin, Maturation, Generation, Accumulation and Migration of hydrocarbons. Entrapment of hydrocarbons. Oil well logs and logging. Geology of the Niger Delta.

CPG 702.2: Introduction to Petroleum Geophysics (2 Units)

Introduction to Geophysics. Seismic waves. Huygen's principles, Fermat's principle, Acoustic Impedance, Reflectivity. Types of Seismic Exploration. Processes in Seismic Exploration. Gravity and Magnetic methods.

CPG 702.3: Introduction to Environmental Science, Management, Planning, Ethics, EIA and Sustainable Development (2 Units)

This course will cover the following: Environment, Earth as a system, life and environment, preserving life sources, energy, aqueous environment, air pollution, environment and society. This course will cover the following: Environmental Monitoring, Environmental Impact Assessment (EIA), Environmental Management System (EMS) and Environmental Auditing (EA). EIA-Instrument for Sustainable Development. Problems and solutions of Sustainable Development. Case Studies.

CPG 702.4: Introduction to Structural Analysis (2 Units)

Introduction to Structural Geology. Deformation of Rocks. Concept of Stress and Strain. Brittle and Ductile behavior of rocks. Plane features on landscape. Growth Faults, Roll Anticlines. Unconformities. Contours. Subsurface maps and stereo plots.

CPG 702.5: Introduction to Mining Exploration and Processing (2 Units)

Rocks, minerals and mineral resources. Genesis and classification of ore deposits. Processes of formation and geological environment of metallic and non-metallic and minerals. Occurrences and distribution of minerals in time and space. Geological criteria for occurrences of ores in Nigeria. Methods of prospecting, processing and use in the industry. Mining methods of prospecting, processing and use in the industry. Mining methods, production and marketing of minerals in Nigeria. Principles and application of magnetic, gravity, electrical, electromagnetic, seismic and radioactive methods of exploration for mineral deposits. Mine development strategies and mineral treatment methods. Mine hazards and control methods. Nuclear fuel cycle and fuel materials; nuclear fuels reserves, exploration, and mining stable isotopes; geochemistry, mineralogy and petrogenesis of thorium ores and Uranium deposits, and heir distribution. Mineral Economics, Reserves Calculations, Production, Marketing and Case histories.

CPG 703: RESERVOIR MODULE

CPG 703.1: Introduction to Reservoir Petrophysics (3 Units)

Introduction to Petrophysics. Reservoir Rock Fluid Properties. Rock Properties from Well logs. Core – log Relationships Measurement of Rock and Fluid Properties. Geostatistical Concepts. Petrophysical Modeling. Formation Evaluation.

CPG 703.2: Introduction to Well Logging and Interpretation (3 Units)

Introduction to Wireline logging. Main logging Tools. RW Determination. Lithology and Porosity Determination. Shaly Formations Evaluation. Other Tolls – NML, Dipmeter, Formation Testing.

CPG 703.3: Introduction to Core Analysis I & II (3 Units)

Introduction to Core Analysis. Reservoir Rocks Properties form Cores. Coring and Core Acquisition. Core Analysis. Core Data Averaging. Special Core Analysis (SCAL). Structure and Properties of Porous media. Static Rocks and Fluid Properties. Multiphase flow through Porous Media. Dynamic Fluid flow properties. Rock properties. Correlations. Petrophysical Laboratory Work.

CPG 703.4: Introduction to Seismic Data Interpretation (Quantitative) (3 Units)

Introduction. Velocities, Head Waves. Ground Motion. Travel times. Multiple subsurface layers. Hidden layers. Field Procedure for recognizing

dipping layers. Refractions. Conversion, AVO, VSP, Velocity Anisotropy. Seismic Inversion.

CPG 703.5: Introduction to Static Modeling (3 Units)

Introduction. Static reservoir models, Principles of Static Geomodeling. 3D Grid concept. Case concept. Stratigraphic Modeling. Structural Modeling. Facies Modeling, Petrophysical Modeling Geostatistical concept. Model quality. Volumetrics. History Matching. Future Predictions and quantification of uncertainties.

CPG 703.6: Introduction to Dynamic Modeling (3 Units)

Introduction. Concept and Technology. Flow Equations. Rock and Fluid Properties. Gridding in Reservoir Simulation. Simulation Process.

CPG 704: FIELD TRIP MODULE

CPG 704.1: Geoscience Field Trip (Geology & Geophysics) (2 Units)

Geological Fieldwork allows Participants to obtain samples, measuring their orientations, dimensions and construct Geologic and topographic maps. Identification of potential Source rocks, Reservoir rocks, Seals and Geological Structures. Textures, Sedimentary Structures and Palaeocurrents. Application to Reservoir Qualities. Geological Models and Simulation. Seismic Reflection and Refraction. Gravimeter and Magnetometer uses and application to Exploration. Seismic Reflection and Refraction. Gravimeter and Magnetometer uses and application to Exploration.

CPG 704.2: SEMINAR (2 Units)

CPG 704.3: PROJECT DEFENSE (2 Units)

MASTER OF SCIENCE (M.Sc) IN PETROLEUM GEOSCIENCES

PROGRAMME DURATION

Full time Programme will run for 12 Months while Part time Programme will run for 18 Months

AWARD OF DEGREE

Successful students at the end of the programme shall receive a Master's Degree in any of Petroleum Geosciences, Petroleum Geoengineering, Energy Geosciences, Integrated Petroleum Geosciences and Oil and Gas Enterprises Management of the University of Port Harcourt.

AREA OF SPECIALIZATION

Petroleum Geosciences, Petroleum Geoengineering, Energy Geosciences, Integrated

Petroleum Geosciences and Oil and Gas Enterprises Management.

ADMISSION REQUIREMENTS

Below are the requirements for admission into the Master of Science (M.Sc) programme in conjunction with standard School of Graduate Studies procedures are as follows:

1. Holders of first degree certificates with minimum of second class lower division or Post Graduate Diploma (PGD) certificates with minimum of Credit, from recognized universities, in Petroleum Geosciences, Geology, Geophysics, Petroleum Engineering, Gas Engineering, and Geomining Technology are invited to apply.
2. Holders of Post Graduate Diploma (PGD) with minimum of Merit, from recognized Universities, in Petroleum Geosciences, Geology, Geophysics, Petroleum Engineering, Gas Engineering, and Geomining Technology and possess cognate experience in the oil and gas industry are eligible to apply.

MODE OF STUDY AND EXAMINATION

The Mode of Study is flexible and consist of both Modular hybrid of onsite and online components. Students are expected to offer and pass all taught courses, field/laboratory work/visits, and seminar and team/individual continuous assessments. Examinations will be administered at the end of each module onsite and online as applicable.

Full-time: Physical classroom with real-time online video conferencing

(Monday to Friday, 8 a.m. to 4 p.m.).

Part-time: Virtual classroom with real-time online video conferencing

(Monday to Friday, 5 p.m. to 8 p.m.); and

Physical classroom (Saturdays, 8 a.m. to 4 p.m.)

COURSE DELIVERY

The students are taught by instructors from Universities and experts from the petroleum and energy industry.

GRADUATION REQUIREMENTS

To qualify for an award of the Master of Science degree in Petroleum Geosciences, a student must meet the following requirements:

1. The student must have successfully completed and passed all the prescribed courses in the programme with at least C grades;
2. The student must have met other requirements of the School of Graduate Studies and the University of Port Harcourt.

COURSEWORK GRADING SYSTEM	60	-	69	B	4.00
The coursework grading system shall be as follows:	50	-	59	C	3.00
70 and above	A		49	F	0
					5.00

COURSE OUTLINE

S/N	MODULE		COURSE		CREDIT UNITS
	MODULE CODE	TITLE	COURSE CODE	TITLE	
1	CPG 801	Basic Module	SGS 801.1	ICT and Research Methodology	2
			SGS 801.2	Management and Entrepreneurship	2
			CPG 801.3	Oil and Gas industry / HSE Overview	2
			CPG 801.4	Application of Artificial Intelligence, Machine Learning, (AI), Big Data, Internet of Things (IoT) and Blockchain in the Oil and Gas Industry	3
			CPG 801.5	Future Trends in Renewable Energy Resources and Technology for Sustainable Development	2
			CPG 801.6	Applications of Remote Sensing and Geographic Information Systems (GIS) in the Oil/Gas Industry.	3
			CPG 801.7	Applied Mathematics/Geostatistics	3
			CPG 801.8	Advanced Report Writing, Communication and Presentation Skills	2
2	CPG 802	Geosciences Module	CPG 802.1	Advanced Petroleum Geology	2
			CPG 802.2	Advanced Petroleum Geophysics	2
			CPG 802.3	Advanced Environmental Science Management, Planning, Ethics, EIA and Sustainable Development	2
			CPG 802.4	Advanced Structural Analysis	2
3	CPG 803	Basin Analysis Module	CPG 803.1	Carbonate and Clastic Deposits	2
			CPG 803.2	Sequence Stratigraphy and Sedimentary Depositional Models	2
			CPG 803.3	Operations Geology	2
			CPG 803.4	Application of Biostratigraphy to E & P	2
			CPG 803.5	Application of Geochemistry to E & P	2
			CPG 803.6	Seismic Survey Designs, Data Acquisition & Field Technique	2
			CPG 803.7	Seismic Stratigraphy	2
4	CPG 804	Reservoir Module	CPG 804.1	Advanced Reservoir Petrophysics	3
			CPG 804.2	Advanced Well Log Interpretation	3
			CPG 804.3	Advanced Core Analysis I & II (Two Weeks)	3
			CPG 804.4	Advanced Seismic Data Interpretation (Quantitative)	3
			CPG 804.5	Advanced Static Modelling Reservoir Characterization: (Concepts/Techniques)	3
			CPG 804.6	Advanced Dynamic Modeling	3
			CPG 804.7	Petroleum Hydrogeology/Contaminant Plumes	2
5	CPG 805	Petroleum Engineering Module	CPG 805.1	Cased Hole Formation Evaluation	3
			CPG 805.2	Geomechanics	3
			CPG 805.3	Drilling, Completion & Workover Operations/Oilfield Chemicals	3
			CPG 805.4	Surface Production Engineering	3

			CPG 805.5	Reservoir Engineering	3
			CPG 805.6	Integrated Reservoir Management	3
			CPG 805.7	Ethics, Corporate Social Responsibility & Governance	3
			CPG 805.8	Petroleum Economics & Risk Analysis	3
6	CPG 806	Field Work, Seminar & Project Module	CPG 806.1	Geoscience Field Trip (Geology & Geophysics)	2
			CPG 806.2	Seminar	2
			CPG 806.3	Dissertation	12
TOTAL					105

COURSE CONTENTS

CPG 801: BASIC MODULE

SGS 801.1: ICT and Research Methodology (2 Units)

Essentials of Spreadsheet and Internet Technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing. Organization of Research and Report writing.

SGS 801.2: Management and Entrepreneurship (2 Units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, Marketing and managerial problem solving.

CPG 801.3: Oil and Gas Industry/HSE Overview (2 Units)

Advanced Reservoir Rock properties. Characteristics of Reservoir Fluid. Advanced Exploration Methods. Drilling Engineering. Well completion. Hydrocarbon In-Place Estimate. Recovery Methods. Production and Surface Facilities. Health Safety and Environmental Management System (Management Leadership and Commitment, Policy and Strategic Objectives, Organization, Responsibilities, Resources, Standards and Documentation, Hazards and Effects Management, Planning and Procedures, Implementation and Performance Monitoring, Audit, Review)

CPG 801.4: Application of Artificial Intelligence (AI), Machine Learning, Big Data, Internet of Things (IoT), Blockchain, Cloud Computing And Cybersecurity In The Oil And Gas Industry (3 Units)

Advanced coding and practical application of blockchain, artificial intelligence, Machine

Learning, Big Data, Cloud Computing, Internet of Things, and Cybersecurity in oil and gas business.

Note: This is a hands-on course; students will learn by doing advanced coding.

CPG 801.5: Future Trends in Renewable Energy Resources and Technology for Sustainable Development (2 Units)

Advances in wind turbines and solar panels, Hydro-reservoirs, batteries, Power-to-X fuels (electricity into heat, hydrogen or renewable synthetic fuels.), seasonal thermal energy storage, renewable based electrification. Green Technology and Sustainable Development. Drivers for Renewable Energy Policies, Impacts of Renewable Energy and Value of Renewable Energy Technology.

CPG 801.6: Application Of Remote Sensing And Geographic Information Science (GIS) in the Oil and Gas Industry (3 Units)

Application of UAV's and Drones in surface (Land / offshore) and under water manned and unmanned production platforms for oil and gas exploration, operations, **material handling, methane management**, disaster monitoring and emergency response, **inspection and predictive maintenance, surveillance** and monitoring pipelines.

Note: This is a Practical course. A Drone and a GIS software is required.

CPG 801.7: Applied Mathematics and Geostatistics Modelling (3 Units)

Differential equation, Numerical methods, Numerical Simulation Sensitivity Analysis, Steady-State Solution. Stability. Bifurcation Boundary-Value problem in oil and gas Reservoir. Fourier Series. Univariate, Multivariate Statistics. Variograms Geostatistical Simulation in 2D kriging and its variation and Geostatistical Simulations in Integrated Reservoir studies. Risk Management – Uncertainty quantification.

CPG 801.8: Advanced Report Writing, Communication and Presentation Skills (2 Units)

Introduction, Technical terms, Words, Abbreviations, Technical Writing Process, Technical Correspondence, Technical Writing Illustration, Feasibility Reports, Thesis Report Writing, Proposal Writing, Tendering/Biddings. Power Point Presentation Skills.

CPG 802: GEOSCIENCES MODULE

CPG 802.1: Advanced Petroleum Geology (2 Units)

Principles and applications of the characterization of petroleum systems, reservoirs and their fluids with a focus on unconventional resources. Methods of reservoir characterization, log analysis, subsurface mapping and the evaluation of reservoir heterogeneity with respect to geological characteristics and fundamental fluid flow related reservoir and fluid properties. Also examines subsurface CO₂ storage and other routes to eliminating CO₂ emissions from fossil fuel use as well as looking at the role of geoscience in energy recovery innovation and technology development.

CPG 802.2: Advanced Petroleum Geophysics (2 Units)

Principles and methods in petroleum seismology, with emphasis on exploring and characterizing petroleum reservoirs using seismic methods. The purposes and principles of common seismic data processing, imaging and analysis methods employed in the petroleum industry. The main technical issues in exploring onshore and offshore petroleum reservoirs using seismology, such as in assessing the suitability of using common seismic methods for petroleum targets. Using various seismic techniques to enhance signals and suppress noise in reflection seismic data to help detecting hydrocarbon reservoirs. Applying borehole geophysics and well logging techniques to tie with seismic and geological data to help achieving the exploration objectives. Common issues and techniques of applied seismology for characterizing petroleum reservoirs. Current issues in exploring unconventional petroleum reservoirs using seismology.

Note: Geophysics field work will take place during this course.

CPG 802.3: Fundamentals of Environmental Science, Management, Planning, Ethics, EIA and Sustainable Development (2 Units)

This course covers a wide range of “tools” used in environmental management for environmental decision making. Topics include: interrelationship among Assessment; Environment and Development; evolution of Environmental Assessment; Procedures and steps in Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), and Health Impact Assessment (HIA); Public Participation; Strategic Environmental Assessment (SEA); Policy formulation; risk management systems, etc. Effectiveness and challenges of contemporary EA practices. Environmental Auditing and Management Systems.

CPG 802.4: Advanced Structural Analysis (2 Units)

The primary objective is to explain structural geology concepts and tools that aid in developing an internally consistent 3-D picture of the crustal structure, and evaluating specific reservoir characteristics such as top seal integrity and fault seal. Together, the instructors and students will develop a structural analysis "best practices" workflow. The class is structured according to tectonic setting (e.g. passive margins, transform margins, fold-thrust belts, continental rift systems). Within each tectonic setting, we cover regional geology, fault system geometry, kinematics, trap evolution, and the tools a practicing geologist would use to constrain a 3-D picture of the crustal structure.

CPG 803: BASIN ANALYSIS MODULE

CPG 803.1: Carbonate and Clastic Deposits (2 Units)

Carbonate Depositional Environments. Concepts of Components, Structures, Textures and Crystal Fabrics. Classification of Carbonates Description of Carbonate Rocks in Hand specimen and Drill Cuttings. Mineralogy and Petrology of Calcareous skeletal structures. Porosity and Permeability of Carbonate rocks. Sedimentary Deposits. Classic Sedimentary Rocks. Formation and Classification. Sedimentary Environments. Characteristics of Sand bodies. Geometry of Sand Reservoir Bodies. Porosity and Permeability Description of Hand Specimens and Drill Cutting. Deltaic models of classic sedimentation. Particle size Distribution analysis. Rock and Minerals Petrography. Identification, Collection and Preparation of Slides for Fossils.

CPG 803.2: Sequence Stratigraphy and Sedimentary Depositional Models (2 Units)

The Sedimentological spectrum. Concept and various types of Depositional models. Concept of sequence stratigraphy Driving mechanism of sequence Generation. Sequence Models. Time Attributes of Stratigraphy. Basic Concepts and Terminology of Sequence Stratigraphy. The Stratigraphic Building Blocks of Depositional Sequences. Recognition Criteria for the Identification of Depositional sequences and their Components in Outcrops, Cores, Well Logs, and Seismic. The Application of Sequence Stratigraphy in Non-marine, Shallow Marine, and Submarine Depositional Settings.

CPG 803.3: Operation Geology (2 Units)

Concepts of Reservoir Rocks. Properties of Reservoir Rocks. Subsurface Map Techniques Appraisal Subsurface Diagnosis of Sedimentary Environments from Cores, Ditch cuttings and Wireline logs. Prediction of the Distribution, Geometry and Orientation of Reservoir rocks. Characterization, Petrography and Morphology of Reservoir rocks. Porosity relationship to Rock composition. Texture and Diagenesis. Structural Analysis. Hydrostatics. Geological Attributes in Reservoir Estimation and Recovery Techniques. Petrophysical Analysis and Reservoir Modeling.

CPG 803.4: Application of Biostratigraphy to Exploration and Production (2 Units)

Introduction. Data Acquisition, Analysis and Presentation. Age Determination. Palaeoenvironmental Reconstruction. Biozonation. Graphic Correlation. Development of Chronological scale, Ecostratigraphy.

CPG 803.5: Application of Geochemistry to Exploration and Production (2 Units)

Introduction to Exploration Geochemistry. Origin of Petroleum. Generation Process. Migration Mechanism. Accumulation. Preservation. Evaluation of Source rock maturity. Petroleum Potential Correlation Studies, Source - Source, Oil -Source, Oil – Oil.

CPG 803.6: Seismic Survey Designs, Data Acquisition and Field Techniques (2 Units)

Introduction. Modern Seismic data Acquisition. Fundamentals of seismic Prospecting. Reflection Field Equipment. Basics of 2D and 3D survey design. Reflection Field methods. Seismic Data Processing. Basic principles of 4D seismic survey design and acquisition (land & marine).

CPG 803.7: Seismic Stratigraphy (2 Units)

Introduction: Wave Geophysics. Nature of Reflection Seismic Section, Reflection Seismic Acquisition and Processing Domains. Principles of Seismic Stratigraphy Interpretation... Resolution of Seismic data (Vertical and Lateral), Seismic Sequence Analysis, Seismic Facies Analysis.

CPG 804: RESERVOIR MODULE

CPG 804.1: Advanced Reservoir Petrophysics (3 Units)

This course covers the basic methods of open-hole well log analysis, and covers logging suite choices. New logging developments and current research are also covered. Special focus on certain methods is provided (e.g. 3D VSP, borehole imaging, pore pressure prediction).

CPG 804.2: Well Log Interpretation (3 Units)

Basic Concepts Review and Resistivity Tools. Conductivity and Nuclear Logging Tools. Acoustic and Geological Logging Tools. Advanced Logging Tools and Introduction to Formation Evaluation. Complex Lithology Evaluation, Formation Testers and Mini-Workshop

CPG 804.3: Core Analysis I & II (3 Units)

Core and log integration workflow process. Core and log integration importance. Fundamentals of log analysis. 3-Line interactive evaluation workshop. Textural core analysis and integration with the geologic framework. Determination of porosity. Log evaluation of Sw. Porosity evaluation workshop and evaluating Sw workshop. Petrophysical rock types and water saturation. Petrophysical rock type workshop. Applied capillary pressure and calibrating water saturation. Capillary pressure workshop. Core and log integration workshop. Reservoir facies. Reservoir facies characterization workshop. Pore geometry, clays, and the relationship to water saturation. Flow units and permeability prediction. Permeability prediction workshop. Flow unit workshop. Well evaluation workshop.

CPG 804.4: Advanced Seismic Data Interpretation (Quantitative) (3 Units)

Advanced concepts and foundations of wave and ray theory necessary for seismic processing, imaging, AVO analysis and structural interpretation. Review of rock properties, wave, and ray theory. Reservoir properties and well-log measurements. Seismic amplitude variation as a function of offset. Principles of fluid substitution. Parameterization of the AVO response for fluid

product estimation. Recognition of hydrocarbon signatures and interpretive "rules-of-thumb". AVO inversion for rock-properties, impedances and reflectivities. The information content & complications in long offset and post critical data. Fizz gas, anisotropy, and other challenges facing the exploration industry

CPG 804.5: Static Modeling And Reservoir Characterization: (Concepts/Technique) (3 Units)

Introduction to reservoir characterisation. Reservoir metrics and related variable types. Generation of a reservoir model. Grid design and structure determination. Structure model exercise. Geostatistics and spatial data analysis. Variograms, Kriging basics and methods, Co-kriging. Stochastic simulation methods for discrete variables (indicator simulation, TGS, Boolean, MPS, etc.). Simulation methods for continuous variables (SGS, GRFS, bivariate, etc.). Facies, properties and fracture modelling strategies. Volume estimates and uncertainty assessment. Upscaling to coarse grid models.

CPG 804.6: Dynamic Modeling (3 Units)

Quantitative tools to create 3D geological models of the subsurface, including properties like grain size, porosity and permeability.

CPG 804.7: Petroleum Hydrogeology/Contaminant Plumes (2 Units)

Groundwater flow in Reservoirs and tilted oil water contacts. Lateral and vertical Reservoir Continuity. Shallow and Deep Groundwater Aquifers. Well rehabilitation and well abandonment. Dewatering and Seepage Control. Contaminant Plume Sources. Hydrocarbon Migration, oil and gas field Depletion and Compartmentalization. Fault and top Seal Capacity for oil and gas.

CPG 805: PETROLEUM ENGINEERING MODULE

CPG 805.1: Cased Hole Formation Evaluation (3 Units)

Introduction to Cased Hole Logs. Open Hole Formation Evaluation – Overlays and Cross plots. Case hole Formation Evaluation – Production Logs, Completion Logs, etc. Through Casing Evaluation.

CPG 805.2: Geomechanics (3 Units)

Basic Geological concepts and Rock Formation. Principles of Stress-Strain Relationships. Theory of Rock Deformation. Pore Pressure and Fracture

Gradient Relationships. Abnormal Pressures in Well Operations Insitu Stress and Effective Stress concepts. Rock Failure and Rock strength. Wellbore Instability Management. Wellbore Instability. Modeling and Prediction. Geomechanical Principles in Well Design and Well construction. Practical Wellbore Instability Management. Case Histories.

CPG 805.3: Drilling, Completion and Work Over Operation/Oil Field Chemicals (3 Units)

Exploration and Drilling Operations. Drilling Fluid Lab testing and Equipment. Mud Calculation. Cement Composition, Additives and Reaction Kinetics. Cementing Operations. Cement testing and Lab Equipment. Cement Recipe Design calculations. Simulation Operations. Fluid Design, Result Interpretation and Fluid Application. Quality Control Efforts in Drilling, Cementing and Stimulation Operations.

CPG 805.4: Surface Production Engineering (3 Units)

Production test, Well Surveillance, Surface Production Facilities. Corrosion, Treating, Desalting, Gas Dehydration, Gas Compression.

CPG 805.5: Reservoir Engineering (3 Units)

Introduction. Reservoir Rock and Fluid Properties Description and Classification of natural underground oil and gas Reservoirs. Recovery methods Unit Systems. Fluid flow concept.

CPG 805.6: Integrated Reservoir Management (3 Units)

Introduction to Subsurface Reservoir Management Concepts. Reservoir Management Organization. Efficient Reservoir Surveillance and Monitoring Tools Reservoir Life Cycle. Case Studies.

CPG 805.7: Ethics, Corporate Social Responsibility and Governance (3 Units)

Principles and Moral values. Managing Ethics in Workplace. Assessing Culture and Cultivating Ethical Culture. Business Ethics. General Resources for managing Ethics in Workplace. Social Responsibility. General Resources for managing social Responsibility in workplace. Principle of Corporate governance and models. Regulation. Mechanisms and Controls. Systemic Problems of Corporate Governance.

CPG 805.8: Petroleum Economics and Risk Analysis (3 Units)

Fundamentals of Petroleum E & P Economics and Analysis. International Petroleum Economics. Fiscal System Mechanics and Analysis. Risk and

Uncertainty Management in Petroleum E & P Industry. Risk Decision Analysis.

possess cognate experience in the oil and gas industry are eligible to apply.

CPG 812: FIELD WORK, SEMINAR AND PROJECT TRIP MODULE

CPG 812.1: Geoscience Field Trip (2 Unit)

Geological Fieldwork allows Participants to obtain samples, measuring their orientations, dimensions and construct Geologic and topographic maps. Identification of potential Source rocks, Reservoir rocks, Seals and Geological Structures. Textures, Sedimentary Structures and Palaeocurrents. Application to Reservoir Qualities. Geological Models and Simulation. Seismic Reflection and Refraction. Gravimeter and Magnetometer uses and application to Exploration.

CPG 812.2: SEMINAR (2 Units)

CPG 813: DISSERTATION (12 Units)

DOCTOR OF PHILOSOPHY (Ph.D) IN PETROLEUM GEOSCIENCES

PROGRAMME DURATION

Full time: 24 Months
Part time: 36 Months

AWARD OF DEGREE

Successful students at the end of the programme shall receive a Doctor of Philosophy Degree in Petroleum Geoscience of the University of Port Harcourt.

ADMISSION REQUIREMENTS

Below are the requirements for admission into the Doctor of Philosophy (Ph.D) programme in conjunction with standard School of Graduate Studies procedures are as follows:

1. Holders of Master’s degree certificates with minimum CGPA of 3.5 on a 5-point scale, from recognized universities, in Petroleum or energy Geosciences are invited to apply.
2. Holders of Master’s degree certificates with minimum CGPA of 3.5 on a 5-point scale, from recognized universities, in Petroleum Engineering, Gas Engineering, Geology, Geophysics, and Geo-mining Technology and

AREA OF SPECIALIZATION

Petroleum Geosciences, Petroleum Geoengineering, Energy Geosciences, Integrated Petroleum Geosciences and Oil and Gas Enterprises Management.

MODE OF STUDY AND EXAMINATION

The Mode of Study is flexible and consist of both Modular hybrid of onsite and online components. Students are expected to offer and pass all taught courses, field/laboratory work/visits, and seminar and team/individual continuous assessments. Examinations will be administered at the end of each module onsite and online as applicable.

Full-time: Physical classroom with real-time online video conferencing (Monday to Friday, 8 a.m. to 4 p.m.).

Part-time: Virtual classroom with real-time online video conferencing (Monday to Friday, 5 p.m. to 8 p.m.); and Physical classroom (Saturdays, 8 a.m. to 4 p.m.)

COURSE DELIVERY

The students are taught by instructors from Universities and experts from the petroleum and energy industry.

GRADUATION REQUIREMENTS

To qualify for an award of the Doctor of Philosophy degree in Petroleum Geosciences, a student must meet the following requirements:

1. The student must have successfully completed and passed all the prescribed courses in the programme with at least C grades;
2. The student must have met other requirements of the School of Graduate Studies and the University of Port Harcourt.

COURSEWORK GRADING SYSTEM

The coursework grading system shall be as follows:

70 and above	A	5.00
60 - 69	B	4.00
50 - 59	C	3.00
0 - 49	F	0

COURSE OUTLINE

S/N	MODULE		COURSE			CREDIT UNITS
	MODULE CODE	TITLE	COURSE CODE	TITLE		
1	CPG901		CPG 901.1	Advances in Petroleum Geosciences		3

		Geosciences/ Geoengineering Module	CPG 901.2	Advanced Application of IoT in Geosciences/Geoengineering	3
			CPG 901.3	Advances in Seismology, Tectonics, and Geophysics	3
			CPG 901.4	Advances in Seismic Stratigraphy, Basin Analysis and Reservoir Characterization	3
			CPG 901.5	Advances in Petroleum Geoengineering	3
			CPG 901.6	Seminar	3
2	CPG902	Defence Module	CPG 903.1	Thesis Defence	16
TOTAL					31

COURSE CONTENTS

CPG 901: GEOSCIENCES/ GEOENGINEERING MODULE

CPG 901.1: Advances in Petroleum Geosciences (3 Units)

Lectures will be based on contemporary areas of Petroleum Geosciences.

CPG 901.2: Advanced Application of IOT in Geosciences/Geoengineering (3 Units)

Lectures will be based on practical demonstration of IoT in solving Petroleum Geosciences/Geoengineering problems.

CPG 901.3: Advances in Seismology, Tectonics, and Geophysics

A primary focus in seismology and tectonics is the determination of detailed three dimensional earth structure, from the core to the surface, and related studies on the dynamics that drives mantle convection, deformation of the lithosphere, and plate tectonics in general. Particular emphasis is placed on interdisciplinary research and collaboration, where inferences made from seismological, geodynamic, and geodetic investigations are integrated with findings from the fields of mineral and rock physics, geochemistry, and petrology. Areas of specific focus in seismology include inner core structure, anisotropy, and attenuation, outer core structure, core-mantle boundary structure, upper mantle structure, strong ground motion studies, earthquake source parameter studies, and theoretical studies on seismic wave propagation. Investigations in tectonophysics include the coupling between mantle convection and lithospheric dynamics, the development of the kinematics, mechanics, and seismicity within plate boundary deformation zones, and the inference of mantle flow beneath the lithosphere. Current projects involve using earthquake and space geodetic data to infer the deformation fields and employing numerical, analytical, and analog modeling to understand surface geodynamical observations, ranging from geoid, topography,

plate motions and surface deformations in the global and regional scales to the partitioning of strain and tectonic implications at geometrically complex plate margins. Research in shallow subsurface geophysics includes field geophysical surveys of glaciotectonic deformation of Long Island sediments using ground penetrating radar and electrical resistivity.

CPG 901.4: Advances in Seismic Stratigraphy, Basin Analysis and Reservoir Characterization (3 Units)

The interest in seismic stratigraphic techniques to interpret reflection datasets is well established. The advent of sophisticated subsurface reservoir studies and 4D monitoring, for optimizing the hydrocarbon production in existing fields, does demonstrate the importance of the 3D seismic methodology. Overview reflection seismic methods and its limitations (1. Link between basic seismic stratigraphic principles and high resolution sequence stratigraphy. 2. Description of various techniques for seismic reservoir characterization and synthetic modelling 3. Overview inversion techniques, AVO and seismic attributes analysis).

CPG 901.5: Advances in Petroleum Geoengineering (3 Units)

This course, is aimed at a broad range of geoscientists and engineers working in the petroleum industry. The ultimate objectives are to enable technical staff members to maximize the recovery of hydrocarbons. The impact of petrophysical heterogeneity at various scales on the recovery of oil and gas.

CPG 901.6: Seminar (3 Units)

Seminar presentations will be based on specialised areas of research project.

CPG 902: DEFENCE MODULE

CPG 902.1: Research Project Defence (16 Units)

POSTGRADUATE DIPLOMA PROGRAMME IN GREEN ENERGY

GEOSCIENCES AND ASSET MANAGEMENT

Programme Duration

Postgraduate Diploma in Green Energy Geoscience and Asset Management: 12 months.

Award of Degree

Successful students at the end of the programme shall receive the Postgraduate Diploma in Green Energy Geoscience and Asset Management of the University of Port Harcourt.

Admission Requirements

Holders of First degree from recognized universities or Higher National Diploma (Upper credit) certificates from recognized institutions in the Sciences, Engineering, Technology, Social Sciences and Management with cognate experience in the energy industry are eligible to apply.

Mode of Study

The programme offers a flexible modular hybrid onsite and real-time online video conferencing that offers students excellent choices of time of study.

Course Delivery

Course delivery is by the academia and the energy industry.

Graduation Requirements

To qualify for an award of the postgraduate degree in Green Energy Geoscience and Asset Management of the University of Port Harcourt, a student must meet the following requirements:

1. The student must have successfully completed and passed all the prescribed courses in the programme with at least C grades;
2. The student must have met other requirements of the School of Graduate Studies and the University of Port Harcourt.

Course Grading System

The coursework grading system shall be as follows:

70 and above	A	5.00
60 - 69	B	4.00
50 - 59	C	3.

MODULE	TITLE	COURSE TITLE	CREDIT UNIT
BASIC	DGM 701.1	Research Methodology	2
	DGM 701.2	Introduction to Entrepreneurship	2
	DGM 701.3	Introduction to Fourth Industrial Revolution	2
	DGM 701.4	HSE and Commercialization Opportunities	2
	DGM 701.5	Report Writing, Communication and Presentation Skills	2
GEOSCIENCE	DGM 702.1	Climate Change and Global Warming	2
	DGM 702.2	Introduction to Carbon Capture Storage Utilization	2
	DGM 702.3	Environmental Science and Sustainable Development	2
	DGM 702.4	Geoscience and Unconventional Energy	2
	DGM 702.5	Geological Excursion	2
MANAGEMENT AND LAW	DGM 703.1	Introduction to Natural Gas and LNG Management	2
	DGM 703.2	Introduction to International Energy Law	2
	DGM 703.3	Introduction to Public Relations (PR)	2
ACCOUNTING	DGM 704.1	Upstream and Downstream Accounting	2
PROJECT	DGM 705.1	Seminar	3
	DGM 705.2	Research Project	9

POSTGRADUATE DIPLOMA IN GREEN ENERGY GEOSCIENCE AND ASSET MANAGEMENT

COURSE CONTENTS

DGM 701.1: Research Methodology (2 Units)

Essentials of Spreadsheet and Internet Technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing. Organization of Research and Report writing.

DGM 701.2: Introduction to Entrepreneurship (2 Units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, Marketing and managerial problem solving.

DGM 701.3: Introduction to Fourth Industrial Revolution (2 Units)

Advanced coding and practical application of blockchain, artificial intelligence, Machine

Learning, Big Data, Cloud Computing, Internet of Things, and Cybersecurity in oil and gas business. Note: This is a hands-on course; students will learn by doing advanced coding.

DGM 701.4: HSE & Commercialization Opportunities (2 Units)

Health Safety and Environmental Management System (Management Leadership and Commitment, Policy and Strategic Objectives, Organization, Responsibilities, Resources, Standards and Documentation, Hazards and Effects Management, Planning and Procedures, Implementation and Performance Monitoring, Audit, Review.

DGM 701.5: Report Writing, Communication and Presentation Skills (2 Units)

Introduction, Technical terms, Words, Abbreviations, Technical Writing Process, Technical Correspondence, Technical Writing Illustration, Feasibility Reports, Thesis Report Writing, Proposal Writing, Tendering/Biddings. Power Point Presentation Skills.

DGM 702.1: Climate Change and Global Warming (2 Units)

Earth's climate system and the science and politics of global climate change. Climate in the Spotlight. The Spectrum of Scientific Opinion. Pundits, Advocates and Apocalypse. How to Tell Science from Rubbish. The earth's Natural Greenhouse Effect. Why the Earth is a Nice Place to Live. The Radiative Balance. The Importance of Water. Greenhouse gases. Greenhouse Gases: An Overview. The Role of Carbon Dioxide. The Role of Methane. Major Uncertainties.

DGM 702.2: Introduction to Carbon Capture Storage Utilization (2 Units)

Combating global warming, and over the last few years, has developed rapidly. Although much of the technology is similar to that of CO₂ enhanced oil recovery (EOR), as currently practiced This course will cover CCS across the world Economy, Capturing Carbon, Geological Carbon Storage, CCS Utilization, Energy decarbonization

DGM 702.3: Environmental Science and Sustainable Development (2 Units)

Tools used in environmental management for environmental decision making. Topics include: interrelationship among Assessment; Environment and Development; evolution of Environmental Assessment; Procedures and steps in Environmental Impact Assessment (EIA).

DGM 702.4: Geoscience and Unconventional Energy (2 Units)

Geology: definition, types of rocks, sediment formation. Types of sedimentary rocks. Sandstones, shales and carbonates: formation, composition, classification, environment of deposition and deformation. The operating principle of un-conventional energy technologies, materials used, characterization, and key performance characteristics. Technologies such as Solar energy, Wind, Batteries, Fuel cells, and Geothermal conversion. The advantages and limitations of these technologies in comparison to conventional sources of energy will also be examined. Green Technology and Sustainable Development. Drivers for Renewable Energy Policies, Impacts of Renewable Energy and Value of Renewable Energy Technology.

DGM 702.5: Geological Excursion (2 Unit)

Geological Fieldwork allows Participants to obtain samples, measuring their orientations, dimensions and construct Geologic and topographic maps. Identification of potential Source rocks, Reservoir rocks, Seals and Geological Structures. Textures, Sedimentary Structures and Paleocurrents. Application to Reservoir Qualities. Geological Models and Simulation. Seismic Reflection and Refraction. Gravimeter and Magnetometer uses and application to Exploration.

DGM 703.1: Introduction to Natural Gas and LNG Management (2 Units)

Gas units, reserves, exploration & production, unconventional gas (Coal Bed Methane and shale gas), LNG chain, gas pipelines and gas usage (electricity, petrochemicals, transport fuels, gas-to-liquids), including detailed discussions about gas & LNG economics, gas pricing and global trade patterns

DGM 703.2: Introduction to International Energy Law (2 Units)

The major legal obligations affecting the industry such as Energy Law, Comparative International Tax Law, Environmental Aspects of Energy Law, Legal Aspects of Mergers & Acquisitions, Energy Law and Policy, Renewable Energy Issues, Dispute Resolution in Energy Contracting, Energy Contract Law, Energy Management and Maritime Law.

DGM 703.3: Introduction to Public Relations (PR) (2 Units)

Overview of the history of energy, global trend affecting the industry. Exploration and production processes in energy. Public participation in the oil and gas industry. The role of public relations in the entire value chain of energy industry. Identify key issues and challenges of public relations in energy industry. Managing public relations challenges. Stakeholders effect on public relations. Strategies

of effective public relations. Legal elements and public Relations. Principles used by PR practitioners to plan and implement communication campaign. The role of internet, social media, email, twitter, blogs, television, newspaper, etc. How to identify and reach your audience. Learn how to generate good publicity, address negative perceptions / publicity. Corporate governance, legal frameworks & impact of petroleum law on public relations. Understand the role of public relations is crisis management. Definition an understanding of community. Energy bearing community and crisis concept.

DGM 704.1: Upstream and Downstream Accounting (2 Units)

For non-financial managers and staff within the industry improve their knowledge and application of best practices in financial management and accounting within E&P. Key financial principles in exploration, development and production. How business decisions impact upon financial statements and financial performance and how by understanding these impacts managers are better placed to evaluate their decisions. Financial impact of the contractual arrangements found in the industry, in particular how Production Sharing Agreements impact upon results and reserves.

DGM 705.1: Seminar (3 Units)

DGM 705.2: Research Project (9 Units)

MASTER OF SCIENCE IN GREEN ENERGY GEOSCIENCE AND ASSET MANAGEMENT

Areas of Specialization

1. Master of Science in Green Energy Geoscience and Asset Management (Energy Geoscience);
2. Master of Science in Green Energy Geoscience and Asset Management (Asset Management)

Programme Duration

Master of Science in Green Energy Geoscience and Asset Management:

Full Time: 12 months, and
Part Time: 18 months

Award of Degree

Successful students at the end of the programme shall receive the appropriate degrees in Green Energy Geoscience and Asset Management of the University of Port Harcourt.

Admission Requirements

Holders of First degree or PGD (credit) certificates from recognized universities in the Sciences, Engineering, Technology, Social Sciences and Management with three years experience in the energy industry are eligible to apply.

Mode of Study

The programme offers a flexible modular hybrid onsite and real-time online video conferencing that offers students excellent choices of time of study.

Course Delivery

Course delivery is by the academia and the energy industry.

Graduation Requirements

To qualify for an award of the Master of Science in Green Energy Geoscience and Asset Management of the University of Port Harcourt, a student must meet the following requirements:

1. The student must have successfully completed and passed all the prescribed courses in the programme with at least C grades;
2. The student must have met other requirements of the School of Graduate Studies and the University of Port Harcourt.

Course Grading System

The coursework grading system shall be as follows:

70 and above	A	5.00
60 - 69	B	4.00
50 - 59	C	3.00
0 - 49	F	0

MODE	TITLE CODE	COURSE TITLE	CREDIT UNIT
		ENERGY GEOSCIENCE	ASSET MANAGEMENT
BASIC	SGS 801.1	ICT and Research Methodology	2
	SGS 801.2	Management and Entrepreneurship	2
	MGM 801.1	Geoscience and the Fourth Industrial Revolution	3
	MGM 801.2	Energy industry, Safety & Commercialization Opportunities	3
GEOSCIENCE	MGM 802.1	Advanced Climate Change and Global Warming,	3

	MGM 802.2	Carbon Capture Storage Utilization (CCUS)	3
	MGM 802.3	Unconventional Energy Technology	2
	MGM 802.4	Solar Energy	2
	MGM 802.5	Wind Energy	2
	MGM 802.6	Geothermal Energy	2
	MGM 802.7	Hydro (Ocean, Tide and River) Energy	2
	MGM 802.8	Nuclear Energy	2
	MGM 802.9	Energy Storage and Extraction Technology	2
	MGM 802.10	Environmental Management, Tools and Sustainable Development	2
MANAGEMENT	MGM 803.1	Natural Gas and LNG Management	2
	MGM 803.2	Investment and Portfolio Management	3
	MGM 803.3	Agile Project and Risk Management	3
	MGM 805.4	Roles and Responsibilities for Energy Industry Professionals	
	MGM 803.5	Leadership and Management Succession for Energy Executives	3
	MGM 803.6	Contract Management and Negotiations	3
	MGM 803.7	Public Relations and Corporate Governance	3
	MGM 803.8	Human Resources Management	3
	MGM 803.9	Global Energy Policy and Economics	3
FINANCIAL ACCOUNTING	MGM 804.1	International Financial Reporting Standards Accounting	3
	MGM 804.2	Joint Venture Accounting	3
	MGM 804.3	Upstream and Downstream Finance Accounting	3
	MGM 804.4	Costing and Budgeting	3
	MGM 804.5	Financial Analysis, Modelling and forecasting	3
LAW	MGM 805.1	International Energy Law, Policy and Risk Analysis	3
SEMINAR	MGM 806.1	Seminar	2
DISSERTATION	MGM 806.2	Dissertation	16

COURSE CONTENTS

SGS 801.1: ICT and Research Methodology (2 Units)

Essentials of Spreadsheet and Internet Technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing. Organization of Research and Report writing.

SGS 801.2: Management and Entrepreneurship (2 Units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, Marketing and managerial problem solving.

MGM 801.1: Geoscience and the Fourth Industrial Revolution (3 Units)

Advanced coding and practical application of blockchain, artificial intelligence, Machine

Learning, Big Data, Cloud Computing, Internet of Things, and Cybersecurity in energy business. Note: This is a hands-on course; students will learn by doing advanced coding.

MGM 801.2 Energy Industry, Safety and Commercialization (3 Units)

Advanced Reservoir Rock properties. Characteristics of Reservoir Fluid. Advanced Exploration Methods. Drilling Engineering. Well completion. Hydrocarbon In-Place Estimate. Recovery Methods. Production and Surface Facilities. Health Safety and Environmental Management System (Management Leadership and Commitment, Policy and Strategic Objectives, Organization, Responsibilities, Resources, Standards and Documentation, Hazards and Effects Management, Planning and Procedures, Implementation and Performance Monitoring, Audit, Review.

MGM 802.1: Advanced Climate Change and Global Warming (3 Units)

CO₂ Emissions. Human Emissions of CO₂. How Much Carbon in the Ground? Different Concerns of Rich and Poor Countries. The Earth's Carbon Reservoirs What is Biogeochemistry? Why is the Atmospheric Carbon Reservoir so Small? Breathing of Gaia. The Missing CO₂ Sink. Carbon Cycling: Some Examples. The Physical Carbon Pump. The Biological Carbon Pump. The Marine Carbon Cycle. The Terrestrial Carbon Cycle. Climate and Weather. Climate and Weather: Some Definitions.

MGM 802.2: Carbon Capture Storage Utilization (3 Units)

CCUS / Geological Sequestration of CO₂, net-zero greenhouse gas (GHG) emissions by 2050. Combating global warming, and over the last few years, has developed rapidly. Although much of the technology is similar to that of CO₂ enhanced gas recovery, as currently practiced This course will cover CCS across the world Economy, Capturing Carbon, Geological Carbon Storage, CCS Utilization, Energy decarbonization, Sequestration and Future Prospects.

MGM 802.3: Unconventional Energy Technology (3 Units)

The operating principle of un-conventional energy technologies, materials used, characterization, and key performance characteristics. Technologies such as Solar energy, Wind, Batteries, Fuel cells, and Geothermal conversion. The advantages and limitations of these technologies in comparison to conventional sources of energy will also be examined. Scale of quantities, Impact of current energy usage, Conventional sources of energy. Overview of non-conventional energy resources, Consumption by sector. Geothermal and Biomass.

Battery basics, types testing, performance of batteries. Fuel cell types, Fuel processing, concept to product. Characterization and durability of fuel cells. Flywheels and super capacitors.

MGM 802.4: Solar Energy Systems (2Units)

Solar energy incident on earth. Solar spectrum. Overview of solar energy technologies, Solar Thermal devices. Solar Photovoltaic devices, Performance and durability of solar devices. Solar energy generation systems, and their technical specifications. Knowledge and skills to design and critically evaluate solar energy generation systems. An overview of the current and the future of solar energy systems. Evaluate the key technologies of solar PV and Concentrating Solar Power (CSP), select appropriate solutions for the generation of energy using solar PV and CSP for various applications, and select and implement appropriate methods for the design of solar energy systems.

MGM 802.5: Wind Energy Systems (2Units)

Introduction to wind energy - need for wind energy. How to plan for wind energy projects. Wind energy, technology and geographical aspects. Onshore and offshore wind energy. Fundamentals of wind turbines and placement. The need for wind energy and what an EIA is. Wind resources – variation of wind with height, and during day and night. Modeling wind power density and the power production based on different terrain properties. Wind turbine technology. Wind turbine designs including the modern three-bladed turbine. Aerodynamics. Thrust and power for a wind turbine. Variety of materials used to build turbine. Structural mechanics. Electrical systems.

MGM 802.6: Geothermal Energy (3 Units)

Introduction to Geothermal Energy Technology. Geothermal Systems (including ground-source heat pumps). Geothermal energy from shallow ground, to hot water and hot rock found a few miles beneath the Earth's surface, down to the extremely high temperatures of molten rock (magma). Depending on its characteristics, geothermal energy can be used for heating and cooling purposes or be harnessed to generate clean electricity. Thermal Characteristics. Sources of Geothermal Heat. Thermodynamics. Fluid Flow and Geochemistry. Subsurface Fluid Flow. Simple Quantitative Models. Chemistry of Geothermal Fluids. Resource Exploration and Characterization. Geology. Geophysics. Drilling. Resource Assessment, Downhole Measurements, Completions, Production Testing. Geothermal Energy Recovery and Conversion. Geothermal Power – Hydrothermal-Geothermal Power – SedHeat. Geothermal Power – EGS. Direct Use. Low Temperature Geothermal - Heat Pumps/ Underground Thermal Storage

MGM 802.7: Hydro (Ocean, Tide and River) Energy (2Units)

Harnessing green energy from ocean wave and tidal energy technologies. Geological and thermodynamics concepts and principles. Environmental analysis, physical principles and Energy storage. Fluid dynamics (multiphase porous media flows). Capture of the kinetic energy of flowing water and conversion to electricity. Future prospects. Green energy can be harnessed from the oceans and tide.

MGM 802.8: Nuclear Energy (2Units)

Introduction to the breadth of nuclear science and engineering fields of study. Introduction to the basic physics of nuclear energy and radiation, with an emphasis on the unique attributes and challenges of nuclear energy as a low-carbon solution. Peaceful applications of ionizing radiation to help humankind, such as reactors for materials science research, nuclear medicine, and security initiatives, are also introduced. Scientific, engineering, and economic basis for fission reactors. Nuclear reactor technology. Magnetic fusion energy research, covering the scientific and engineering basis of tokamaks. The state of the art in world fusion experiments. Uranium-235 and U-238 molecules in Nuclear energy.

MGM 802.9: Energy Storage and Extraction Technology (3 Units)

Energy storage technologies hydrogen technology, battery technology, and bio energy technologies. Energy storage and bio energy both in the transport sector and in the stationary sector. In the stationary sector, the course also covers Combined Heat and Power (CHP) systems. Distributed and localised energy storage associated with solar cell installations in buildings and energy storage solutions related to wind farms.

MGM 802.10: Environmental Management, Tools and Sustainable Development (2 Units)

Tools used in environmental management for environmental decision making. Topics include: interrelationship among Assessment; Environment and Development; evolution of Environmental Assessment; Procedures and steps in Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), and Health Impact Assessment (HIA); Public Participation; Strategic Environmental Assessment (SEA); Policy formulation; risk management systems, etc. Effectiveness and challenges of contemporary EA practices. Environmental Auditing and Management Systems.

MGM 803.1: Natural Gas and LNG Management (3 Units)

Gas units, reserves, exploration & production, unconventional gas (Coal Bed Methane and shale

gas), LNG chain, gasyuf pipelines and gas usage (electricity, petrochemicals, transport fuels, gas-to-liquids), including detailed discussions about gas & LNG economics, gas pricing and global trade patterns. Hydrocarbon behaviour in the reservoir and its various recovery methods. It also provides information on specific and direct application of the process used in reservoir engineering and skills in solving reservoir engineering problems for maximum recoverable reserves.

MGM 803.2: Investment and Portfolio Management of Green Energy Assets (3 Units)

Flexibility and resilience coupled with effective risk management. Exploration & Production (E & P) as a critical part of the gas and other green energy industry. Implemented project/programme management methodology, gas and other green energy projects/programmes hit snags, delays and incur extra expenditure. Project/Programme scope of work and planning, Project/Programme progress reporting and communication, Project/Programme processes, and Project/Programme change control and completion. Tools and practical techniques to identify, analyse and manage uncertainties and risk in exploration and production projects. Challenges, with hands-on application of industry-standard tools and techniques to assess realistic scenarios and associated data. The essential commercial drivers. Case material to explore uncertainties and risks in the context of production forecasting, cash-flow management, incremental projects and asset portfolio manipulation.

MGM 803.3: Agile Project and Risk Management (3 Units)

This course integrates the Agile Project Management methodology to the Gas industry. Students will have the opportunity to discover how to implement agile project practices and apply sprints, product backlogs, histories, scrum meetings to a typical project in this industry area. Fast delivery, better communication & collaboration, cost management improvement and superior deliverables are typical results of using this methodology. Also, students will be exposed to international standards and management systems, supporting risks related to asset damage, business interruption, pollution, injuries to people, and damage to properties are intrinsic in normal energy activities through a series of workshops about how to create, manage and sustain a risk management program.

MGM 803.4: Roles and Responsibilities for Energy Industry Professionals (3 Units)

In every organisation, the basis of business activity is the creation, drafting, negotiation and

management of contracts. Those involved in the contracting process are, rightly, required to act as contracts professionals, and can no longer afford to treat contracts as an adjunct to their main roles. The increasing complexity of contracts, particularly when used in an international context, has brought the need for such skills into sharp focus. Other aspects of the course are: The Roles, Responsibilities and Behaviours of Competent Professionals, Equipping and Motivating Highly Effective Teams, Maximising the Performance Management Process, Negotiation Styles and When to Use them, and High-Level Communication Skills.

MGM 803.5: Leadership and Management Succession for Energy Executives (3 Units)

Effective leadership and competent management skills. Efficiency, quality and productivity. Decision making and outcomes. Succession planning and competitive advantages. Practical insights essential for effective implementation.

MGM 803.6: CONTRACT MANAGEMENT AND NEGOTIATIONS (3 Units)

Effective and efficient decision making; Contract management decision. Prompt paying
Effective claims resolution Low maintenance cost. Differentiation and Reverse Differentiation techniques

MGM 803.7: Public Relations and Corporate Governance (3 Units)

Overview of the history of energy, global trend affecting the industry. Exploration and production processes in energy. Public participation in the energy industry. The role of public relations in the entire value chain of energy industry. Identify key issues and challenges of public relations in energy industry. Managing public relations challenges. Stakeholders effect on public relations. Strategies of effective public relations. Legal elements and public Relations. Principles used by PR practitioners to plan and implement communication campaign. The role of internet, social media, email, twitter, blogs, television, newspaper, etc. How to identify and reach your audience. Learn how to generate good publicity, address negative perceptions / publicity. Principles and Moral values. Managing Ethics in Workplace. Assessing Culture and Cultivating Ethical Culture. Business Ethics. General Resources for managing Ethics in Workplace. Social Responsibility. General Resources for managing social Responsibility in workplace. Principle of Corporate governance and models. Regulation. Mechanisms and Controls. Systemic Problems of Corporate Governance.

MGM 803.8: Human Resources (HR) Management (3 Units)

The role of HR; the structure of the HR department and key functions; Recruitment and selection; Occupational and Psychometric Testing; The contract of employment; Key documentation in employment; Employee entitlements; Managing employment relations; Management development, mentoring and coaching; Performance Management; Appraisals; Employee engagement and motivation; Equal opportunities; workplace diversity and individual difference; Employee health safety and welfare; Succession planning; Talent Management; Managing retirements; Managing business reorganizations; Managing workplace change. The emphasis is on the use of a structured approach where good preparation and effective interviewing techniques ensure that the 'right' candidates are taken on by the organisation in accordance with internal policies, best practice and legal considerations.

MGM 803.9: Global Energy Policy and Economics (3 Units)

Concept of energy policies across the globe with respect to renewable and non-renewable energy, with emphasis on green energy as an alternative energy source for the future, and the basis for developing such policies by government or regulators taking cognisance of economic factors and infrastructure. The structure of such policy to public and private sector within the energy value, chain as well as the industrial and domestic energy consumers. Global energy outlook and how it favours the use of green energy. Energy policies development and how it changes over time in different countries such as UK, US, Middle East, Africa and Europe. These theories and examples of the existing policies help policy makers, resource personnel, management team and private sector to understand their role and strategize their investment and interest in the gas policy at international and local level. Contract Management; Contract Pricing and Analysis; Cost Accounting Standards; Performance Based Contracts; Subcontracts and Termination and Legal Issues.

MGM 804.1: International Financial Reporting Standards Accounting (3 Units)

Contractual arrangements such as production sharing contracts and joint venture arrangements. The IFRS accounting practices that are applied in relation to exploration, development and production. This course will cover: Overview of energy accounting issues, Prospecting, exploration and evaluation, Asset impairment principles and application to unproved property, Accounting for development, Provisions & asset retirement obligations (IAS 37 and IFRIC 1 and IFRIC 5),

Accounting for production, Leasing activities (IAS 17), Foreign currency transactions (IAS 21), Revenue recognition (IAS 18) and production inventories (IAS 2), Tax accounting in the energy industry (IAS 12), Energy reserves and their analysis and case studies. The main aspects of IFRS based accounting in the Gas industry. Variety of fiscal regimes, fiscal regime in their own jurisdiction. Successful effort and full cost accounting techniques, with reference to IFRS and FASB accounting standards. Intangible assets and their importance in the Gas industry as well as the fundamentals of Property, plant and equipment: Energy (Development and Production). The impairment of development and production assets is a vital topic for the Gas industry. Joint Arrangements: Joint venture & Joint operations and the rules in several IFRS. Finally, revenue recognition, which has been a matter of research and development by various accounting standards bodies for a decade and more has culminated in IFRS 15: students will spend some time in discussing this standard and its implications for the future.

MGM 804.2: Joint Venture Accounting (3 units)

Effective design and operated cash call activities and framework that are critical to success of the JV partnership. Joint Venture (JV) / Joint Operating Agreement (JOA. Joint Venture Billing statement. JV Contract Types, Roles and Responsibilities of JVCC parties, Overview of energy contract agreement types – JVCC principles, Fundamentals of JVCC budgeting and operating, Entitlements of JVCC partners, and case studies. The course assumes IFRS as the accounting framework to be used but references US GAAP to the extent that is it relevant to an IFRS business. This course covers the following: Overview of energy accounting issues, Principles of upstream accounting – refresher, Joint venture principles, Accounting by the operator, Revenue, Reporting of joint arrangements in the IFRS financial statements, Contracting and partnering arrangements, The mechanics of production sharing contracts, PSC economics and reserves, Accounting for the tax treatment of PSCs, Conveyances and business combinations and case studies.

MGM 804.3: Upstream and Downstream Finance Accounting (3 Units)

This course will help non-financial managers and staff within the industry improve their knowledge and application of best practices in financial management and accounting within E&P. The course covers the key financial principles in exploration, development and production. It goes on to examine how business decisions impact upon financial statements and financial performance and

how by understanding these impacts managers are better placed to evaluate their decisions. We will then look the financial impact of the contractual arrangements found in the industry, in particular how Production Sharing Agreements impact upon results and reserves.

MGM 804.4: Costing and Budgeting (3 Units)

This course is designed to provide a good level of knowledge and practice across the main aspects of Costing and Budgeting in the Energy Industry. During this course, students will be exposed to the intricacies of management accounting, in particular as they relate to the costing and budgeting aspects in Energy companies. Other aspects of the course are: The Role of Budgeting and Cost Control, Traditional Costing, Traditional Costing and Activity Based Costing (ABC), and Flexible Budgets and Variance Analysis.

MGM 804.5: Financial Analysis, Modelling and Forecasting (3 Units)

This course uses the principles of financial analysis and the power of Excel to identify the important variables that can dramatically enhance the value of an organisation in the energy industry. Using Excel and energy based cases and exercises, students will learn how to master many of the tools and functions it provides to apply the latest financial analysis techniques, understand what the numbers are revealing and be better able to make strategic and tactical decisions. Other aspects of the course include: Analysing the Annual Report, Financial Planning and Forecasting, The Time Value of Money, Evaluating Capital Project Proposals, and Effective Management of Historical Data Using Excel

MGM 804.6: International Energy Law, Policy and Risk Analysis (3 Units)

The major legal obligations affecting the energy industry Law, Comparative International Tax Law, Environmental Aspects of Energy Law, Legal Aspects of Mergers & Acquisitions, Energy Law and Policy, Renewable Energy Issues, Dispute Resolution in Energy Contracting, Energy Contract Law, Energy Management and Maritime Law. Fundamentals of gas E & P Energy Policies, Economics and Analysis. International Gas Economics. Fiscal System Mechanics and Analysis. Energy Entrepreneurship. Downsizing, restructuring and technological change, notions of traditional careers and ways of creating value: Enterprise development. Knowledge and skills relevant for starting and managing new ventures across the entrepreneurial life cycle; prepare for an investor. Entrepreneurial risk, performance and environment, Business planning techniques and their application in entrepreneurial ventures; Venture strategy in dynamic markets; Start-up and

resources to exploit a profit opportunity; The evolution of the venture and managing growth; Protecting and securing intellectual capital: IPR and antitrust law; Financial management for new ventures: financing a start-up; The entrepreneurial financing process: buying and selling a venture. Assess the impact of the business environment on entrepreneurial opportunity identification and exploitation; apply the theoretical underpinning of entrepreneurship to the process of managing risk in new ventures and supporting their development;

compare and contrast how managerial challenges vary across the life cycle of an entrepreneurial venture; assess the likely financial needs of a new venture and pitch for finance., and develop and write a credible business plan for a new venture. Risk and Uncertainty Management in Gas E & P Industry. Risk Decision Analysis.

MGM 805.1: SEMINAR (2 Units)

MGM 805.2 DISSERTATION (16 Units)

ACADEMIC STAFF AND OTHER RESOURCE PERSONS

S/N	NAME	QUALIFICATION	AREA OF SPECIALIZATION	DESIGNATION
UNIVERSITY LECTURERS				
1	Prof. J.A. Ajeinka	Ph.D. (UPH) M. Eng. (UPH) B.Sc. (UI)	Production Enhancement and Flow Assurance	Professor
2	Prof. M.O. Onyekonwu	Ph.D. (California) M.Sc. (California) B.Sc. (UI)	Reservoir Management	Professor
3	Prof. Joel Ogbonna	Ph.D. (UST) M.Sc. (Uniben) B.Tech. (RUST)	Oil Field Chemical	Professor
4	Prof. Dulu Appah	Ph.D. (UPH), M.Sc. B.Sc.	Petroleum Engineering	Professor
5	Prof. Victor U. Ukaegbu	Ph.D. (UPH) M.Sc. (Jos) B.Sc. (UPH)	Structural Geology & Petrology & Geochemistry	Professor
6	Prof. M. I. Odigi	Ph.D. (UPH), M.Sc. (UI), B.Sc. (UI)	Sedimentary Basins & Mineral Deposits	Professor
7	Prof. (Mrs.) Florence O. Nduka	Ph.D. (Nsukka), M.Sc., B.Sc. (Nsukka),	Communication Skills	Professor
8	Prof. Charity U. Okujagu	Ph.D. (UI), M.Sc. (UNN), B.Sc. (UPH)	Renewable Energy and Environmental Physics	Professor
9	Prof. Leo Osuji	Ph.D. (UI), M.Sc. (UI), B.Sc.(UI)	Environmental Geochemistry	Professor
10	Prof. A. U. Okoro	Nnamdi Azikiwe University	Sedimentology and Stratigraphy	Professor
11	Dr. (Ms.) Ini Ubong	Ph.D. (Futo), M.Sc. (UI), B.Sc. (Unical)	Analytical/ Environmental Chemistry	Senior Lecturer
12	Dr. Kunle Sofolabo	Ph.D. (UPH), M. Sc. (UPH) B.Sc. (UPH)	Geophysics	Senior Lecturer
13	Engr. Uche Osokogwu	M.Sc. (UPH), B.Sc. (UPH)	Petroleum Production Engineering	Senior Lecturer
14	Dr. E.O. Nwaichi	Ph.D. (UPH), M. Sc. (UPH), B.Sc. (UPH)	Communication Skills	Senior Lecturer
15	Dr. S. Abrakasa	Ph.D. (Newcastle), M.Sc (Newcastle), B.Sc. (Unical)	Petroleum Geochemistry	Senior Lecturer
16	Dr. F.A. Njoku	Ph.D. (Unical) M.Sc. (London) B.Sc. (UI)	Geophysics	Senior Lecturer
17	Dr. Boniface Oriji	Ph.D. (UPH), M.Eng. (UPH), B.Eng. (UPH)	Drilling & Well Completion	Senior Lecturer
18	Dr. Lawrence Peter Eyo-Essien	Ph.D., M.Sc. B.Sc. (UPH)	Microchemistry	Senior Lecturer
19	Dr. Emmanuel Biu		Mathematics/statistics	Senior Lecturer
20	Dr. Ngerebara		Environmental Geology	Senior Lecturer
21	Dr. M. U. Uzoegbu	Ph.D. (ATBU), M.Sc. (ATBU), B.Sc. (Futyola)	Organic Geochemistry	Lecturer
22	Dr. Diepiriye C. Okujagu	Ph.D. (UPH), M. Sc. (UPH) B.Sc. (UPH)	Structural Geology / Remote Sensing and GIS	Lecturer I
INDUSTRY				
23	Dr. Etim D. Uko	Ph.D. (RUST) M.Sc. (UPH), B.Sc. (Unical)	Applied Geophysics	Industry

24	Mr. Godwin Isoken Okuns	M.Sc. (Sheffied) B.Sc. (London)	Instrumentation/ Systems Engineering	Industry
25	Jasper Nwachukwu	B.Sc (UI)	Exploration Geology (SHELL)	Industry
26	Mr. Emmanuel Bassey Otop	M.Sc. (UPH), B.Sc. (Unical).	Petroleum Geology	Industry
27	Mr. Patrick Ekedede	M.Phil.(RUST), B.Sc (Unical)	Environmental Management	Industry
28	Dr Afe Mayowa	Ph.D.(UPH), M.Sc (UPH), B.Sc (UPH)	Petroleum Geology	Industry
29	Engr. Dr. Evelyn B. Ekeinde	Ph.D. (UPH), M. Eng. (UPH) B.Sc. (UPH)	Well Engineering / Geomechanics	Industry
30	Mr. Onipede Olamide		Remote Sensing and GIS	Industry
32	Mr. Jacob Zacckaus	M. Sc. (UPH) B.Sc. (UPH)	AI, IoT, Big Data, & Security	Industry
33	Mr. Lawrence Akubue	M. Sc. (UPH) B.Sc. (UPH)	ICT/Programming Skills	Industry
34	Mr. Magnus Kalu		Reservoir Geophysics	Industry
35	Mr. Celestine Ugwu		Operations Geologist	Industry
36	Prof. Andrew Hurst	Ph.D, B.Sc University of Aberdeen, UK	Production Geology	Professor
37	Emeritus Prof. Mosto Onuoha	Ph.D., M.Sc., B.Sc (LE University, Budapest, Hungary)	Applied Geophysics	Emeritus Professor
38	Prof. O. E. Abumere	Ph.D, M.Sc. (Manchester), B.Sc.(Uniben)	Solar Energy	Professor
39	Prof. Ibibia Lucky Worika	LLB (Lagos), BL, LLM (Lagos), PhD (Dundee)	Gas Law; Energy Law; International Law; Comparative Law	Professor
40	Prof. C. O. Ofurum	Ph.D., M.Sc. (FUTO), B.Sc (Uniben)	Accounting and Finance	Professor
40	Prof. B. E. Nwinee	Ph.D., M.Sc. (UPH), B.Sc. (RSUST)	Finance and Banking	Professor
41	Prof. B. C. Onuoha	Ph.D, M.Sc. (ABSU), B.Sc. (IMSU)	Management	Professor
42	Prof. G.N. Ogbonna	Ph.D., M.Sc., B.Sc	Accounting and Infotech	Professor
43	Prof. U.I. Ironkwe	Ph.D.,MBA, B.Sc., LLB, BL	Accounting and Law	Professor
44	Prof. C. N. Ogbuji	Ph.D (ABSU), M.Sc. (UNN), B.Sc. (ABSU)	Marketing	Professor
45	Prof. Y. Chad-Umerem	Ph.D., M.Sc., B.Sc	Nuclear Physics	Professor
46	Prof. I. S. Nnamdi	Ph.D., M.Sc. (ABSU), BSc. (UPH)	Finance	Professor
47	Prof. O. A. Ekpeyong	Ph.D., M.Sc. B.Sc. (UPH)	Sociology	Professor
48	Prof. R. Uahunmwangho	Ph.D, M.Sc., B.Sc. (Uniben)	Power Systems	
49	Prof. Boniface Oriji	Ph.D. (UPH), M.Eng. (UPH), B.Eng. (UPH)	Drilling & Well Completion	Senior Lecturer
50	Dr. G.O. Omojefe	Ph.D (DELSU), M.Sc, BSc (Unilag)	Financing/Banking	Reader
51	Dr. M. Opuwari	Ph.D (W.C University, S.A), M.Sc, B.Sc (UPH).	Petroleum Geology	Senior Lecturer
52	Dr. Dave Muirhead	Ph.D, BSc (Hons), FGS University of Aberdeen, UK	Geology and Geochemistry	Senior Lecturer

53	Dr. Stephen Bowden	Ph.D., M.Sc, B.Sc University of Aberdeen, UK	Organic Geochemistry	Senior Lecturer
54	Dr. E. Owushi	Ph.D. (MOUA), M.A (Uniben), LLB	Law	Senior Lecturer
55	Dr. Austin Sado	Ph.D (UPH), M.SC, PGD(UNN)	Public Relations	Senior Lecturer
56	Dr. C. Ebieto	Ph.D.(Sheffield), M.Sc, B.Sc (UPH)	Mechanical Engineering	Senior Lecturer
57	Dr. E.O. Diemuodeke	Ph.D. (Cranfield, UK), M.Sc, B.Sc.(UPH)	Mechanical Engineering	Senior Lecturer
58	Dr. Ini Ubong	Ph.D. (FUTO), M.Sc. (UI), B.Sc. (Unical)	Environmental Chemistry	Senior Lecturer
59	Dr. L. P.Eyo-Essien	Ph.D., M.Sc. B.Sc. (UPH)	Microchemistry	Senior Lecturer
60	Dr. O. D. Ngerebara	Ph.D., MPh (RSUT), B.Sc (UPH)	Environmental Geology	Senior Lecturer
61	Dr. C. U. Ugwueze	Ph.D, M.Sc(UPH), B.Sc (Enugu State University)	Petroleum Geology	Senior Lecturer

OTHER RESOURCE PERSONS

S/N	NAME	QUALIFICATION	AREA OF SPECIALIZATION	DESIGNATION
62	Prof. J.O. Etu-Efeotor	Ph.D. Wales (UK) M.Sc. (Harvard) B.Sc. (Ife)	Sedimentology and Petroleum Geology	Professor
63	Prof. C. Nwajide	Ph.D. (UNN) M.Sc. (UNN) B.Sc.	Sedimentology	Professor
64	Prof. Emeka Ekweozor	Ph.D.(UI), M.Sc., B.Sc. (U)	Organic Geochemistry	Industry
65	Prof. Chidi Ibe	Ph.D. (London), DIC. (London), B.Sc.(UNN)	Sedimentology/Oceanogr aphy	University / NUC Professor
66	Prof. M. N. Oti	Ph.D.(Heidelberg), M.Sc. (Heidelberg), B.Sc.	Reservoir Geology	Professor
67	Prof. C.C. Nwachukwu	Ph.D. (California) MBA (California) BA Howard Washington D.C.	Management/Business Administration	Professor
68	Prof. A. Dosunmu	Ph.D. (UPH), M. Eng. (UPH) B.Sc. (UI)	Well Engineering	Professor
69	Prof. Ify L. Nwaogazie	Ph.D. (Oklahoma) M.Sc. (Kansas) B.Sc. (Kansas)	Environmental & Mathematical Modeling of Engineering	Professor
70	Dr. Francis T. Beka	Ph.D. (Washington State) M.Sc., (Washington State) B.Sc. (UI)	Petroleum and Structural Geology Environmental Systems	Senior Lecturer
71	Dr. F.A. Njoku	Ph.D. (Unical) M.Sc. (London) B.Sc. (UI)	Geophysics	Senior Lecturer
72	Engr. Samson Adaramola	M. Eng. (UPH)	Mechanical Engineering (Ergonomics)	Industry
73	Mr R.O. Mbah	M.Sc.(UPH), B.Sc.(UPH)	Seismic Geophysicists (SHELL)	Industry

AFRICA CENTER OF EXCELLENCE IN OILFIELD CHEMICALS RESEARCH (ACE-CEFOR)

ABOUT ACE-CEFOR

The Africa Center of Excellence in Oilfield Chemicals Research (ACE-CEFOR) is one of 22 World Bank-funded Centers of Excellence established in 2013, to promote home grown and regional research networks that will help to develop the human capital in Africa.

ACE-CEFOR aims to develop the Nigerian Oil and Gas industry (in particular) and those of other African countries (in general) where oil and gas have been discovered.

The apparent lack of research Centres in the Gulf of Guinea, and indeed Africa, capable of producing competent researchers in Petroleum and related disciplines is also another motivating factor.

Specifically, we possess good learning infrastructure, focus on research programmes relevant to West and Central Africa as well as regional training, high capacity to mobilize financial resources from the private sector, and a more autonomous operational identity required for efficient project implementation.

ACE-CEFOR operates on the basis of triple helix model of government-academia-industry partnership and thus creates a research network of higher institutions for knowledge and technology transfer.

The postgraduate courses and research are designed, organised and taught on modular basis with teaching responsibility shared amongst experienced and active resource persons from the collaborating universities and Industry partners. The industry partners are involved in our curricula review and providing places for, at least, one month internship placement for our postgraduate students and faculties.

Therefore, our strong university-industry relationships with the resultant cross-fertilization of ideas have continued to be a veritable source of solutions to development challenges especially as they relate to the oil and gas sector.

OUR VISION

Our vision is to become the leading Centre of Excellence in Oilfield Chemicals Studies in Africa. The motivation for undertaking this project is the desire to promote home grown and regional research networks that will help to develop the human capital in Africa.

Also, to develop the Nigerian Oil and gas industry (in particular) and those of other African countries (in general) where oil and gas have been discovered.

OUR MISSION

The mission of ACE-CEFOR is to provide international post - graduate programmes and applied multi – disciplinary research in engineering and the sciences for sustainable development of the oil and gas industry in Africa.

THOUGHT COURSES AT ACE-CEFOR

Course Code	Course Title	Credit Unit
ACE 901 (General)	RESEARCH METHODS AND COMMERCIALIZATION	3
	Proposal/Grant writing	
	Research Methods and Presentation	
	Advance Statistics for Science and Engineering	
	Innovation, Commercialization/Patenting	
ACE 902 (General)	ENTREPRENEURSHIP / MANAGING FOR EXCELLENCE	3
	Entrepreneurship	
	Business Law	
	Business Accounting	
	Managing for Excellence	
ACE 903 (General)	OILFIELD SCIENCE AND TECHNOLOGY	3
	Overview of Oilfield Chemistry/Chemicals	
	Biotechnology Applications	
	Toxicological/Environmental Impact of Oilfield Chemicals	
	Overview of Refining, Petrochemical and Gas Processing	
	Overview of Exploration Operations in Petroleum	

	HSE Issues and Management in Oil and Gas Operations	
ACE 906	THESIS	12

NOTE: In addition to the courses above, the students also take two departmental thought courses from the collaborating departments. The

following are the collaborating departments and Centres:

1. Petroleum and Gas Engineering
2. Chemical Engineering
3. Pure and Industrial Chemistry
4. Microbiology
5. Plant Science and Biotechnology
6. Geology
7. Environmental technology and Management
8. Occupational Health and Safety

CENTRE FOR INFORMATION & TELECOMMUNICATION ENGINEERING [CITE]

Introduction

Nigeria has ambitious plan to leapfrog into the Information Age. The idea is to provide modern infrastructure to help incubate and nurture new leading edge local and international companies for technical innovations. The goal is to attract a core group of world-class companies.

Within the last ten years, the tele-density in Nigeria has increased tremendously to over 117 million wireless subscribers. In spite of this, the engineering curriculum used in our universities does not adequately cover the various wireless and new generation network technologies. Most of the major telecommunications equipment vendors and service providers reap substantial profits from their investments after the de-regulation of this sector. This has not resulted in providing key job opportunities for graduates in engineering in this sector of the economy. The key selling point is to upgrade the curriculum and in addition, provide for essential certification programmes as part of the requirements of graduations.

The government is looking forward to Information technology and Telecommunication to provide the needed boost in employment and entrepreneurship. Better technical education in this area will advance the entrepreneurial ecosystem of the country.

About the Centre [CITE]

The Centre for Information and Telecommunication Engineering (CITE) is proposed to be a specialized ICT programme poised to bridging the University –Industry Gap through innovative Research and ICT Professional certifications. It is a University-Industry based collaboration with academic degree to be awarded from Engineering. The Centre shall offer a Master degree programme in Information and Telecommunication Engineering .

Vision

The vision of the Centre for Information and Telecommunication Engineering is to become the leading Centre of Excellence in Information and Communication Technology, Telecommunication Engineering, Entrepreneurship Policy & Strategic Studies in Africa.

Mission

The mission of the Centre is to meet the needs of the Information and Telecommunication Industries through result-oriented trainings, innovative Research, ICT Professional Consultancy and Capacity building

Philosophy

The philosophy of the Centre for Information and Telecommunication Engineering is to sustain the core values of excellence, Integrity and Commitment in service delivery to humanity and ICT Industries.

Objectives

The main objectives are itemized below:

- To conduct research, provide consultancy and training in ICT and Telecommunication related areas.
- To produce graduates furnished with requisite technical skills and professional expertise to work in Telecom or ICT companies.
- To give Non-Engineering but I.T inclined candidates the needed competence and Skills to work in Engineering Field.
- To encourage the spirit of Entrepreneurship
- To enable participants acquire detailed understanding of the technical, management and policy aspects of Information and Telecommunication Engineering.
- To produce outstanding candidates in the world of ICT through relevant degree and professional certifications
- To proffer solutions to industrial problems through Software Developments

Functions of the Centre

The main functions of the Centre are:

Human Resource Development

The Centre will aggressively pursue human resource development programmes involving visiting scholars and researchers. It will also conduct training, workshops, symposia and seminars

Research and Development

The R&D activities would be industry-driven and would involve all organizations engaged in acquisition and commercialization of new ICT technologies.

Advisory and consultancy services

The Centre will play the leadership role in ICT policy formulation for different tiers of government. The centre will also offer consultancy services especially in the areas of ICT & Telecommunications.

Industrial/ Professional Collaborations

The Centre will seek for collaboration with Multinational Telecommunications Companies like MTN, Glo, Etisalat, Airtel, Ericsson, Huawei , ZTE, Nokia, Siemens etc

Sustainability of the Centre

Alcatel-Lucent has made strong commitment to support the Centre in the provision of industry – based experts to handle some of the courses, access to real life telecommunication equipments, field trips to functional work stations to aid students’ practical experience; and also provision of some infrastructures etc. Strategic plans are also in place to get sponsors from other major Telecom players.

PGD PROGRAMME IN INFORMATION AND TELECOMMUNICATIONS

Admission Requirements

Candidates who possess a Bachelor’s degree from a recognized University with a minimum of third class honor or Higher National Diploma (HND) from a recognized Polytechnic with a minimum of upper credit in any Engineering Fields, Computer Science, Mathematics/ Statistics, Physics, Physics-Electronic or any other related field would be considered.

Programme Duration

The programme is for 12 calendar months, during which the student is expected to take the complete modules and carry out an individual project.

Graduation Requirements

A student is presented for graduation after attempting and passing all fourteen modules, including individual project as well as fulfilling all School of Graduate Studies requirements; and in good standing with the university policies.

Course Outline

Codes	Course Title	Credit Units
DIT 701	ICT and Research Method	3
DIT 702	Entrepreneurship and Management	2
DIT 703	Probability and Statistics for Engineers	2
DIT 704	Circuit Analysis and Simulation	3
DIT 705	Digital Signal Processing Control System and Automation	2
DIT 706	Automation	2
DIT 707	Introduction to Mobile communication and networks	3
DIT 708	Software Development techniques	2
DIT 709	Data communications and Network	2
DIT 710	Optical Communication System	2
DIT 711	Computer Networks and Security	2

DIT 712	Advanced Circuit Techniques Technical Seminar and	2
DIT 713	Presentation	3
DIT 714	Final Project	6

Course Description

DIT 701 - ICT and Research Method

- Use of computer programme and software
- Methods of data collection
- Methods of data analysis

DIT 702 - Entrepreneurship and Management

- How to setup a business with little capital
- How to grow a business

DIT 703- Probability and Statistics for Engineers

- Probability distribution and analysis
- Regression and correlation
- Test of hypothesis and significance

DIT 704- Circuit Analysis and Simulation

Review of Phasors complex algebra and complex notation. Alternating current, AC quantities, Sinusoidal waveforms, AC circuits, AC Power and Power factor. Network theorems. Application of Laplace transformation to transient analysis of RLC circuits, transfer function concepts. Types of response; transient, and steady-state response. Frequency response. Foster and Cauer’s methods of synthesis, 2-port network synthesis, Resonance and Q-factors, Balanced Polyphase systems Unbalanced Polyphase systems, Coupled circuits, Filters, Transients in AC circuits

Simulation Lab: applications of computers software in the analysis and simulation of AC-circuits

DIT 705- Digital Signal Processing

Advantages of digital over analogue signal processing, problems of digitization, overview of application of DSP, basic elements of DSP system. Digital processing of analogue signals: Sampling of analogue signals, sampling theorem, aliasing, quantization, noise, and coding, types and selection of ADC/DAC, Sigma-delta ADC. Analytical tools: z-transform, properties, transfer function, inverse z-transform, z-plane poles and zeros, analysis of linear time-invariant in z-domain, system stability. Discrete Fourier Analysis: Discrete Fourier Transform and properties, inverse DFT, truncated Fourier transform, windowing, FFT algorithms. Discrete Time Signals & systems: Discrete time sequences (signals), classification and determination of discrete time system, discrete time i/o description (difference equation), solution of difference equations, convolution, correlation, impulse

response. Digital Filters: Definition and types, FIR filters: Transfer function, characteristics, applications, design methods. Software implementation of DSP algorithms. DSP Microprocessors: Architecture, fixed point vs floating point DSP, Finite word length effects. DSP chips: interfacing and programming. Practical application of DSP in audio and video.

DIT 706- Control Systems and Automation

Introduction: definition, examples of control systems. Open-loop and closed-loop control systems. Review of Laplace and inverse Laplace transforms. System modeling: Signal flow graph, block diagram. Transfer function. Poles and zeros. Block diagram reduction techniques. Mechanical, electrical and electromechanical systems. First and second order models, higher order models. Definitions of transient response parameters. Analysis of second-order system as prototype. Routh-Hurwitz stability criterion. Classification of systems based on steady-state characteristics, steady-state error coefficient. Definition of Root locus, Properties root locus, sketching of root locus plots. Effect of open-loop zeros and poles. Root locus design concepts. Frequency response analysis and design: Bode diagram, Polar plot, Nicholas plot. Nyquist stability criterion: non-mathematical description of Nyquist criterion, interpretation of stability. Relative stability – Gain and phase margins. Closed-loop frequency response analysis – M and N contours, Nicholas chart. Compensation techniques: lag, lead and lag-lead compensation, PD, PI and PID controllers. Cascade compensation based on root-locus method. Introduction to Feedback compensation.

DIT 707- Mobile Communication and Network

Evolution of mobile radio communications. Examples of mobile radio systems: radio paging, cordless telephones, cellular radio. Trends in cellular radio and personal communications. A basic cellular system, Frequency reuse, Roaming, Hand-off strategies, Co-channel interference, Traffic and Grade of service, System capacity, Improving capacity of cellular system. Propagation path loss, multi-path propagation problem, Raleigh fading, Rician distribution. Doppler effect. Field strength prediction models, co-channel interference and reduction, adjacent channel interference, near-far problem. Standards and overview of analogue and digital cellular systems: AMPS, TACS, GSM, CT2, PCN, DECT, PHS. Frequency management and channel assignment, speech coding, channel coding, bandwidth consideration, equalization, modulation techniques, multiple access techniques. GSM: Architecture, elements, and standard interfaces; FDMA/TDMA structure; Speech and channel

coding; time slots and bursts; signaling; hand-offs; DCS 1800; GPRS; data services over gsm. Third Generation Wireless Standard: convergence; UMTS; IMT-2000; CDMA2000; WCDMA; UWC-136; Network layer standards. Paging services and technologies; Short Message Services. Call Processing: Signalling; Roaming and mobility management; Route optimization; Wireless Intelligent Networking; Databases; Protocols; Security and billing issues. Global Positioning System: principles, and applications

DIT 708- Software Development techniques

Software development life cycle. Top-Down design. Program, design using pseudo-code, flowchart. Flowchart ANSI symbols and usage. Extensive examples and exercises using pseudo-code/flowchart to solve practical problems in engineering. Debugging and documentation techniques. Programming using a structural language such as C: Symbols, keywords, identifiers data types, operators, various statements, operator precedence, type conversion, conditional and control structures, function, recursive functions. Arrays: I-D, and multi-dimensional arrays, passing elements or whole array to a function. Simple sorting and searching on arrays, pointers, strings, dynamic memory allocation. Structures and Unions: Structure declaration and definition, accessing structures, array of structures, pointers and structures, union declaration, enumerated variables. File Handling: Concept of a file, files and streams, standard file handling functions, binary files, random access files. Advanced Topics: Command line parameters, pointers to functions, creation of header files, stacks, linked lists, bitwise manipulation. Software development in C in MS Windows, UNIX/LINUX, environments, header files, preprocessor directives, make, makefile. Static and dynamic linking libraries. Extensive examples, and exercises programming in C to solve practical problems in engineering. Exercises are to be done in the Computer Laboratory.

DIT 709 Data communication and Network

Introduction to Data communications: the development of Data Communications: types and sources of data, simple communications network, transmission definitions, one way transmission. Half duplex transmission, transmission codes, parallel transmission, serial transmission, bit synchronization, character synchronization, synchronous transmission, asynchronous transmission, efficiency of transmission. Error detection methods and data compression. Protocols: introduction to network protocol. Seven Layer ISO-OSI standard protocols and network architecture. Transport protocols, session services protocols, and other protocols. IEEE 802 standards. Error control and Data Compression:

Forward Error Control; error detection methods; parity checking; linear block codes, cyclic redundancy checking; feedback error control, data compression. Huffman coding and dynamic Huffman coding. Local Area Networks: medium access control techniques – Ethernet, token bus and token ring: LAN standards; fibre distributed data interface, metropolitan area network. Peer-to-peer, Client Server. Client-Server Requirements: GUI design standards, interface independence, platform independence, transaction processing, connectivity, reliability, backup and recovery mechanisms. Information Network Software; Features and benefits of major Network Operating System. Network OS: (e.g. Novell Netware. UNIX/LINUX. OS/2 & WindowsNT). TCP/IP and Network OS. INTERNET: Definition, architecture, services, Internet addressing. Internet protocol, IPv4, IPv6. Internet programming, Intranet. System administration and security issues

DIT 710- Optical Communication Network

Optical transmitting devices, LEDs optical receivers, optical fibres/types, features, joining/coupling deep space communication system/capacity, reliability economy/application of PCM and ADPCM concepts.

DIT 711- Computer Network and Security

Introduction: Definition, Uses of Computer Networks, Network Topology, Network Media, Network Devices, Different Types of Network: LAN, MAN, WAN etc IP addressing: Classful IP Addressing, Subnetmask, CIDR, Private IP Address, Public IP Address, Subnetting, VLSM etc. Network Model: OSI Reference Model, TCP/IT Reference Model, ATM Reference Model, Functions of the Layers of different models, Network Protocols working at different layers. Data Link Layer Design Issues, Framing: Character Count, Byte Stuffing, Bit Stuffing, Error Detection: Cyclic Redundancy Check, Parity Bit Checking, and Correction: Hamming Code. Windowing Protocols: Go back N ARQ, Selective repeat ARQ, Elementary Data Link Protocols, High-level Data Link Control, Point to Point Protocol, The Medium Access Control Sub-layer. Multiple Accesses: Random Access; ALOHA, CSMA, CSMA/CD, CSMA/CA, Channelized Access; CDMA, TDMA, FDMA, Controlled Access; Reservation, Poling, Token Passing. Ethernet, Wireless LANs, and Bluetooth. Switching: Circuit Switching, Packet Switching, Message Switching, Routing Algorithms, Virtual Circuit and Datagram, Congestion Control Algorithms, Quality of Service, Internetworking, Internetworking Devices etc. Network Layer Protocols: Address Resolution Protocol, Internet Protocol, Internet Control Message Protocol,

IPv6, Routing Information Protocol, Open Shortest Path First, Border Gateway Protocol, User Datagram Protocol, Transmission Control Protocol. Network Security:

DIT 712-Advanced Circuit Technique

Computer-aided design and analysis of integrated operational amplifiers and advanced circuits such as wideband amplifiers, instrumentation amplifiers, multiplier circuits, voltage controlled oscillators, and phase locked loops. Design techniques for advanced analogue circuits containing transistors and operational amplifiers.

DIT 713- Technical Seminar and Presentation

- Technical writing skills
- Seminar Presentaion
- Presentation skills

DIT 714 Final Project

Each student will be guided by experienced supervisors to put to use the acquired research skills

M.Sc. in Information and Telecommunication Engineering

Academic Programmes

The academic programme would be run under two modes

- a. **Regular- Programme Mode:** It is designed to run for 12 calendar months : 46 academic weeks, Monday to Friday, 8 hours daily.
- b. **Weekend- Programme Mode:** It is designed to run for 60 weekends (Friday Evening and Saturday, all day).

Please Note : *This Weekend programme is specially designed only for working class candidates who by their job tight schedules are not free during the week days.*

2. Degree to be Awarded:

Master of Science (M.Sc.) in Information and Telecommunication Engineering

Admission Requirement

Bachelor’s degree with nothing less than second class lower division in any of the Engineering Fields, Computer Science, Mathematics/ Statistics, Physics, Physics- Electronic or any other related field .

Grading System

The following system of Grade Points shall be used for the Award of Degree

Mark/score	Candidate	
70% & above	A	5.00
60-69	B	4.00
50-59	C	3.00
0-49	F	0

COURSE OUTLINE

Courses shall be delivered in modules. One week (40 hours) for each course.. See table below:

Codes	Module 1: FUNDAMENTALS	8 Units	Resource Persons
ITE 801.1	Overview of Telecommunication Engineering & ICT Industries	1	University
ITE 801.2	Applied Mathematics for communication Engineers	1	University
ITE 801.3	Research Methods & Communication Skills in Engineering	1	University
ITE 801.4	Computational Skills	1	University
ITE 802.1	Fundamentals of Modern Digital Modulation Techniques	1	University
ITE 802.2	Fundamentals of Information Networks & Data communication	1	University
ITE 802.3	Fundamentals of Optical Fiber Communication	1	University
ITE 802.4	Fundamentals of microwave Engineering	1	University
	Module 2: WIRELESS COMMUNICATION	8 Units	
ITE 803.1	Wireless Network	1	Industry
ITE 803.2	Intelligent Networks	1	Industry
ITE 803.3	Mobile Network Architecture	1	Industry
ITE 803.4	Wireless 3G: WCDMA (UMTS)	1	Industry
ITE 804.1	GSM Engineering	1	Industry
ITE 804.2	Radio Network Planning & Optimization Process	1	Industry
ITE 804.3	Broadband Concepts	1	Industry
ITE 804.4	Satellite Communication	1	Industry
	Module 3: SYSTEM DESIGN & PROGRAMMING	6 Units	
ITE 805.1	Cloud computing	1	Industry
ITE 805.2	Programming using Object Oriented Methods	1	Industry
ITE 805.3	Software Engineering Methods	1	University
ITE 806.1	Design of Database management System	1	Industry
ITE 806.2	System Design, Modeling & Simulation	1	University
ITE 806.3	Mobile App Development with Java Apps.	1	Industry
	Module 4: ICT-MANAGEMENT	3 Units	
ITE 807.1	Project Planning & Management	1	University
ITE 807.2	Business Strategy and Entrepreneurship	1	University
ITE 807.3	Network Security	1	Industry
	Module 5: ADVANCED WIRELESS COMMUNICATION	3 Units	
ITE 808.1	LTE	1	Industry
ITE 808.2	Information Systems Engineering	1	Industry
ITE 808.3	UMTS/HSPA/HSPA+ network Planning Methodologies and Tools	1	Industry
	Module 6: PREPARATION FOR PROFESSIONAL CERT.	2 Units	
ITE 809.1	Prep. For Networking Professional	1	Industry
ITE 809.2	Prep. For -Lucent NR1 Telecom Certification I	1	Industry
	Module 7: PROJECT MODULE	9 Units	
ITE 810.1	Mobile Communication	1	Industry
ITE 810.2	Design , Modeling & Simulation	1	Industry
ITE 810.3	Software Development	1	University
ITE 811.1	Thesis	6	University

(2) Carry out and defend a Master-Dissertation

Requirement for Graduation

A candidate must fulfill the following conditions to be awarded MSc degree in ITE .

(1) Pass all prescribed courses.

Please note:

There shall be two (2) separate exams for the professional certification courses in Module 6 : (i) the Internal Exam conducted by CITE (ii) the

External Exam conducted by the ICT professional body. A candidate that passes the internal exam but fails the external professional exam shall graduate with M.Sc. in Information & Telecommunication Engineering but without the relevant ICT professional Certificate of the professional body.

NB: The “professional Certificate” is only an added value to the M.Sc. degree to be awarded, not a requirement for graduation.

COURSE CONTENT

ITE 801.1 Overview of Telecommunication Engineering & ICT Industries 1 Unit

This course covers Telecommunication overview; Advanced topics which include network management, traffic engineering, and router internals. The course also considers the impact of wireless engineering solutions in a global, economic, environmental, and societal context. Historical Reviews in Telecommunication: Alexander Graham Bell, The telephone exchange/switching; Modes of telecommunication; **Evolution of Switching Systems:** Evolution of Telecommunications, Simple Telephone Communications, Basics of Switching System, Manual Switching System, Basic Elements of Strowger switching systems, Step-by-step switching system, Subscriber access to strowger switching, Crossbar exchange, Principle of Crossbar switching, Cross Bar Switch Configurations, Cross Point Technology, AT & T No. 5 Crossbar switch. **Computer-Controlled Switching-I: Computer-Controlled Switching-II: Signalling Techniques: Common Traffic Engineering: Telephone Networks:** Evolutions of ICT Industries.

ITE 801.2 Applied Mathematics for Communication Engineers- 1 Unit

This course is designed to expose students to Laplace Transformation, Transform relation for linear systems; forced and free response; transfer function; poles and zeros; stability; probability theory, frequency and probability distribution, expectation and moment classical distribution, binomial, poisson, gaussian, exponential central limit theorem and its significance, estimation and hypothesis testing; regression and correlation. Application of MATLAB in advanced Engineering mathematics.

ITE 801.3 Research Methods & Communication Skills 1 Unit

This course is designed to teach candidates technical research skills, how to write technical papers, thesis, and make technical seminar presentation using power points and other relevant computer tools.

ITE 801.4 Computational Skills

To be given by the Resource Person

ITE 802.1 Fundamentals of Modern Digital Modulation Techniques- 1 Unit

Course covers the following areas: What is modulation? The Channel Model, Review of Fourier Transform, Probability, Power Spectral Density and White Gaussian Noise. Nyquist Baseband Signaling – Linear Equalization, Duobinary Signaling, Partial Response Signals. Signal Space: Modulation Definitions – BPSK, QPSK, MPSK, QAM, BFSK, MFSK. Optimum Detection of Binary Signals – the Optimum Detector. Matched Filter Information Theory; Multitone Systems: Twisted-Pair Channel, Discrete Multitone (DMT) Implementation. Viterbi Algorithm; Trellis Coding; Cellular Communications: Introduction; Multiple Access Techniques – FDMA, TDMA, CDMA. Third Generation Proposals; HDTV; 4G systems

ITE 802.2: Fundamentals of Information Networks & Data communication -1 unit

Course focuses on the fundamentals of data communication networks. The goal is to give some insight into the rationale of why networks are structured the way they are today and to understand the issues facing the designers of next-generation data networks. Topics discussed include: layered network architecture, Link Layer protocols, high-speed packet switching, queuing theory, Local Area Networks, and Wide Area Networking issues, including routing and flow control. Management of telecommunications networks, cost-benefit analysis, and evaluation of connectivity options are covered. Students learn to evaluate, select, and implement different communication options within an organization. OSI layers; data link protocol; TCP/IP; flow control, congestion control, routing; local area networks (Ethernet, Token Ring and FDDI); transport layer; introduction to high-speed networks and MPLS; performance evaluation techniques.

ITE 802.3 Fundamental of Optical Fiber Communication- 1 Unit

This course looks at the introduction to Optical Fiber communication. Fibers: single- and multi-mode, attenuation, modal dispersion, group-velocity dispersion, polarization-mode dispersion. Wavelength-division multiplexing. System architectures: Local-area, access, metropolitan-area, long-haul. The course will give the student in-depth understanding of the functionality of optical networks and how they may be implemented. How an optical network can work together with an IP-

based network infrastructure for ensuring both high reliability and performance in access, metro and transport networks, will be emphasized. Protocols, e.g. MPLS, GMPLS, T-MPLS, Ethernet PBB-TE and RSVP-TE will be addressed. The topics covered include building blocks for optical networks and systems. Included is an introduction to optical components, principles and functionality in optical network elements as well as basic physical principles and properties and constraints in optical fiber transmission. Principles and the function of optical circuit switched networks, both network elements like reconfigurable add/drops and optical cross-connects as well as the principle of a wavelength routed optical network are covered. introduction to Transport Networks, including optical technology, and problem statement for optical network planning. The basis of optical technology and SDH standards. Optical technology and standards. SDH/SONET Basics. Traffic engineering including demand matrices and traffic patterns. Architecture: Client Server Layers. Physical, transport and client layers and their sublayers are explained, with examples discussed. Sub-Networks, Network Topologies, Network Management and Synchronization. Reliability and Network Protection. Optical Cross-Connects. Network Dimensioning: Ring Design, Traffic Routing, Span Engineering. Equipment Selection: High-level overview of SDH/SONET product portfolio, DWDM.

ITE 802.4 Fundamentals of microwave Engineering – 1 Unit

The focus of this course includes: Applications of microwaves (terrestrial and satellite communications, radar, remote sensing, wireless), system requirements for elements which must be analyzed and synthesized. Propagation modes (TEM, TE, TM, quasi-TEM), attenuation and dispersion of general guidelines. Microwave computer-aided design examples. Commercial software such as PATHLOSS. Introduction to Fixed Point-to-Point Microwave Radio Systems: System Design Objectives; Path Performance Limitations; Path design objectives; radio configurations; Antennas; frequency planning; EMI considerations; types of towers, tower specifications; safety considerations. Radio Technology; microwave propagation; performance estimation; design methodology; design considerations. **Radio Wave Propagation** : Electromagnetic waves, wave front, characteristic impedance of free space, reflection refraction and diffraction. Ground waves and sky waves.) **Radio Wave Propagation** : The ionospheric layers, refractive index, virtual height, critical frequency and angle, maximum usable frequency, skip zone, skip distance, fading.) **Radio Wave Propagation** : VHF line of sight

transmission. Tropospheric scattering communications. Relationship between transmitter power, antenna gains and received signal to noise in a free space radio link. VHF and microwave point-to-point link

ITE 803.1 Wireless Networks -1 Unit

This course introduces fundamental concepts of wireless networks. Topics include: an introduction to the wireless physical layer; an overview of commonly used wireless MAC mechanisms; MAC protocols including 802.11, Bluetooth and personal area networks; cellular standards and WiMax (802.16); making wireless work in today's Internet, including support for TCP over wireless, mobility, and security; and an introduction to selected advanced topics, such as vehicular networks and sensor networks. The course also considers the impact of wireless engineering solutions in a global, economic, environmental, and societal context. Introduction to wireless system design and engineering. Develops an understanding and appreciation of the wireless engineering problems such as cellular layout design, resource allocation, mobility management, capacity and performance and signaling load calculations. Introduces physical layer building blocks such as modulation, synchronization, coding, diversity, equalization, and spreading.

ITE 803.2 : Intelligent Networks -1 Unit

The focus of this course includes: What is ICC, What is Intelligent Network (IN), Examples of added service on the IN, Telecoms before the advent of the IN, Why then the IN, Telecoms before the advent of the IN but before the GSM, What is telecoms today with the IN, Major Differences between ICC and the older Alcatel IN versions, Global Architecture of the ICC, How does the ICC integrate into the Global network. **Applications of Intelligent Networks**

ITE 803.3 Mobile Network Architecture-1 Unit

This course is designed to cover Mobile TDM Network Architecture: Access, switching and IN service, Mobile networks and Data services, 2G GSM/GPRS/EDGE Architecture, 3G UMTS Architecture, 4G Wimax & LTE Network Architecture - NGN Architectures: Mobile NGN Networks, Services in NGN Networks - IMS Architecture: NGN vs. IMS Network, IMS/TISIPAN overview, IMS/TISIPAN architecture **Transmission/Backhauling technologies for mobile Networks-** Mixed Transmission Architecture- Synchronous Digital Hierarchy (SDH) - Wavelength Division Multiplexing (WDM) Microwave Transmission, Satellite Mobile Backhauling, IP Backhauling - MPLS and VPNs **Services: WIRELESS 2G: GSM Signaling, The Mobile**

Station and Subscriber Identity Module, The Base Station Subsystem ,The Network Switching Subsystem, The Abis-Interface ,The Air Interface of GSM

ITE 803.4 Wireless 3G: WCDMA (UMTS)- 1 Unit

The content of this course includes: IP Based next generation Networks, Evolution of Wireless Networks, Wireless IP Network Architectures, IP Multimedia Subsystems and Application-Level Signaling, Mobility Management, QoS Challenges in Wireless IP Networks. **WIRELESS 3G: WCDMA (UMTS)**Introduction to WCDMA, Conceptual Background of WCDMA, Radio Access Network Architecture, Introduction to Physical Layer, Introduction to Radio Network Planning, High-speed Downlink Packet Access concepts

ITE 804.1 GSM Engineering – 1 Unit

This is designed to introduce students to **GSM Services and Features:** Introduction of GSM ,GSM services ,Bearer services in GSM ,Teleservices in GSM ,GSM Standards ,ETSI and the Special Mobile Group ,GSM Phase 2+ ,3GSM ,3GPP and UMTS .**THE SYSTEM ARCHITECTURE OF GSM :**GSM system architecture, GSM addressing, IMSI, MSISDN, TMSI, MSRN, SPC, LAI, GCI Location areas and identity numbers ,etc..**The Base Station Subsystem (BSS) :**Base Transceiver Station (BTS) part of BSS ,Base Station Controller (BSC) part of BSS Transcoding Rate and Adaptation Unit (TRAU) .**Network Switching Subsystem (NSS):** NSS Components ,HLR/AuC ,EIR,NSS Subsystems and SS7 ,Mobile Services Switching Center (MSC) part of NSS ,MSC/VLR .**SS7 in GSM:**Call processing and information access ,SS7 network architecture ,SSP, STP and SCP ,SS7 routing ,SS7 links ,SS7 protocols ,Message Transfer Part (MTP) 1-3 ,SCCP ,TCAP ,MAP .**Air Interface (MS-BSS) of GSM :**The A-Interface Structure, LAPDm, GSM 04.08 ,The Structure of the Air-Interface in GSM , **Abis Interface (BSS-BSC):** Channel Configuration :Signaling on the Abis Interface, LAPD, Q.931; GSM 08.05 .**A-Interface (BSC-MSC) :**Signaling over A-Interface, The Base Station Subsystem Application Part SS7, SCCP/User part. **GSM Operation Scenarios:** GSM OAM&P ,GSM network planning, Project planning process of GSM networks ,etcAttach and Detach ,Location Update **Advanced features:** AMR ,Comparison of AMR and other GSM ,coding schemes EDGE, 8PSK vs. GMSK, etc

ITE 804.2 Radio Networking Planning & Optimization Process- 1 Unit

The content of this course includes: Network Architecture, The Access method TDMA, Coverage models ,Parameter setting , Network cost, Planning tool **CAPACITY PLANNING :** Frequency planning 4/12, 3/9, Frequency hopping, Advanced frequency planning strategies, Selection of frequency planning strategy, Channels per cell, Conversion of channels to Erlang **SELECTING SITE LOCATIONS:** Planning Tools, Site Acquisition, Idle mode procedures, Cell selection, Cell re-selection , System information , Cell parameters, Handover algorithms, **INITIAL TUNING,** Antenna direction/tilt Output power, Frequency plan .Handover parameters and Code allocation **NETWORK OPTIMIZATION ;**Handling poor C/N, C/I and C/A, Handover problems and solutions , Excessive load, Battery life-time and paging Performance . **INCREASING CAPACITY features:**Tightening the frequency plan, Micro cells, Pico cells, Dual band , Half-rate , Example of high capacity network, **CO-EXISTENCE ISSUES,** Spectrum GSM 1900/TDMA, GSM 900/900, GSM 900/1800, GSM/WCDMA GSM/LTE, **Traffic Capacity & Coverage Planning**

ITE 804.3 Broadband Concept- 1 Unit

This course covers the Concept of Broadband Today: Internet access, rates, applications, uses (gaming, video, triple play),Wireless/mobile broadband Vs. fixed broadband; The NCC and spectrumlicensing,ISPs, tier 1, 2 and 3 providers, IXPs, POPs, WISPs . **Evolution of Broadband:** Broadband modes – DSL, ADSL, GPRS, 3G, LTE, GPON, VSAT, satellitecommunications, Fiber optic concept; ALUs role in laying over 60% of all submarine cables, Why is Broadband So Important?, Simulation, real-time conferencing, applications, cloud computing, massiveopportunities in software development, Rural development, mass literacy and healthcare, Nigerian Broadband Initiative, FG policy on broadband; the Broadband for Rural Nova Scotia model; Galaxy ,Broadband, SAT-3, Main One, Glo-1 and WACS; NIGCOMSAT

ITE 804.4 SATELLITE Communication- 1 Unit

This course is designed to introduce students to Satellite Communications , Brief history and overview of satellite communications, the Regulatory Bodies. Frequency allocations. Orbital Aspects of Satellite Communications , Fundamental orbital Laws, Useful orbits for satellite communications, Perturbations of the orbits. Orbital effects on the performance of a communications system. ,The Satellite-Earth Channel ,Satellite uplink and downlink analysis, delay, dual polarization. attenuation, Depolarization and rain effect of propagation. The

environment of space. Satellite Communications Systems, Modulation and multiplexing techniques for satellite link Forward error correction. Communication Payload, transponders, coverage. Multiple access techniques, traffic laws and routing, FDMA, SPADE, TDMA, CDMA, random access. Subsystems of a communication satellite, earth station. VSAT and Mobile-Satellite Communications

The VSAT satellite system concept, link analysis, the mobile-satellite channel, direct home TV broadcasting.

ITE 805.1 Cloud Computing – 1 Unit

The content of this course includes: **What is the Cloud?:** Concepts of the cloud, IaaS, PaaS, SaaS, clients, Public and private clouds, community clouds Datacenters, Concept, Operation and location, power and cooling; **Why is the cloud necessary?:** Google example (e.g. Googlechat vs. Skype); software upgrades not necessary, Open Source protocols, APIs, Legal Issues, Patents, copyrights, IPv6, E-applications, E-learning, E-government, E-health

ITE 805.2 Programming using Object Oriented Methods- 1 Unit

To be given by the Resource Person

ITT 805.3 Software Engineering Methods 1 Unit

This course covers the following areas: Principles of software engineering applied to concurrent programs distributed software, and fault-tolerant; analysis and verification techniques and verification for concurrence locks, theory of a process, distributed system kernels, interleave principle, duality principle, application of verification techniques to system deadlocks and software fault-tolerance; detailed analysis of distribution locks, readers-and-writer problem and message-passing system, data flow design methodologies and use of data flow techniques in operating system. Maintenance schedules; Equipment failure; recovery

ITE 806.1 Design of Database Management System- 1 Unit

This course introduces graduate students to the foundations of database systems, focusing on basics such as the relational algebra and data model, schema normalization, keys and foreign key references; query optimization, and transactions. Details include: Introduction to Databases, Brief History of Databases, Classification of Databases, OLTP & OLAP, Components of Database, Field, Record, Table, index, View, Users, Schema & DBA, Introduction to Structure Query Language (SQL), Categories of SQL, DML, DDL, DCL Database Security, Logins, Encryption, Audit, High availability of

database, Scalability (scale up/scale out), Mirroring, Clustering, RAID, Database Backup and Restore.

ITE 806.2 System Design, Modeling & Simulation- 1 Unit

To be given by the Resource Person

ITE 806.3 Mobile App Development 1 Unit

The course covers every facet of mobile app development, including project management, requirements, architectural design, GUI and layout, data management, integration with existing web and legacy applications, web services, security, porting, and the management of mobile application development projects Various Application Frameworks, Core OS, Programming Languages, Networking, Security Graphics and Media, Internet & Web, Hardware Integration, Other Development Tools-

ITE 807.1 Project Planning & Management- 1 Unit

To be given by the Resource Person

ITE 807.2 Business Strategy & Entrepreneurship – 1 Unit

To be given by the Resource Person

ITE 807.3 Network Security

This course is designed to introduce graduate students to current network management technology and techniques, and emerging network management standards. In-depth study of the existing network security technology and the various practical techniques that have been implemented for protecting data from disclosure, for guaranteeing authenticity of messages, and from protecting systems for network-based attacks. SNMP family of standards including SNMP, SNMPv2, and RMON (Remote Monitoring), OSI systems management. Various types of security attacks (such as intruders, viruses, and worms **Network Security:** Various security services and standards (such as Kerberos, Digital Signature Standard, Pretty Good Privacy, SNMPv2 security facility). □ Different facets of security. □ Security in Wireless Networks, Internet Security.

IT...E 808.1 LTE- 1 Unit

The content of this course covers: Introduction to LTE (Long Term Evolution), Overview of IP Convergence in the mobile networks, Introduction to LTE (Long Term Evolution) and SAE/ePC/EPS, LTE Network Architecture, LTE Interfaces and protocols, LTE Packet Core (SAE/EPC and EPS), LTE/SAE/EPC Network Architecture, Evolved UTRAN and Evolved Packet Core, LTE/EPC Interworking, LTE

Protocol Stacks, LTE Interfaces covered in details, LTE-EPC Signaling, IMS (IP Multimedia Subsystem) in LTE, Overview of Diameter Protocol, Diameter Applications in IMS, LTE Operations and Procedures, LTE Planning and Optimization, Ethernet Backhaul for LTE, QoS Applied to LTE-EPC, PCC (Policy and Charging Control, LTE and EPC Security, Overview of LTE Air Interface; Overview of OFDM and MIMO, LTE RF Planning and Design, LTE Backhaul Requirements, LTE Backhaul Aggregation Network Technology, Overview of LTE-Advanced

ITE 808.2 Fundamentals of Information Systems Engineering 1 Unit

This course provides an introduction to systems and development concepts, information technology and application software. It explains how information is used in organizations and the effects Information Technology (IT) has on the organization's structure, processes, employees, customers, and suppliers. Requirements Engineering, System Architecture, System Design and Development, Systems Integration, Test and Evaluation, Validation and Verification, Systems Implementation, O&M, and Transition, SE Planning and Management, Collaborating with Technical Specialties, Building Successful Teams, Communicating with Impact, Results Orientation, Adaptability.

ITE 808.3 UMTS/HSPA/HSPA+ network Planning Methodologies and Tools – 1 Unit

This course covers the following areas: Planning methodologies, Monte Carlo simulations, Monte Carlo results analysis, Methodology comparisons, Deterministic models, Popular microcell models, Carrier wave measurements, Static simulations, Monte Carlo input parameters, Sample plots, Propagation models, Popular macrocell models, Mapping data requirements, Traffic Analysis, Traffic analysis process, Target coverage, Sample usage and service offerings, Nominal planning & site selection, Nominal planning, Initial dimensioning, Spreadsheet dimensioning, Site selection, Recommended antenna heights, Flowchart, UMTS ranges, Site options, Bad UMTS/HSPA/HSPA+ sites, Evaluating traffic requirements, Detailed site design: UMTS/HSPA/HSPA+ site configurations, RX Antennas, 4 RX diversity, Various configuration coverage increases Co-siting antennas, Antenna tilts, System configurations, MHA's, TX diversity, Isolation requirements Dual system antenna sample, Antenna orientation

ITE 809.1 Prep. For Networking Professional 1 Unit

To be given by the Resource Person

ITE 809.2 Prep. For Alcatel-Lucent NR1 Telecom Cert. I -1 Unit

To be given by the Resource Person

ITE 811.1 Master's Dissertation - 6 units

MSC IN INTELLIGENCE CONTROL AND INSTRUMENTATION ENGINEERING

MSc in Intelligent Control and Instrumentation will enable the students to acquire relevant digital, technical and professional skills needed in the current field of **Artificial Intelligence (AI)-based Control Systems and Instrumentation Engineering.**

Objectives:

- i. To encourage the spirit of Entrepreneurship
- ii. To produce outstanding candidates in Instrumentation and control through relevant degree and professional certifications
- iii. To produce students with theoretical and practical knowledge, skills and methods in control engineering, instrumentation and electronics.
- iv. To develop ability to synthesise information from a variety of sources and make effective decisions on complex instrumentation and control engineering problems.
- v. To produce Instrumentation and control engineers that are highly sought after in a range of industries including oil and gas, petrochemicals, chemical engineering, manufacturing, research, transport and infrastructure.

Academic Programmes:

The academic programme would be run under two modes

- a. **Regular- Programme Mode:** It is designed to run for 12 calendar months: 46 academic weeks, Monday to Friday, 8 hours daily.
- b. **Weekend- Programme Mode:** It is designed to run for 100 weekends (Friday Evening and Saturday, all day).

Note: *This Weekend programme is specially designed only for working class candidates who by their job tight schedules are not free during the week days.*

Degree to be Awarded:

Master of Science (MSc) in Intelligent Control and Instrumentation Engineering

Admission Requirements:

A minimum of a bachelor's degree with a minimum of second class lower division in any of the Engineering Fields, Physics, Physics-

Electronic, Science Laboratory Technology, Computer Science or any other related field.

Please note: Candidates with PGD (upper credit) would also be considered.

Course Outline

Courses shall be delivered in modules. One week (40 hours) for each course.

See table below:

CODES	MODULE1: FUNDAMENTALS	UNITS
SGS 801.1	ICT and Research Method	2
ICI 801.1	Overview of ICT, Control and Communication Engineering	2
ITE 801.2	Applied Mathematics for Engineers	2
ITE 801.3	Computational Skills with Python Programming	1
ICI 801.2	Modelling, Simulation and Visualisation	1
ICI 801.3	Real Time Embedded System Design	1
ICI 801.4	Reliability Engineering	1
MODULE 2: INSTRUMENTATION		4 UNITS
ICI 802.1	Process Measurement And Instrumentation	2
ICI 802.2	Virtual Instrumentation	1
ICI 802.3	Development of Dimensional Measurement	1
MODULE 3: CONTROL ENGINEERING		4 UNITS
ICI 803.1	Modern Control Systems	2
ICI 803.2	Design and Analysis of Robust System Controls	1
ICI 803.3	Intelligent Control Systems	1
MODULE 4: ARTIFICIAL INTELLIGENCE		3
ICI 804.1	Knowledge based systems and Expert Systems	1
ICI 804.2	Introduction to Artificial Intelligence	1
ICI 804.3	Smart Sensor Technology and Internet of things	1
MODULE 5: SYSTEM DESIGN AND PROGRAMMING		7 UNITS
ITE 805.1	Intelligent Network and Cloud Computing	1

ITE 805.2	Programming Using Object Oriented Methods	1
ICI 805.3	P & ID CAD	1
ITE 806.1	Design Of Database Management Systems	1
ITE 808.2	Information Systems Engineering	2
ITE 806.3	Mobile App Development With Java Apps	1
MODULE 6: ROBOTICS AND AUTOMATION		3 UNITS
ICI 806.1	Systems Automation and Robotics	2
ICI 806.2	Mobile Robots	1
MODULE 7: ENGINEERING MANAGEMENT		2 UNITS
ITE 807.1	Project Planning and Business Strategy	1
SGS 801.2	Management and Entrepreneurship	2
MODULE 8: PROFESSIONAL EXPERIENCE		1 UNIT
ITE 808.1	Field Visits/ Internship	1
ICI 808.1	Professional Certification	0
MODULE 9: PROJECT MODULE		6 UNITS
ITE 811.1	Dissertation	6

10. Requirements For Graduation

A candidate must fulfil the following conditions to be awarded MSc degree in ICI.

- (vii) Pass all prescribed courses.
- (viii) Do and defend a Master- Dissertation

11. Course Content

SGS 801.1 ICT and Research Methods

Principles of scientific research. Introduction: Definition of research, characteristics of research, types of research, research process, research as a way of thinking, application of research. IT Impacts: The 'automate' imperative and the 'informate' imperative in the emergence of a new research and development tool. The Research Proposal. The Introduction. The Problem. The Objective of the Study. The Hypothesis to be Tested. The Study Design. The Setting. Measurement Procedures. Sampling. Analysis of Data. Structure of the Report. Problems and Limitations. Work Schedule. Formulating a Research Problem: Reviewing the literature. Formulating a Research Problem. Identifying Variables. Constructing Hypothesis. Conceptualizing a research Design: The Research Design. Selecting a Study Design. Constructing an Instrument for data collection and Sampling: Selecting a Method for Data Collection. Use of

computer programme and software and Basics of power point presentation. Intellectual Property Issues: Protecting the intangible, Patents Infringement, Changes to watch for, Patent searches over the Internet), Copyrights Changes to watch for, Software piracy, Plagiarism), Trade secrets (What is eligible to be a trade secret?, Using a trade secret, Infringement), Reverse engineering

ICI 801.1 Overview of ICT, Control & Communications Engineering

This course covers an Overview of Applied Instrumentation, Measurement and Control Principles, Evolution of Instrumentation and Control Application areas. Basic Logic Systems. Telecommunication overview; Advanced topics which include network management, traffic engineering, and router internals. The course also considers the impact of wireless engineering solutions in a global, economic, environmental, and societal context. Historical Reviews in Telecommunication: Alexander Graham Bell, The telephone exchange/switching; Modes of telecommunication; Evolution of Switching Systems: Evolution of Telecommunications, Simple Telephone Communications, Basics of Switching System, Manual Switching System, Basic Elements of Strowger switching systems, Step-by-step switching system, Subscriber access to strowger switching, Crossbar exchange, Principle of Crossbar switching, Cross Bar Switch Configurations, Cross Point Technology, AT & T No. 5 Crossbar switch. Computer-Controlled Switching-I: Computer-Controlled Switching -II: Signalling Techniques: Common Traffic Engineering: Telephone Networks: Evolutions of ICT Industries.

ITE 801.2 Applied Mathematics for Engineers

This course is designed to expose students to Laplace Transformation, Transform relation for linear systems; forced and free response; transfer function; poles and zeros; stability; probability theory, frequency and probability distribution, expectation and movement classical distribution, binomial, poisson, Gaussian exponential central limit theorem and its significance, estimation and hypothesis testing; regression and correlation. Application of MATLAB in advanced Engineering mathematics.

ITE 801.3 Computational Skills with Python Language

Python Features, Python – Environment Setup. Local Environment Setup. Setting up PATH.Setting Path at Unix/Linux.Setting Path at Windows. Python Environment Variables. Running Python. Python 3 – Basic Syntax. First Python Program. Python Identifiers. Reserved

Words. Lines and Indentation. Multi-Line Statements. Quotation in Python. Comments in Python. Using Blank Lines. Waiting for the User. Multiple Statements on a Single Line.Multiple Statement Groups as Suites. Command line Arguments. Applications in computations, control and Mini-Projects.

ICI 801.2 Modelling, Simulation and Visualisation

A study of the construction of models which simulate real systems. Basic processes for engineering system design, methods of system modelling and forecasting The methodology of solution should include probability and distribution theory, statistical estimation and inference, the use of random varieties and validation procedures. Tools used in modelling, simulation, and visualization of processes should be taught.

ICI 801.3 Real Time and Embedded Systems Design

Principles of embedded system design and concept of hardware-software co-design, Programming languages intended for real time systems, Real time operating system (RTOS)System support: scheduling, resource handling, Design and analysis of real time system software, Modelling and verification of real time systems, Interrupts, Distributed real time systems, Real time communication, Real time systems for multiprocessor systems

ICI 801.4 Reliability Engineering

Reliability Concepts, Elementary Reliability Theory, Measurement of Reliability Failure, Time Distribution model, Exponential (Weibull model), Fault Tree Analysis, Failure Mode, Effect and criticality Analysis, Reliability growth, Maintainability and Availability. Methods and tools of Failure investigation and Fault detection starting from the code of conduct and data collection to writing the conclusions about the failure.

ICI 802.1 Process Measurement and Instrumentation

Overview of the process control plant, principal types of process plant and the associated measurement and control equipment used in the process industries. Development of models of process plant systems for optimising control system performance; analogue and digital control systems. Instrumentation systems used for the measurement of key process parameters such as temperature, pressure, level and composition. Measurement of single phase and multiphase flows relevant to the oil & gas industries, Real-time imaging systems for monitoring multiphase flows

in pipes (e.g. oil-water or solids-water flows) are studied.

Lab: Measurement of single phase and multiphase flows relevant to the oil & gas industries, Real-time imaging systems for monitoring multiphase flows in pipes (e.g. oil-water or solids-water flows) are studied. During the practical work undertaken in the module the student will learn how to design, build and test an electronic instrument e.g. an instrument for measuring the level of liquid in a tank.

ICI 802.2 Virtual Instrumentation

This module has been designed to build on your skills in modelling, designing, processing and simulating a range of analogue and digital systems. Review of the hardware and software aspects of virtual instrumentation (VI). You'll have the opportunity to use graphical and C/C++ programming languages using PC's and interface cards as the hardware platform. Industry standard software tools (such as LabVIEW) will also be explored to help design and simulate real systems.

ICI 802.3 Development of Dimensional Measurement

Theory and practical application of metrology for dimensional measurement of manufactured components. Basic principles of metrology including calibration, traceability and interchangeability. Practical sessions in measurements and analysis of data during laboratory work and study of contemporary instruments including laser interferometers and co-ordinate measurement machines (CMMs). The application of international standards and the propagation of uncertainty associated with practical measurement, in particular the effects of temperature, will be reviewed and the use of temperature measurement techniques such as thermal imaging will be covered.

ICI 803.1 Modern Control Systems

System characteristics: Revision of Laplace transforms and transfer functions. Block diagram algebra. Open and closed loop transfer functions. Steady state response and offset. Use of final value theorem. Characteristic equation. The s-plane. Concept of poles and zeroes. Significance of roots. Form of response and nature of stability. Manipulation of transfer function equations and application to control problems. Routh test. Second order systems: damping factor and natural frequency. Critical damping. Underdamped systems: response time, overshoot, decay ratio, etc. Higher order systems: approximation by lag plus delay. Linear systems design: Introduction to frequency response techniques. Concepts of attenuation and phase shift. Bode diagrams. Bode stability criterion. Gain and phase margins. Polar

plots. Use of Nichols chart. Use of Nyquist stability criterion. Relationship between open-loop and closed-loop responses. Real-time and frequency dimensions of s-plane. Significance of poles and zeros. Evan's rules. Construction and interpretation of root locus. Equivalence of dominant roots. Effect of time delay on system response and stability. Design of lead-lag compensators and PID controllers. Pole zero placement and cancellation. Adaptive control: Concepts of adaptive control. Adaptive control structures: direct and indirect adaptation. Distinction between tune on demand and continuous adaptation. Gain scheduling, model reference adaptive control and adaptive pole placement control. Overview of industrial adaptive controllers. Case study: internal model adaptive control.

ICI 803.2 Design and Analysis of Robust System Controls

General nature of Engineering control systems, Time and frequency domain treatment of control systems design, state space representation of univariate and linear multivariate systems. The concept of state estimation, measurability, observability, controllability, sensitivity, and stability in Liapunov's sense. Optimal control systems design, objective functions and use of quadratic performance index. Performance and robustness of multivariate feedback system design, based on Nyquist like techniques, linear quadratic gain (LQG) method, etc. Tracking system design, using output feedback. Observers and tracker synthesis using entire Eigenstructure assignment.

ICI 803.3 Intelligent Control Systems

Intelligent Control, Control of Hybrid Systems, Adaptive Control, Digital Control, Nonlinear Systems Analysis and Control, Optimal Control, Systems Theory, Neural Networks, System Identification, Estimation Theory, Optimization Applications

ICI 804.1 Knowledge based systems and Expert systems

Intelligent machines and expert systems, symbolic representation of knowledge, symbolic processing with prolog, data dependency as an alternative paradigm to imperative programming, rule based problem solver and knowledge representation techniques implemented in Prolog, Heuristic search and inference, data driven reasoning, goal-driven reasoning, domain-specific search, Application of Expert systems to engineering problems (process control systems) e.g. electricity utility systems, distillation columns etc

ICI 804.2 Introduction to Artificial Intelligence

Basic concepts of Artificial Intelligence, artificial intelligence in control applications, machine intelligence, machine learning, Introduction to artificial neural network, adaline, madaline, BAM, Hopfield memory, back propagation, counter-propagation networks, self-organising maps, adaptive resonance theory, fuzzy logic and evolutionary computing in engineering applications.

ICI 804.3 Smart Sensors and Internet of Things

Example of Smart Sensors in nature (Vision, Hearing, touch, and smell). How we can learn from nature, Principles of Sensing, Classification and Terminology of Sensors, Measurands. Some basic discussion about electric field, potential, capacitance, resistance etc. Mechanical Sensors, Acoustic, and Magnetic Sensors Radiation and Thermal Sensors, Chemical and Biosensors, Electronic Interface and Integrated Sensors/Design Projects/ Wireless integration, Electronics interfacing overview and technology design rules; Introduction to Microsystems; MEMS microsystem components; Microfluidics microsystem components, Electronic/wireless integration, Wireless sensor network (WSN) and Internet of Things (IoT), Internet of Things Application Domains, Design and Implementation of IoT for Environmental Condition Monitoring; Case study: Study of Smart City and its Design

ITE 805 .1 Intelligent network and Cloud Computing

The content of this course includes: What is the Cloud?: Concepts of the cloud, IaaS, PaaS, SaaS, clients, Public and private clouds, community clouds Data centres, Concept, Operation and location, power and cooling; Why is the cloud necessary?: Google example (e.g. Googlechat vs. Skype); software upgrades not necessary, Open Source protocols, APIs, Legal Issues, Patents, copyrights, IPv6, E-applications, E-learning, E-government, E-health

ITE 805.2 Programming using Object Oriented Methods

Into to programming, algorithm, Flow Chart, Console Application, Input Statement, Formula Translation, Output Statement, Writing Simple Programs, Conditional IF – Statements, Nested-IF Statement, Loops, Functions, Writing Other Programs, Exercises and mini projects, Windows Application, GUI Design, Input Statement, Formula Translation, Output Statement, Writing Simple Programs, Controls, conditional IF-Statements, Nested IF-Statement, Loops, Nested Loop, Arrays, Mini Projects, Database: MS SQL SERVER, Installation and configuration, create Database, Create Tables, Stored Procedure, insert, delete, select and update, Copy, backup, drop

database, Database Programming using Windows Form Application, Exercises and database driven projects, ASP.Net/Web application, GUI Design, Simple programs, Create menu and sub menus, website design, Site.master and web.config, Web Application development, Exercises and main project, Packaging and Deployment.

ICI 805.3 P & ID CAD

This is a Computer Aided Design-based course designed to teach and help students acquire “hands-on” skills on Piping and Instrumentation Diagram design and interpretation.

ITE 806.1 Design of Database Management System

This course introduces graduate students to the foundations of database systems, focusing on basics such as the relational algebra and data model, schema normalization, keys and foreign key references; query optimization, and transactions. Details include: Introduction to Databases, Brief History of Databases, Classification of Databases, OLTP & OLAP, Components of Database, Field, Record, Table, index, View, Users, Schema & DBA, Introduction to Structure Query Language (SQL), Categories of SQL, DML, DDL, DCL, Database Security, Logins, Encryption, Audit, High availability of database, Scalability (scale up/scale out), Mirroring, Clustering, RAID, Database Backup and Restore.

ITE 806.3 Mobile App Development

The course covers every facet of mobile app development, including project management, requirements, architectural design, GUI and layout, data management, integration with existing web and legacy applications, web services, security, porting, and the management of mobile application development projects Various Application Frameworks, Core OS, Programming Languages, Networking, Security Graphics and Media, Internet & Web, Hardware Integration, Other Development Tools-

ITE 808.2 Fundamentals of Information Systems Engineering

This course provides an introduction to systems and development concepts, information technology and application software. It explains how information is used in organizations and the effects Information. Technology (IT) has on the organization’s structure, processes, employees, customers, and suppliers. Requirements Engineering, System Architecture, System Design and Development, Systems Integration, Test and Evaluation, Validation and Verification, Systems Implementation, O&M, and Transition, SE Planning and Management, collaborating with

Technical Specialties, Building Successful Teams, Communicating with Impact, Results Orientation, Adaptability.

ICI 806.1 Automation and Robotics

Overview of the technical possibilities and commercial implications of automating manufacturing processes with a strong emphasis on high-value, high-precision manufacturing. Principles behind the programming and use of machine tools, industrial robots and their control systems, such as PLCs. Case studies from industrially-based research work. History and development of the work environment of robots, their applications and implementations, concept of control and sensory feedback in robots, Current industrial control technology and practices, including Programmable Logic Controllers (PLC), Supervisory Control and Data Acquisition (SCADA) and Distributed Control System (DCS) systems. discrete event system control, programming PLCs, manipulator theory and manipulator practice,

ICI 806.2 Mobile Robots

This module will teach you to critically review and analyse current autonomous intelligent robots, consolidate and extend knowledge in robotics applications and provide a practical understanding of robotic navigation and locomotion. You will also be taught the theory and practice of autonomous intelligent mobile robots and how these techniques and technologies impinge on research and industrial activities.

ITE 807.1 Project Planning and Business Strategy

This course covers contemporary managerial decision approaches in the organisation. Topics covered include business opportunities, mission statements and the development of corporate strategy, building the organisation competence, resource allocation, mergers and acquisition strategies, integration strategies, building organisational competitive strategies for their effectiveness through product pricing techniques, management process and policy control. This course also discusses analysis of industry structures and dynamics, e-business, process reengineering and corporate turnaround. Case writing and analysis are fundamental to this course.

SGS 801.2 Entrepreneurship and Management

Entrepreneurship Overview: Establishing & Financing new venture: Marketing and product strategy: Business and technology strategy: Case studies on important technology-based companies E-Commerce: Principles of doing business on the

Internet. Advertisements on the Internet. Simulation and using Internet as showroom. Management principles. Project management definition and constraints. Project life cycle. Project planning and scheduling. Project management tools. Critical Path method, CPM: principles, computation, and applications. Project Evaluation & Review Technique, PERT: principles, computation, and applications. Linear programming and application in CPM/PERT. Gantt's chart and applications.

ITE 808.1 Field Visit / Internship

ICI 808.1 Preparation for Automation certification

This course is designed to prepare students for the professional certification exam in Automation. Reviews of concepts, Standards, Equipments, Systems, past exam materials.etc

ITE 811.1 Master's Dissertation- 6 units

Ph. D. IN INFORMATION AND COMMUNICATION ENGINEERING Structure and Areas of Doctoral Degree Programme

The Degree is Doctor of Philosophy in Information and Communication Engineering with specializations in two major areas:

- i. Information System Engineering
- ii. Communication Engineering

The programme will involve five compulsory and four elective taught courses (which will be broken down into modules to incorporate "hands-on trainings" and a thesis in the specialized area leading to significant contributions to knowledge by the students under the guidance of experienced academic and industry- based staff and faculties. The aim of the taught courses is to review and introduce new concepts, theories, perspectives and applications of Information Technology and Communication Systems.

Admission Requirements

Candidates must possess a Master's degree with a minimum of 3.5 CGPA on a 5 point scale in any of the following Engineering fields: Electrical, Electronic , Electrical/Electronic, Computer Engineering, Software Engineering, Information Technology, Communication, Telecommunications, or any other related field . The candidates must also have five O'level credit passes including English, Mathematics, Physics and Chemistry

Programme Duration

The programme duration for full time students is a minimum of 24 calendar months and maximum of

60 calendar months while part time is minimum of 36 calendar months and maximum of 84 calendar months during which the student is expected to take the complete modules and carry out an individual research Thesis.

Graduation Requirements

A student is presented for graduation after attempting and passing all courses, including individual research project/ thesis as well as fulfilling all School of Graduate Studies requirements; and being in good standing with the university policies.

Course Outline

Modular approach will be employed in the course delivery.

Compulsory Courses

Codes	Course Title	Credit Units
ICE 901	Advanced ICT and Research Method	2
ICE 902	Project Management, Techno Entrepreneurship and cyber law	2
ICE 903	System Modelling and Simulations	3
ICE 904	Advanced Engineering Mathematics	3
ICE 917	Ph.D Thesis	12

Elective Courses: Candidate is to choose four (4) courses from the available six (6) courses depending on the chosen area of specialization/research interest.

OPTION-1: Information Systems Engineering

Codes	Course Title	Credit Units
ICE 905	Software Engineering	2
ICE 906	Internet of things and Cloud computing	2
ICE 907	Intelligent Data Analysis and Database management systems	2
ICE 908	Network Security and Management	2
ICE 909	Data Communication	2
ICE 910	Decision Support Systems	2

Option-2: Communication Engineering

Codes	Course Title	Credit Units
ICE 911	Advanced Digital Signal Processing	2
ICE 912	Advanced Wireless Communication and Management	2

ICE 913	Radio Propagation and Microwave Engineering	2
ICE 914	Optical Fibre Communication	2
ICE 915	Satellite communication	2
ICE 916	Software development in telecommunication	2

ICE 901 Advanced ICT and Research Methods

Principles of scientific research. Introduction: Definition of research, characteristics of research, types of research, research process, research as a way of thinking, application of research. IT Impacts: The 'automate' imperative and the 'informate' imperative in the emergence of a new research and development tool. The Research Proposal. The Introduction. The Problem. The Objective of the Study. The Hypothesis to be Tested. The Study Design. The Setting. Measurement Procedures. Sampling. Analysis of Data. Structure of the Report. Problems and Limitations. Work Schedule. Formulating a Research Problem: Reviewing the literature. Formulating a Research Problem. Identifying Variables. Constructing Hypothesis. Conceptualizing a research Design: The Research Design. Selecting a Study Design. Constructing an Instrument for data collection and Sampling: Selecting a Method for Data Collection. Use of computer programme and software and Basics of power point presentation. Intellectual Property Issues: Protecting the intangible, Patents Infringement, Changes to watch for, Patent searches over the Internet), Copyrights Changes to watch for, Software piracy, Plagiarism), Trade secrets (What is eligible to be a trade secret?, Using a trade secret, Infringement), Reverse engineering.. Advanced Power Point Presentation

ICE 902 Project Management, Techno Entrepreneurship and cyber law

Management principles. Project management definition and constraints. Project life cycle. Project planning and scheduling. Project management tools. Critical Path method, CPM: principles, computation, and applications. Project Evaluation & Review Technique, PERT: principles, computation, and applications. Linear programming and application in CPM/PERT. Gantt's chart and applications. Contract law and bidding. Technology Creativity Innovation and commercialization: Entrepreneurship Overview: Establishing & Financing new venture: Marketing and product strategy: Business and technology strategy: Case studies on important technology-based companies ECommerce: Principles of doing business on the Internet. Advertisements on the Internet. Simulation and using Internet as showroom. Marketing on the Internet. Technical support via Internet. Basic law: Contract law.

Cyber law. Cooperative bargaining, conflict resolution. Entrepreneurship case studies.

ICE 903 System Modelling and Simulations

Use of simulation as a optimization tool for effective design, planning, analysis, and decision-making; problem definition, model formulation, design of simulation experiments, and model-based analysis; application of advanced quantitative methods to modeling and simulation. Introduction to MATLAB. Short repetition of basic concepts in MATLAB: script files, functions, vectors and matrices, useful built-in functions. An intuitive introduction to signals in communication: information-carrying signal as analog and digital signals, the signals in the baseband and modulated signals, signal strength, signal spectrum, spectrum efficiency. Signal generation in MATLAB. An intuitive introduction to communication channels, transmission media: wired and wireless transmission channel noise, the basic channel models: a channel with Gaussian noise, the signal-noise ratio in the channel. More advanced models of communication channels, and their parameters. Generating channel model in MATLAB. The basic model of the communication system. Description and sequence of individual blocks at sender and receiver side. Implementation of the basic model of the communication system in MATLAB. Methods of calculating the probability of errors in transmission, the bit error probability and the probability of error messages through simulation experiments. The signal source. Fundamentals of signal compression. Algorithms for quantization and signal compression in MATLAB. Basic principles and implementation of protective coding information. Protective coding algorithms in MATLAB. Basic principles and implementation of codes for fault detection. CRC coding algorithms in MATLAB. Basic principles of digital modulation. Examples of modulation scheme and implementation in MATLAB. Basic principles of design communication receivers. Equalization procedure. Examples of implementation of the equalizer in MATLAB. Basic principles simulations of the complete communication system. Examples of implementation of basic communication systems in MATLAB. Execution of simulation experiments and display in MATLAB.

ICE 904 Advanced Engineering Mathematics

Revision of linear algebra, ordinary differential equation, and Laplace, Fourier, and Z transforms. Complex variable, analysis, and applications. Fast computational methods for linear algebra and integral transform algorithms. Short time fourier transform and applications, Wavelet transform. Green's function, Bessel functions, gamma function. Euler transform. Metric spaces, and

algebraic structure. Linear spaces: Bannch and Hilbert spaces; operators in Hilbert spaces. Singular value decomposition vs eigenvalue decomposition and applications. Graph theory and applications. Residue number system and applications. Numerical methods in solving engineering problems. Probability and Statistics.

ICE 905 Software Engineering

Requirements engineering and management (e.g., elicitation, specification, and verification), software architecture design and evaluation (e.g., architectural design models, description languages, and evaluation methods), software development paradigms (e.g., Waterfall, Agile, Iterative, Open Source, and GSD) software verification and validation (e.g., testing and inspection) and empirical software engineering (e.g., experiments, case studies, surveys, and field studies).

ICE 906 Internet of Things and Cloud Computing

Introduction to the Internet of Things, What is the IoT and why is it important?, Elements of an IoT ecosystem, Technology and business drivers, IoT applications, trends and implications, Sensors and sensor nodes, Sensing components and devices, Sensor modules, nodes and systems, Connectivity and networks, Wireless technologies for the IoT, Edge connectivity and protocols, Wireless sensor networks, AI and Machine Learning for IoT, Analytics and applications, Signal processing, real-time and local analytics, Databases, cloud analytics and applications. IoT lab exercises .Local processing on the sensor nodes, Connecting devices at the edge and to the cloud, Setting up wireless mesh networks, Processing and analysing data offline and in the cloud

ICE 907 Intelligent Data Analysis and Database Management System

Advanced database modeling and design, database implementation, distributed databases, object-oriented and object-relational databases, and databases for web applications, data mining methods. design, implementation, performance tuning of different types of databases, performing data mining tasks on various types of data., design and implementation of large, distributed database systems, madvanced relational modelling and SQL, database design and management for enterprises, transaction management, security, Internet-based databases, data warehousing, business intelligence and Big Data fundamentals, infrastructures and analytics, data quality and security, practical component on a real-world based database design or analytics scenario.

ICE 908 Network Security and Management

Network security: Cryptographic Techniques: Security Protocols: General security architectural concepts, transport layer security protocol, network layer security protocol, IEEE LAN security protocol, OSI upper layers architectural overview, upper layers security model, security exchanges. Directory Systems Security Network management: Fault management; Performance management process, accomplishing performance management, reporting performance information. Accounting management; Network Management Protocols

ICE 909 Data Communication

Principles of data communications, the fundamentals of signaling, basic transmission concepts, transmission media, circuit control, line sharing techniques, physical and data link layer protocols, error detection and correction, data compression, common carrier services and data networks, and the mathematical techniques used for network design and performance analysis. Potential topics include analog and digital signaling; data encoding and modulation; Shannon channel capacity; synchronous and asynchronously transmission; RS232 physical layer interface standards; FDM, TDM, and STDM multiplexing techniques; inverse multiplexing; analog and digital transmission; V series modem standards; PCM encoding and T1 transmission circuits; LRC, VRC, and CRC error detection techniques; Hamming and Viterbi forward error correction techniques; BSC and HDLC data link layer protocols; Huffman, MNP5, and V.42bis data compression algorithms; circuit, message, packet, and cell switching techniques; public key and symmetric encryption algorithms, authentication, digital signature, and message digest techniques, secure e-mail, PGP, and TSL/SSL security algorithms; Ethernet, Wi-Fi, Optical, and IP networks; reliability and availability; and queuing analysis network performance techniques. Quality of Service parameters. Network Security - Physical Layer Security, Tunneling and Virtual Private Networks (VPNs), Network Address Translation (NAT), TLS Protocol, Public Key Infrastructures (PKI), IPsec Protocol

ICE 910 Decision Support Systems

The significance of decision making, aspects of human and organizational decision making, theories and models relating to decision making, decision support systems as a support for an organization's activities, ICT as a support for decision making, group decision support systems, theories, methods and techniques for the design, construction and implementation of situation-specific decision support systems, principles for: Expert Systems, Executive Information Systems, Knowledge Management Systems, data

warehousing, data mining and business intelligence, evaluation methods for decision support systems

ICE 911 Advanced Digital Signal Processing

Review of fundamentals of DSP: Discrete-time signals and systems, sampling and reconstruction, Z-transform, transform analysis of linear time-invariant systems, structures for discrete-time systems, Fourier analysis of signals using DFT, FFT. Digital filters: Digital and analog filtering, Filter specifications, Magnitude and phase responses, IIR and FIR filters, Design of IIR and FIR filters; Rational parametric models of random signals, Autoregressive models, Yule-Walker equations, Levinson-Durbin algorithm, Lattice filters, Schur algorithm. Adaptive FIR filters, Error-performance surface, Steepest-descent algorithm, LMS algorithm, Convergence properties, Gradient adaptive lattice filter, Method of least squares, Recursive least squares algorithm, Applications in telecommunications, image processing, video compression, audio system, etc. DSP Hardware: Fixed point and floating point DSP, merits, demerits, and applications

ICE 912 Advanced Wireless Communication and Management

Wireless LAN. Modem technologies, xDSL, cable modem. IP over different networks and internetworking. Internet Applications Model: Applications models: Remote login (TELNET, Rlogin), File transfer and access (FTP, TFTP, NFS), Electronic Mail (SMTP, POP, IMAP, MIME), World wide web (HTTP), Voice and Video over IP (RTP), Internet management (SNMP). Streaming technologies. W AP (Wireless Application Protocol). Internet Security and Electronic Commerce Technology: Internet security and firewall design (IP sec). Encryption standards. Electronic cash and transaction models. Internet business models and technology development. Introductory Concepts: Overview of digital communication and radio communication characteristics; Cellular concepts and frequency reuse; Cellular geometry; Co-channel interference and frequency planning; Signal quality, traffic capacity and cell sizing; handoffs and mobility management; cell splitting; other forms of wireless communication. Signal Impairments and Countermeasures: Path losses; Multipath propagation; Delay spread and ISI; Fading characteristics; Far-near and shadowing effects; Adaptive detection for processing severely distorted signals; Source and channel coding; Diversity techniques; Co-channel interference reduction techniques; Directional antennas; Sectorized cells; Adaptive antennas. Cellular Systems:

ICE 913 Microwave Engineering

Microwave Devices: Overview of performance characteristics and applications. Microwave Diodes. Microwave bipolar transistors, hetero junction bipolar transistors, Field Effect Transistors. Transferred Electron Devices. Avalanche Transit-Time Devices. Microwave tubes. Applications in microwave circuits. Network Analysis: Transmission Line Equations and Solutions, Smith Chart, ABCD Matrix, S-Parameter Matrix, Signal Flow Graphs. Impedance Transformation and Matching Impedance Measurements, Single-stub Matching, Double-stub Matching, Triple-Stub Matching, Impedance Matching with Lumped Elements, Waveguide Reactive Elements, Quarter-wave Transformer, Binomial Transformer, Chebyshev Transformer, Tapered Transmission Lines Waveguide and Coaxial Components: Rectangular, bends and twists, ridge, fin Line, terminations, attenuators, phase shifters, Circular Polarizers. Coaxial-to-Waveguide Transitions. Baluns. Stripline Circuits: Substrate materials, stripline, micro strip, terminations, attenuators, couplers, power dividers, isolators, resonators, filters. Power Measurements: Introduction, Types of Power Measurements, Sensors, Meters, Specifications

ICE 914 Optical Fibre Communication

Introduction: Basic optical communications, generations, merits and limitations of optical fiber communications. Optical Fibre: Geometry, wave propagation, dispersion, nonlinear effects, loss characteristics. Optical Receivers: Block diagram, P-I-N and Avalanche photodiode receivers, noise, sensitivity, bit error rate performance analysis, and design. Coherent Light wave Systems: Principles of coherent and non-coherent detection. ASK,PSK,FSK,PPM,DPSK modulation formats. synchronous and asynchronous demodulation. Bit error rate performance analysis. Performance degradation due to laser phase noise, group velocity dispersion, self phase modulation, polarization mode dispersion, relative intensity noise, effect of timing jitter. Doped fibre amplifiers, Brillouin amplifiers, Fiber Raman amplifiers; Amplifier noise; Amplifier gain

characteristics; Amplifier performance analysis; Optical time division multiplexing (OTDM).

ICE 915 Satellite Communications

Elements of satellite communications: Satellite frequency bands, transmission and multiplexing schemes, trans-multiplexing, multiple access schemes. Communication satellites: Satellite orbit, laws governing satellite motion, satellite paths, geostationary satellites, non-geostationary constellations, satellite subsystems, launching of geostationary satellites. Earth stations: Earth station antennas: types of antennas, antenna gain, pointing loss, gain-noise temperature ratio, effective isotropic radiated power (EIRP); high power amplifiers; low noise amplifiers; up and down converters: conversion process, polarization hopping, redundancy configurations; earth station monitoring and control. Satellite link design: Basic link analysis, attenuation, sources of interference, carrier to noise and interference ratio, system availability, frequency reuse, link budget, link design. Multiple access techniques: FDMA

ICE 916 Software Development in Telecommunication

Telecommunication software development: Introduction. Examples of life cycles (V life cycle, Y life cycle, spiral life cycle, etc. Methods and tools for: requirement capture, analysis, specification, architecture, design and development. Finite state machines: the SDL language. Programming: Overview of programming languages (C, C++, Java) in telecommunication. Real-time programming. Programming for embedded systems. Performance and memory management. Configuration management. interfaces definition: Problem overview. Transparency of distribution. Distributed OO: the COREA solution, the Java solution. Interface specification in TMN. System tests: Unit tests. Software integration tests. Hardware integration tests. Embedded software tests. Performance and conformance tests. Testing of OO software. CASE to test: Attols, Insure, Hindsight, etc.

ICE 917 Ph.D. Thesis

ACADEMIC STAFF

S/N	Name of Staff	Qualification	Specialization	University
1	Prof. H.C. Inyiama	B.Eng, M.Eng, PhD	Computer Engineering	Visiting Professor
2	Prof. Ighalo.G.I	B.Eng, MSc, PhD	Electronic & Computer Engineering	Visiting Professor
3	Prof. I.L.Oborkhale	B.Eng, MSc, PhD	Communication Engineering	Visiting Professor
4	Prof. A.O Ibe	B.Eng, Ph.D	Electrical Engineering	Professor
5	Prof. S. N. Ndubisi	B.Eng, M.Eng, PhD,	Electrical Engineering	Professor
6	Prof .E.O.Nwachukwu	B.Eng, MSc , PhD	Computer Science	Professor
7	Prof.A.O.Kuye	B.Eng, MSc, PhD	Chemical Engineering	Professor

8	Prof I.L Nwaogazie	B.Eng, MSc, PhD	Civil Engineering	Professor
9	Prof Kalu. S.E	BSBA,MBA,Ph.D	Marketing Management	Professor
10	Dr. J. J. Biebuma	B.Eng, MSc, PhD	Communication Engineering	Snr. Lecturer
11	Dr. B. O. Omijeh	B.Eng, MSc, PhD	Electronic & Communication Engineering	Snr. Lecturer
12	Dr. U.A. Kamalu	B.Eng, MSc, PhD	Computer Engineering	Snr. Lecturer
13	Dr . C. Ugwu	B.Sc, MSc, Ph.D	Computer Science	Snr. Lecturer
14	Dr. N., O. Nwazor	B.Eng, M.Eng, PhD	Electronic & Communication Engineering	Lecturer I
15	Dr. S.I Orakwue.	B.Eng, M.Eng, PhD	Electronic & Computer Engineering	Lecturer I
16	Dr.I.B Asianuba,	B.Eng, M.Eng, PhD	Electronic & Communication Engineering	Lecturer I

INDUSTRY RESOURCE PERSONS

S/N	Name of Staff	Qualifications	Rank/Designation	Specialization
1	Dr.Frank Edughom	B.Eng, M.Eng, PhD, Elect/Elect. with 12 Years ICT working Experience	Software Engineer	Software Engineering
2	Dr. Chidi. Diugwu	B.Eng, M.Eng, PhD, Telecommunications .with 12 Years ICT working Experience	Microwave Engineer	Microwave Engineering
3	Engr. Faheed Olajimi	B.Eng, Alcatel Lucent Telecom Certifications + 10 years ICT Experience	Technical Manager	Mobile Engineering
4	Daenwi, Tonye.L	B.Eng, M.Eng (Computer Science), 7 years Working Experience	Chief Software Developer	Information and Technology
5	Engr. Daniel Ekpah	B.Eng, M.Eng (Computer / Communications Engineering, 8 years Working Experience	Network Engineer	Network Communication
6	Engr. Stanislaus Oguokebe	B.Eng, M.Eng (Electronic & Telecom, 8-Years Experience	Satellite Engineer	Satellite Communication
7	OSIKIBO, Tamuno-Ibuomi Lewis	B.Eng, M.Eng (Elect/Elect)-7 years experience	Control Engineer	Electronic and Control Engineering

INSTITUTE OF NATURAL RESOURCES, ENVIRONMENT AND SUSTAINABLE DEVELOPMENT (INRES)

M.SC DEGREE PROGRAMME IN NATURAL RESOURCES AND ENVIRONMENTAL MANAGEMENT

BRIEF HISTORY OF THE INSTITUTE

The Institute of Natural Resources, Environment and Sustainable Development (INRES), University of Port Harcourt, was established 2011 as a multidisciplinary Centre of Excellence in Natural Resources, Environment and Sustainable Development through a 3 – year grant from the John D. and Catherine T. MacArthur Foundation, Chicago, USA. The grant was awarded to the University based on grant application proposal jointly written by Prof. Enuvie, G. Akpokodje, (Geology; Principal investigator), Prof. B. C. Ndukwu and Prof. I. O. Agbagwa (Plant Science & Biotechnology; co-investigators). The proposal was the only one approved by the MacArthur Foundation in 2011 out of a total of 15 proposals submitted by Nigerian Universities.

In March 2012, Prof. Enuvie G. Akpokodje was appointed pioneer Director of INRES by the Vice Chancellor of the University of Port Harcourt, Prof. J. A. Ajiinka, for a two-year term. This appointment was re-newed in August 2014 for another two years. Professor Ndukwu of blessed memory was appointed Director of INRES after the tenure of Prof. Enuvie G. Akpokodje. Dr. V. Weli now Professor Weli acted briefly as Acting Director who succeeded Professor Ndukwu after his demise. Professor A. I. Hart was appointed as Director of INRES on February 2020 with Richmond U. Ideozu (PhD) as Assistant Director in March 2021.

VISION OF THE INSTITUTE

The vision is to be a world class Centre of Excellence for inter – trans – and multi-disciplinary graduate education, applied research and capacity building in natural resources, environment and sustainable development in Nigeria, the West African sub-region and the international community.

MISSION OF THE INSTITUTE

The mission is to produce competent indigenous manpower capable of developing and implementing integrated, multidisciplinary and sustainable solutions to developmental, environmental and natural resources management challenges. The specific objectives include:

- Promote and facilitate sustainable development in Nigeria and beyond.

- Produce quality Master of Science, Doctorate and postgraduate Diploma/Certificate graduates with multidisciplinary training.
- Enhance the technical skills and managerial capacity of the workforce of government organizations, industry and local community/civil society through specially designed professional short courses to address identified knowledge/skill deficiencies;
- Participate in innovative national, regional and global initiatives/projects that shape our sustainable future.

NATURE OF THE PROGRAMME

ENTRY/ADMISSION REQUIREMENTS FOR PGD, MSc AND PhD

Admission is open to first degree graduates in science, social sciences, engineering, health sciences and related disciplines who possess relevant academic qualifications. For the Postgraduate Diploma the candidates must have a minimum of Bachelor of Science with at least third class honours or Higher National Diploma (HND) from recognized institutions and who passed with a minimum of Upper Credit. Doctor of Philosophy (PhD) a CGPA of not less than 3.50 on 5-point is required. Candidates for PGD and M.Sc. are to undertake a written test and an oral interview. PhD candidates must prepare and present acceptable proposal prior to admission.

MODE OF STUDY AND PROGRAMME DURATION

All INRES programmes – PGD, MSc and PhD are modular but may be full-time or part-time. PGD, MSc runs for 12 calendar months (full-time) and 24 months (part-time) inclusive of taught courses and dissertation. PhD duration is a minimum of 24 months (full-time) and 36 months (part-time). INRES programmes and activities are not affected or disrupted by strike actions. There is no interruption. The duration of the programme for fulltime students is a minimum of 12 months, one (1) year for both MSc and PGD programs and maximum of 24 months (2) for PhD programs.

REGISTRATION OF STUDENTS

All new students required to undergo preliminary screening exercise before registration of courses. They are required to present original copies of certificate(s) to the screening officer(s) who would check-if they met the general University and Institute's admission requirements.

REGISTRATION AT THE UNIVERSITY LIBRARY

Fresh students are required to register with the University Library. They are to show to Library authorities, Original School Fees Receipt and Admission Letter.

IMPORTANT INFORMATION TO NOTE

1. NON-REFUND OF FEES

The Institute does not refund any fees/charges paid in error. Intending students should therefore obtain proper clearance before paying any fees.

2. GRADING SYSTEM

The following grading system which is uniform for all Faculties is applicable. Students are obliged to sit for examinations in all registered courses. Any student who fails to sit for any course examination without satisfactory reasons will earn the grade "F".

Mark/Score	Letter Notation	Grade Points
70% and above	A	5.00
60-69	B	4.00
50-59	C	3.00
0 – 49	F	0

DEGREE AWARDED

INRES degrees for all the programmes – PGD, MSc and PhD is in Natural Resources and Environmental Management. The PhD however have three (3) specialized areas or options in which candidates may carry out their research. These are:

- Impact Assessment and Remediation
- Bioresources Development and Conservation
- Coastal Zone Management and Climate Change

CODES AND RULES OF THE INSTITUTE

All students of the Institute are expected to demonstrate the highest mark of conduct and decorum at all times. They are further required to:

1. Obey the laws and regulations of the University.
2. Respect the statutory rights of staff and students and be polite.
3. Attend and never boycott lectures.
4. Obey Lecturer's instruction on academic matters.
5. Register for all courses and attend not less than 75% of lectures/practical to qualify to write the course examination.
6. Be punctual to lectures and laboratory practicals; attendance will be kept for all courses.
7. Avoid any form of examination malpractice.
8. Avoid membership of secret societies/cult.

9. Avoid anything that will tarnish the image and reputation of the University.

COURSE DESCRIPTIONS

PhD Courses

CGS 801 – ICT, Research Methods and Proposal Writing (2credits)

Spreadsheets – Microsoft Excel, Basic computing knowledge/window 2008; Internet Technology; Statistical packages; precision and accuracy estimates; principles of scientific research; basics of PowerPoint Presentation; concepts of hypothesis formulation and testing; and organization of research and technical report writing.

CGS 802 - Management and Entrepreneurship (2 credits)

Business environment and bioenterprises; basics of business and financial management; entrepreneurship development; feasibility studies; marketing and managerial problem solving.

NREM 901 – selected topics in Natural Resources, Environmental Management and Sustainable Development (3 credits)

Climate Change – Policy Response, Impact Assessment and Mitigation; Green Economy; GIS, Remote sensing and Modeling; Pest, Weed Control, Horticulture and Landscaping; E – Waste management.

NREM 902 - Advanced Natural Resources Stewardship and Environmental Advocacy (3 credits)

Environmental auditing and management Systems; national and international environmental laws, treaties, conventions and regulations; Public participation & Citizen group action in Environmental management; etc.

Elective Courses:

NREM 903 - Recent developments in ecological issues and biodiversity conservation (3 credits)

Ecological footprints; energy development and biodiversity; integrating biodiversity considerations into impact assessment; biodiversity and risk assessment; biodiversity hotspots and early warning signals – environmental sensitivity index mapping.

NREM 904 - Contemporary issues in environmental Geoscience with emphasis on water Resources Assessment and Management (3 credits)

Integrated water resources management; Groundwater Resources Assessment and

Management; Waste water treatment technologies; engineered sanitary landfills and solid waste handling; Ground water Risk Assessment and Remediation; Integrated Coastal Zone Management (ICZM).

NREM 905 - Advanced environmental Management and systems (waste management, remediation and modeling) (3 credits)

Waste characterization, Waste Disposal and Management Methods; - Hazardous and Toxic Wastes; drilling wastes, radioactive and medical wastes etc.

NREM 906 - Advanced environmental Toxicology and hazardous waste treatment. (3 credits)

Chemicals in the Environment; Fate and Transport; Contemporary issues on Environmental Toxicology – Systemic ecotoxicology, toxicity soils and dispersants (including OBM), Toxins and fates of absorbed toxins; etc.

NREM 907 - Environmental Quality and Remediation (3 credits)

Key pollutants, environmental factors impacting the fate and transport or pollutant; effects on human health and ecology. Green remediation measures. Evaluation of chemical, microbial and phytoremediation techniques in clean – up operations.

NREM 908 - Environmental Forensics (3 Credits)

Tracing environmental contaminants back to their point of origin. Methods of contaminants identification; This is important for the Niger Delta region which contains hundreds of Brownfield sites and their restoration/reclamation often involves public debate and law suits over the nature of contaminants on the site; identifying the party or parties responsible for those contaminants, and determining legal consequences and financial liability of the cleanup costs.

NREM 909 - Environmental Policy, Social and Management Impacts (3 credits)

Research in sustainability science and public policy and rural/urban development practices; Technical, economic, social barriers to the development of sustainability energy practices (e.g. solar, geothermal etc.) Constructing indicators and establishing models for monitoring urban systems; Enhancing sustainability, equity, and vulnerability reduction in communities and institutions.

NREM 908 - Research and Dissertation (9 credits)

This is a supervised advanced research intended to solve problems and will usually involve experiment, fieldwork, statistical analysis or simulation studies.

M.Sc. Courses

NREM 801: Introduction to Natural Resources & Environmental Management

The course gives a general overview of the natural resources industry and environmental resources industry and environmental management. It explores the nature of the inter-relationship between environmental systems and human systems, and examines the complexity of environmental policy, planning and management. The course enables students to gain an appreciation of the complex and trans-disciplinary nature of environmental management issues and the inherent challenges in multi-disciplinary approaches to environmental management. It introduces renewable and non-renewable natural resources and the issue of consumption and sustainability.

NREM 802: Health, Safety, Environment and Corporate Social Responsibility

This course enables students to appreciate the issues of health, safety, environment and social responsibility of industries. Companies are increasingly under pressure to address their social and environmental responsibilities. Topics include, social, health and environmental auditing corporate social responsibility (CSR) reporting, engagement of stakeholders and communities, participation of civil society groups, advocacy and communication.

NREM 803: Entrepreneurship

This course develops practical abilities and skills in entrepreneurship. It examines the broad areas of entrepreneurial business creation and management and historical perspective. Topics include: history and development of entrepreneurship theory, types of and characteristics of entrepreneurs, creativity and innovation, entrepreneurial process, feasibility study, business plans, pricing and bookkeeping, human resource management and marketing.

NREM 804: Fundamental of Environmental Biology

The Course introduces students to fundamental principles of Environmental Biology including plant, wildlife, marine and fishery resources as well as micro-organisms in relation to the environment. Topics include: habitats and management needs and tools; productivity patterns and stock dynamics; state of world wildlife and fishery resources and management; micro-organisms; microbial functions and activities in

natural environments; microbiological methods and techniques, etc.

NREM 805: Fundamentals of Environmental Geosciences

The earth as a system (Geosphere, biosphere, hydrosphere, atmosphere) and its interactions. Origin, structure and composition of the earth. The common rock-forming minerals, minerals and rock classification, rock cycle, elements of structural Geology (faults, folds, etc.). Economic minerals, energy and fossil fuel resources. Concept of plate tectonics and surface processes (Weathering, erosion, transportation and deposition).

NREM 806: Environmental Chemistry & Toxicology

The course deals with the principles of environmental chemistry and toxicology, focusing on issues relating to the chemistry and toxic potential in the environment and their management. Topics include: Basic concepts in soil chemistry and chemical properties, soil micro and macro nutrients, Biogeochemical cycle, Toxicity of oils and dispersants (including OBMs), Dose-response relationship, Quantification of toxicity indices, Range-finding tests, Probit analysis, Abott's correction formula, applicability of toxicity data in risk assessment and environmental monitoring.

NREM 807: Fundamentals of Economics and Project Costing/Analysis

This course provides a basic understanding of economic principles and its roles in natural resources and environmental management. The course also explores costing techniques, methods and their practical applications as well as economics of ecologically sustainable development. Topics include: market and non-market approaches, microeconomics, macroeconomics, supply and demand, Natural Environment and Human Economy, Resources Economics, Resource Scarcity, and Economic Efficiency, projects progress control and final cost, budgets and budgetary control, effective administration and management of contracts, competitive bidding, selection of successful bid, proper planning, documentation and execution of contract in the Nigerian oil exploration and production ventures.

NREM 808: Fundamentals of GIS and Remote Sensing

The course introduces students to principles and applications of geographic information systems (GIS) and remote sensing. It provides the basic theoretical, technical and analytical skills necessary to apply GIS to simple spatial problems. Topics include: A review of analysis functions,

selected advanced analysis, Modelling and flowcharting and Raster analysis GIS software package, data capturing techniques, spatial data and data models, cartographic techniques, GIS design and implementation as well as satellite imagery interpretation.

NREM 810: Sustainable Development: Concept, Principles and Practice

Sustainable Development is the current broadly-endorsed framework for environmental management and the emphasis in this course is exploring conceptual and practical framework for environmental management. Key topics include: development of the concepts of sustainable development and sustainability; Disciplinary perspectives/approaches (philosophy, economic, ecological, socio-cultural, governance health sciences etc.); Critiques of sustainability as a framework for environmental management; problems in practical interpretation and implementation of sustainability; Response to the sustainability framework by different levels of governance, corporations, professionals and International community. Poverty and the environment, community participation in development, practice of sustainable development and environmental management in Nigeria.

NREM 811: Environmental Impact Assessment (EIA, SIA & HIA)

This course provides an introduction to the wide range of "tools" used in environmental management and for environmental decision making. Topics include: interrelationship among Assessment; Environment and Development; evolution of Environmental Assessment; Procedures and steps in Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), and Health Impact Assessment (HIA); Public Participation; Strategic Environmental Assessment (SEA); Policy formulation; risk management systems, etc. Effectiveness and challenges of contemporary EA practices. Environmental Auditing and Management Systems.

NREM 812: Ecosystem and Natural Resources Management/Conservation

The course introduces students to the interdisciplinary nature of ecosystem management/conservation and natural resources (including forest, wildlife, aquatic, geological). The complexity of managing dynamic ecosystems with on-going biodiversity changes. Need to balance ecological needs with economic, political and socio-cultural demands. Other topics include: threats to biodiversity; conservation genetic; wildlife population management; impacts of climate change; balancing stakeholder interests.

NREM 813: Waste Management, Pollution Assessment and Remediation

This course provides a comprehensive, interdisciplinary knowledge of waste management, fate and transport of inorganic and organic pollutants in the subsurface and integrated site characterization and assessment for subsurface remediation of contaminated sites. Topics include; waste management approaches, conceptual site models (CSM), Risk Based Site characterization, advection – dispersion theory, non-aqueous phase (LNAPLs & DNAPLs) in the subsurface, microbial processes, conceptual approach to soil remediation, integrating site characterization with selection of remediation methods, treatment approaches, treatability studies, preparation of remediation action plan, Bioremediation, monitoring and regulation of remediation standards.

NREM 815: Water Resources Assessment and Management

The course provides a comprehensive knowledge of several concepts relating to Water Resources Assessment and Management. Topics include: Concepts of sustainable water resources management and integrated water resources management, water quantity and quality, water use and demand including the value of water to the environment, irrigation agriculture and urban uses, water use efficiency and recycling, water policy and planning including principles of water reform, current developments in water policy and catchment-based decision-making. Climate change and Water Resources Sustainability.

NREM 816: Ecology, Biodiversity and Contemporary Issues

The concept of conservation – historical perspective; biodiversity and business; Biodiversity Action Plans (BAPs) and parameters for the assessment of biodiversity (Rapid Forest Assessments); Criteria for protecting an area; international coalition for biodiversity – UNCED 1992 and biodiversity, the convention on Biological Diversity (CBD); other international agreements and treaties on biodiversity conservation; Biodiversity conservation efforts in Nigeria (public sector and NGOs); forest and rangeland resources; wildlife and fisheries.

NREM 817: Climate Change and Coastal Zone Management

This course provides students with in-depth knowledge of concepts, policies, tools and techniques necessary for coastal zone management with emphasis on trans-disciplinary and large marine Ecosystems (LME) approaches as well as relevance of climate change impacts. Topics

include; global warming, climate change see level rise, overview of coastal zone management (imperatives, implementation and impacts); dynamics and processes along shoreline, coastal erosion, transport, deposition and resultant geomorphologic features; coastal zone anatomy (evolution, classification, characteristics and interrelationships with emphasis on the Nigerian coastal zone); Human-coast interaction (consequences, use-conflicts and costs); Coastal hazards; Mitigating coastal zone abuse; pollution, erosion and flooding; global warming and see level rise; ecological changes and conservation; coastal resource over-exploitation/mismanagement; population migration/displacement.

PGD Courses

NREM 700.1 - Introduction to Environmental and Natural Resource Management (2 Credits)

Definition and components of the environment, definition and classification of natural resources; importance of natural resources, impacts and threats to natural resources availability, importance of environmental and natural resources management; Nigerian Environment and Natural Resources (Understanding the Nigerian Environment and factors that define it, type and distribution of natural resources, causes of threats/depletion of Natural resources in Nigeria).

NREM 701.1 - Entrepreneurship and Project Management (2 credits)

Principles of entrepreneurship and project management; project costing and analysis; contract sourcing and bidding; opportunities in the environmental and natural resources sector.

NREM 702.1 - Principles of Ecology, Biodiversity and Conservation of Natural Resources (3 Credits)

Basic ecological concept, ecosystem structure and dynamics, biogeochemical (nutrient)cycles, ecological factors and species distribution, the concept, value and distribution, the concept, value and distribution of biological diversity, threats and causes of biodiversity loss, extinction of species, principles and methods of conservation of biodiversity and natural resources, convention on Biological Diversity (CBD), Protected Areas System.

NREM 703.1 - Hydrology, Watershed and Coastal Zone Management (3 Credits)

Basic geology of Nigeria, Managing impacts on watershed and water resources and understanding the relationships among forest, soil, water, land-use, and people. Management of wild lands watershed for control of the amount and timing of water yield, storm flow, water quality, erosion, and

sedimentation (emphasis on forest and water resources management), integrated coastal zone management.

NREM 704.1 - Principles of Sustainable Development in Management of Environmental and Natural Resources (3 Credits)

Definitions and evolution of sustainable development (SD) concept, sector applications and practice of sustainable development, principles of sustainable management of environment and natural resources, role of business in SD, Environmental and Natural Resources Economics and Governance (Socio-cultural perspectives and models for understanding human-environment interactions, Economic analysis of natural resources; economic principles in the management and use of natural resources, Governance (Survey) and analysis of policies, Legislation, institutions, and processes relating to the use of natural resources); the 'equator principle'.

NREM 705.1 - Impact Assessments and Environmental Laws/Regulations (2 Credits)

Meaning and types of impact assessments applicable in Nigeria: EIA, EA, PIA, EER, Baseline Assessment, etc.: legal and regulatory basis of IAS, environmental components for assessment (biogeophysical, health and social), EIA report preparation, environmental management plan (EMP.) EMS, typical EIA.

NREM 706.2 - GIS and Remote Sensing Application Natural Resources Management (3 Credits)

GIS and spatial techniques in environmental and natural resource management. Spatial data structures, map projection, global positioning system. How to create spatial data sets through GPS survey, Utilization of GIS software and performance of basic spatial analysis.

NREM 707.2 – Global Warming and Climate Change (3 Credits)

Understanding the basic science of global warming and, climate change evidence of global warming and climate change, likely impacts on environment and natural resources, current response and

activities towards reducing human-induced climate change, international conventions on climate change; principles of carbon trading; green economy.

NREM 708.2 – Environmental Hazards, Risks and Management (3 Credits)

Major environmental hazards and risks (flood, erosion, desertification, wildfires, etc.), causes, impacts and management of these hazards and risks; geographical distribution and preponderance of these hazards in Nigeria.

NREM 709.2 – Environmental Health, Pollution and Toxicology (3 Credits)

Concept of environmental pollution, causes, sources, effects and control of environmental pollution, chemicals in the environment – fate and transport, basic ecotoxicology – types, sources and effects of toxins environmental toxins; health hazards or work environment, public health, modern ergonomics and industrial psychology.

NREM 710.2 - Environmental Remediation and Waste Management (3 Credits)

Types and sources of waste; Waste characterization, Waste Disposal and Management Methods; Hazardous and Toxic Waste Disposal and Management – drilling wastes, radioactive and medical waste handling; Remediation – types, methods, principles and practice.

NREM 711.2 – ICT, Research Methodology and Anti-Plagiarism (1 Credit)

Basic computing knowledge; Internet Technology; Statistical packages; precision and accuracy estimates; principles of scientific research; concepts of hypothesis formulation and testing; and organization of research and technical report writing; anti-plagiarism checks.

NREM 712.2 – Research Project (6 Credits)

This is a supervised research intended to solve some identified problems and may involve some experiment, field work, statistical analysis or simulation studies.

PARTICIPATING LECTURERS

S/No	Name	Qualifications	Designation	Area of Specialization
1	Ibitoru A. Hart	PhD	Professor	Hydrobiology/Fisheries
2	Adesope. O. M	PhD	Professor	Agricultural extension and developmental studies
3	A.A. Obafemi	PhD	Professor	GIS, and Environmental Management
4	G.J. Udom	PhD	Professor	Hydrogeology/Engineering Geology
5	G. O. Avwiri	PhD	Professor	Environmental Physics
6	N. Frank-Peterside	PhD	Professor	Medical Microbiology/ Environmental Health
7	Abu. C. O	PhD	Professor	Environmental microbiology
8	Leo O. Osuji	PhD	Professor	Environmental/Petroleum Chemistry
9	I. O. Agbagwa	PhD	Professor	Biosystematics/Taxonomy, EIA
10	Best Ordinoha	PhD	Professor	Environmental health
11	Stanley. H. O	PhD	Professor	Environmental microbiology
12	Vincent-Akpu. I	PhD	Professor	Ecotoxicology and hydrobiology
13	N. Zabbey	PhD	Professor	Hydrobiology/Fisheries
14	Onoja. A. O	PhD	Reader	Agricultural Economics (Resource and Environmental Economist)
15	Edache Bernard Ochekwu	PhD	Reader	Phytoremediation and Plant Ecology
16	R. U. Ideozu	PhD	Senior Lecturer	Petroleum Geology Sedimentology/Reservoir Geology
17	G. W. Komi	PhD	Senior Lecturer	Hydrobiology, Radioecology/Ecotoxicology
18	Nwankwoala. H. O	PhD	Senior Lecturer	Hydrogeology and environmental geology
19	Okere. K. J	PhD	Senior Lecturer	Impact assessment and remediation
20	Ngobiri. C	PhD	Senior Lecturer	Environmental and Material Inorganic Chemistry
21	Iwunze. E	PhD	Senior Lecturer	Environmental Health
22	Mark Ogoro	PhD	Senior Lecturer	Coastal Geomorphological Studies, Geo-Spatial Technique (Cartography, GIS and Remote sensing)
23	Ademola Tinubu	PhD	Lecturer (Industry)	Regional Planning and Environmental Management
24	Green. A. C	MSc	Lecturer (Industry)	Environmental studies and impact assessment audit

AFRICAN CENTRE OF EXCELLENCE IN PUBLIC HEALTH AND TOXICOLOGICAL RESEARCH (ACE-PUTOR)

Introduction

The African Centre of Excellence in Public Health and Toxicological Research is a regional Centre established to promote collaboration and interdisciplinary research; build strong reputation for excellence; support teaching, learning, assessment of students; provide uninterrupted research and learning Calendar for local and international students. The Centre's mission is to become a platform to congregate highly skilled human resource both within and outside the UniPort; build a robust resource of highly skilled and motivated public health professionals who are equipped with current knowledge, skills and competencies required to improve the practice of public health, human/community nutrition, toxicology and midwifery/child health nursing; produce cutting –edge research projects to solve public health issues arising from oil and gas sectors and undertake consultancy and community services

POSTGRADUATE DIPLOMA IN NURSING SCIENCE

Entry Requirements for Post graduate Diploma in Nursing Science

Eligible candidates for the PGD in Nursing Science would be those with:

- Five O' level credits in the following subjects: which must include: English Language, Mathematics, and Biology/ Health Science
- Registered Nurse and Registered Midwife who had his/her first Degree in a health-related field and seeks to proceed for higher degree in any nursing specific (e.g., MSc Nursing, MSc Midwifery, MSc Public Health Nursing etc)
- Candidate with BNSc whose Cumulative Grade Point Average (CGPA) is **below** the University's requirement for master's degree programmes.
- Bachelor of Nursing Sciences with a Pass or 3rd class
- Bachelor of Midwifery Science (Pass or 3rd class)
- HND in public health nursing with a CGPA of 3.00 on a 5-point scale (lower credit)
- Must be a registered nurse and have a valid practicing license (Nigerian only)
- NYSC discharged certificate or EXEMPTION letter (Nigerian only)

Duration of Programme

Full time PGD – 12 months minimum to 24 months maximum

Part-time PGD – 24 months minimum to 36 months maximum

Graduation requirements

Students would meet the following requirements to qualify for the award of the Postgraduate Diploma in Nursing Science (PGD. Nursing Science)

- i. The student must have successfully completed all the prescribed courses in the programme
- ii. The student must meet the other requirements set by the School of Graduate Studies and the Africa Centre of Excellence in Public Health and Toxicological Research

List of courses in the Postgraduate Diploma in Nursing Science

Code	Credit Unit	Course
PUT 721	4	Advanced Medical-Surgical nursing
PUT 722	3	Advanced Mental health and Psychiatric nursing
PUT 723	4	Advanced Maternal and Child health
PUT 724	3	Community midwifery
PUT 725	3	Advanced community/Public health nursing
PUT 726	3	Introduction to Epidemiology
PUT 727	3	Principles of Teaching & Admin. Applied to Nursing
PUT 728	3	ICT, Nursing informatics & Biostatistics
PUT 729	2	Practicum/Field Trip
PUT 730	2	Seminar
Total Credit Units		30

Course Description

PUT 721: Advanced Medical - Surgical Nursing (4 Units)

Covers the application of Nursing Process approach in the management of clients (adult and children) with acute and chronic disease conditions affecting all system and conditions affecting the special senses. Exploration of concepts of critical thinking, evidence-based practice and reflective nursing care.

PUT 722: Mental Health and Psychiatric Nursing (3 Units)

Focuses on Planning, Implementation and Evaluation of Community Mental Health programme, (institutional and community care); Rehabilitation of the mentally ill and preventive mental health (primary, secondary and tertiary). The roles of the traditional healers in society and effects

of urban- rural migration on mental health, typology of crisis and crisis intervention in psychiatric nursing care will also be discussed as well as the role mental/psychiatric health care in schools, industries and homes.

PUT 723: Advanced Maternal and Child Health (4 Units)

This course is designed to prepare students to recognize those conditions that complicate or suggest deviation from normal during pregnancy, labour and puerperium. Obstetric emergencies in pregnancy and labour, obstetric interventions and management of abnormalities affecting the neonate. It highlights the midwife's role and responsibilities in early diagnosis, appropriate intervention and referral when necessary. Family care studies on abnormal midwifery is essential

PUT 724: Community Midwifery (3 Units).

This course is designed to enable the students identify basic concepts and principles of primary health care as it relates to midwifery practice in the community. Covers knowledge in the delivery and care of individuals and expectant families in both urban and rural areas of the community and use of delivery kit. It provides in-depth knowledge in the care of the expectant families in the community as well as utilizing available resources in planning and management of midwifery services. It also high light the role of the midwife in the health care team within the community

PUT 725: Advanced Community/Public Health Nursing (3 Units)

Entails further development of student's knowledge and skills in the planning, organization and administration of community health and primary health care services. The course emphasizes application of integrated knowledge in the development, implementation and evaluation of community health nursing and primary health care programmes, using a model of Community Health Planning cycle of "Need Assessment or Community Health diagnosis, development of care plans, implementation of care.

PUT 726: Introduction to Epidemiology

The course will introduce the students to the principles and concepts that guide the practice of epidemiology. Emphasis will be placed on factors that influence the distribution and serve as determinants and deterrents of health-related events. Disease outbreak investigation and the application of epidemiologic principles in the control of diseases of public health importance will also be taught.

PUT 727: Principles of Teaching and Administration Applied to Nursing (3 Units)

Focuses on the techniques and theories of teaching and administration in the practice of nursing, and effective teaching and administration are taught. The role of the nurse in the teaching of nursing students and clients is emphasized, also the administration of the health area facilities/resource management principles and techniques, problem solving, leadership dynamics effective communication. Other topics covered are factors in the teaching learning process and contemporary issues in nursing administration.

PUT 728: ICT, Nursing Informatics and Biostatistics (3 Units)

The course incorporates computer and information technology computer appreciation and information management system, data information management cycle, documentation and record keeping, eHealth, including mHealth, facility and home-based records, and the Integrated Disease Surveillance and Notification System, internet sources of health information, support system for service and research, computerized decision into nursing practice. The course is designed to provide the student with adequate knowledge and skills required to carry out research study, and to apply statistics and statistical packages in nursing research. It will also teach the students how the information obtained from the analysis of health data can be used to detect health problems, define priorities, identify innovative solutions and allocate resources to improve health outcomes.

PUT 729: Practicum/Internship.

The course provides opportunity for the students to have hands on experiences and apply the concept and theoretical aspect of nursing using a simulation and a real-life situation in the laboratory and designated practice centers/clinics.

PUT 730: Seminar

Seminar topic related to public health nursing and in the candidate's area of interest will be developed and presented in a report and examined orally by a panel of internal examiners. The students are expected to undertake a detailed systematic review of current literature on the basic concepts that are related to seminar topic.

MASTERS IN FERTILITY NURSING

Admission Requirements

Eligible candidates for the MSc Fertility Nursing would be those with:

- Five O' level credits in the following subjects: Biology, Chemistry, Physics, Mathematics and English Language at WAEC or NEC
- First Degree in Nursing with not less than second class honours lower division.
- Registered and licensed as a Nurse or Midwife

Programme Duration

- Full time (MSc) – 12 to 24 months
- Part-time (MSc) – 24 to 48 months

Graduation Requirements

To qualify for the award of the MSc, the candidate must have successfully completed all the prescribed courses in the programme including a scholarly research project and undertaken an internship period of 2 months.

List of courses, code and credit units in MSc Fertility Nursing

Course Code	No. of Unit	Course Title
PUT 800	0	Foundation to Graduate Studies
PUT 841	3	Fundamentals of fertility nursing practice
PUT 842	2	Applied Anatomy/physiology of the reproductive system
PUT 843	2	Applied Embryology, genetics and immunology
SGS 801.1	2	ICT and Research Methodology.
PUT 849	3	Biostatistics
SGS 801.2	2	Management and Entrepreneurship
PUT 844	3	Fertility and pre-conception care
PUT 845	3	Infertility and its management
PUT 846	3	Third party reproduction
PUT 847	3	Assisted Reproductive Technology (ART)
PUT 848	2	Ethico-legal aspects in fertility management
PUT 808	6	Dissertation
PUT 811	0	Internship
PUT 807	2	Seminar
	36	Total

COURSE DESCRIPTION

PUT 841 Fundamentals of fertility nursing practice (3 credits)

This course introduces the students to the historical perspectives, scope of practice, roles, basic concepts and theoretical foundations of fertility nursing care. It covers the basic concepts of fertility nursing practice, perspective of fertility nursing practice and the theories applied to fertility practice

PUT 842 Applied anatomy/ physiology of the reproductive system (2 credits)

This course builds on the already acquired knowledge of anatomy and physiology with special application to fertility. The course covers female and male reproductive system, Endocrine system Nervous system and Renal system in relation to fertility.

PUT 843 Applied embryology, genetics and immunology (2 credits)

This course is designed to enable students acquire the knowledge of embryological development and standard practices in handling and manipulation of gametes in order to achieve pregnancy. The course covers fundamental of embryo, seminal fluid analysis and sperm preparation, cryopreservation, laboratory management, daily quality Index, record keeping and documentation and laboratory key performance. The course will also assist the students understand the influence of genetic and immunological reactions in ART.

SGS 801.1 ICT& Research Methodology (2 credits)

This course should cover essentials of ICT especially the use of Microsoft Word, Spreadsheet, Power point, Access and Project. It will also examine common statistical packages used in health research. The contents will include Research paradigms, types of research, purpose and significance of research, Research topic\statement of problem, literature review, research method and methodology, data management, research communication, branches of statistics, data presentation, measures of central tendencies, dispersion and partition, probability distribution, association and predictions and testing of hypothesis etc

PUT 849 Biostatistics (3 credits)

The course incorporates computer and information technology computer appreciation and information management system, data information management cycle, documentation and record keeping, eHealth, including mHealth, facility and home-based records, and the Integrated Disease Surveillance and Notification System, internet sources of health information, support system for service and research, computerized decision into nursing practice. The course is designed to provide the student with adequate knowledge and skills required to carry out research study, and to apply statistics and statistical packages in nursing research. It will also teach the students how the information obtained from the analysis of health data can be used to detect health problems, define priorities, identify innovative solutions and allocate resources to improve health outcomes.

PUT 844 Fertility and pre-conception care (3 credits)

This course offers the students the opportunity to apply an in-depth knowledge of pre-conception care in evaluating the overall health and opportunities for improving health of individuals. It also empowers the students to provide genetic counselling and screening. The course covers concept of fertility and pre-conception care, In vivo conception, Nurses role and responsibilities before, during and after the procedure

PUT 845: Infertility and its management (3 credits)

This course offers the students the opportunity to apply an in-depth knowledge of epidemiology and clinical aspects of infertility for improving fertility nursing care of individuals with fertility challenges. The course covers epidemiology of infertility and causes, pathophysiology, fertility management and contemporary issues in fertility management. The course will also help students appreciate the psychosocial needs of the infertile couple and how to offer psychosocial support and guidance

PUT 846 Third Party Reproduction (3 credits)

This course focuses on third party involvement in the reproductive process which does not extend to raising up/upbringing of the child. This course involves gamete donation to couples who for one reason or the other cannot complete the cycle of pregnancy, either due to inability to produce adequate gamete for fertilization or due to inadequate uterus to carry pregnancy to term

PUT 847 Assisted Reproductive Technology (ART) (3credits)

This course is designed to provide the students with the requisite knowledge, skills and attitude required in the management of client using assisted reproductive technology. The course covers Historical perspective of ART, treatment options of ART, equipment and consumables use in ART, basic ultrasound skills for fertility management, contemporary issues in ART and the roles and responsibilities of the fertility nurse specialist. The course will cover medications used in ART, their pharmacokinetics, pharmacodynamics as well as the storage and administration. Issues around gamete donation to couples who for one reason or the other cannot complete the cycle of pregnancy, either due to inability to produce adequate gamete for fertilization or due to inadequate uterus to carry pregnancy to term would be covered. The course covers identification of suitable donors and surrogate, counselling and consenting, egg donation, sperm donation surrogacy and recipients.

PUT 848 Ethico-legal aspects in fertility management (2 credits)

The course introduces students to the ethico-legal aspects of infertility as this area of practice requires delicate approach, analysis and treatment. It prepares the students to cope with the numerous ethical and legal dilemmas and the call for multidisciplinary and expert approach to analysing each case as well as defining clear ethical and legal regulations open to corrections in respect to further investigative work. It will enable students to work based on ethical principles, holistic approach and full respect of life of an individual. The course covers concepts of ethics in fertility management, Ethical dilemmas and ethical decisions, The role of national and international organisations in ethico-legal aspects of infertility management and legal concepts in fertility management

PUT 811 Internship/Practicum (0 credits)

The course provides opportunity for the students to have hands on experiences and apply the concept and theoretical aspect of fertility nursing using a simulation and a real-life situation in the laboratory and designated fertility centers/clinics

PUT 807 Seminar (2 credits)

Seminar topic will be on candidate's area of interest presented in a report and examined orally by a panel of internal examiners. This may be followed up into research project with research methods and statistics in a further study.

MASTER PROGRAMME IN PUBLIC HEALTH NURSING

Entry requirements

The master programme in public health nursing will be open to candidates who possess:

1. Bachelor of Nursing Sciences with not less than second class lower division.
2. Bachelor of Science in Midwifery with less than second class lower division.
3. Postgraduate diploma in Public Health Nursing with a CGPA of not less than 3.50 on a 5-point scale (upper credit)
4. At least five (5) relevant credit level passes in SSCE or equivalent (WASCE, NECO or GCE O/L) at not more than two sittings, which must include: English Language, Mathematics, and Biology/Health Science (regional equivalent)
5. Must be a registered public health nurse and have a valid practicing license:
6. Evidence of NYSC OR Exemption letter (for Nigerian students).

Degree in View

Master of Science in Public Health Nursing (MSc. PH Nursing)

Duration of Programme

Full time Masters – 12 months (minimum) to 24 months (maximum)

Part-time Masters – 24 months (minimum) to 36 months (maximum)

Graduation requirements

Students would meet the following requirements to qualify for the award of the Master of Science degree in Public Health Nursing (MSc, PH Nursing):

- i. The students must have successfully completed all the prescribed courses in the programme
- ii. The students must have completed and scored a pass in his/her dissertation; and
- iii. The students must meet the other requirements set by the School of Graduate Studies and the Africa Centre of Excellence in Public Health and Toxicological Research

List of courses in the programme

Code	Credit Unit	Course
PUT 800	0	Foundation to Graduate Studies
PUT 831	3	Public Health Nursing Theories & Practice
PUT 832	3	Health Education and Promotion
PUT 833	3	Epidemiology
PUT 834	3	Biostatistics
PUT 835	3	Occupational and Environmental Health
PUT 836	3	Health systems
SGS 801	2	ICT & Research Methodology
SGS 802	2	Management and Entrepreneurship
PUT 837	3	Social and Rehabilitative Nursing
PUT 838	3	Reproductive and Family Health Nursing
PUT 807	2	Seminar
PUT 808	6	Dissertation
PUT 811	0	Internship
Total	36	
Credit Units		

Description of Courses

PUH 821: Public Health Nursing Theories & Practice

This course will analyze the theories relevant to nursing and public health which will assist the students in identifying the unique role of public health nursing across settings. Students will explore the role and functions of public health nursing in primary and secondary prevention in the community, state and nation. The course will also

expose the students to acquire knowledge and skills on elements of programme design, implementation and evaluation in public health settings. They are exposed to know the different components and steps in programme planning and evaluation process. The students are also expected to select a programme of interest and practice what has been taught by developing a public health programme.

PUT 822 Health Education and Promotion

This course will teach ways and methods that will make people value health as a worthwhile asset, with a desire to live long and feel well. The emphasis will be on what people can do as individuals, families, communities to protect and improve their health. At the personal and family levels emphasis will be placed on such matter as exercise, deadliness in the home diet and discipline with regard to the use of tobacco and alcohol. At the community level and beyond, emphasize will be on environmental sanitation etc.

Broad areas covered include - Health Education - Principles, Methods and Approaches, Strategies; Principles of learning and behavioural change; Assessment of learning needs (individual, community); Designing educational materials; Evaluation of health education programme; Health Education in the Control of Communicable and Non-Communicable Diseases; Health promotion which includes the strategies and approaches.

This course will also cover nutrition which comprises: Classification of Food, functions and components. The course will emphasize on nutrition in vulnerable groups. Nutritional Values of Common Nigerian Foods; Culture and Nutrition; Beliefs and Taboos; Infection and Nutrition; Breastfeeding Weaning Practices; Food Policy; The National Breast-Feeding Policy; Food Hygiene and Toxicology and Applied Dietetics.

PUT 823 Epidemiology

Overview of the fundamental epidemiologic methods used in public health research and practice. The student will be familiarized with basic measures used in describing disease frequency in populations. Descriptive and analytic approaches to the study of disease will be explored, and a perspective on the role of epidemiologic methods in health services planning and evaluation will be provided. It will teach the basic concepts and principles of epidemiology and disease outbreak investigation, the application of epidemiologic principles in the control of diseases of public health importance. It will emphasize disease distribution, determinants and deterrents in communicable and non-communicable disease conditions.

Broad aspects covered include - Epidemiology: Definition. History, Distribution and Determinants of Diseases: Biological, Behavioural, Social, etc,

Epidemiological approach, Infective Agents: Reservoir of Infection, Transmission of Communicable Diseases, Host Factors, Epidemiologic triad, Natural history of disease, spectrum of diseases, Risk Factors in the Epidemiology of Communicable and Non-Communicable Diseases.

Epidemiological Methods: Epidemiological Tools – Rates (Crude and Specific), Ratios, Percentages, etc, epidemiological Methods: epidemiological Studies, Disease Surveillance and Notification, Uses of Epidemiology, Levels of Prevention, Epidemiological Transition.

The course will also teach basic concepts in the principles of transmission and control of communicable diseases.

Broad areas covered include - Epidemiology and Control of Communicable Diseases According to their Routes of Transmission ; Epidemiology and Control of Viral Infections (Poliomyelitis, HIV/AIDS, Viral Hepatitis A-G, Yellow Fever, Chickenpox, Lassa fever, Ebola, Exotic Diseases, Rabies, Measles, Rubella, Mumps, Viral RTIs,); Epidemiology and Control of Bacterial Infections (Tb, Leprosy, Enteric Fevers, Bacillary dysentery, Cholera, Bacterial Food Poisoning, Tetanus, Bacterial Pneumonia, Meningococcal Infections, Rheumatic Fever, Pertussis, Diphtheria, Plague, Anthrax, Chlamydial Infections); Epidemiology and Control of Protozoal Infections (Malaria, Amoebiasis, Giardiasis, Trichomoniasis, Trypanosomiasis; Epidemiology and Control of Fungal Infections (Superficial Fungal Infections, Candidiasis; Epidemiology and Control of Helminthic Infestations (Ascariasis, Trichuriasis, Enterobiasis), Groups of Communicable Diseases - STIs, Zoonoses, Diarrhoeal Diseases, Emerging and Re-Emerging ,Neglected tropical diseases and Hospital acquired Infections.

Control Programmes for Communicable Diseases in Nigeria; Epidemiology and Control of congenital diseases like sickle cell diseases.

Accidents - RTA and Home Accidents; Epidemiology and Control of; Epidemiology and Control of non-communicable diseases eg. Diabetes Mellitus, Coronary Heart Diseases, Asthma and Peptic Ulcer, Cancers eg Breast Ca, Cervix Ca, Prostate;

PUT 824 Biostatistics

This course will teach basic and inferential statistics as applied to clinical and epidemiological studies. This will include standard statistical concepts of data description, hypothesis testing including test statistics, correlation, p-values, significant levels, confidence intervals and linear regression. It will equip prospective students with basic and advanced skills in quantitative reasoning and application necessary for medical research.

Broad areas include - Introduction to statistics; Types of data, types of variables, Types of distribution; Sources of Data, Tools for Data Collection; Scales of Measurement; Diagrammatic Presentation of Data - Histograms, Pie charts, Bar Charts, Graphs, Pictogram etc; Numerical Presentation of Statistical Data - Measures of Central Tendency and Location; Measures of Dispersion; Tabular presentation – simple and cross table etc; Population, Samples and Sampling Techniques; Probability Theories; Estimating Population Values; Inferential Statistics; The Standard Normal Curve; Standard errors; Confidence Intervals; Tests of Significance - Z-Test, t-Test, Chi-Square Test; Association, Correlation and Regression; Uses of Statistics.

In addition, students will be exposed to understand the meaning and nature of demography which include sources and types of demographic data; population structure/Pyramid and dynamics; presentation of demographic data and rates. Also, basic measures of fertility, rates of natural increase; population growth and estimates and migration and mortality rates will be taught.

Broad areas covered include - Demography – Definition, Uses; Population Composition – Age, Sex, Occupation, Ethnicity etc; Population Dynamics (Fertility, Mortality, Migration, Population Structure, Growth and projection); Sources of Population Data; Sources of Health and Vital Statistics; Cancer Registration; Demographic Transition; Malthusian Theory of Population; Census – National and Local; World Population and Policy; the National Population Policy; Interaction between Medical Action, Population, Health and Population Growth; Measurements of Health and Disease; Different Rates and their Uses; Standardization of Vital Rates

PUT 825 Occupational and Environmental Health

This course will teach the impact of the environment and occupational activities on human health. It will explore how the physical and biological hazards found in the environment affect human health; and the sustainable ways of managing the hazards, to safeguard the health of the present and future generation. The course will also introduce the student to the ecological zones of the Niger delta region, and the other geo-political regions of Nigeria, to understand the interactions between the human population and the environment and explore sustainable ways of ensuring health in the different ecological zones. The course will also introduce the students to the principles and practice of occupational health nursing, health problems of urbanization and industrialization, laws, regulations and codes of practices governing the health, safety and welfare of workers at workplaces and the role of the public health nurse in occupational health.

PUT 826 Health System

Health system is the organization of human, material, and other resources to provide for the health care needs of the State or country. This course will provide the students with an understanding of the Nigerian Health System. It would explore the roles of traditional and modern health practitioners in Nigeria in meeting the health care needs of Nigerians, how health care services are financed, as well as the government policies and programme that guide the provision of health services in Nigeria. Current issues in International Health, National and International Health Agencies and their roles, Organization of International Health Agencies as well as basic skills in grant proposal writing to assess national and international funds. The course will also review the public and private sectors' function of creating and implementing policy, public policy and its application to public health nursing. The role of political, legal, ethical and social philosophy in defining public health nursing and other health services, are examined. The course considers how policies made by different branches of government and various public and private organizations affect nursing as a profession; its ability to deliver care and the impact on the areas of technology development, assessment, professional practice regulation and client/patient outcomes management.

The course will also provide students with adequate knowledge on how scarce resources are allocated among alternative uses for care of the sick and the promotion, maintenance and improvement of health, with information to decision makers on efficient use of available resources for maximizing health benefits. The contents include basic economic considerations in health care and application of such concepts in giving and receiving care, qualities of health and health cares as economic commodities using essentially the classical paradigm of consumer demand analysis, nature and characteristics of health and health care underscoring the need for agency relationship between professional health care providers and health care service consumers, equity distribution of health ,health care financing including health insurance scheme in Nigeria, health policy and the role of the state in health care delivery in Nigeria.

SGS 801: ICT & Research Methods

This course should cover essentials of ICT especially the use of Microsoft Word, Spreadsheet, Power point, Access and Project. It will also examine common statistical packages used in health research.

The course is an introduction to project design and planning and will teach the various methods in conducting scientific medical research. It will emphasize quantitative and qualitative designs

including how to conduct clinical trials and documentation. It will also introduce the use of computer in data analysis and the use of operational research and functional analysis in project design and evaluation.

Other areas covered include - Planning a Research; Ethical Issues in Research; Study Designs in Medicine and Public Health; Choice of Topic; Introduction (Problem Definition, Objectives); Formulation of hypothesis, Testing of hypothesis; Literature Search/Literature Review; Materials & Methods; Sample Size determination/Calculation; Instrument for data collection; Data Collection/Management; Presentation of Results (Data Presentation, Analysis etc); Discussion, Conclusion and Recommendations; Referencing; Project Write-Up.

SGS 802: Management & Entrepreneurship

Covers concepts, history and development of entrepreneurship, the entrepreneur, Qualities and characteristics, entrepreneurship and innovation. The Entrepreneur and Business Environment, Identifying Business Ownership and Registration, starting and developing business ventures, Legal forms of business ownership and registration. Types of business ownership, feasibility studies and business plan, Role of Small and medium scale Enterprise (SME) in the economy, Role of Government in Entrepreneurship, Business location and layout. Accounting for SME, Financing SME, Risk Management of SME, success and failure factors of SME, Prospects and challenges of Entrepreneurship in Nigeria, Standard organization of Nigeria. Entrepreneurship in Nursing. This course would expose the students to the practice of applied management and entrepreneurship. The students would learn how to enhance their entrepreneurial skills and manage their own business. Business prospects for students in higher institution would be taught and the student would learn how to get into the right business.

This course will also expose students to analysis, integration and application of principles of leadership/ management in health care organizations and population-based efforts across the public health care delivery system. Special emphasis is placed on the practical skills needed for public health nurses to succeed as leaders and managers in today's local and global health care. Students are expected to practice leadership-related skills in a group case-based learning that will focus on leadership, organizational assessment, financial resource decision making and allocation diversely in the workforce and quality improvement (quality assurance), explain change process and conflict in public health nursing (innovations).

PUT 827 Social and Rehabilitative Nursing

This course will acquaint the students with the requisite knowledge on philosophy and principles of rehabilitation, rehabilitation techniques, process and barriers, rehabilitation team. Introduction to Social Medicine; Social problems in the community Health assessments e.g., HDI, QALY, DALY; Social Deviance; Alcoholism; Drug Abuse; Smoking; the Aged, Adolescents and their health needs. Social Welfare Services in Nigeria and Other Countries; The Underprivileged in the Society. Violence: Classification and Causes, Violence Against Women, Domestic violence e.g., battered wife syndrome, rape etc, harmful practices against women, Drug abuse, community mental health nursing interventions. Disability, Handicap, Impairment; Classification, Causes and care of the Handicapped.

Care of the terminally ill and hospice care; Voluntary Agencies in health and social services; Emergency preparedness at Federal, State and Local Government Levels

PUT 828 Reproductive and Family Health

This course will teach the concepts of human needs and development throughout the life cycle though with emphasis on women and children's health issues. These will include Gender Equity, Equality and Women Empowerment, Safe Motherhood initiative, Family Planning – Information and services, Prevention and management of Infertility and sexual dysfunction in both men and women, abortions and post-abort care, Prevention and Management of reproductive tract infections and sexually transmitted infections including HIV/AIDS.

Broad areas covered include - Introduction to Family Health; Concept, Components and Objectives; Measurements in Family Health; Health Problems and Health Needs of Mothers and Children; Determinants of Health of Mothers and Children; Family Health Practice; birth preparedness and complication readiness, Maternal Health Care Services, Infant Welfare Clinic; Organization and Evaluation of Family Health Programmes; Immunization Programmes; Population Dynamics and Family Planning; The "At Risk" Concept in MCH; Safe Motherhood Initiative; Integrated Management of Neonatal and Childhood Illnesses; School Health - Aims and Objectives; The School Health Programme

PUT 811 Internship

The students would be exposed to practical training in public health programmes with the relevant industries and sector

PUT 807 Seminar

This seminar is designed to provide opportunities for students to pursue in depth study in a selected topic or area in public health nursing. Models and/theories

will be evaluated for their usefulness in public health nursing.

PUT 808 Dissertation

The candidate must design and execute an acceptable original project in any area related to public health nursing under supervision of an academic member of staff. For these projects, students will carry out original research. They will thus be exposed to practical research methods such as the design of empirical studies, questionnaire design, data collection, collation, analysis interpretation, and reporting. Referencing shall be the APA style. Ethical approval MUST be obtained from the Research and Ethics Committee of the University. Defense of completed project shall be done at date fixed by the departmental graduate committee and according to the guidelines set by the graduate school. Project shall be submitted in quarto size paper in BLACK bounded format and duly certified by project supervisor and must be submitted before the closing date given by the Centre.

MASTER PROGRAMME IN MIDWIFERY AND CHILD HEALTH NURSING

Admission Requirements

The master programme in midwifery and child health nursing will be open to candidates who possess

1. Bachelor of Nursing Sciences with not less than second class lower division.
2. Bachelor of Science Midwifery with not less than second class lower division .
3. Must be a trained and licensed nurse/midwife

Titles of master's studies

Master of Science in Midwifery and Child Health Nursing

Available options

Full time Masters – 12 months (minimum) to 24 months (maximum)

Part-time Masters – 24 months (minimum) to 36 months (maximum)

Graduation requirements

To qualify for the award of the master's degree, the candidate must have successfully completed all the prescribed courses in the programme including a supervised dissertation in their area of interest and have met other requirements of the school of graduate studies

List of courses in the master's degree in Midwifery

Course code	Credit Units	Course Title
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PUT 800	0	Foundation to Graduate Studies
PUT 801	2	Legal-ethical issues in midwifery - child health nursing
PUT 802	3	Theories and practices of community-based health care
PUT 803	3	Advanced Community midwifery and Child health nursing
SGS 801.1	2	ICT and Research Methodology
SGS 801.2	2	Management and Entrepreneurship
PUT 804	4	Professional Leadership and accountability in maternity care and Child health nursing
PUT 810	4	Advanced Reproductive Health
PUT 806	4	Advanced Neonatology and childcare
PUT 807	2	Seminar
PUT 808	6	Dissertation
PUT 811	0	Internship

Elective courses

Course code	Credit Units	Course Title	Option
PUT 805	4	Advanced midwifery	Midwifery
PUT 809	4	Advanced Child Health Nursing	Child health nursing

Total credits - 36

DESCRIPTION OF COURSES

SGS 801.1 ICT & Research Methods

This course should cover essentials of ICT especially the use of Microsoft Word, Spreadsheet, Power point, Access and Project. It will also examine common statistical packages used in health research. The course is an introduction to project design and planning and will teach the various methods in conducting scientific medical research. It will emphasize quantitative and qualitative designs including how to conduct clinical trials and documentation. It will also introduce the use of computer in data analysis and the use of operational research and functional analysis in project design and evaluation.

Other areas covered include - Planning a Research; Ethical Issues in Research; Study Designs in Medicine and Public Health; Choice of Topic; Introduction (Problem Definition, Objectives); Formulation of hypothesis; Testing of hypothesis; Literature Search/Literature Review; Materials &

Methods; Sample Size determination/Calculation; Instrument for data collection; Data Collection/Management; Presentation of Results (Data Presentation, Analysis etc); Discussion, Conclusion and Recommendations; Referencing; Project Write-Up

SGS 801.2 Management & Entrepreneurship

Covers concepts, history and development of entrepreneurship, the entrepreneur, Qualities and characteristics. The Entrepreneur and Business Environment, Identifying Business Ownership and Registration, starting and developing business ventures, Legal forms of business ownership and registration. Types of business ownership, feasibility studies, Role of Small and Scale Enterprise (SME) in the economy, Role of Government in Entrepreneurship, Business location and layout. Accounting for SME, Financing, SME, managing of SME, Risk Management of SME, success and failure factors of SME, Prospects and challenges of Entrepreneurship in Nigeria Entrepreneurship in Nigeria Entrepreneurship. This course would expose the students to the practice of applied management and entrepreneurship. The students would learn how to enhance their entrepreneurship skills and manage their own business. Business prospects for students in higher institution would be taught and the student would learn how to get into the right business

PUT 801. Legal-ethical issues in midwifery-child health nursing

The purpose of the course is to familiarize the students with the key concept of professional ethical- legal systems and approaches to midwifery practice and child health nursing. Ethic and midwifery issues in contemporary practice. Ethic and issues in child health nursing. The course will cover legal system and accountability of the midwife, and child health nurse, client rights, litigation and accountability and statutory provisions. Introduces students to Nigeria legal system; the rights and responsibilities of client and midwife and child health nurse in health system; Undertake selected legal case studies with its implications on midwifery practice and child health nursing practice

PUT 802. Theories and practices of community-based health care

The students will pursue in-depth study in a selected topic area in community-based health care. Models/theories will be evaluated for their usefulness in community-based health care. The nature of community health issues; community health practices, contemporary issues in community-based health care research; information and management systems in community-based health care practice; concepts of epidemiology;

determinant of disease and health; epidemiological theories; specific epidemiological case studies; principles and practice of disease control, health education, community health nutrition and environmental health programmes.

PUT 803. Advanced Community midwifery and Child health nursing

The course is designed to enhance the provision of midwifery/ child health nursing for women and their new born, families and relevant communities. It intends to improve existing skills and abilities in midwifery and child health nursing interventions and activities that are vital for the provision of professional midwifery and child health nursing care for childbearing family. Use of Models of community midwifery and child health nursing care. Also, development of leadership, consulting, coordinating and decision-making skills in the community

PUT 804. Professional Leadership and accountability in maternity care and Child health nursing

The course explores both individual professional accountability and organizational professional leadership. It covers, leadership in healthcare and examines their impact on organization including wider considerations in the external environment This module will enable students to assess and analyze leadership theories and styles, barriers to midwifery and child health nursing leadership and ways to overcome the barriers, and the roles that leaders and managers play in a range of organizational contexts, and to apply the principles and techniques of leadership and management in a range of contexts. The course exposes students to various approaches to improvement of leadership, management and teamwork, management styles in midwifery. The course also explores leadership competency model, the code and professional standard of practice, and what the code mean for clients and employers.

PUT 810 Advanced Reproductive Health

The course provides advanced education in reproductive health and issues with focus on public health and social aspect. Students will explore fertility control across the reproductive lifespan, and reproductive health services, maternal mortality, sexual violence, sexual reproductive rights. This stream will also cover reproductive endocrinology including an understanding of the reproductive cycle.

PUT 805 Advanced Midwifery

This module will commence with a critical review of the forms of evidence that underpin professional practice in health and social care. The ideology of evidence-based practice will be analyzed and its impact on practice evaluated, including an

examination of the barriers to using evidence in practice.

The module will cover **(1) Evidence for Health and Social Care, (2) promotion of normal childbirth, (3) Facilitation of complex birth and (4) Building a project on advancing global best clinical practice.**

For promoting normal birth, the module addresses one major National and International concerns about childbirth and the rising rate of intervention. The module will provide underpinning knowledge and confidence required to modify the situation by exploring how best to promote change in prenatal, intrapartum, and postnatal periods using existing knowledge and skills. Both international and local perspectives shall be analyzed, while deepening the students understanding of concept of normal childbirth.

For facilitation of complex birth for women with social, emotional, and physical needs, the module explores the roles of the midwife in addressing them. Direct and indirect causes of maternal death are examined, while considering wider influences on maternal mortality and morbidity. The module will explore strategies for the maintenance of normality within the complex situations. Students are expected to apply clinical practice and develop skills for caring for women with complex needs.

For developing a project for advancing clinical practice, the project will enable students to demonstrate ability to synthesis learning from other modules. The student is expected to plan and write up a work-based project demonstrating the ability to raise a significant and meaningful questions in relation to a chosen topic expanding existing knowledge to contribute to the development of best practice. The project can take a number of forms including:

- Empirical research
- Modified Systematic Review
- Audit or service evaluation
- Critical review of literature

Whichever option is chosen, the focus is an issue related to advancing practice and in the completed project the student must demonstrate how knowledge gained could be used to advance practice.

PUT 806. Advanced Neonatology and Child Care

The course aims at providing the midwife with in-depth knowledge base on the care of newborn, the health assessment and specialist healthcare. National standards for neonatal care, ward management of a neonate

PUT 809 Advanced Child Health Nursing

This module will commence with a critical review of the forms of evidence that underpin child health

nursing care. The ideology of evidence-based practice will be analyzed and its impact on practice evaluated, including an examination of the barriers to using evidence in practice. The module will cover (1) Theories and trends in child health nursing (2) Care of the child (3) Sick and vulnerable child (4) School health. For promoting child health nursing care, the module addresses National and International essentials of Global Child Health and International Child Mental Health. Both international and local perspectives shall be analyzed, while deepening the students understanding of concept of child health nursing. Direct and indirect causes of child death are examined, while considering wider influences on child mortality and morbidity. Students are expected to apply clinical practice and develop skills for caring for children with complex needs.

For developing a project for advancing clinical practice, the project will enable students to demonstrate ability to synthesis learning from other modules. The student is expected to plan and write up a work-based project demonstrating the ability to raise a significant and meaningful questions in relation to a chosen topic expanding existing knowledge to contribute to the development of best practice. The project can take a number of forms including:

- Empirical research
- Modified Systematic Review
- Audit or service evaluation
- Critical review of literature

Whichever option is chosen, the focus is an issue related to advancing practice and in the completed

project the student must demonstrate how knowledge gained could be used to advance practice in child health nursing.

PUT 807 Seminar

This seminar is designed to provide opportunities for students to pursue in depth study in a selected topic area in midwifery. Models/theories will be evaluated for their usefulness in midwifery.

PUT 808 Dissertation

The candidate must design and execute an acceptable original project in any area related to midwifery care under supervision of an academic member of staff. For these projects, students will carry out original research. They will thus be exposed to practical research methods such as the design of empirical studies, questionnaire design, data collection, collation, analysis interpretation, and reporting. Referencing shall be the APA style. Ethical approval MUST be obtained from the Research and Ethics Committee of the University. Defense of completed project shall be done at date fixed by the departmental graduate committee and according to the guidelines set by the graduate school. Project shall be submitted in quarto size paper in BLACK bounded format and duly certified by project supervisor and must be submitted before the closing date given by the Centre.

PUT 810 Internship

The students would be exposed to practical training in public health programmes with the relevant industries and sector.

TEACHING STAFF

S/N	NAME	QUALIFICATIONS	DESIGNATION	INSTITUTION	SPECIALISATION
1	Prof B. Ordinioha	MB, BS, FMCPH	Professor	UNIPORT	Environmental Health
2	Prof C.I. Tobin-West	MD, MPH, FMCPH	Professor	UNIPORT	Epidemiology
3	Professor Josephine Etowa	PhD Nursing	Professor of nursing	VISITING	Public Health Nursing
4	Dr Faith Diorgu	PhD Midwifery, PhD Edu. Psych; M.Sc Midwifery, M.Ed Edu. Psych.; B.Sc Nursing	Senior lecturer/HoD	UNIPORT	Midwifery
5	Prof O.B. Babatunde	MBBS, Cert. Epid, FWACP	Senior Lecturer	UNIPORT	Epidemiology
6	Prof D.S. Ogaji	MBBS, MQI, PhD, MNIM, FMCPH	Senior Lecturer	UNIPORT	Health Systems
7	Dr Goodluck Azuonwu	Ph.D(Epid), MPH, BSc Nsg, RPHN, RN	Lecturer I	UNIPORT	Public Health (Epidemiology)

8	Dr Eunice Osuala	Ph.D, MSc Comm.Hlt, Nsg,BSc, RN, RM, RPHN	Senior Lecturer/ HOD PAMO	PAMO	Community Health Nursing
9	Dr Affiong Ekpenyong	Ph.D (Demography), MSc(Comm Hlt Nsg), MSc (Public Admin), PGDE, BSc Nsg, RPHN, CHO, RN, RM.	Senior Lecturer CRS (CHST) Cal.	CHST, CALABAR	Community Health Nursing
10	Dr. Daniel Ekpah	PhD Information Technical	Lecturer 1	Full-time	ICT
11	Dr C. Boskel	PhD	Industry	Part-time	Entrepreneurship
12	Dr T. Adedayo	FWACP	Visiting	Part-time	Research methods
13	Mrs. Mina Longjohn	MPh, BSc (Nsg Edu), RN, RM, RPHN, FWACN, FAIPHP.	Lecturer 1	UNIPORT	Public Health
14	Mrs Chikaebere Ukwu	MPh, BNsc, PGDE, PGD(HHSA), RN, RM, RPHN, FWACN, FAIPHP	ADNS (UPTH)	UPTH	Public Health
15	Mrs Margret Dan-Patrick	MSc (MCH Nsg), BSc (NsgEdu), RPHN, RM, RN, FWACN,	Lecturer 1	UNIPORT	Maternal and Child Health.
16	Mrs Mercy B. Effiong	MSc (Comm.Hlt Nsg), BSc, RPHN, RNEd RM, RN.	Lecturer 1	VISITING	Community Health Nursing
17	Mr Solomon Egwuonu	MSc (Comm.HltNsg), BSc.NSg, PGDE, RPHN, RN, RNT, FCAI, FIHNR.	Lecturer 1	Nursing, Novena Uni, Delta State	Community Health Nursing
18	Miss Theresa Timothy	MPH, BSc. Nsg, RPHN, RN, RM	DDNS/Desk Officer, Family Planning	RSPHCB, Port Harcourt	Public Health

PhD PROGRAMME IN CHILD HEALTH NURSING

Admission Requirements

For a candidate to be admitted into the PhD programme, he/she should have a relevant Masters' degree with a CGPA of not less than 3.5 on a five-point scale in MSc midwifery, child health nursing or any nursing related discipline. All prospective candidates must be trained and licensed nurses/midwives

Programme Titles:

Doctor of Philosophy (PhD) in Child Health Nursing

Programme duration:

Full time – 36 (minimum) to 48 months (maximum)

Part-time – 48 months (minimum) to 72 months (maximum)

Graduation Requirements

To qualify for the award of the PhD, the candidate must have successfully completed all the prescribed courses in the programme in line with the school of graduate studies requirement.

List of courses, code and credit units

Courses in PhD Child Health Nursing

Code	Unit	Course
PUT 901	3	Entrepreneurship
PUT 902	3	Advanced Biostatistics and Data Science
PUT 903	3	ICT, Technical Writing & Presentation Skills
PUT 905	3	Research Methods

PUT 916	3	Advanced Health Policy and Management
PUT 913	3	Advanced Epidemiology in Maternal-Child health
PUT 915	3	Advanced Child Health Nursing Theory and Practice
PUT 904	3	Seminar
PUT 906	12	Thesis

COURSES DESCRIPTION

PUT 901- Entrepreneurship (3 units)

This course teaches how to recognise, analyse and develop business opportunities. It will expose students to the various aspects of commerce – accounting, finance, marketing, management as well as the relevant legal and regulatory frameworks. The course will also introduce the students on ways of commercializing their research outputs and how they can develop knowledge enterprise.

Understanding the dynamic role of entrepreneurship and small businesses

Organizing and Managing a Small Business

Financial Planning and Control

Forms of Ownership for Small Business

Strategic Marketing Planning

New Product or Service Development

Business Plan Creation

Challenges of doing business in Nigeria and other developing countries

Research as an enterprise

PUT 902 - Advanced Biostatistics and Data Science (3 units)

This course teaches the concepts of biostatistics and the application of biostatistics in real world issues. Statistical methods and principles necessary for understanding and interpreting data used in public health and policy evaluation and formation. Topics include descriptive statistics, graphical data summary, sampling, statistical comparison of groups, correlation, and regression.

Probability and advanced statistical theories

parametric and non-parametric statistics,

Poisson distribution, Regression modelling, statistical software appreciation and bioinformatics.

Data Science introduces the concept and tools needed in turning open and real-world data into solving real world problems via mastering Data communication, data investigation, data wrangling, cleaning, sampling, exploratory analysis and data Visualization skills.

Students will learn the powerful statistical program in R and how to use R for effective data analysis and statistical programming. The course will also cover practical issues in statistical computing with R, especially in reading data into R, accessing R

packages, writing R functions, debugging, profiling R code, and organizing and commenting R code.

PUT 903 - ICT, Technical Writing & Presentation Skills (3 units)

The purpose of the course is to familiarize the participants with academic writing, grammar & syntax, Use suitable punctuation and grammar, employ conventions of academic style, achieve a sense of flow in written texts, critically read academic texts, summarise, paraphrase and reference correctly, engage in effective peer review and self-monitoring, replicate appropriate thesis structure, critical thinking and problem-solving skills, summarizing, paraphrasing journal critique techniques and preparation of manuscripts and dissertation reports. Preparation and presentation at conferences and scientific meetings.

Participants would be appreciating the use of Microsoft Office words (document management functions, layout, formatting, equation, reference) excel(document management, format cells, formulas, functions, charts, sparklines, , pivot tables, validation, hyperlinks, protecting and sharing worksheet/book), PowerPoint (document management, design, formatting, header/footer, working with text/pictures, creating master slide, screen views, charts, tables, animations, presentation structure), access (designing and viewing databases, tables, relationships, finding/sorting and filtering, queries), project (Microsoft project environment, outlining project – start time, working time, list of task, organising tasks, setting deadlines and constraints etc), common software for statistical analyses, presentation skills and writing journal article and dissertation reports

Students would also be exposed to the act of preparing manuscript preparation and various statements/guidelines/checklists for reporting academic manuscripts such as: CASP (Critical Appraisal Skill Program), CONSORT (Consolidated Standards of Reporting Trials), PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis), ENTREQ (Enhancing Transparency in REporting the synthesis of Qualitative research), COREQ (Consolidated criteria for REporting Qualitative research), CARE (CAse REport guidelines), SQUIRE (Standards for Quality Improvement Reporting Excellence), STROBE (Strengthening the Reporting of Observational Studies in Epidemiology).

PUT 905 - Research Methods (3 units)

This course acquaints the students with principles and practice of advanced research methods in public health practice. Broad areas include systematic review, meta-analysis, meta-synthesis, quantitative and qualitative surveys, advanced literature search and data synthesis

Course Content

Research Process, Designs, and Human Subjects Protection
Research Question and Literature Review
Data Collection and SPSS
Descriptive Data Analysis
Inferential Data Analysis
Reporting the Results
Interpreting the Results
Thinking Skills for conduct of research

PUT 913: Advanced Epidemiology in Maternal-Child Health

This course will teach the distribution, determinants and deterrents of health conditions that are predominantly caused by the physical environment of the community. It would also examine the control efforts and recent global, national and subnational innovations for improving maternal and child health conditions.

This course will provide the students with an understanding of the nature of the physical, social and biological environment, human ecology, the relationship between unhealthy housing, air pollution and environmental toxicants and its health implication especially to mothers and children. It would examine the sources of the environmental health problems, the relevant policies and legislations, and the efforts to ensure healthy housing for all, and the control of air pollution other environmental toxicants.

The course will teach the relevant local, national and international policies and legislations used to ensure environmental health. It will give the students the basic understanding of the policies and legislations, how the policies and legislations can be proposed, amended and put into action; and the various safeguards put in place to prevent the arbitrary use of the policies and legislations in relation to safety of individual health. Natural and environmental toxicants; Food toxicology and carcinogens; Mutagens, teratogens, allergens; Neurotoxins, endocrine disruptors; Detoxification of toxicants; Microbial and insects' metabolism of xenobiotics; Metabolism as a determinant of toxicity and Assessment of toxicity; Metabolism of hydrocarbons and other toxicants; Human exposure to environmental contaminants.

PUT 914: Advanced Child Health Nursing

This course aims to familiarize students with evidence synthesis and evaluating elements of research designs in child health nursing, familiarizes them with trade off involved in these choices and enabling them to make conscious design choices for their research. The course provides comprehensive training on good research practice, critical evaluation of major theories, concepts, frameworks and paradigms in child health nursing practice. It

will provide students with sufficient insight to organize practical and ethical aspect of their research. The course covers the knowledge base for evidence-based child health nursing, the role of mixed method research, practicalities of mixed methods research for evidence-based child health nursing, quality of research and clinical research issues and methods.

PUT 916 - Advanced Health Policy and Management

The advanced health management principles and practice doctoral course aims to familiarize the participants with the theories behind the principles and practice of health management. Participants will develop a clear sense of their own strengths and weaknesses in health management and leadership and enhance their academic and professional development. The course will also improve the PhD candidate's understanding on developing research proposals and conducting research to support decision-making processes at all levels of the health system. In addition to self-assessment and reflection, participants study topics and practice skills associated with building strong teams, supervising and delegating work, managing conflict, using data for making management decisions, communicating effectively, and accountability, including managing financial and human resources

PUT 904 - Seminar (3 Units)

Seminar presentation on specified aspects of research will be presented such as literature review, public health significance, key findings and implications and finally present research for external defense.

PUT 906 – Thesis (12 Units)

The thesis will be an outline PhD proposal and a small piece of empirical work. The research proposal should indicate what the PhD might be along with, what the empirical work might be. The candidate's research will be supervised by academic and/or industry member of staff. The format of the report shall be in accordance with existing guidelines from the School of Graduate Studies.

PhD PROGRAMME IN MIDWIFERY CARE

Admission Requirements

For a candidate to be admitted into the PhD programme, he/she should have a relevant Masters' degree with a CGPA of not less than 3.5 on a five-point scale in MSc midwifery or any nursing related discipline. All candidates must be trained and licensed nurses/midwives.

Programme Titles:

Doctor of Philosophy (PhD) in Midwifery

Programme duration: Full time – 36 (minimum) to 48 months (maximum)

Part-time – 48 months (minimum) to 72 months (maximum)

Graduation Requirements

To qualify for the award of the PhD, the candidate must have successfully completed all the prescribed courses in the programme in line with the school of graduate studies requirement.

The courses for the new programmes are outlined below:

List of courses, code and credit units

Courses in PhD Midwifery

Code	Unit	Course
PUT 901	3	Entrepreneurship
PUT 902	3	Advanced Biostatistics and Data Science
PUT 903	3	ICT, Technical Writing & Presentation Skills
PUT 905	3	Research Methods
PUT 916	3	Advanced Health Policy and Management
PUT 913	3	Advanced Epidemiology in Maternal-Child health
PUT 914	3	Advanced Midwifery Theory and Practice
PUT 904	3	Seminar
PUT 906	12	Thesis

COURSES DESCRIPTION

PUT 901- Entrepreneurship (3 units)

This course teaches how to recognise, analyse and develop business opportunities. It will expose students to the various aspects of commerce – accounting, finance, marketing, management as well as the relevant legal and regulatory frameworks. The course will also introduce the students on ways of commercializing their research outputs and how they can develop knowledge enterprise.

Understanding the dynamic role of entrepreneurship and small businesses

Organizing and Managing a Small Business

Financial Planning and Control

Forms of Ownership for Small Business

Strategic Marketing Planning

New Product or Service Development

Business Plan Creation

Challenges of doing business in Nigeria and other developing countries

Research as an enterprise

PUT 902 - Advanced Biostatistics and Data Science (3 units)

This course teaches the concepts of biostatistics and the application of biostatistics in real world issues. Statistical methods and principles necessary for understanding and interpreting data used in public health and policy evaluation and formation. Topics include descriptive statistics, graphical data summary, sampling, statistical comparison of groups, correlation, and regression.

Probability and advanced statistical theories parametric and non-parametric statistics, Poisson distribution, Regression modelling, statistical software appreciation and bioinformatics. Data Science introduces the concept and tools needed in turning open and real-world data into solving real world problems via mastering Data communication, data investigation, data wrangling, cleaning, sampling, exploratory analysis and data Visualization skills.

Students will learn the powerful statistical program in R and how to use R for effective data analysis and statistical programming. The course will also cover practical issues in statistical computing with R, especially in reading data into R, accessing R packages, writing R functions, debugging, profiling R code, and organizing and commenting R code.

PUT 903 - ICT, Technical Writing & Presentation Skills (3 units)

The purpose of the course is to familiarize the participants with academic writing, grammar & syntax, Use suitable punctuation and grammar, employ conventions of academic style, achieve a sense of flow in written texts, critically read academic texts, summarise, paraphrase and reference correctly, engage in effective peer review and self-monitoring, replicate appropriate thesis structure, critical thinking and problem-solving skills, summarizing, paraphrasing journal critique techniques and preparation of manuscripts and dissertation reports. Preparation and presentation at conferences and scientific meetings.

Participants would be appreciating the use of Microsoft Office words (document management functions, layout, formatting, equation, reference) excel(document management, format cells, formulas, functions, charts, sparklines, , pivot tables, validation, hyperlinks, protecting and sharing worksheet/book), PowerPoint (document management, design, formatting, header/footer, working with text/pictures, creating master slide, screen views, charts, tables, animations, presentation structure), access (designing and viewing databases, tables, relationships, finding/sorting and filtering, queries), project (Microsoft project environment, outlining project – start time, working time, list of task, organising

tasks, setting deadlines and constraints etc), common software for statistical analyses, presentation skills and writing journal article and dissertation reports

Students would also be exposed to the act of preparing manuscript preparation and various statements/guidelines/checklists for reporting academic manuscripts such as: CASP (Critical Appraisal Skill Program), CONSORT (Consolidated Standards of Reporting Trials), PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis), ENTREQ (Enhancing Transparency in REporting the synthesis of Qualitative research), COREQ (Consolidated criteria for REporting Qualitative research), CARE (CAse REport guidelines), SQUIRE (Standards for Quality Improvement Reporting Excellence), STROBE (Strengthening the Reporting of Observational Studies in Epidemiology).

PUT 905 - Research Methods (3 units)

This course acquaints the students with principles and practice of advanced research methods in public health practice. Broad areas include systematic review, meta-analysis, meta-synthesis, quantitative and qualitative surveys, advanced literature search and data synthesis

Course Content

Research Process, Designs, and Human Subjects Protection
Research Question and Literature Review
Data Collection and SPSS
Descriptive Data Analysis
Inferential Data Analysis
Reporting the Results
Interpreting the Results
Thinking Skills for conduct of research

PUT 913: Advanced Epidemiology in Maternal-Child health

This course will teach the distribution, determinants and deterrents of health conditions that are predominantly caused by the physical environment of the community. It would also examine the control efforts and recent global, national and subnational innovations for improving maternal and child health conditions.

This course will provide the students with an understanding of the nature of the physical, social and biological environment, human ecology, the relationship between unhealthy housing, air pollution and environmental toxicants and its health implication especially to mothers and children. It would examine the sources of the environmental health problems, the relevant policies and legislations, and the efforts to ensure healthy housing for all, and the control of air pollution other environmental toxicants.

The course will teach the relevant local, national and international policies and legislations used to ensure environmental health. It will give the students the basic understanding of the policies and legislations, how the policies and legislations can be proposed, amended and put into action; and the various safeguards put in place to prevent the arbitrary use of the policies and legislations in relation to safety of individual health. Natural and environmental toxicants; Food toxicology and carcinogens; Mutagens, teratogens, allergens; Neurotoxins, endocrine disruptors; Detoxification of toxicants; Microbial and insects' metabolism of xenobiotics; Metabolism as a determinant of toxicity and Assessment of toxicity; Metabolism of hydrocarbons and other toxicants; Human exposure to environmental contaminants.

PUT 914: Advanced Midwifery Care

This course aims to familiarize students with evidence synthesis and evaluating elements of research designs midwifery practice, familiarizes them with trade off involved in these choices and enabling them to make conscious design choices for their research. The course provides comprehensive training on good research practice, critical evaluation of major theories, concepts, frameworks and paradigms in midwifery practice. It will provide students with sufficient insight to organize practical and ethical aspect of their research. The course covers the knowledge base for evidence-based midwifery, the role of mixed method research, practicalities of mixed methods research for evidence-based midwifery, quality of research and clinical research issues and methods.

PUT 916 - Advanced Health Policy and Management

The advanced health management principles and practice doctoral course aims to familiarize the participants with the theories behind the principles and practice of health management. Participants will develop a clear sense of their own strengths and weaknesses in health management and leadership and enhance their academic and professional development. The course will also improve the PhD candidate's understanding on developing research proposals and conducting research to support decision-making processes at all levels of the health system. In addition to self-assessment and reflection, participants study topics and practice skills associated with building strong teams, supervising and delegating work, managing conflict, using data for making management decisions, communicating effectively, and accountability, including managing financial and human resources

PUT 904 - Seminar (3 Units)

Seminar presentation on specified aspects of research will be presented such as literature review, public health significance, key findings and implications and finally present research for external defense.

The thesis will be an outline PhD proposal and a small piece of empirical work. The research proposal should indicate what the PhD might be along with, what the empirical work might be. The candidate's research will be supervised by academic and/or industry member of staff. The format of the report shall be in accordance with existing guidelines from the School of Graduate Studies.

PUT 906 – Thesis (12 Units)

TEACHING STAFF

S/N	Name	Qualifications	Designation	Status	Specialisation
1	Prof Mary Steen	PhD Midwifery	Professor	Visiting	Midwifery
2	Prof. Josephine Etowa	PhD Nursing	Professor	Visiting	Maternal new-born health
3	Prof G. Robinson-Bassey	BSc, MSc, PhD	Professor	Fulltime	Medical-surgical Nursing
4	Prof A. Nte	MBBS, FWACP	Professor	Fulltime	Child & Adolescent Health
5	Prof N. Akani	MBBS, FMCPaed	Professor	Fulltime	Adolescent Health
6	Prof N. Orazulike	MBBS, FWACS, FICS, Dip HSM	Professor	Fulltime	Reproductive Health
7	Prof Rosemary Ogu	MBBS, MSc, FICS, FWACS	Professor	Fulltime	Reproductive Health
8	Prof Best Ordinioha	MBBS, MD, FMCPH	Professor	Fulltime	Environmental Health
9	Prof Orish Orisakwe	PhD Pharmacology	Professor	Fulltime	Environmental Toxicology
10	Prof Ethelbert Nduka	PhD	Professor	Fulltime	Biostatistics
11	Prof Oluseye Babatunde	MSc, FWACP	Professor	Fulltime	Epidemiology/Biostatistics
12	Prof Clifford Ofurum	PhD	Professor	Fulltime	Accounting/Entrepreneurship
13	Prof Onyewuchi Akaranta	PhD	Professor	Fulltime	Chemistry/Entrepreneurship
14	Prof Charles Tobin-West	MPH, FMCPH	Professor	Fulltime	Epidemiology/Reproductive health
15	Dr K. Patrick-Iwuanyanwu	PhD	Reader	Fulltime	Biochemistry/Toxicology
16	Dr Anthonet Ezejiofor	PhD	Senior lecturer	Fulltime	Experimental Toxicology
17	Dr Uchenna Ogoke	PhD	Senior lecturer	Fulltime	Biostatistics
18	Dr J. Craig Phillips	PhD Nursing	Reader	Parttime	Nursing Education/ research

19	Dr Jean Hannan	PhD Nursing	Reader	Parttime	Nursing Education and research
20	Dr Faith Diorgu	PhD Midwifery	Senior lecturer	Fulltime	Midwifery
21	Dr P. Fiebai	MBBS, FWACS	Senior Lecturer	Fulltime	Reproductive Health
22	Dr Chioma Ndikom	PhD MCH Nursing	Senior Lecturer	Parttime	Child Health Nursing

23	Dr Aluko Joel Ojo	PhD Midwifery/Neonatology,	Senior lecturer	Parttime	Midwifery /Neonatology
24	Dr Olayinka Onasoga	PhD MCH Nursing	Senior Lecturer	Parttime	Maternal and child health nursing
25	Dr Splendor Chikodili	PhD MCH Nursing	Senior lecturer	Parttime	Maternal and child health nursing

PhD PROGRAMMES IN PUBLIC HEALTH

Admission Requirements

For a candidate to be admitted into the PhD programme in Public Health, he/she should have a relevant Masters' degree in Public Health such as MSc Public Health, Master of Public Health, MSc Epidemiology, MSc Health Systems Management, MSc Population, MSc in **Reproductive Health with a CGPA of not less than 3.5 on 5-point scale.**

Programme Titles:

Doctor of Philosophy in Public Health – PhD Public Health

Programme duration:

Full time – 36 (minimum) to 48 months (maximum)
Part-time – 48 months (minimum) to 72 months (maximum)

Graduation Requirements

To qualify for the award of the PhD, the candidate must have successfully completed all the prescribed courses (all of the compulsory courses and 1 elective course) in the programme, submitted and successfully defended an appropriate thesis and met other requirements of the School of Graduate Studies.

List of courses, code and credit units

General Courses

Code	Unit	Course
PUT 901	3	Entrepreneurship
PUT 902	3	Advanced Biostatistics and Data Science
PUT 903	3	ICT, Technical Writing & Presentation Skills
PUT 904	3	Environmental epidemiology, exposure science and risk assessment
PUT 905	3	Seminar I
PUT 906	3	Research Methods

PUT 907	0	Internship
PUT 911	6	Thesis
PUT 912	3	Seminar II

Electives

HSM 901	3	Advanced Health Policy and Management
EPI 901	3	Advanced Field and Clinical Trial
PRH 901	3	Advances in Reproductive Health
PUT 910	3	Analytical Methods in Environmental Health

COURSES DESCRIPTION

PUT 901- Entrepreneurship (3 units)

This course teaches how to recognise, analyse and develop business opportunities. It will expose students to the various aspects of commerce – accounting, finance, marketing, management as well as the relevant legal and regulatory frameworks. The course will also introduce the students on ways of commercializing their research outputs and how they can develop knowledge enterprise.

Understanding the dynamic role of entrepreneurship and small businesses

Organizing and Managing a Small Business

Financial Planning and Control

Forms of Ownership for Small Business

Strategic Marketing Planning

New Product or Service Development

Business Plan Creation

Challenges of doing business in Nigeria and other developing countries

Research as an enterprise

PUT 902 - Advanced Biostatistics and Data Science (3 units)

This course teaches the concepts of biostatistics and the application of biostatistics in real world issues. Statistical methods and principles necessary for understanding and interpreting data used in public health and policy evaluation and formation. Topics include descriptive statistics, graphical data summary, sampling, statistical comparison of groups, correlation, and regression.

Probability and advanced statistical theories parametric and non-parametric statistics, Poisson distribution, Regression modelling, statistical software appreciation and bioinformatics. Data Science introduces the concept and tools needed in turning open and real-world data into solving real world problems via mastering Data communication, data investigation, data wrangling, cleaning, sampling, exploratory analysis and data Visualization skills.

Students will learn the powerful statistical program in R and how to use R for effective data analysis and statistical programming. The course will also cover practical issues in statistical computing with R, especially in reading data into R, accessing R packages, writing R functions, debugging, profiling R code, and organizing and commenting R code.

PUT 903 - ICT, Technical Writing & Presentation Skills (3 units)

The purpose of the course is to familiarize the participants with academic writing, grammar & syntax, critical thinking and problem-solving skills, summarizing, paraphrasing journal critique techniques and preparation of manuscripts and dissertation reports. Preparation and presentation at conferences and scientific meetings.

Participants would also be exposed to various statements/guidelines/checklists for reporting academic manuscripts such as:

CASP – Critical Appraisal Skill Program

CONSORT – Consolidated Standards of Reporting Trials

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analysis

ENTREQ – Enhancing Transparency in REporting the synthesis of Qualitative research

COREQ – Consolidated criteria for REporting Qualitative research

CARE – CAse REport guidelines

SQUIRE – Standards for Quality Improvement Reporting Excellence

STROBE – Strengthening the Reporting of Observational Studies in Epidemiology

ICT and Presentation Skills

Writing a Draft Journal Article

PUT 906 - Research Methods (3 units)

This course acquaints the students with principles and practice of advanced research methods in public health practice. Broad areas include systematic review, meta-analysis, meta-synthesis, quantitative

and qualitative surveys, advanced literature search and data synthesis

Course Content

Research Process, Designs, and Human Subjects Protection

Research Question and Literature Review

Data Collection and SPSS

Descriptive Data Analysis

Inferential Data Analysis

Reporting the Results

Interpreting the Results

Thinking Skills for conduct of research

PUT 904 – Environmental epidemiology, exposure science and risk assessment (3 Units)

This course teaches the students on principles and practice of advanced epidemiology. The candidate will also study the general concepts of assessing environmental exposures to chemicals in human populations. Exposure science will teach natural and environmental toxicants; Food toxicology and carcinogens; Mutagens, teratogens, allergens; Neurotoxins, endocrine disruptors; Detoxification of toxicants; Microbial and insects' metabolism of xenobiotics; Metabolism as a determinant of toxicity and Assessment of toxicity; Metabolism of hydrocarbons and other toxicants; Human exposure to environmental contaminants.

Introduction to principles and practice of epidemiology

Confounders, effect modification/interaction, causal inferences, outbreak investigations,

Geo-mapping/GIS, surveillance, receiver-operating characteristics curve, and surveys

The design of ecologic and personal monitoring studies

The techniques and equipment used for sampling and analysis, and interpretation of data.

The linkages among external concentrations, spatial and temporal parameters,

Exposure pathways (ingestion, inhalation, and dermal contact), internal dose, and biomarker expression are developed within the context of environmental exposure and risk assessment

Concepts of exposure, susceptibility, and disease relationships; environmental influences, stochastic events, rare events, association vs cause/effect, effect of politics, costs, public alarm

Risk assessment: Concept and models

Recent topics in risk assessments

Food safety;

Modern Environmental Health Hazards in Non-Communicable Diseases

Biomonitoring; Metals in diseases; Metal toxicology: lead, mercury, cadmium, arsenic,

chromium, nickel, vanadium, cobalt, manganese, iron, copper, etc;

Persistent organic pollutants (POPs) and dioxins

Plastics toxicology

Soot and aerosol toxicology; Ozone, a criteria air pollutant; Natural antidotes; Unravelling toxic mechanisms

Biomarkers for toxic effects; Predictive toxicology;

Regulatory aspects; Introduction to Systems Biology; Definition of fundamental concepts.

Cognitive effects of early exposure to environmental toxins, such as hydrocarbons, heavy metals, methylmercury, and other environmental toxicants on children and infants including exposure via breast milk

HSM 901 - Advanced Health Policy and Management

The advanced health management principles and practice doctoral course aims to familiarize the participants with the theories behind the principles and practice of health management. Participants will develop a clear sense of their own strengths and weaknesses in health management and leadership and enhance their academic and professional development. The course will also improve the PhD candidate's understanding on developing research proposals and conducting research to support decision-making processes at all levels of the health system. In addition to self-assessment and reflection, participants study topics and practice skills associated with building strong teams, supervising, and delegating work, managing conflict, using data for making management decisions, communicating effectively, and accountability, including managing financial and human resources

EPI 901. Advanced Field and Clinical Trial

In the realm of evidence-based medicine, clinical trials represent a methodology to provide the highest level of research evidence. This course is designed to cover the fundamental concepts underpinning this methodology, to highlight the practical components necessary for conducting a clinical trial, and to review issues in the design, analysis, and reporting of clinical trials. Emphasis shall be on assisting students with application of the knowledge gained in designing their PhD research, particularly where that involves conducting a field or clinical trial.

PRH 901 Advances in Reproductive Health

The purpose of this course is to examine reproductive issues, programs services and policies in countries. The course content will emphasize on

social, economic, environmental, behavioural and political factors that affect family planning, reproductive health, fertility and pregnancy outcomes. Focus will be made on interventions and programs to improve reproductive health, measurement and interpretation of reproductive indices and policies that affect reproductive health. Emphasizes will be made on current issues, challenges, and strategies to improve reproductive health, with a focus in resource-limited settings. Population changes and the demographic transition Conceptual issues in demography Mortality decline and change: the epidemiological transition Mortality transition in the developing world Contemporary mortality trends in developed countries. Demand and diffusion theories of fertility decline. The role of family planning programmes. The second demographic transition and family change. The perspective from evolutionary demography. AIDS in Africa: the demographic impact.

PUT 910 - Analytical Methods in Environmental Health (3 Units)

Students in this course learn the skills, methods, and critical thinking framework necessary for upper-level environmental health courses and for success as public health professionals. Environmental Health is a field of public health in which environmental hazards and health risks to populations are identified, assessed, and managed through a data-driven process.

Nature of the physical, social, and biological environment

Human ecology

Advance environmental forensic

Methodologies and techniques to obtain data in environmental health

Sampling, handling/storage of samples, sample preparation and determination.

Advanced environmental analysis in connection with advanced statistical methods including pattern recognition, multivariate statistics, and experimental designs

PUT 905 - Seminar I (3 Units)

Seminar presentation on specified aspects of research will be presented such as literature review, public health significance, key findings and implications and finally present research for external defense. The assessment of this will be the culmination of all scientific presentation of the PhD candidate in the second year of their programme

PUT 912 - Seminar II (3 Units)

Seminar presentation on specified aspects of research will be presented such as literature review,

public health significance, key findings and implications and finally present research for external defense. The assessment of this will be the culmination of all scientific presentation of the PhD candidate in the third year of their programme

PUT 911 – Thesis (6 Units)

The thesis will begin with identification of a suitable thesis topics and then development of a thesis concept notes before the PhD candidates can embark on a systematic review around the study. At the end

of the first year of the training, the PhD candidate should have developed an outline of the PhD proposal and a small piece of empirical work. The research proposal should indicate what the PhD might be along with, what the empirical work might be. The candidate's research will be supervised by academic and/or industry member of staff. The format of the report shall be in accordance with existing guidelines from the School of Graduate Studies.

LIST OF STAFF

S/n	Name	Qualifications	Designation	Specialisation	Status
1	Prof B. Ordinioha	MB, BS (UPH), FMCPH(NG), MD	Professor	Public Health, Environmental Health	Full-time
2	Prof Olufemi Adesope	BSc (UI), MSc (FUTO), PhD (FUTO)	Professor	Agriculture development, ICT in Research, rural sociology	Full-time
3	Prof KE Douglas	MBBS (UPH), DOH, FMCPH	Professor	Occupational Health	Full-time
4	Prof I. Etela	BSc (RSUST), MSc (RSUST), PhD (UNIBEN)	Professor	Agricultural Extension, Entrepreneurship	Ful-time
5	Prof C. Ogbuji	PGDE (NOUN), MSc (UNEC), PhD (ABSU)	Professor	Marketing, Entrepreneurship	Full-time
6	Prof C.I. Tobin-West	MD, MPH (Lag), Adv Dip Mgt, FMCPH (NG), MD	Professor	Epidemiology, Reproductive Health	Full-time
7	Prof. E.O. Orisakwe	BSc (UNN), MSc (UNILAG), PhD (UNN)	Professor	Nutrigenomics & Toxicology	Full-time
8	Prof D.S. Ogaji	MBBS UPH), MQI(Helsinki), MBA (NSW), PhD (Manchester), MNIM, FMCPH (NG), FISQua	Professor	Health Systems and Management	Full-time
9	Prof O. Maduka	MBBS (UPH), FMCPH, FRSPH	Professor	Epidemiology	Full-time
10	Dr Patrick-Iwuanyanwu, K.C	BSc (UPH), MSc (UPH), PhD (UPH)	Reader	Nutritional Biochemistry/Toxicology	Full-time
	Dr Catherine Ikewuchi	BSc (UPH), MSc (UPH), PhD (UPH)	Reader	Nutritional Biochemistry/Toxicology	Full-time
11	Dr Enembe Okokon	MBBch (Unical), MSc (Univ. Eastern Finland), PhD (Univ. Eastern Finland), FMCPH	Reader	Environmental Health	Visiting lecturer
12	Dr Soter Ameh	MBBS, MPH (UNIBEN), MSc (Witwatersrand), PhD (Witwatersrand), FMCPH (NG), FWACP	Reader	Epidemiology, Biostatistics	Visiting lecturer
13	Dr. A.N, Ezejiofor	BSc (Delsu), MSc (NAU), PhD (ABSU)	Senior lecturer	Toxicology/Pharmacokinetics	Full-time
14	Dr Uchenna Petronilla Ogoke	BSc (UNN), MSc (UPH), PhD (UPH)	Senior Lecturer	Mathematics, Biostatistics, Data Science	Full-time

POSTGRADUATE DIPLOMA IN ENVIRONMENTAL & PETROLEUM TOXICOLOGY

Entry Requirements

The PGD programme in environmental and petroleum toxicology will be opened to candidates who possess:

1. Honours degree in a Science or other suitable discipline.
2. At least five (5) relevant credit level passes in SSCE or equivalent (WASCE, NECO or GCE O/L) at not more than two sittings, which must include: English Language, Mathematics, and Biology (regional equivalent)
3. Evidence of NYSC OR Exemption letter (for Nigerian students)

Duration of Programme

Full time PGD – 12 months (minimum) to 24 months (maximum)

Part-time PGD – 24 months (minimum) to 36 months (maximum)

Graduation requirements

Students would meet the following requirements to qualify for the award of the PGD in Environmental Petroleum Toxicology (PGD EP Toxicology):

- i. The students must have successfully completed all the prescribed courses in the programme
- ii. The students must meet the other requirements set by the School of Graduate Studies and the Africa Centre of Excellence in Public Health and Toxicological Research

List of courses in the programme

Code	Credit Unit	Course
PUT 741	2	Introduction of petroleum industry and pollution consequences
PUT 731	2	Introduction to comparative Biochemistry
PUT 732	2	Introduction to comparative Physiology
PUT 733	2	Introduction to Toxicology
PUT 734	3	Exposure Toxicology
PUT 735	3	Toxicity Testing
PUT 736	3	Special Tests and Ecological Effects
PUT 737	3	Introduction to Risk Assessment
PUT 738	3	Toxicology Strategies for Petroleum Industry Exposure Assessments
PUT 739	3	Introduction to Medical Geology

PUT 740	2	Introduction to Oil Field Chemicals Hygiene and HSE Protocols
PUT 742	2	Seminars
Total	30	
Credit		
Units		

Course Description

PUT 741: Introduction to the petroleum industry and pollution consequences

Course Outline

Overview of the Petroleum Industry and its operations. The Petroleum Industry and pollution issues

Major forms of pollution in oil and gas exploitation. Consequences of pollution. Pollution Control and prevention

Environmental management and sustainability.

PUT 731 Introduction to comparative Biochemistry 2 units

Biochemistry of carbohydrates, lipids. Amino acids, nucleic acids, Metabolic pathways, etc. Introduction to signaling pathways

PUT 732 Introduction to comparative Physiology 2 units

Definition of basic concepts. Introduction to Physiology of Blood, Immune System, Liver, Kidney, Respiratory System, Nervous System, Cardiovascular System, Skin, Reproductive System, Eye, Endocrine System.

PUT 733 Introduction to Toxicology 2 units

Definition and Scope, Relationship to Other Sciences, and History. Definition and Scope. Relationship to Other Sciences. A Brief History of Toxicology. Dose-Response Relationships. Sources of Toxic Compounds. Exposure Classes. Use Classes. Movement of Toxicants in the Environment

PUT 734: Exposure Toxicology Env - 3 units

Air Pollutants. History. Types of Air Pollutants. Sources of Air Pollutants. Examples of Air Pollutants. Environmental Effects. Water and Soil Pollutants. Sources of Water and Soil Pollutants. Examples of Pollutants

Occupational Toxicants. Regulation of Exposure Levels. Routes of Exposure. Examples of Industrial Toxicants

PUT 735: Toxicity Testing – 3 units

Introduction. Experimental Administration of Toxicants. Routes of Administration. Chemical and Physical Properties. Exposure and Environmental

Fate. In vivo Tests. Acute and Sub-chronic Toxicity Tests. Chronic Tests
Reproductive Toxicity and Teratogenicity. Special Tests.

PUT 736: Special Tests and Ecological Effects - 3 units

Introduction. **In vitro Tests.** Prokaryote Mutagenicity. Eukaryote Mutagenicity. DNA Damage and Repair. Chromosome Aberrations. Mammalian Cell Transformation. General Considerations and Testing Sequences
Ecological Effects. Laboratory Tests. Simulated Field Tests. Field Tests. Risk Analysis. The Future of Toxicity Testing.

PUT 737: Introduction to Risk Assessment - 3 units

Introduction. Risk Assessment Methods. Hazard Identification

PUT 738: Toxicology Strategies for Petroleum Industry Exposure Assessments - 3 units

Introduction to Petroleum Operations, Oil and Gas Industry, Toxicology. Overview of Petroleum Operations and Process Streams. How to Categorize Streams using Toxicology Data. What are the Primary Constituents of Process Streams that drive exposure assessments? Selected Hazardous Constituents in Petroleum Substances
Benzene and others. Occupational Exposure Limits in the Petroleum Industry
ACGIH® Mixtures Formula – Utility, Its Value and Application to Chemicals found in the Petroleum Industry
Overview of the Formula, Its Application and Limitations. Examples of its Use with Chemicals in the Petroleum Industry. Organ effects of petroleum. Biomonitoring Considerations

PUT 739: Introduction to Medical Geology - 3 units

What is Medical Geology. Natural distribution and occurrence of elements. Anthropogenic sources. GIS as a tool in studies of the health of humans. Uptake of elements, particularly trace elements from the food to humans. Biological response on elements, particularly trace elements. Geological aspects on the nutrient supply.
Biological response on elements, particularly trace elements. Animal and medical geology. Aspects on uptake of elements, particularly trace elements, in animals. Uptake of elements, particularly trace elements, and toxicological consequences of uptake of both essential and non-essential trace elements. Transport of elements in air with a focus on volcanic activity, radon problems and natural aerosols of dam and health effects. Transport of elements in water with a focus on arsenic, fluoride and hardness of water and health effects.

PUT 740: Introduction to Oil Field Chemicals Hygiene and HSE Protocols (2 units)

Course Outline

Overview of oil field chemicals and applications. Chemical hygiene protocols and components
Management of chemical waste and disposal options. HSE Management systems and protocols.

PUT 742: Seminars (2 units)

Seminar topic related to environmental and petroleum toxicology and in the candidate's area of interest will be developed and presented in a report and examined orally by a panel of internal examiners. The students are expected to undertake a detailed systematic review of current literature on the basic concepts that are related to seminar topic.

MASTER'S IN ENVIRONMENTAL & PETROLEUM TOXICOLOGY

Entry Requirements

The MSc programme in environmental and petroleum toxicology is open to candidates who possess:

1. First degree in any of the Physical, Biological, Agricultural sciences including Geography with not less than second class lower division. Holders of first degree in Medicine & Surgery and dentistry are also eligible. Those who have successfully concluded the PGD programme in Environmental and Petroleum Toxicology with a CGPA of not less than 3.50 on a 5-point scale (upper credit)
2. At least five (5) relevant credit level passes in SSCE or equivalent (WASCE, NECO or GCE O/L) at not more than two sittings, which must include: English Language, Mathematics, and Biology (regional equivalent)
3. Evidence of NYSC OR Exemption letter (for Nigerian students)

Degree in View

Master in Environmental and Petroleum Toxicology (MSc. EP Toxicology)

Duration of Programme

Full time Masters – 12 months (minimum) to 24 months (maximum)

Part-time Masters – 24 months (minimum) to 36 months (maximum)

Graduation requirements

Students would meet the following requirements to qualify for the award of the Masters in Environmental Petroleum Toxicology (M.Sc. EP Toxicology):

- i. The students must have successfully completed all the prescribed courses in the programme

- ii. The students must have completed and scored a pass in his/her dissertation; and
- iii. The students must meet the other requirements set by the School of Graduate Studies and the Africa Centre of Excellence in Public Health and Toxicological Research

List of courses in the programme

Code	Credit Unit	Course
PUT 800	0	Foundation to Graduate Studies
PUT 820	2	The Petroleum Industry and Pollution Consequences
PUT 821	2	Comparative Biochemistry
PUT 822	2	Comparative Physiology
PUT 823	3	Principles of Pharmacology
PUT 824	3	Risk Assessment
SGS 801.1	2	ICT & Research Methodology
SGS 801.2	2	Management and Entrepreneurship
PUT 825	3	Exposure Assessment and Biomonitoring
PUT 826	2	Petroleum Industry Exposure Assessments
PUT 827	2	Medical Geology
PUT 828	3	Biometry & Modeling in Risk Assessments
PUT 829	2	Oil Field Chemicals Hygiene and HSE Protocols
PUT 807	2	Seminar
PUT 808	6	Research Project
Total Credit Units	36	

Course Outline

PUT 820: The petroleum industry and pollution consequences

Course Outline

Overview of the Petroleum Industry and its operations
 The Petroleum Industry and pollution issues
 Major forms of pollution in oil and gas exploitation
 Consequences of pollution
 Pollution Control and prevention
 Environmental management and sustainability

PUT 821: COMPARATIVE BIOCHEMISTRY 2 Credits

Definition of basic concepts. Introduction to biophysical chemistry, metabolic pathways, biochemistry of carbohydrate, lipid and protein. Signaling pathways in metabolic diseases

A. Carbohydrate Metabolism:

Brief account on the occurrence of carbohydrates, structure, properties and biological importance (monosaccharides, disaccharides and polysaccharides including mucopolysaccharides). **Breakdown of carbohydrates:** digestion and absorption of carbohydrate, breakdown of glycogen, Starch and disaccharides; **Glycolysis:** entry of other carbohydrates into the glycolytic sequences, alcoholic fermentation, regulation of glycolysis; **Citric acid cycle:** establishment of the cyclic nature, individual reactions and enzymes of citric acid cycle. Amphibolic nature of the cycle; Glyoxylate cycle; Control of citric acid cycle; Pentose phosphate pathway of glucose oxidation. Importance of the pathway and its regulation; **Biosynthesis:** biosynthesis of glucose from non-carbohydrate precursors (gluconeogenesis). Control of gluconeogenesis. Glycogen synthesis and its regulation, disaccharide biosynthesis; Glycoprotein biosynthesis

B. Lipid Metabolism:

Digestion and absorption of triglycerides, phospholipids, glycolipids and sterols; Biosynthesis of saturated, unsaturated, hydroxyl and branched chain fatty acids; 3. Oxidation of fatty acids and different pathways for such oxidation. Biosynthesis and degradation of phospholipids; **Glycolipids.** Sterol biosynthesis and conversion of cholesterol to various other biologically important compounds; Formation of prostaglandins, prostacyclins and thromboxanes from unsaturated fatty acids; Regulation of the various synthetic and degradative processes mentioned above.

C. Proteins:

Types of proteins; Amino Acids; Proteins – composition of amino acids, primary structure = sequence of amino acids; Hemoglobin Primary structure Secondary Tertiary, Quaternary; Collagens; Albumen proteins, Caseins. Cuticular proteins; Chorion proteins, silk proteins; Esterases; phosphatases phospholipases; Nucleases. Ureotelic, uricotelic and ammoniotelic modes of nitrogen metabolism. ii. Myoglobins, Haemoglobins, Haemocyanins, Haememerythrins.

D. CELL Biology and Endocrinology:

Types of cells, Extracellular matrix, Cytoskeletal elements and cell-cell interactions; Cell division and Cell cycle-Mitosis and meiosis, Cell cycle phases and Programmed cell death; Biomembranes; **Membrane Transport:** Passive, facilitated and exchange diffusion, Fick’s law of diffusion and active transport. **Synaptic transmission,** neurotransmitters, biogenic amines, amino acids and neuropeptides. Storage and exocytosis of neurotransmitters; **Endocrine System:** Endocrine organs in man. Location and inter relationship of endocrine glands in man; chemistry of hormones

produced by hypothalamus, pituitary, thyroid, parathyroid, pancreas, adrenals, gonads and intestine; Functions and abnormalities; Mechanism of action of Hormone; Insect hormones; Structure and function of moulting hormone, ecdysone, Pheromones: Mechanism of perception and action. Use of pheromones in control of agricultural pests.

PUT 822: COMPARATIVE Physiology 2 Credits

Definition of basic concepts.

Review of Physiology of

Blood, Immune System, Liver, Kidney, Respiratory System, Nervous System, Cardiovascular System, Skin, Reproductive System, Eye, Endocrine System.

PUT 823: Principles of Pharmacology 3 Credits

Pharmacokinetics: definition of pharmacokinetics.

Absorption: different sites of absorption, pH-partitioning, factors that affect absorption.

Distribution: Plasma-protein binding and other factors that affect distribution. Entry of drugs into special tissues: the brain and the foetus. Elimination of drugs: introduction to metabolism of drugs. Excretion in urine: glomerular filtration, tubular reabsorption, tubular secretion. Other routes of elimination.

Pharmacodynamics: Receptors. Neurotransmitters.

The adrenergic and cholinergic nervous systems; serotonin, histamine, agonists and antagonists of each of these neurotransmitters. Neuropeptides. Antibiotics. Non-steroidal anti-inflammatory drugs.

PUT 824 Risk Assessment 3 Credits

1. Background:
 - a. What is risk?
 - b. What is risk assessment?
 - c. History of the evolution of risk assessment
 - d. Utility of risk assessment in decision making – Risk based decision making, development of reference concentrations, reference doses and cancer slope factors, use of the latter types of information to manage environmental hazards.
 - e. Overview of the framework for risk assessment
2. Framework for Risk Based Decision Making
 - a. Planning and Scoping
 - i. Relevance of designing a risk assessment to address risk management decisions.
 - ii. Setting up your risk assessment to be responsive to your risk management needs.
 - b. Hazard Identification
 - i. What is hazard identification
 - ii. What are the key questions (information outputs) of a hazard identification exercise

- iii. Assuring a thorough evaluation of toxicity – key concepts to consider and understand – direct effects, interactions and effect modification, vulnerability and susceptibility, cumulative effects and cumulative exposure.
- iv. Types of data used in hazard identification – animal toxicology studies, Toxicokinetic (TK) studies, Toxicodynamic (TD) studies, human studies (limited because of ethical issues but when available can be useful), epidemiological studies.
- v. Evaluating mechanisms of toxicity – biotransformation, key xenobiotic pathways e.g. Cyp2E1, Phase 1 and Phase 2 metabolism basics, role of the liver, excretory mechanisms, etc
- vi. Weighting the evidence to support toxicity – Applying Hill's criteria
- vii. Case Study Review using an example from the USEPA's Integrated Risk Information System – good examples per rich database are benzene which is rich in human epi data and cis 1,3-Dichloroethylene which is not so data rich. Another good source of data are the EPA "Integrated Science Assessment" documents for National Ambient Air Quality Standards pollutants. I would use Pb as a good example.

- c. Risk Characterization
 - i. Tools for estimating risk – hazard quotient, hazard index, risk per population count using inhalation unit risk estimates for cancer.
 - ii. Summarizing the data from your risk assessment – Assuring that key information is included.
 - iii. Preparing a risk report for a decision maker.
 - iv. Case study maybe using benzene.
- d. Risk management
 - i. Types of risk management decisions.
 - ii. Informing your decision using your data
 - iii. Considerations in risk management – social, political, scientific, economic, equity, sustainability, etc.

SGS 801.1 ICT & Research Methods

This course should cover essentials of ICT especially the use of Microsoft Word, Spreadsheet, Power point, Access and Project. It will also examine common statistical packages used in health research.

The course is an introduction to project design and planning and will teach the various methods in conducting scientific medical research. It will emphasize quantitative and qualitative designs including how to conduct clinical trials and documentation. It will also introduce the use of computer in data analysis and the use of operational research and functional analysis in project design and evaluation.

Other areas covered include - Planning a Research; Ethical Issues in Research; Study Designs in Medicine and Public Health; Choice of Topic; Introduction (Problem Definition, Objectives); Formulation of hypothesis; Testing of hypothesis; Literature Search/Literature Review; Materials & Methods; Sample Size determination/Calculation; Instrument for data collection; Data Collection/Management; Presentation of Results (Data Presentation, Analysis etc.); Discussion, Conclusion and Recommendations; Referencing; Project Write-Up

SGS 801.2 Management & Entrepreneurship

Covers concepts, history and development of entrepreneurship, the entrepreneur, qualities and characteristics. The Entrepreneur and Business Environment, Identifying Business Ownership and Registration, starting and developing business ventures, Legal forms of business ownership and registration. Types of business ownership, feasibility studies, Role of Small and Scale Enterprise (SME) in the economy, Role of Government in Entrepreneurship, Business location and layout. Accounting for SME, Financing, SME, managing of SME, Risk Management of SME, success and failure factors of SME, prospects, and challenges of Entrepreneurship in Nigeria Entrepreneurship in Nigeria Entrepreneurship. This course would expose the students to the practice of applied management and entrepreneurship. The students would learn how to enhance their entrepreneurship skills and manage their own business. Business prospects for students in higher institution would be taught and the student would learn how to get into the right business

PUT 825: Exposure Assessment and Biomonitoring 3 Credits

The contents include key goals of exposure assessment and potential uses of the results of an exposure assessment; types of data that are used in exposure assessment (the hierarchy of exposure data – from personal monitoring data, biomonitoring to proximity types of data), including pros and cons of each type of data; biomarkers of effect and biomarkers of exposure, etc.; key questions in exposure assessment – type of exposure – acute, chronic or intermittent, route of exposure (inhalation, oral, dermal, injection), exposure pathways, duration of exposure, frequency of

exposure, characteristics of receptor population that are pertinent for exposure, exposure rates (inhalation and ingestion rates), etc.; measuring exposure data in a variety of settings – epi study, environmental monitoring, modelling (use example of National-Scale Air Toxics Assessment for the US); calculating exposure in a risk assessment– illustrative case studies – using simple exposure formulae $((IR*Conc*EF*ED)/(BW*AT))$; Illustrative case study using made up scenario for benzene; Dose-Response Assessment

- i. What is the goal and utility of a dose-response assessment?
- ii. Evaluating dose-response relationships in animal tox studies and epi studies.
- iii. Understanding d-r information – shape and slope of the curve, background exposures, baseline susceptibility, linearity and non-linearity and issues with assumptions.
- iv. Case Study - “Dose maketh the poison” – A re-evaluation using emerging data on Pb and endocrine disruptors

Others are biomonitoring; sentinel species for biomonitoring and bio-surveillance; biomarkers and biomonitoring: Blood Urea Saliva and Sweat studies (BUSS studies)

PUT 826: Petroleum Industry Exposure Assessments. 2 Credits

Toxicology Strategies for Petroleum Industry Exposure Assessments

Oil and Gas Industry, Toxicology

Introduction to Petroleum Operations

Overview of Petroleum Operations and Process Streams

How to Categorize Streams using Toxicology Data

What are the Primary Constituents of Process Streams that drive exposure assessments?

Selected Hazardous Constituents in Petroleum Substances

- Benzene
- H₂S
- Naphthalene
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Butadiene

Occupational Exposure Limits in the Petroleum Industry

- How Different Companies Adopt or Set Internally Used Values

- Lessons Learned from this Process

- How Will they Affect the OEL Process

ACGIH® Mixtures Formula – Utility, Its Value and Application to Chemicals found in the Petroleum Industry

- Overview of the Formula, Its Application and Limitations

- Examples of its Use with Chemicals in the Petroleum Industry

Issues and Applications

Inhalation vs. Dermal Exposures
 Reproductive Issues
 Endocrine Disruptors
 Sharing Toxicology Data Globally
 Biomonitoring Considerations
 Petroleum Product Poisoning.
 Overview of Petroleum Product Poisoning
 Effects of Oil and Gas Fields on domestic/aquatic animals Health and Production

PUT 827 Medical Geology 2 units

Natural distribution and occurrence of elements.
 Anthropogenic sources.
 GIS as a tool in studies of the health of humans.
 Uptake of elements, particularly trace elements from the food to humans.
 Biological response on elements, particularly trace elements.
 Geological aspects on the nutrient supply.
 Biological response on elements, particularly trace elements.
 Animal and medical geology.
 Aspects on uptake of elements, particularly trace elements, in animals. Uptake of elements, particularly trace elements, and toxicological consequences of uptake of both essential and non-essential trace elements.
 Transport of elements in air with a focus on volcanic activity, radon problems and natural aerosols of dam and health effects.
 Transport of elements in water with a focus on arsenic, fluoride and hardness of water and health effects.
 Environmental epidemiology with special consideration to experimental framework, exposure assessment, bias and confounding factors.
 Transport of elements in water and the importance of speciation and the special requirements it has on sampling, preparation and analysis.
 Environmental medicine in relation to the natural environmental influence on human health. Which measures can be taken to avoid negative influences?
 Risk assessment of exposure for trace elements in the environment.
 Relationship between the risks with exposure for trace element in our environment and other health risks, e.g. smoking.

PUT 828: Biometry & Modeling in Risk Assessments 3 units

Introduction to Predictive Toxicology and Dry labs
 Predictive Toxicology Tools and Methods
 In Silico Toxicology – Non-Testing Methods
 QSAR Approaches to Predicting Toxicity
 Toxicity checker

PUT 829: Oil Field Chemicals Hygiene and HSE Protocols

Course Outline

Overview of oil field chemicals and applications
 Chemical hygiene protocols and components
 Management of chemical waste and disposal options
 HSE Management systems and protocols

PUT 807: SEMINARS 2 Credits

Seminar topic related to environmental and petroleum toxicology and in the candidate's area of interest will be developed and presented in a report and examined orally by a panel of internal examiners. The students are expected to undertake a detailed systematic review of current literature on the basic concepts that are related to seminar topic

PUT 808: Research Project (Dissertation) 6 Credits

The candidate must design and execute an acceptable original project in any area related to environmental/petroleum toxicology under supervision of an academic member of staff. For these projects, students will carry out original research. They will thus be exposed to practical research methods such as the design of empirical studies, questionnaire design, data collection, collation, analysis interpretation, and reporting. Referencing shall be the APA style. Ethical approval MUST be obtained from the Research and Ethics Committee of the University. Defense of completed project shall be done at date fixed by the departmental graduate committee and according to the guidelines set by the graduate school. Project shall be submitted in quarto size paper in BLACK bounded format and duly certified by project supervisor and must be submitted before the closing date given by the Centre.

ACADEMIC STAFF

S/N	Name	Qualification	Designation	Specialisation
1	Prof. Orisakwe, Orish E.	PhD	Professor	Toxicology/Pharmacology
2	Prof. Thuppil Venkatesh	PhD	Professor	Toxicology
3	Prof. Jerome Nriagu	PhD, DSc	Professor	Environmental Health Sciences
4	Prof. Judith T. Zelikoff,	Ph.D	Professor	Toxicology
5	Prof. Chiara Frazzoli	PhD	Professor	Toxicology
6	Prof Abbas A. Mahdi	PhD	Professor	Toxicology
7	Prof V. Ukaegbu	PhD	Professor	Medical Geologist
8	Dr Farzana Mahdi	PhD	Professor	Toxicology
9	Prof. F. Sikoki	PhD	Professor	Eco-Toxicology

10	Prof. Leo Osuji	PhD	Professor	Eco-Toxicology
11	Prof Patrick U. Agbasi	PhD	Professor	Toxicology
12	Prof Jose Centeno	PhD	Professor	Medical Geologist
13	Prof Ogbonna Joel	PhD	Professor	Petroleum and Gas
14	Dr. Z. Igweze	PhD	Reader	Toxicology/Pharmacology
15	Dr Chukwuemeka Raph Nwokocha	PhD	Reader	Environmental Health Sciences
16	Dr Olarenwaju Lawal	PhD	Reader	Geography
17	Dr. A.N, Ezejiofor	PhD	Senior lecturer	Toxicology/ Pharmacokinetics
18	Dr. K.C. Patrick-Iwuanyanwu	PhD	Senior lecturer	Toxicology/ Risk Assessment
19	Dr John Ugbebor	PhD	Senior lecturer	HSE/Environment
20	Dr. B.B. Babatunde	PhD	Senior lecturer	Eco-Toxicity and Radiation Toxicology
21	Dr Danladi Husaini Chiroma	PhD	Senior Lecturer	Toxicology
22	Dr Hyacinth Nwankwoala	PhD	Senior Lecturer	Medical Geologist
23	Dr K'tso Ngharbu	PhD	Senior Lecturer	Medical Geologist

PhD PROGRAMMES IN ENVIRONMENTAL HEALTH, ENVIRONMENTAL TOXICOLOGY AND NUTRITIONAL BIOCHEMISTRY/ TOXICOLOGY

Admission Requirements

For a candidate to be admitted into the PhD programme, he/she should have a relevant Masters' degree with a CGPA of not less than 4.0 on five-point scale. Candidates with master's degrees in food sciences and technology, food microbiology and other related courses can apply for the PhD in public health nutrition

Programme Titles:

Doctor of Philosophy (PhD) in Environmental health,
Doctor of Philosophy (PhD) in Environmental toxicology

Programme duration:

Full time – 36 (minimum) to 48 months (maximum)
Part-time – 48 months (minimum) to 72 months (maximum)

Graduation Requirements

To qualify for the award of the PhD, the candidate must have successfully completed all the prescribed courses in the programme in line with the school of graduate studies requirement.

LIST OF COURSES, CODE AND CREDIT UNITS

Area	Course	Code	Unit
General	Entrepreneurship	PUT 901	3
	Advanced Biostatistics and Data Science	PUT 902	3
	ICT, Technical Writing & Presentation Skills	PUT 903	3
	Environmental Epidemiology, Exposure Science & Risk Assessment	PUT 904	3
	Seminar	PUT 905	3
	Research Methods	PUT 906	3
	Research Project	PUT 907	12
Environmental Toxicology	Environmental Toxicology	PUT 908	3
Nutritional biochemistry/ toxicology	Advanced Nutritional Biochemistry	PUT 909	3
Environmental Health	Analytical Methods in Environmental Health	PUT 910	3

COURSES DESCRIPTION

PUT 901- Entrepreneurship (3 units)

This course teaches how to recognise, analyse and develop business opportunities. It will expose students to the various aspects of commerce – accounting, finance, marketing, management as well as the relevant legal and regulatory frameworks. The course will also introduce the students on Ways of commercializing their research outputs and how they can develop knowledge enterprise. Understanding the dynamic role of entrepreneurship and small businesses
Organizing and Managing a Small Business
Financial Planning and Control
Forms of Ownership for Small Business
Strategic Marketing Planning
New Product or Service Development
Business Plan Creation
Challenges of doing business in Nigeria and other developing countries
Research as an enterprise

PUT 902 - Advanced Biostatistics and Data Science (3 units)

This course teaches the concepts of biostatistics and the application of biostatistics in real world issues. Statistical methods and principles necessary for understanding and interpreting data used in public health and policy evaluation and formation. Topics include:

Descriptive statistics, graphical data summary, sampling, statistical comparison of groups, correlation, and regression.

Probability and advanced statistical theories parametric and non-parametric statistics, Poisson distribution, Regression modeling, statistical software appreciation and bioinformatics. Data Science introduces the concept and tools needed in turning open and real-world data into solving real world problems via mastering data communication, data investigation, data wrangling, cleaning, sampling, exploratory analysis and data Visualization skills.

Students will learn the powerful statistical program in R and how to use R for effective data analysis and statistical programming. The course will also cover practical issues in statistical computing with R, especially in reading data into R, accessing R packages, writing R functions, debugging, profiling R code, and organizing and commenting R code.

PUT 903 – ICT, Technical Writing & Presentation Skills (3 units)

The purpose of the course is to familiarize the participants with academic writing, grammar & syntax, critical thinking and problem-solving skills, summarizing, paraphrasing journal critique techniques and preparation of manuscripts and dissertation reports. Preparation and presentation at conferences and scientific meetings.

Participants would also be exposed to various statements/guidelines/checklists for reporting academic manuscripts such as:

CASP – Critical Appraisal Skill Program

CONSORT – Consolidated Standards of Reporting Trials

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analysis

ENTREQ – Enhancing Transparency in Reporting the synthesis of Qualitative research

COREQ – Consolidated criteria for Reporting Qualitative Research

CARE – Case Report guidelines

SQUIRE – Standards for Quality Improvement Reporting Excellence

STROBE – Strengthening the Reporting of Observational Studies in Epidemiology

ICT and Presentation Skills

Writing a Draft Journal Article

PUT 904: Environmental Epidemiology, Exposure Science & Risk Assessment

The candidate will study the principles and practice of advanced epidemiology and general concepts of assessing environmental exposures to chemicals in human populations. This course will also teach natural and environmental toxicants; food toxicology and carcinogens; mutagens, teratogens, allergens; neurotoxins, endocrine disruptors; detoxification of toxicants; microbial and insects' metabolism of xenobiotics; metabolism as a determinant of toxicity and assessment of toxicity; metabolism of hydrocarbons and other toxicants; human exposure to environmental contaminants.

Course Content

Introduction to principles and practice of epidemiology

Confounders, effect modification/interaction, causal inferences, outbreak investigations,

Geo-mapping/GIS, surveillance, receiver-operating characteristics curve, and surveys

The design of ecologic and personal monitoring studies

The techniques and equipment used for sampling and analysis, and interpretation of data.

The linkages among external concentrations, spatial and temporal parameters,

Risk assessment: concept and models

Recent topics in risk assessments

Food safety;

Modern environmental health hazards in non-communicable diseases

Biomonitoring; metals in diseases; metal toxicology: lead, mercury, cadmium, arsenic, chromium, nickel, vanadium, cobalt, manganese, iron, copper, etc;

Persistent organic pollutants (POPs) and dioxins

Plastics toxicology

Soot and aerosol toxicology; ozone, a criteria air pollutant; Natural antidotes; Unraveling toxic mechanisms

Biomarkers for toxic effects; predictive toxicology; regulatory aspects; introduction to systems biology; definition of fundamental concepts;

Cognitive effects of early exposure to environmental toxins, such as hydrocarbons, heavy metals, methylmercury, and other environmental toxicants on children and infants including exposure via breast milk

PUT 906 – Research Methods (3 units)

This course acquaints the students with principles and practice of advanced research methods in public health practice. Broad areas include systematic review, meta-analysis, meta-synthesis, quantitative and qualitative surveys, advanced literature search and data synthesis

Course Content

Research Process, Designs, and Human Subjects Protection

Research Question and Literature Review

Data Collection and SPSS

Descriptive Data Analysis

Inferential Data Analysis

Reporting the Results

Interpreting the Results

Thinking Skills for conduct of research

PUT 909 - Advanced Nutritional Biochemistry (3 Units)

This course is aimed at providing candidates with the principles of human nutrition. It is also aimed at providing an integrated overview of the physiological requirements and functions of protein, energy, and the major vitamins and minerals that are determinants of health and diseases in human populations. This course will also highlight principles of food and nutrition science relative to the health and well-being of the individual and the community. The chemical composition and functions of the essential nutrients, and how they are processed and utilized in the body. Dietary habits, nutrient requirements, food choices, healthy eating practices will also be highlighted. This course will also cover all theoretical/practical aspects of nutritional status assessments such as anthropometric measurement, dietary assessment etc. Screening topics will include the following:

Introduction to Nutrition : The need for food; Dietary sources, intake levels, physiological role, and requirement of major nutrients; The biological determinants of nutrient requirements and the assessment of nutritional status in individuals and the populations; The role of nutrition in growth and

health through the life cycle; The rationale for the development of dietary guidelines and nutrition policies in different countries; Nutrition and Biotechnology; Community nutrition; Maternal, infant and child nutrition; Nutrition in Health and Disease; Nutritional Epidemiology; Nutritional Assessment; Molecular Nutrition; control of food intake and regulation of body weight, as well as animal models of obesity; factors that affect the absorption, metabolism and storage of Vitamin A, as well as the association between Vitamin A deficiency and disease; Effects of nutritional alterations—for example, iron deficiency, folate alterations and PUFAs—on mortality, work capacity, and behaviour and cognitive functioning; Nutrition and physiological state (growth, reproduction, pregnancy, lactation etc.) and nutritional disorders of metabolic origin

PUT 912 - Analytical Methods in Environmental Health (3 Units)

Students in this course learn the skills, methods and critical thinking framework necessary for upper level environmental health courses and for success as public health professionals. Environmental Health is a field of public health in which environmental hazards and health risks to populations are identified, assessed and managed through a data-driven process. This course would introduce students to:

Nature of the physical, social and biological environment

Human ecology

Advance environmental forensic

Methodologies and techniques to obtain data in environmental health

Sampling, handling/storage of samples, sample preparation and determination.

Advanced environmental analysis in connection with advanced statistical methods including pattern recognition, multivariate statistics and experimental designs

PUT 905 - Seminar (3 Units)

Seminar presentation on specified aspects of research will be presented such as literature review, public health significance, key findings and implications and finally present research for external defense.

PUT 907 – Research Project (12 Units)

The dissertation will be an outline PhD proposal and a small piece of empirical work. The research proposal should indicate what the PhD might be along with, what the empirical work might be. The candidate's research will be supervised by academic and/or industry member of staff. The format of the report shall be in accordance with the existing guidelines from the School of Graduate Studies.

LIST OF STAFF

S/N	NAME	QUALIFICATIONS	DESIGNATION	SPECIALISATION
PUBLIC HEALTH				
1	Prof B. Ordinioha	MB, BS, FMCPH	Professor	History, Environmental Health
2	Prof D.S. Ogaji	MBBS, MQI, PhD, MNIM, FMCPH	Senior lecturer	Health System
3	Prof O. Obunge	BSc, MD, PhD, FWACP	Professor	Microbiology/ Laboratory Practice
4	Prof O. Georgewill	B.Med Sc, MBBS, MSc, MD	Professor	Therapeutics
5	Prof O.B. Babatunde	MBBS, Cert. Epid, FWACP	Senior lecturer	ICT/Research
6	Prof C.I. Tobin-West	MD,MPH,Adv Dip Mgt, FMCPH	Senior lecturer	Epidemiology, Reproductive Health
7	Prof K.E. Douglas	MBBS, FMCPH	Senior lecturer	Ethics, Occupational Health
8	Dr O. Maduka	MBBS, FMCPH, FRSPH	Senior lecturer	Epidemiology 1, Epidemiology 2
9	Dr I.D. Alabere	MBBS, MPH, FMCPH, mni,	Senior lecturer	Health Management, Seminar
10	Dr F. Adeniji	MBCH.B, MSc, FWACP (community Health)	Senior lecturer	Biostatistics
11	Dr Enembe Okokon	MBChB, MSc, PhD, FMCPH	Senior Lecturer	Environmental Epidemiology
NUTRITIONAL BIOCHEMISTRY/TOXICOLOGY				
1	Prof. E.N. Onyeike	PhD	Professor	Nutritional Biochemistry/Toxicology
2	Prof. Akaninwor, J.O.	PhD	Professor	Nutritional Biochemistry
3	Prof. E.O. Orisakwe	PhD	Professor	Nutrigenomics & Toxicology
4	Prof. O.A.T. Ebuehi	PhD	Professor	Nutritional & Food Biochemistry & Nutrigenomics
5	Prof. Irene Ifeoma Ijeh	PhD	Professor	Nutritional Biochemistry /Toxicology
6	Prof. I. Imumorin	PhD	Professor	Molecular Nutrition/ Nutrigenomics
7	Dr. E.B. Essien	PhD	Reader	Nutritional Biochemistry /Toxicology
7	Patrick-Iwuanyanwu, K.C	PhD	Senior lecturer	Nutritional Biochemistry/Toxicology
9	Ikewuchi, C.C.	PhD	Senior lecturer	Nutritional Biochemistry/ Toxicology
10	Amadi, B.A.	PhD	Senior lecturer	Nutrition/Toxicology
	Dr. E. M. Ubiaru	PhD	Visiting	Industrial and Food Microbiology.
11	Dr. Chukwukeluo E.B. Chukwuogo	PhD	Visiting	Industrial
ENVIRONMENTAL TOXICOLOGY				
1	Prof. Orisakwe, Orish E.	PhD	Professor	Toxicology/Pharmacology
2	Prof. Thuppil Venkatesh	PhD	Professor	Toxicology
3	Prof. Jerome Nriagu	PhD, DSc	Professor	Environmental Health Sciences
4	Prof. Judith T. Zelikoff,	Ph.D	Professor	Toxicology
5	Prof. Chiara Frazzoli	PhD	Professor	Toxicology

6	Prof Abbas A. Mahdi	PhD	Professor	Toxicology
7	Prof. F. Sikoki	PhD	Professor	Eco-Toxicology
8	Prof. Leo Osuji	PhD	Professor	Eco-Toxicology
9	Prof Patrick U. Agbasi	PhD	Professor	Toxicology
10	Dr. Z. Igweze	PhD	Reader	Toxicology/Pharmacology
11	Dr. A.N, Ezejiolor	PhD	Senior lecturer	Toxicology/Pharmacokinetics
12	Dr. K.C. Patrick-Iwuanyanwu	PhD	Senior lecturer	Toxicology/ Risk Assessment
13	Dr. B,B, Babatunde,	PhD	Senior lecturer	Eco-Toxicity and Radiation Toxicology

PhD PROGRAMMES IN ENVIRONMENTAL HEALTH, ENVIRONMENTAL TOXICOLOGY AND NUTRITIONAL BIOCHEMISTRY/TOXICOLOGY

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List of courses, code and credit units

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	ICT, Technical Writing & Presentation Skills	PUT 903	3
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Environmental Toxicology	Environmental Toxicology	PUT 908	3
Nutritional biochemistry/ toxicology	Advanced Nutritional Biochemistry	PUT 909	3
Environmental Health	Analytical Methods in Environmental Health	PUT 910	3

Courses description

PUT 901- Entrepreneurship (3 units)

This course teaches how to recognise, analyse and develop business opportunities. It will expose students to the various aspects of commerce – accounting, finance, marketing, management as well as the relevant legal and regulatory frameworks. The course will also introduce the students on ways of commercializing their research outputs and how they can develop knowledge enterprise.

Understanding the dynamic role of entrepreneurship and small businesses

Organizing and Managing a Small Business

Financial Planning and Control

Forms of Ownership for Small Business

Strategic Marketing Planning

New Product or Service Development

Business Plan Creation

Challenges of doing business in Nigeria and other developing countries

Research as an enterprise

PUT 902 - Advanced Biostatistics and Data Science (3 units)

This course teaches the concepts of biostatistics and the application of biostatistics in real world issues. Statistical methods and principles necessary for understanding and interpreting data used in public health and policy evaluation and formation. Topics include:

Descriptive statistics, graphical data summary, sampling, statistical comparison of groups, correlation, and regression.

Probability and advanced statistical theories parametric and non-parametric statistics, Poisson distribution, Regression modeling, statistical software appreciation and bioinformatics. Data Science introduces the concept and tools needed in turning open and real-world data into solving real world problems via mastering data communication, data investigation, data wrangling, cleaning, sampling, exploratory analysis and data Visualization skills.

Students will learn the powerful statistical program in R and how to use R for effective data analysis and statistical programming. The course will also cover practical issues in statistical computing with R, especially in reading data into R, accessing R packages, writing R functions, debugging, profiling R code, and organizing and commenting R code.

PUT 903 – ICT, Technical Writing & Presentation Skills (3 units)

The purpose of the course is to familiarize the participants with academic writing, grammar & syntax, critical thinking and problem-solving skills, summarizing, paraphrasing journal critique techniques and preparation of manuscripts and dissertation reports. Preparation and presentation at conferences and scientific meetings.

Participants would also be exposed to various statements/guidelines/checklists for reporting academic manuscripts such as:

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STROBE – Strengthening the Reporting of Observational Studies in Epidemiology

ICT and Presentation Skills

Writing a Draft Journal Article

PUT 904: Environmental Epidemiology, Exposure Science & Risk Assessment

The candidate will study the principles and practice of advanced epidemiology and general concepts of assessing environmental exposures to chemicals in human populations. This course will also teach natural and environmental toxicants; food toxicology and carcinogens; mutagens, teratogens, allergens; neurotoxins, endocrine disruptors; detoxification of toxicants; microbial and insects' metabolism of xenobiotics; metabolism as a determinant of toxicity and assessment of toxicity; metabolism of hydrocarbons and other toxicants; human exposure to environmental contaminants.

Course Content

Introduction to principles and practice of epidemiology

Confounders, effect modification/interaction, causal inferences, outbreak investigations,

Geo-mapping/GIS, surveillance, receiver-operating characteristics curve, and surveys

The design of ecologic and personal monitoring studies

The techniques and equipment used for sampling and analysis, and interpretation of data.

The linkages among external concentrations, spatial and temporal parameters,

Risk assessment: concept and models

Recent topics in risk assessments

Food safety;

Modern environmental health hazards in non-communicable diseases

Biomonitoring; metals in diseases; metal toxicology: lead, mercury, cadmium, arsenic, chromium, nickel, vanadium, cobalt, manganese, iron, copper, etc;

Persistent organic pollutants (POPs) and dioxins

Plastics toxicology

Soot and aerosol toxicology; ozone, a criteria air pollutant; Natural antidotes; Unraveling toxic mechanisms

Biomarkers for toxic effects; predictive toxicology; regulatory aspects; introduction to systems biology; definition of fundamental concepts;

Cognitive effects of early exposure to environmental toxins, such as hydrocarbons, heavy metals, methylmercury, and other environmental toxicants on children and infants including exposure via breast milk

PUT 906 – Research Methods (3 units)

This course acquaints the students with principles and practice of advanced research methods in public health practice. Broad areas include systematic review, meta-analysis, meta-synthesis, quantitative and qualitative surveys, advanced literature search and data synthesis

Course Content

Research Process, Designs, and Human Subjects Protection
Research Question and Literature Review
Data Collection and SPSS
Descriptive Data Analysis
Inferential Data Analysis
Reporting the Results
Interpreting the Results
Thinking Skills for conduct of research

PUT 909 - Advanced Nutritional Biochemistry (3 Units)

This course is aimed at providing candidates with the principles of human nutrition. It is also aimed at providing an integrated overview of the physiological requirements and functions of protein, energy, and the major vitamins and minerals that are determinants of health and diseases in human populations. This course will also highlight principles of food and nutrition science relative to the health and well-being of the individual and the community. The chemical composition and functions of the essential nutrients, and how they are processed and utilized in the body. Dietary habits, nutrient requirements, food choices, healthy eating practices will also be highlighted. This course will also cover all theoretical/practical aspects of nutritional status assessments such as anthropometric measurement, dietary assessment etc. Screening topics will include the following:

Introduction to Nutrition: The need for food; Dietary sources, intake levels, physiological role, and requirement of major nutrients; The biological determinants of nutrient requirements and the assessment of nutritional status in individuals and the populations; The role of nutrition in growth and health through the life cycle; The rationale for the development of dietary guidelines and nutrition policies in different countries; Nutrition and Biotechnology; Community nutrition; Maternal, infant and child nutrition; Nutrition in Health and Disease; Nutritional Epidemiology; Nutritional Assessment; Molecular Nutrition; control of food intake and regulation of body weight, as well as animal models of obesity; factors that affect the absorption, metabolism and storage of Vitamin A, as well as the association between Vitamin A

deficiency and disease; Effects of nutritional alterations—for example, iron deficiency, folate alterations and PUFAs—on mortality, work capacity, and behaviour and cognitive functioning; Nutrition and physiological state (growth, reproduction, pregnancy, lactation etc.) and nutritional disorders of metabolic origin

PUT 912 - Analytical Methods in Environmental Health (3 Units)

Students in this course learn the skills, methods and critical thinking framework necessary for upper level environmental health courses and for success as public health professionals. Environmental Health is a field of public health in which environmental hazards and health risks to populations are identified, assessed and managed through a data-driven process. This course would introduce students to:

Nature of the physical, social and biological environment
Human ecology
Advance environmental forensic
Methodologies and techniques to obtain data in environmental health
Sampling, handling/storage of samples, sample preparation and determination.
Advanced environmental analysis in connection with advanced statistical methods including pattern recognition, multivariate statistics and experimental designs

PUT 905 - Seminar (3 Units)

Seminar presentation on specified aspects of research will be presented such as literature review, public health significance, key findings and implications and finally present research for external defense.

PUT 907 – Research Project (12 Units)

The dissertation will be an outline PhD proposal and a small piece of empirical work. The research proposal should indicate what the PhD might be along with, what the empirical work might be. The candidate's research will be supervised by academic and/or industry member of staff. The format of the report shall be in accordance with the existing guidelines from the School of Graduate Studies.

LIST OF ACADEMIC STAFF

S/N	NAME	QUALIFICATIONS	DESIGNATION	SPECIALISATION
PUBLIC HEALTH				
1	Prof B. Ordinioha	MB, BS, FMCPH	Professor	History, Environmental Health
2	Prof D.S. Ogaji	MBBS, MQI, PhD, MNIM, FMCPH	Senior lecturer	Health System
3	Prof O. Obunge	BSc, MD, PhD, FWACP	Professor	Microbiology/ Laboratory Practice
4	Prof O. Georgewill	B.Med Sc, MBBS, MSc, MD	Professor	Therapeutics
5	Prof O.B. Babatunde	MBBS, Cert. Epid, FWACP	Senior lecturer	ICT/Research
6	Prof C.I. Tobin-West	MD,MPH,Adv Dip Mgt, FMCPH	Senior lecturer	Epidemiology, Reproductive Health
7	Prof K.E. Douglas	MBBS, FMCPH	Senior lecturer	Ethics, Occupational Health
8	Dr O. Maduka	MBBS, FMCPH, FRSPH	Senior lecturer	Epidemiology 1, Epidemiology 2
9	Dr I.D. Alabere	MBBS, MPH, FMCPH, mni,	Senior lecturer	Health Management, Seminar
10	Dr F. Adeniji	MBCH.B, MSc, FWACP (community Health)	Senior lecturer	Biostatistics
11	Dr Enembe Okokon	MBChB, MSc, PhD, FMCPH	Senior Lecturer	Environmental Epidemiology
NUTRITIONAL BIOCHEMISTRY/TOXICOLOGY				
1	Prof. E.N. Onyeike	PhD	Professor	Nutritional Biochemistry/Toxicology
2	Prof. Akaninwor, J.O.	PhD	Professor	Nutritional Biochemistry
3	Prof. E.O. Orisakwe	PhD	Professor	Nutrigenomics & Toxicology
4	Prof. O.A.T. Ebuehi	PhD	Professor	Nutritional & Food Biochemistry & Nutrigenomics
5	Prof. Irene Ifeoma Ijeh	PhD	Professor	Nutritional Biochemistry /Toxicology
6	Prof. I. Imumorin	PhD	Professor	Molecular Nutrition/ Nutrigenomics
7	Dr. E.B. Essien	PhD	Reader	Nutritional Biochemistry /Toxicology
7	Patrick-Iwuanyanwu, K.C	PhD	Senior lecturer	Nutritional Biochemistry/Toxicology
9	Ikewuchi, C.C.	PhD	Senior lecturer	Nutritional Biochemistry/ Toxicology
10	Amadi, B.A.	PhD	Senior lecturer	Nutrition/Toxicology
	Dr. E. M. Ubiaru	PhD	Visiting	Industrial and Food Microbiology.
11	Dr. Chukwukeluo E.B. Chukwuogo	PhD	Visiting	Industrial
ENVIRONMENTAL TOXICOLOGY				
1	Prof. Orisakwe, Orish E.	PhD	Professor	Toxicology/Pharmacology
2	Prof. Thuppil Venkatesh	PhD	Professor	Toxicology
3	Prof. Jerome Nriagu	PhD, DSc	Professor	Environmental Health Sciences
4	Prof. Judith T. Zelikoff,	Ph.D	Professor	Toxicology
5	Prof. Chiara Frazzoli	PhD	Professor	Toxicology

6	Prof Abbas A. Mahdi	PhD	Professor	Toxicology
7	Prof. F. Sikoki	PhD	Professor	Eco-Toxicology
8	Prof. Leo Osuji	PhD	Professor	Eco-Toxicology
9	Prof Patrick U. Agbasi	PhD	Professor	Toxicology
10	Dr. Z. Igweze	PhD	Reader	Toxicology/Pharmacology
11	Dr. A.N, Ezejiofor	PhD	Senior lecturer	Toxicology/Pharmacokinetics
12	Dr. K.C. Patrick-Iwuanyanwu	PhD	Senior lecturer	Toxicology/ Risk Assessment
13	Dr. B,B, Babatunde,	PhD	Senior lecturer	Eco-Toxicity and Radiation Toxicology

EMERALD ENERGY INSTITUTE FOR PETROLEUM AND ENERGY ECONOMICS, POLICY AND STRATEGIC STUDIES

INTRODUCTION

Emerald Energy Institute, (EEI) is a collaborative Institute for graduate education in Petroleum & Energy Economics, Policy and Strategic Studies. It was established in 2008 through Institute of Petroleum Studies (IPS) with Dr. Emmanuel .O. Egbogah, (OON), Adviser to President Umaru Musa Yar'adua on Petroleum Matters and Chairman of Emerald Energy Resources Ltd as the benefactor. The Institute is an international collaborative center for graduate studies and continuing education, to generate policy debates, and conduct applied research on energy, especially contemporary petroleum and power policy issues. As African countries grow in their status and relevance as petroleum and energy producers and exporters, the need to develop indigenous capacity in oil, gas & power sector is imperative.

The emphasis on building capacity for petroleum and energy sectors locally in Nigeria to complement professional training overseas in energy and petroleum policy issues and problems drives the passion and commitment of Emerald Energy Institute (EEI) to excellence, keeping in perspective the expectations stated in the Nigeria Content Law. Thus, Emerald Energy Institute in the University of Port Harcourt, an Institute of excellence, is established and anchored on local, regional and global academic faculty and industry experts in energy and petroleum to train highly skilled personnel and to conduct research on energy policy, management, and economics.

VISION

To become an inimitable Institute of excellence in petroleum and energy economics, management and strategic studies in Africa.

MISSION

To provide skilled professionals and managers for the petroleum and energy industry and institutions through commitment to excellence in training, applied economics and policy research, continuing education and capacity-building.

AIM

The EEI AIMS to develop petroleum and energy professionals with capabilities to manage and govern the petroleum and energy sectors, and to provide a forum for interactions between petroleum and energy professionals in government, academia, industry, and related professional bodies (the triple Helix plus model).

OBJECTIVES

- a. **To develop human capacity required by Nigeria and Sub-Saharan Africa in the following areas:**
 - Extraction of oil and gas resources in a cost efficient form.
 - Formulation and implementation of energy policies and regulations.
 - Effective management of the natural resources of Nigeria and sub-Saharan Africa (SSA).
- b. **To provide a forum for exchange of ideas & policy dialogue from various energy professionals through the triple helix model**
 - Energy Professionals in Government;
 - Energy Professionals in Academia;
 - Energy Professionals in Business/Industry.
- c. **To develop research in the following broad areas:**
 - Geopolitics of Energy and Energy Resources;
 - Energy Law, Regulations and Policy Analysis;
 - Oil and Gas Economics, Management and Finance.

ACADEMIC PROGRAMMES

The Emerald Energy Institute offers degree courses in energy and petroleum economics. The degree from the Institute is awarded by the University of Port Harcourt as approved by the University's Senate.

1. Post Graduate Diploma (PGD) in Petroleum & Energy Economics
2. Professional Masters in Energy Economics
3. Professional Masters in Petroleum Economics
4. Professional M.Sc. Petroleum Regulation and Policy (without dissertation)
5. Professional M.Sc. Climate Change, Green Economy and Policy (without dissertation)
6. Professional M.Sc. Energy Regulation and Policy (without dissertation)
7. Professional M.Sc. Energy Transitions Management and Policy (without dissertation)
8. Master of Science (MSc) Petroleum Business Management
9. Master of Science (MSc) Energy Business Management
10. Master of Science (MSc) Petroleum Economics, Management & Policy
11. Master of Science (MSc) Energy Economics, Management & Policy

12. Doctor of Philosophy (PhD) Petroleum Economics
13. Doctor of Philosophy (PhD) Energy Economics

PROGRAMME DURATIONS

- **POST GRADUATE DIPLOMA (PGD)**
The duration of the programme shall be 12 months of full time study. Industry/company workers can equally attend modular/sandwich programmes and accumulate credits for 24 months (Part time).
- **MASTER OF SCIENCE (M.Sc)**
The Masters Programmes at Emerald Energy Institute (EEI) shall be for 18 months of intensive course work, field trips, and dissertation preparation and for Full Time students and a minimum of 24 months for Part time students of intensive course work and dissertation.
- **DOCTOR OF PHILOSOPHY (Ph. D)**
The programme leading to the award of PhD degree in Petroleum and Energy Economics shall be for a minimum of 36 months and maximum of 48 months of intensive quarterly modular courses and research work for those with MSc degree in Petroleum and Energy Economics. This course work will involve 12 credits of advanced graduate course works in Applied Economics in addition to 12 credits core courses in petroleum, energy economics, management and policy and a thesis.
- **PROFESSIONAL MASTERS**
The Professional Masters Programmes at Emerald Energy Institute (EEI) can be completed in 12 months for Full time students and a maximum of 24 months for Part time students of intensive course work and field trips. Dissertation is not required for graduation.

ADMISSIONS REQUIREMENTS

GENERAL REQUIREMENT

- Candidates must possess a Bachelor of Science Degree with a minimum of Second Class (Upper Division) in Social Sciences, Management Sciences, Engineering or Physical Sciences.
- Sponsored company staff and candidates with at least three (3) years' experience in the petroleum and energy industries and a Second Class (Lower Division) Degree with a minimum CGPA of at least 3.00 (on a 5-point scale) may also be considered. Law degree holders with enough years of experience in the

oil, gas, and power industry may be considered as well.

- Candidates must have completed the mandatory NYSC and have proof of a discharge or exemption certificates.
- In addition to the above requirements, **ALL** candidates must also satisfy the minimum graduate school matriculation requirements of the University of Port Harcourt.
- The language of instruction at Emerald Energy Institute (EEI) is English and all applicants are expected to have a level of proficiency in English.
- All applicants academically qualified shall be required to undergo an entrance examination and interview by the Institute.

SPECIFIC REQUIREMENT

- **POST GRADUATE DIPLOMA (PGD) REQUIREMENT**
Applicants for PGD shall be required to have a minimum of Second Class Honours Lower Division in a relevant degree in Sciences, Management, Social Sciences, Geosciences, and Engineering with a minimum CGPA of 3.0. Candidates with Second Class Honours Lower Division in Law with adequate experience in the energy and petroleum industry will be considered. All candidates must also satisfy the minimum matriculation requirements of the University of Port Harcourt.
- **MASTER OF SCIENCE (M. Sc) REQUIREMENT**
Applicants for professional masters in energy economics shall be required to have a minimum of Second Class Honours Upper Division in a relevant degree in Social Sciences, Management Sciences, Law, Sciences, Geosciences, and Engineering with a minimum CGPA of 4.0. However, candidates with Second Class Honours Lower Division with at least 5 years working experience in the energy and petroleum industry will be considered. All candidates must also satisfy the minimum matriculation requirements of the University of Port Harcourt.
- **DOCTOR OF PHILOSOPHY (Ph.D.) REQUIREMENTS**
Entry into the PhD programme shall be on a competitive basis. Candidates with a B.Sc. Second Class Upper (or Lower Division degree in Social and Management Sciences, Engineering or Geosciences with at least four years' experience in the oil and gas industry)

is eligible to apply. But such candidates must also have an appropriate MSc degree in Energy or Petroleum Economics or appropriate majors in order to be eligible for direct admission to the Ph.D. programme. All candidates must also satisfy the minimum Graduate School Admission requirements of the University of Port Harcourt.

- **PROFESSIONAL MASTERS IN PETROLEUM OR ENERGY ECONOMICS**

Applicants for Professional Masters in either Petroleum or Energy Economics shall be required to have a minimum of Second Class Honours Upper Division in a relevant degree in Social Sciences, Management Sciences, Law, Sciences, Geosciences, and Engineering with a minimum CGPA of 4.0. However, candidates with Second Class Honours Lower Division with adequate experience in the energy and petroleum industry will be considered. All candidates must also satisfy the minimum matriculation requirements of the University of Port Harcourt.

- **PGD GRADUATION REQUIREMENTS**

To qualify for the award of Post Graduate Diploma in Petroleum and Energy Economics, the student must have successfully completed all the proposed courses and must have scored at least a grade of “C” in each of the courses. Evaluation of student performance shall be based on continuous assessment and final examination in taught courses and research preparation. The maximum standard for satisfactory academic progress at EEI is an A or a 5.0 Grade Point Average (GPA) and a minimum standard of a C or 3.0 Grade Point Average. Any student with a grade below “C” shall be required to write a resit exams. The minimum cumulative grade point average for graduation shall be 2.5.

- **MSc GRADUATION REQUIREMENTS**

The minimum standard for satisfactory academic progress at Emerald Energy Institute (EEI) is a C or a 3.0 Grade Point Average (GPA). D Grades, or an ABS are considered “unsatisfactory” and an F grade is a failed grade. Any student with a failed grade in any four courses during an academic year may be dismissed or asked to withdraw from the program. Any student who fails to meet the requirements for his/her program and/or has a grade point average of at least 2.5 will not qualify for award of the research-based M.Sc. and may be awarded a Post Graduate Diploma

or advised to transfer to a non-thesis program where applicable.

- **PHD. GRADUATION REQUIREMENTS**

Ph. D Scholars are expected to work closely with the institute’s academic adviser on admission to the PhD program to identify an advisor and two other committee members who shall serve as “advisors” for the study/research program. The selected committee members may include a faculty member(s) from the institute, and/or other departments or programs within or outside the University that can provide useful inputs to the candidate during the period leading to the award of the PhD degree.

During the first year of enrolment, PhD enrollees are expected to take 12 credits of advanced graduate course works in applied economics in addition to 12 credits speciality core courses in petroleum and energy economics, management and policy at Emerald Energy Institute (EEI) or any other recognized institution. At the end of the first year, the Ph. D scholars are expected to undertake a Graduate Qualifying Examinations before they can proceed with their work.

They are also required to participate in graduate seminars and independent research projects under the supervision of an advisor and two other committee members. Candidates are encouraged to apply for fellowships that will provide them with sponsorship to travel abroad to work on aspects of their research and/or participate in short courses/programs and conferences. The approval of the Office of the Director must be obtained before engaging in such programs. The approved students must also return to Emerald Energy Institute (EEI) to complete their research and PhD program.

There shall be three defense seminar before the final defense. These defense would comprise of a proposal, progress report-field work and the abstract defense.

Prior to submitting themselves for final assessment for the Ph.D. degree, all doctoral candidates are required to publish from their doctoral research at least two (2) papers in selected pre-approved peer reviewed journals as part of the requirement for graduation.

The Final Public Oral examination must include an initial public presentation of the research, and an open forum at the University graduate school in which the candidate is expected to defend the ideas presented in the thesis. The committee will then deliberate

briefly before voting on whether to award the candidate the degree. A simple majority vote by the committee is required for the award of the degree.

All professional masters' scholars are expected to obtain a minimum of a "C" grade in any exam undertaken at the Institute. A satisfactory performance in all course work examination is mandatory for graduation. This programme does not require a dissertation preparation and as such, the entire assessment on the student is based on course work.

PROFESSIONAL MASTERS GRADUATION PREREQUISITES

PGD PETROLEUM & ENERGY ECONOMICS

LIST OF COURSES, CODES AND CREDIT UNITS			
S/NO	COURSE CODE	COURSE TITLE	CREDIT UNIT
1	PEEM 701-1	Fundamentals of the Oil and Gas Industry	3
2	PEEM 701-2	Energy & Energy Resources, and the Economy	3
3	PEEM 701-3	Fundamentals of Downstream Petroleum Economics & Policy	3
4	PEEM 701-4	Fundamentals of Natural Gas	3
5	PEEM 701-5	Fundamentals of the Energy Industry - Power Sector	3
6	PEEM 701-6	Local Content Development in the Oil and Gas Industry	3
7	PEEM 701-7	Fundamentals of Petroleum Geopolitics	3
8	PEEM 702-1	Introductory Economic Theory	3
9	PEEM 702-2	Fundamentals of Micro and Macro Economics	3
10	PEEM 703	Mathematical Analysis, Research Methods and Statistics	3
11	PEEM 704	Petroleum & Energy Strategic Business Management	3
12	PEEM 705	Oil and Gas Industry and Pollution Issues	3
13	PEEM 706	Petroleum/Energy Project Finance & Investment Analysis	3
14	PEEM 707-1	Energy & Petroleum Policy, Law, Regulation & Ethics	3
15	PEEM 707-2	Environmental Sustainability & Community Relations in the Oil and Gas Industry	3
16	PEEM 707-3	Project Management	3
17	PEEM 708	Research Project	6

COURSE DESCRIPTION

PEEM 701-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

PEEM 701-2 Energy & Energy Resources, and the Economy (3 Credits)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy production, electric power generation technologies, etc.

PEEM 701-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum

Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality(Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy

PEEM 701-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector and will be equipped with the requisite knowledge and skills to make informed judgements on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

PEEM 701-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

PEEM 701-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development

(Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria

PEEM 701-7 Fundamentals of Petroleum Geopolitics (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the political economy of oil & gas industry, petroleum pricing and its regulation by OPEC, the global politics involved, petroleum & macroeconomic issues, sustainable petroleum development, the recent energy transition and the geopolitics involved.

PEEM 702-1 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much as possible made relevant to the energy and petroleum sector.

PEEM 702-2 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

PEEM 703 Mathematical Analysis, Research Methods and Statistics (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical tools and statistics in petroleum and energy economics. The key objective is to provide

students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, research methods and efficiency analysis.

PEEM 704 Petroleum & Energy Strategic Business Management (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. It also introduces students to elements of strategy formulation, implementation and evaluation.

PEEM 705 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and assessment- safety in design and operation- organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management- atmospheric pollution- flaring and fugitive release- water pollution- drilling waste, produced water, oil spills, cooling water, processed water- soil waste- rock cutting. Oil sludge, drilling solid waste, production waste environmental monitoring- environmental impact and decommissioning- environmental management.

PEEM 706 Petroleum/Energy Project Finance & Investment Analysis (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion.

PEEM 707-1 Energy & Petroleum Policy, Law, Regulation & Ethics (3 Credits)

A complex legal environment underscores oil, gas and power business relationships and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

PEEM 707-2 Environmental Sustainability & Community Relations in the Oil and Gas Industry (3 Credits)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector , community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

PEEM 707-3 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the

inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope

management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

PEEM 708 Project/Research Report

**PROFESSIONAL MASTER OF ENERGY ECONOMICS
(WITHOUT DISSERTATION)**

LIST OF COURSES, CODES AND CREDIT UNITS			
S/NO	COURSE CODE	COURSE TITLE	CREDIT UNIT
1	SGS 801.1	ICT and Research Methodology	2
2	SGS 801.2	Management and Entrepreneurship	2
3	PEM 800	Business Communications	2
4	EEM 801-1	Fundamentals of the Oil and Gas Industry	3
5	EEM 801-2	Energy & Energy Resources, and the Economy	3
6	EEM 801-3	Fundamentals of Downstream Petroleum Economics & Policy	3
7	EEM 801-4	Fundamentals of Natural Gas	3
8	EEM 801-5	Fundamentals of the Energy Industry - Power Sector	3
9	EEM 801-6	Local Content Development in the Oil and Gas Industry	3
10	EEM 801-7	Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply	3
11	EEM 801-8	Fundamentals of Micro and Macro Economics	3
12	EEM 801-9	Introductory Economic Theory	3
13	EEM 802	Oil and Gas Industry and Pollution Issues	3
14	PEM 803	Applied Economics: Theory and Applications in the Energy Sector	3
15	PEM 804	Applied Mathematics, Linear programming & Optimization Methods	3
16	PEM 805	Applied Econometrics for Energy Policy Analysis and Planning	3
17	EEM 806	Energy Economics I: Concepts, Geopolitics & Governance	3
18	EEM 807	Energy Economics II: Renewable Energy Technology & Climate Change Economics	3
19	EEM 808	Energy Economics III: Energy Modelling and Power Market Analysis	3
20	PEM 809	Business Strategy, Change Management and Policy Formulation	3
21	EEM 810	Energy Infrastructure, Project Finance and Investment Analysis	3
22	EEM 814	Economics of Power Market Regulation	3
23	EEM 811-1	Energy & Petroleum Policy, Law, Regulation & Ethics	3
24	EEM 811-2	Environmental Sustainability and Governance in the Oil and Gas Industry	3
25	EEM 812	Economics of Energy and the Environment	3
26	EEM 813	Economics of Renewable forms of Energy	3
27	PEM 814	Project Management	3
TOTAL			78

COURSE DESCRIPTION

SGS 801.1 ICT and Research Methodology (2 Credits)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis,

Formulation and testing, Organization of Research and Report Writing.

SGS 801.2 Management and Entrepreneurship (2 Credits)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

PEM 800 Business Communications (2 Credits)

This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

EEM 801-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

EEM 801-2 Energy & Energy Resources, and the Economy (3 Credits)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy production, electric power generation technologies, etc.

EEM 801-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality (Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash

Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy

EEM 801-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector and will be equipped with the requisite knowledge and skills to make informed judgements on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

EEM 801-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

EEM 801-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of local content in Nigeria, factors that defines local content development, policy framework of local content development in Nigeria, legal framework for Nigerian content development (immigration acts, the petroleum acts, petroleum development fund acts, the petroleum industry bill, the Nigerian oil & gas industry content development act, etc), challenges of local content development in oil & gas industry in Nigeria

EEM 801-7 Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the political economy of oil & gas industry, petroleum pricing and its regulation by OPEC, the global politics involved, petroleum & macroeconomic issues, sustainable petroleum development, the recent energy transition and the geopolitics involved.

EEM 801-8 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

EEM 801-9 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much as possible made relevant to the energy and petroleum sector.

EEM 802 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes

introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and assessment- safety in design and operation- organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management- atmospheric pollution- flaring and fugitive release- water pollution- drilling waste, produced water, oil spills, cooling water, processed water- soil waste- rock cutting. Oil sludge, drilling solid waste, production waste environmental monitoring- environmental impact and decommissioning- environmental management.

PEM 803 Applied Economics: Theory and Applications in the Energy Sector (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management.

PEM 804 Applied Mathematics, Linear programming & Optimization Methods (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical modeling and techniques in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: LP modeling, I-O modeling and analysis, efficiency analysis, industrial mathematics with applications and decision modeling in supply chain management.

PEM 805 Applied Econometrics for Energy Policy Analysis and Planning (3 Credits)

This course is designed to provide a solid foundation for students in the applications of econometrics and statistics in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, classical linear regression analysis, time series models analysis and panel data model & nonlinear models, as well as discrete choice regression models.

EEM 806 Energy Economics I: Concepts, Geopolitics & Governance (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price behaviour and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

EEM 807 Energy Economics II: Renewable Energy Technology & Climate Change Economics (3 Credits)

The course covers renewable energy technologies, economics and policy and is intended to provide an overview of renewable energy concepts, issues relevant to the technologies currently used for providing energy services through renewable energy resources. The course also provides understanding and relevant knowledge in analyzing the integration of renewable energy into the global energy system and emerging issues in renewable energy development along the areas of gender, energy poverty, innovation and new energy technologies. Specific topics include: Renewable Energy Resources; Types and Classification of Renewable Energy Technologies; Introduction to Energy Economics and Energy Markets; Energy Policy Drivers; Renewable Energy Policies and Markets; and Innovations in Renewable Energy Technologies.

EEM 808 Energy Economics III: Energy Modelling and Power Market Analysis (3 Credits)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: Introduction to Electricity Industry; Electric Power Industry Structure; Electricity Demand and Supply Dynamics; Cost Structures; Economics of Electric Power Generation, Transmission and Power Flow; Capital Planning: Regulated Versus Restructured; Transmission Access and Wheeling; Ancillary Services; Alternative Energy Policies and Programmes; Climate Change and Impact on Generation Investments; Legal and Regulatory Issues in Electricity Economics; and Global Case Studies and Electricity Sector Reforms.

PEM 809 Business Strategy, Change management and Policy Formulation (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion.

EEM 810 Energy Infrastructure, Project Finance and Investment Analysis (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries.

EEM 814 Economics of Power Market Regulation (3 Credits)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: introduction to electricity industry; electric power industry structure; electricity demand and supply dynamics; cost structures; economics of electric power generation, transmission and power flow; capital planning: regulated versus restructured; transmission access and wheeling; ancillary services; alternative energy policies and programmes; climate change and impact on generation investments; legal and regulatory issues in electricity economics; and global case studies and electricity sector reforms.

EEM 811-1 Energy & Petroleum Policy, Law, Regulation & Ethics (3 Credits)

A complex legal environment underscores oil, gas and power business relationships and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

EEM 811-2 Environmental Sustainability and Governance in the Oil and Gas Industry (3 Credits)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector , community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation

of corporate social responsibility (environmental & social responsibilities).

EEM 812 Economics of Energy and the Environment (3 Credits)

This course examines the relationship between the economy and the environment. It examines the economics of natural resources from the extraction and use side, and the waste products returned to the environment. The course addresses issues such as fossil fuels and their impacts, pollution: environment /natural resources/humans, green house gases/global warming/ climate change, environmental audits/enviromental management system and environmental technologies & applied research (remediation, sequestration, etc)

EEM 813 Economics of Renewable forms of Energy (3 Credits)

This course introduces students to renewable energy and the basics of energy demand and energy consumption. It explores the types and features of renewable energy resources, the applications of renewable energy technologies, trend analysis of global capacity of renewable energy, renewable energy economics & investment analysis, focusing on renewable energy cost trend analysis as well as renewable energy project investment analysis using DCF Analysis

PEM 814 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

**PROFESSIONAL MASTER OF PETROLEUM ECONOMICS
(WITHOUT DISSERTATION)**

LIST OF COURSES, CODES AND CREDIT UNITS

S/NO	COURSE CODE	COURSE TITLE	CREDIT UNIT
1	SGS 801.1	ICT and Research Methodology	2
2	SGS 801.2	Management and Entrepreneurship	2

3	PEM 800	Business Communications	2
4	PEM 801-1	Fundamentals of the Oil and Gas Industry	3
5	PEM 801-2	Energy & Energy Resources, and the Economy	3
6	PEM 801-3	Fundamentals of Downstream Petroleum Economics & Policy	3
7	PEM 801-4	Fundamentals of Natural Gas	3
8	PEM 801-5	Fundamentals of the Energy Industry - Power Sector	3
9	PEM 801-6	Local Content Development in the Oil and Gas Industry	3
10	PEM 801-7	Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply	3
11	PEM 801-8	Fundamentals of Micro and Macro Economics	3
12	PEM 801-9	Introductory Economic Theory	3
13	PEM 802	Oil and Gas Industry and Pollution Issues	3
14	PEM 803	Applied Economics: Theory and Applications in the Energy Sector	3
15	PEM 804	Applied Mathematics, Linear programming & Optimization Methods	3
16	PEM 805	Applied Econometrics for Energy Policy Analysis and Planning	3
17	PEM 806	Petroleum Economics I: Concepts, Geopolitics & Governance	3
18	PEM 807	Petroleum Economics II: Upstream Petroleum Economics & Risk Analysis	3
19	PEM 808	Petroleum Economics III: Downstream of Gas/ Gas to Power Market Analysis	3
20	PEM 809	Business Strategy, Change Management and Policy Formulation	3
21	PEM 810	Energy Infrastructure, Project Finance and Investment Analysis	3
22	PEM 811-1	Energy & Petroleum Policy, Law, Regulation & Ethics	3
23	PEM 811-2	Environmental Sustainability and Governance in the Oil and Gas Industry	3
24	PEM 812	Economics of Petroleum Refining & Petrochemicals	3
25	PEM 813	Economics of Regulation of Petroleum Industries	3
26	PEM 814	Project Management	3
27	PEM 815 – 1	Petroleum Reserves Classification	3
28	PEM 815 – 1	Petroleum Assets Valuation	3
TOTAL			81

COURSE DESCRIPTION

SGS 801.1 ICT and Research Methodology (2 Credits)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 801.2 Management and Entrepreneurship (2 Credits)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

PEM 800 Business Communications (2 Credits)

This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

PEM 801-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

PEM 801-2 Energy & Energy Resources, and the Economy (3 Credits)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy production, electric power generation technologies, etc.

PEM 801-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality (Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy.

PEM 801-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector and will be equipped with the requisite knowledge and skills to make informed judgements on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

PEM 801-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

PEM 801-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development (Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria

PEM 801-7 Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the Political Economy of Oil & Gas Industry, Petroleum Pricing and its Regulation by OPEC, the Global Politics involved, Petroleum & Macroeconomic Issues, Sustainable Petroleum Development, the recent Energy Transition and the Geopolitics involved.

PEM 801-8 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

PEM 801-9 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much

as possible made relevant to the energy and petroleum sector.

PEM 802 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and assessment- safety in design and operation- organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management- atmospheric pollution- flaring and fugitive release- water pollution- drilling waste, produced water, oil spills, cooling water, processed water- soil waste- rock cutting. Oil sludge, drilling solid waste, production waste environmental monitoring- environmental impact and decommissioning- environmental management.

PEM 803 Applied Economics: Theory and Applications in the Energy Sector (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management.

PEM 804 Applied Mathematics, Linear programming & Optimization Methods (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical modeling and techniques in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: LP modeling, I-O modeling and analysis, efficiency analysis, industrial mathematics with applications and decision modeling in supply chain management.

PEM 805 Applied Econometrics for Energy Policy Analysis and Planning (3 Credits)

This course is designed to provide a solid foundation for students in the applications of econometrics and statistics in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, classical linear regression analysis, time series models analysis and panel data model & nonlinear models, as well as discrete choice regression models.

PEM 806 Petroleum Economics I: Concepts, Geopolitics & Governance (3 Credits)

The course describes the key principles, economic concepts, and strategic thinking of the oil and gas industry with respect to its structure, conduct and performance. The course evaluates the major segments of the industry and introduces the oil and gas value sequence. The key players or major drivers impacting the global oil and gas supply outlook and pricing are identified and evaluated, including IOCs, OECD, OPEC, and NOCs. The course also presents a broad view of contemporary discussions on petroleum, economy, and the environment. Other topics covered include, the political economy of oil and gas, oil and gas policy versus market debate, petroleum price regulation and mechanism, resources, petroleum and macroeconomic issues, petroleum and the environment discourse, petroleum and sustainable development, the resource curse debates, geopolitics and energy security.

PEM 807 Petroleum Economics II: Upstream Petroleum Economics & Risk Analysis (3 Credits)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: Introduction to Electricity Industry; Electric Power Industry Structure; Electricity Demand and Supply Dynamics; Cost Structures; Economics of Electric Power Generation, Transmission and Power Flow; Capital Planning: Regulated Versus Restructured; Transmission Access and Wheeling; Ancillary Services; Alternative Energy Policies and Programmes; Climate Change and Impact on Generation Investments; Legal and Regulatory Issues in Electricity Economics; and Global Case Studies and Electricity Sector Reforms.

PEM 808 Petroleum Economics III: Downstream of Gas/ Gas to Power Market Analysis (3 Credits)

The course describes all segments of midstream sector of the oil and gas industry including

refinery, petrochemical, LNG, GTL, and CNG plants with emphasis on its economic features and mechanisms. The concepts and factors affecting margins and margin volatility in the petroleum midstream industry are reviewed including but not limited to its structure and conduct, flexibility and limitations, product constraints and complexity, costs versus margin and profitability, LP modeling and optimization using COS, etc. The course also provides a review of the economics of petroleum products transportation and distribution, an overview of natural gas value chain, gas utility business structure, regulation and pricing, petroleum products trading, evolutions and applications of futures and options.

PEM 809 Business Strategy, Change Management and Policy Formulation (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion.

PEM 810 Energy Infrastructure, Project Finance and Investment Analysis (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries.

PEM 811-1 Energy & Petroleum Policy, Law, Regulation & Ethics (3 Credits)

A complex legal environment underscores oil, gas and power business relationships and activities;

and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

PEM 811-2 Environmental Sustainability and Governance in the Oil and Gas Industry (3 Credits)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector , community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

PEM 812 Economics of Petroleum Refining & Petrochemicals (3 Credits)

This course provides learners with the essence of international oil supply – global reserves, production & trade, introduction to global oil business - exploration, extraction, refining, marketing, transportation, crude oil classifications, crude oil quality indicators, crude oil characterization by assays, crude oil distillation – refined products introduction to crude oil refining

– distillation, refinery configurations, topping, hydroskimming, cracking, coking. The course also introduces students to refinery economics & petrochemicals, and petrochemical feedstock, processes and equipment.

PEM 813 Economics of Regulation of Petroleum Industries (3 Credits)

A study of Regulation Processes as a major consideration in Petroleum Industry operations with a clear insight on principles that affect Petroleum Industry Regulatory policies. Globalization provides a platform for debates, decisions and policies on what to regulate, whether to regulate and how to regulate. International capital would tend to discourage regulations, however an understanding of the economic and environmental policy framework implications is required for the selection of informed, technically feasible, optimal regulation choices beneficial to the environment, the energy and petroleum industry and the world.

PEM 814 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost

management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

PEM 815 – 1 Petroleum Reserves Classification (3 Credits)

This course will cover the definitions of, and uses for, oil and gas reserves estimates, and how to be compliant with each of the industry standard and regulator's versions of the reserves requirements. In this course, students will learn how geoscience and engineering evaluation methods should be used for compliance of reserves estimates, the differences in the evaluation assumptions and how the inherent uncertainties in reserve estimates are reflected by the categorization of reserves.

PEM 815 – 2 Petroleum Assets Valuation (3 Credits)

Valuation of petroleum assets – upstream, midstream and downstream, are essential for adequate decision making in the oil industry. There are fundamental variables that are associated with petroleum assets valuations, as well as risks and uncertainties. The course therefore, focuses on asset valuation of all sectors of the oil and gas industry with particular emphasis on the upstream sector - exploration and production. It is expected that students will be exposed to the challenging issues that commonly arise when valuing petroleum assets as well as interpreting valuation models, develop the practical skills to build and evaluate valuation models, and acquire skills for better economic decisions based on robust valuation models. Specific topics to be covered includes: Upstream Oil and Gas Valuation Model, Financing issues as well as sensitivity and stochastics models to quantify uncertainty.

MSc PETROLEUM ECONOMICS, MANAGEMENT AND POLICY

LIST OF COURSES, CODES AND CREDIT UNITS			
S/NO	COURSE CODE	COURSE TITLE	CREDIT UNIT
1	SGS 801.1	ICT and Research Methodology	2
2	SGS 801.2	Management and Entrepreneurship	2
3	PEM 800	Business Communications	2
4	PEM 801-1	Fundamentals of the Oil and Gas Industry	3
5	PEM 801-2	Energy & Energy Resources, and the Economy	3
6	PEM 801-3	Fundamentals of Downstream Petroleum Economics & Policy	3
7	PEM 801-4	Fundamentals of Natural Gas	3
8	PEM 801-5	Fundamentals of the Energy Industry - Power Sector	3
9	PEM 801-6	Local Content Development in the Oil and Gas Industry	3
10	PEM 801-7	Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply	3
11	PEM 801-8	Fundamentals of Micro and Macro Economics	3
12	PEM 801-9	Introductory Economic Theory	3

13	PEM 802	Oil and Gas Industry and Pollution Issues	3
14	PEM 803	Applied Economics: Theory and Applications in the Energy Sector	3
15	PEM 804	Applied Mathematics, Linear programming & Optimization Methods	3
16	PEM 805	Applied Econometrics for Energy Policy Analysis and Planning	3
17	PEM 806	Petroleum Economics I: Concepts, Geopolitics & Governance	3
18	PEM 807	Petroleum Economics II: Upstream Petroleum Economics & Risk Analysis	3
19	PEM 808	Petroleum Economics III: Downstream of Gas/ Gas to Power Market Analysis	3
20	PEM 809	Business Strategy, Change Management and Policy Formulation	3
21	PEM 810	Energy Infrastructure, Project Finance and Investment Analysis	3
22	PEM 811-1	Energy & Petroleum Policy, Law, Regulation & Ethics	3
23	PEM 811-2	Environmental Sustainability and Governance in the Oil and Gas Industry	3
24	PEM 812	Economics of Petroleum Refining & Petrochemicals	3
25	PEM 813	Economics of Regulation of Petroleum Industries	3
26	PEM 814	Project Management	3
27	PEM 815 – 1	Petroleum Reserves Classification	3
28	PEM 815 – 1	Petroleum Assets Valuation	3
29	PEM 816	Research Project/Dissertation	6
TOTAL			87

COURSE DESCRIPTION

SGS 801.1 ICT and Research Methodology (2 Credits)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 801.2 Management and Entrepreneurship (2 Credits)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

PEM 800 Business Communications (2 Credits)

This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

PEM 801-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

PEM 801-2 Energy & Energy Resources, and the Economy (3 Credits)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy production, electric power generation technologies, etc.

PEM 801-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality (Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy

PEM 801-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector and will be equipped with the requisite knowledge and skills to make informed judgements on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

PEM 801-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

PEM 801-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of local content in Nigeria, factors that defines local content development, policy framework of local content development in Nigeria, legal framework for Nigerian content development (immigration acts, the petroleum acts, petroleum development fund acts, the petroleum industry bill, the Nigerian oil & gas industry content development act, etc), challenges of local content development in oil & gas industry in Nigeria.

PEM 801-7 Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the Political Economy of Oil & Gas Industry, Petroleum Pricing and its Regulation by OPEC, the Global Politics involved, Petroleum &

Macroeconomic Issues, Sustainable Petroleum Development, the recent Energy Transition and the Geopolitics involved.

PEM 801-8 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

PEM 801-9 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much as possible made relevant to the energy and petroleum sector.

PEM 802 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and assessment- safety in design and operation- organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management- atmospheric pollution- flaring and fugitive release- water pollution- drilling waste, produced water, oil

spills, cooling water, processed water- soil waste-rock cutting. Oil sludge, drilling solid waste, production waste environmental monitoring-environmental impact and decommissioning-environmental management.

PEM 803 Applied Economics: Theory and Applications in the Energy Sector (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management.

PEM 804 Applied Mathematics, Linear programming & Optimization Methods (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical modeling and techniques in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: LP modeling, I-O modeling and analysis, efficiency analysis, industrial mathematics with applications and decision modeling in supply chain management.

PEM 805 Applied Econometrics for Energy Policy Analysis and Planning (3 Credits)

This course is designed to provide a solid foundation for students in the applications of econometrics and statistics in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, classical linear regression analysis, time series models analysis and panel data model & nonlinear models, as well as discrete choice regression models.

PEM 806 Petroleum Economics I: Concepts, Geopolitics & Governance (3 Credits)

The course describes the key principles, economic concepts, and strategic thinking of the oil and gas industry with respect to its structure, conduct and performance. The course evaluates the major segments of the industry and introduces the oil and gas value sequence. The key players or major drivers impacting the global oil and gas supply outlook and pricing are identified and evaluated, including IOCs, OECD, OPEC, and NOCs. The course also presents a broad view of contemporary discussions on petroleum, economy, and the environment. Other topics covered include, the political economy of oil and gas, oil and gas policy

versus market debate, petroleum price regulation and mechanism, resources, petroleum and macroeconomic issues, petroleum and the environment discourse, petroleum and sustainable development, the resource curse debates, geopolitics and energy security.

PEM 807 Petroleum Economics II: Upstream Petroleum Economics & Risk Analysis (3 Credits)

This course describes the strategies, philosophy, process, and economic tools applied in the upstream business for decision-making under risk, uncertainty, and risk attitude; and it demonstrates how the economic value of oil and gas ventures and business can be estimated under various fiscal regimes. The key objective of Petroleum Economics II is to equip students with a working knowledge of the upstream petroleum industry in all aspects including: resources and reserves, oil and gas assets development, and portfolio management, forecasting production and revenue flow; cash flow analysis, deriving and interpreting deterministic and stochastic economic indicators, spreadsheet modeling tools to incorporate risk and uncertainty in oil and as economic modeling.

PEM 808 Petroleum Economics III: Downstream of Gas/ Gas to Power Market Analysis (3 Credits)

The course describes all segments of midstream sector of the oil and gas industry including refinery, petrochemical, LNG, GTL, and CNG plants with emphasis on its economic features and mechanisms. The concepts and factors affecting margins and margin volatility in the petroleum midstream industry are reviewed including but not limited to its structure and conduct, flexibility and limitations, product constraints and complexity, costs versus margin and profitability, LP modeling and optimization using COS, etc. The course also provides a review of the economics of petroleum products transportation and distribution, an overview of natural gas value chain, gas utility business structure, regulation and pricing, petroleum products trading, evolutions and applications of futures and options.

PEM 809 Business Strategy, Change Management and Policy Formulation (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion.

PEM 810 Energy Infrastructure, Project Finance and Investment Analysis (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries.

PEM 811-1 Energy & Petroleum Policy, Law, Regulation & Ethics (3 Credits)

A complex legal environment underscores oil, gas and power business relationships and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

PEM 811-2 Environmental Sustainability and Governance in the Oil and Gas Industry (3 Credits)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and

community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector, community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

PEM 812 Economics of Petroleum Refining & Petrochemicals (3 Credits)

This course, provides learners with the essence of international oil supply – global reserves, production & trade, introduction to global oil business - exploration, extraction, refining, marketing, transportation, crude oil classifications, crude oil quality indicators, crude oil characterization by assays, crude oil distillation – refined products introduction to crude oil refining – distillation, refinery configurations, topping, hydroskimming, cracking, coking. The course also introduces students to refinery economics & petrochemicals, and petrochemical feedstock, processes and equipment

PEM 813 Economics of Regulation of Petroleum Industries (3 Credits)

A study of Regulation Processes as a major consideration in Petroleum Industry operations with a clear insight on principles that affect Petroleum Industry Regulatory policies. Globalization provides a platform for debates, decisions and policies on what to regulate, whether to regulate and how to regulate. International capital would tend to discourage regulations, however an understanding of the economic and environmental policy framework implications is required for the selection of informed, technically feasible, optimal regulation choices beneficial to the environment, the energy and petroleum industry and the world.

PEM 814 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects,

giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

PEM 815– 1 Petroleum Reserves Classification (3 Credits)

This course will cover the definitions of, and uses for, oil and gas reserves estimates, and how to be compliant with each of the industry standard and regulator's versions of the reserves requirements. In this course, students will learn how geoscience and engineering evaluation methods should be used for compliance of reserves estimates, the differences in the evaluation assumptions and how

the inherent uncertainties in reserve estimates are reflected by the categorization of reserves.

PEM 815 – 2 Petroleum Assets Valuation (3 Credits)

Valuation of petroleum assets – upstream, midstream and downstream, are essential for adequate decision making in the oil industry. There are fundamental variables that are associated with petroleum assets valuations, as well as risks and uncertainties. The course therefore, focuses on asset valuation of all sectors of the oil and gas industry with particular emphasis on the upstream sector - exploration and production. It is expected that students will be exposed to the challenging issues that commonly arise when valuing petroleum assets as well as interpreting valuation models, develop the practical skills to build and evaluate valuation models, and acquire skills for better economic decisions based on robust valuation models. Specific topics to be covered includes: Upstream Oil and Gas Valuation Model, Financing issues as well as sensitivity and stochastics models to quantify uncertainty.

PEM 816 Project/Dissertation

MSc ENERGY ECONOMICS, MANAGEMENT AND POLICY

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27	EEM 815	Project Management	3
28	PEM 808	Petroleum Economics III: Downstream of Gas/ Gas to Power Market Analysis	3
29	EEM 816	Research Project/Dissertation	6
TOTAL			87

COURSE DESCRIPTION

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The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

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EEM 801-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

EEM 801-2 Energy & Energy Resources, and the Economy (3 Credits)

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energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy production, electric power generation technologies, etc.

EEM 801-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality (Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy

EEM 801-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector

and will be equipped with the requisite knowledge and skills to make informed judgements on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

EEM 801-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

EEM 801-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development (Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria.

EEM 801-7 Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: The political economy of oil & gas industry, petroleum pricing and its regulation by OPEC, the global politics involved, petroleum & macroeconomic issues, sustainable petroleum development, the recent energy transition and the geopolitics involved.

EEM 801-8 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of

policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

EEM 801-9 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much as possible made relevant to the energy and petroleum sector.

EEM 802 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and assessment- safety in design and operation- organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management- atmospheric pollution- flaring and fugitive release- water pollution- drilling waste, produced water, oil spills, cooling water, processed water- soil waste- rock cutting. Oil sludge, drilling solid waste, production waste environmental monitoring- environmental impact and decommissioning- environmental management.

PEM 803 Applied Economics: Theory and Applications in the Energy Sector (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from

macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management.

PEM 804 Applied Mathematics, Linear programming & Optimization Methods (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical modeling and techniques in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: LP modeling, I-O modeling and analysis, efficiency analysis, industrial mathematics with applications and decision modeling in supply chain management.

PEM 805 Applied Econometrics for Energy Policy Analysis and Planning (3 Credits)

This course is designed to provide a solid foundation for students in the applications of econometrics and statistics in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, classical linear regression analysis, time series models analysis and panel data model & nonlinear models, as well as discrete choice regression models.

EEM 806 Energy Economics I: Concepts, Geopolitics & Governance (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price behaviour and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

EEM 807 Energy Economics II: Renewable Energy Technology & Climate Change Economics (3 Credits)

The course covers renewable energy technologies, economics and policy and is intended to provide an overview of renewable energy concepts, issues relevant to the technologies currently used for providing energy services through renewable

energy resources. The course also provides understanding and relevant knowledge in analyzing the integration of renewable energy into the global energy system and emerging issues in renewable energy development along the areas of gender, energy poverty, innovation and new energy technologies. Specific topics include: Renewable Energy Resources; Types and Classification of Renewable Energy Technologies; Introduction to Energy Economics and Energy Markets; Energy Policy Drivers; Renewable Energy Policies and Markets; and Innovations in Renewable Energy Technologies.

EEM 808 Energy Economics III: Energy Modelling and Power Market Analysis (3 Credits)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: introduction to electricity industry; electric power industry structure; electricity demand and supply dynamics; cost structures; economics of electric power generation, transmission and power flow; capital planning: regulated versus restructured; transmission access and wheeling; ancillary services; alternative energy policies and programmes; climate change and impact on generation investments; legal and regulatory issues in electricity economics; and global case studies and electricity sector reforms.

PEM 809 Business Strategy, Change Management and Policy Formulation (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion.

EEM 810 Energy Infrastructure, Project Finance and Investment Analysis (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the finance function and specification of firm objectives; sources of finance

and determination of firm or project WACC; project finance and issues in petroleum industry and gas and electricity project finance; valuation of energy industry firms; introduction to project management and project integration management and review of models; and energy project scope, time, cost and quality management. Other topics include project management scheduling tools – an introduction; post project evaluation and control; human resource and communication risk management and procurement management; and contextual energy finance and project management issues for developing countries.

EEM 811-1 Energy & Petroleum Policy, Law, Regulation & Ethics (3 Credits)

A complex legal environment underscores oil, gas and power business relationships and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

EEM 811-2 Environmental Sustainability and Governance in the Oil and Gas Industry (3 Credits)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector , community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations

via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

EEM 812 Economics of Energy and the Environment (3 Credits)

This course examines the relationship between the economy and the environment. It examines the economics of natural resources from the extraction and use side, and the waste products returned to the environment. This course examines the relationship between the economy and the environment. It examines the economics of natural resources from the extraction and use side, and the waste products returned to the environment. The course addresses issues such as fossil fuels and their impacts, pollution: environment /natural resources/humans, green house gases/global warming/ climate change, environmental audits/environmental management system and environmental technologies & applied research (remediation, sequestration, etc).

EEM 813 Economics of Renewable forms of Energy (3 Credits)

This course introduces students to renewable energy and the basics of energy demand and energy consumption. It explores the types and features of renewable energy resources, the applications of renewable energy technologies, trend analysis of global capacity of renewable energy, renewable energy economics & investment analysis, focusing on renewable energy cost trend analysis as well as renewable energy project investment analysis using DCF Analysis.

EEM 814 Economics of Power Market Regulation (3 Credits)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: Introduction to electricity industry; electric power industry structure; electricity demand and supply dynamics; cost structures; economics of electric power generation, transmission and power flow; capital planning: regulated versus restructured; transmission access and wheeling; ancillary services; alternative energy policies and programmes; climate change and impact on generation investments; legal and regulatory issues in electricity economics; and global case studies and electricity sector reforms.

EEM 815 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired

scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

EEM 816 Project/Dissertation

MASTER OF ENERGY BUSINESS MANAGEMENT

LIST OF COURSES, CODES AND CREDIT UNITS			
S/NO	COURSE CODE	COURSE TITLE	CREDIT UNIT
1	SGS 801.1	ICT and Research Methodology	2
2	SGS 801.2	Management and Entrepreneurship	2
3	MEBM 800	Business Communications	2
4	MEBM 801-1	Fundamentals of the Oil and Gas Industry	3
5	MEBM 801-2	Energy & Energy Resources, and the Economy	3
6	MEBM 801-3	Fundamentals of Downstream Petroleum Economics & Policy	3
7	MEBM 801-4	Fundamentals of Natural Gas	3
8	MEBM 801-5	Fundamentals of the Energy Industry - Power Sector	3
9	MEBM 801-6	Local Content Development in the Oil and Gas Industry	3
10	MEBM 801-7	Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply	3
11	MEBM 801-8	Fundamentals of Micro and Macro Economics	3
12	MEBM 801-9	Introductory Economic Theory	3
13	MEBM 802	Oil and Gas Industry and Pollution Issues	3
14	MEBM 803	Applied Economics: Theory and Applications in the Energy Sector	3
15	MEBM 804	Applied Mathematics, Linear programming & Optimization Methods	3
16	MEBM 805	Applied Econometrics for Energy Policy Analysis and Planning	3
17	MEBM 806	Energy Economics I: Concepts, Geopolitics & Governance	3
18	MEBM 807	Energy Economics II: Renewable Energy Technology & Climate Change Economics	3
19	MEBM 808	Energy Economics III: Energy Modelling and Power Market Analysis	3
20	MEBM 809	Business Strategy, Change Management and Policy Formulation	3
21	MEBM 810	Energy Infrastructure, Project Finance and Investment Analysis	3
22	MEBM 814	Economics of Power Market Regulation	3
23	MEBM 811-1	Energy & Petroleum Policy, Law, Regulation & Ethics	3
24	MEBM 811-2	Environmental Sustainability and Governance in the Oil and Gas Industry	3
25	MEBM 812	Economics of Energy and the Environment	3
26	MEBM 813	Economics of Renewable forms of Energy	3
27	MPBM 814	Project Management	3
TOTAL			78

COURSE DESCRIPTION

SGS 801.1 ICT and Research Methodology (2 Credits)

This course should cover essentials of spreadsheets, Internet technology, Statistical

Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 801.2 Management and Entrepreneurship (2 Credits)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MEBM 800 Business Communications (2 Credits)

This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

MEBM 801-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation & Storage), Downstream: Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

MEBM 801-2 Energy & Energy Resources, and the Economy (3 Credits)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy production, electric power generation technologies, etc.

MEBM 801-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality (Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream

Petroleum Regulations, and Downstream Petroleum Fiscal Policy

MEBM 801-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector and will be equipped with the requisite knowledge and skills to make informed judgements on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

MEBM 801-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

MEBM 801-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of local content in Nigeria, factors that defines local content development, policy framework of local content development in Nigeria, legal framework for Nigerian content development (immigration acts, the petroleum acts, petroleum development fund acts, the petroleum industry bill, the Nigerian oil & gas industry content development act, etc), challenges of local content development in oil & gas industry in Nigeria

MEBM 801-7 Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the political economy of oil & gas industry, petroleum pricing and its regulation by OPEC, the global politics involved, petroleum & macroeconomic issues, sustainable petroleum development, the recent energy transition and the geopolitics involved.

MEBM 801-8 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

MEBM 801-9 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much as possible made relevant to the energy and petroleum sector.

MEBM 802 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and

assessment- safety in design and operation-organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management-atmospheric pollution- flaring and fugitive release-water pollution- drilling waste, produced water, oil spills, cooling water, processed water- soil waste-rock cutting. Oil sludge, drilling solid waste, production waste environmental monitoring-environmental impact and decommissioning-environmental management.

MEBM 803 Applied Economics: Theory and Applications in the Energy Sector (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management.

MEBM 804 Applied Mathematics, Linear programming & Optimization Methods (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical modeling and techniques in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: LP modeling, I-O modeling and analysis, efficiency analysis, industrial mathematics with applications and decision modeling in supply chain management.

MEBM 805 Applied Econometrics for Energy Policy Analysis and Planning (3 Credits)

This course is designed to provide a solid foundation for students in the applications of econometrics and statistics in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, classical linear regression analysis, time series models analysis and panel data model & nonlinear models, as well as discrete choice regression models.

MEBM 806 Energy Economics I: Concepts, Geopolitics & Governance (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price

behaviour and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

MEBM 807 Energy Economics II: Renewable Energy Technology & Climate Change Economics (3 Credits)

The course covers renewable energy technologies, economics and policy and is intended to provide an overview of renewable energy concepts, issues relevant to the technologies currently used for providing energy services through renewable energy resources. The course also provides understanding and relevant knowledge in analyzing the integration of renewable energy into the global energy system and emerging issues in renewable energy development along the areas of gender, energy poverty, innovation and new energy technologies. Specific topics include: Renewable Energy Resources; Types and Classification of Renewable Energy Technologies; Introduction to Energy Economics and Energy Markets; Energy Policy Drivers; Renewable Energy Policies and Markets; and Innovations in Renewable Energy Technologies.

MEBM 808 Energy Economics III: Energy Modelling and Power Market Analysis (3 Credits)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: Introduction to Electricity Industry; Electric Power Industry Structure; Electricity Demand and Supply Dynamics; Cost Structures; Economics of Electric Power Generation, Transmission and Power Flow; Capital Planning: Regulated Versus Restructured; Transmission Access and Wheeling; Ancillary Services; Alternative Energy Policies and Programmes; Climate Change and Impact on Generation Investments; Legal and Regulatory Issues in Electricity Economics; and Global Case Studies and Electricity Sector Reforms.

MEBM 809 Business Strategy, Change Management and Policy Formulation (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion.

MEBM 810 Energy Infrastructure, Project Finance and Investment Analysis (3 Credits)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries.

MEBM 814 Economics of Power Market Regulation (3 Credits)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: introduction to electricity industry; electric power industry structure; electricity demand and supply dynamics; cost structures; economics of electric power generation, transmission and power flow; capital planning: regulated versus restructured; transmission access and wheeling; ancillary services; alternative energy policies and programmes; climate change and impact on generation investments; legal and regulatory issues in electricity economics; and global case studies and electricity sector reforms.

MEBM 811-1 Energy & Petroleum Policy, Law, Regulation & Ethics (3 Credits)

A complex legal environment underscores oil, gas and power business relationships and activities;

and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

MEBM 811-2 Environmental Sustainability and Governance in the Oil and Gas Industry (3 Credits)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector , community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

MEBM 812 Economics of Energy and the Environment (3 Credits)

This course examines the relationship between the economy and the environment. It examines the economics of natural resources from the extraction and use side, and the waste products returned to the environment. The course addresses issues such as fossil fuels and their impacts, pollution: environment /natural resources/humans, green house gases/global warming/ climate change, environmental audits/environmental management system and environmental technologies & applied research (remediation, sequestration, etc)

MEBM 813 Economics of Renewable forms of Energy (3 Credits)

This course introduces students to renewable energy and the basics of energy demand and energy consumption. It explores the types and features of renewable energy resources, the applications of renewable energy technologies, trend analysis of global capacity of renewable energy, renewable energy economics & investment analysis, focusing on renewable energy cost trend analysis as well as renewable energy project investment analysis using DCF Analysis

MPBM 814 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

MASTER OF PETROLEUM BUSINESS MANAGEMENT

LIST OF COURSES, CODES AND CREDIT UNITS			
S/NO	COURSE CODE	COURSE TITLE	CREDIT UNIT
1	SGS 801.1	ICT and Research Methodology	2
2	SGS 801.2	Management and Entrepreneurship	2
3	MPBM 800	Business Communications	2

4	MPBM 801-1	Fundamentals of the Oil and Gas Industry	3
5	MPBM 801-2	Energy & Energy Resources, and the Economy	3
6	MPBM 801-3	Fundamentals of Downstream Petroleum Economics & Policy	3
7	MPBM 801-4	Fundamentals of Natural Gas	3
8	MPBM 801-5	Fundamentals of the Energy Industry - Power Sector	3
9	MPBM 801-6	Local Content Development in the Oil and Gas Industry	3
10	MPBM 801-7	Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply	3
11	MPBM 801-8	Micro and Macro Economics	3
12	MPBM 801-9	Introductory Economic Theory	3
13	MPBM 802	Oil and Gas Industry and Pollution Issues	3
14	MPBM 803	Applied Economics: Theory and Applications in the Energy Sector	3
15	MPBM 804	Applied Mathematics, Linear programming & Optimization Methods	3
16	MPBM 805	Applied Econometrics for Energy Policy Analysis and Planning	3
17	MPBM 806	Petroleum Economics I: Concepts, Geopolitics & Governance	3
18	MPBM 807	Petroleum Economics II: Upstream Petroleum Economics & Risk Analysis	3
19	MPBM 808	Petroleum Economics III: Downstream of Gas/ Gas to Power Market Analysis	3
20	MPBM 809	Business Strategy, Change Management and Policy Formulation	3
21	MPBM 810	Energy Infrastructure, Project Finance and Investment Analysis	3
22	MPBM 811-1	Energy & Petroleum Policy, Law, Regulation & Ethics	3
23	MPBM 811-2	Environmental Sustainability and Governance in the Oil and Gas Industry	3
24	MPBM 812	Economics of Petroleum Refining & Petrochemicals	3
25	MPBM 813	Economics of Regulation of Petroleum Industries	3
26	MPBM 814	Project Management	3
27	MPBM 815 – 1	Petroleum Reserves Classification	3
29	MPBM 815 – 2	Petroleum Assets Valuation	3
TOTAL			84

COURSE DESCRIPTION

SGS 801.1 ICT and Research Methodology (2 Credits)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 801.2 Management and Entrepreneurship (2 Credits)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MPBM 800 Business Communications (2 Credits)

This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

MPBM 801-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

MPBM 801-2 Energy & Energy Resources, and the Economy (3 Credits)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment,

processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy production, electric power generation technologies, etc.

MPBM 801-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality (Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy

MPBM 801-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector and will be equipped with the requisite knowledge and skills to make informed judgements on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

MPBM 801-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy

Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

MPBM 801-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development (Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria

MPBM 801-7 Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: The Political Economy of Oil & Gas Industry, Petroleum Pricing and its Regulation by OPEC, the Global Politics involved, Petroleum & Macroeconomic Issues, Sustainable Petroleum Development, the recent Energy Transition and the Geopolitics involved.

MPBM 801-8 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

MPBM 801-9 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and

applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much as possible made relevant to the energy and petroleum sector.

MPBM 802 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and assessment- safety in design and operation- organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management- atmospheric pollution- flaring and fugitive release- water pollution- drilling waste, produced water, oil spills, cooling water, processed water- soil waste- rock cutting. Oil sludge, drilling solid waste, production waste environmental monitoring- environmental impact and decommissioning- environmental management.

MPBM 803 Applied Economics: Theory and Applications in the Energy Sector (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management.

MPBM 804 Applied Mathematics, Linear programming & Optimization Methods (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical modeling and techniques in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: LP modeling, I-O modeling and analysis, efficiency analysis, industrial mathematics with

applications and decision modeling in supply chain management.

MPBM 805 Applied Econometrics for Energy Policy Analysis and Planning (3 Credits)

This course is designed to provide a solid foundation for students in the applications of econometrics and statistics in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, classical linear regression analysis, time series models analysis and panel data model & nonlinear models, as well as discrete choice regression models.

MPBM 806 Petroleum Economics I: Concepts, Geopolitics & Governance (3 Credits)

The course describes the key principles, economic concepts, and strategic thinking of the oil and gas industry with respect to its structure, conduct and performance. The course evaluates the major segments of the industry and introduces the oil and gas value sequence. The key players or major drivers impacting the global oil and gas supply outlook and pricing are identified and evaluated, including IOCs, OECD, OPEC, and NOCs. The course also presents a broad view of contemporary discussions on petroleum, economy, and the environment. Other topics covered include, the political economy of oil and gas, oil and gas policy versus market debate, petroleum price regulation and mechanism, resources, petroleum and macroeconomic issues, petroleum and the environment discourse, petroleum and sustainable development, the resource curse debates, geopolitics and energy security.

MPBM 807 Petroleum Economics II: Upstream Petroleum Economics & Risk Analysis (3 Credits)

This course describes the strategies, philosophy, process, and economic tools applied in the upstream business for decision-making under risk, uncertainty, and risk attitude; and it demonstrates how the economic value of oil and gas ventures and business can be estimated under various fiscal regimes. The key objective of Petroleum Economics II is to equip students with a working knowledge of the upstream petroleum industry in all aspects including: resources and reserves, oil and gas assets development, and portfolio management, forecasting production and revenue flow; cash flow analysis, deriving and interpreting deterministic and stochastic economic indicators, spreadsheet modeling tools to incorporate risk and uncertainty in oil and as economic modeling.

**MPBM 808 Petroleum Economics III:
Downstream of Gas/ Gas to Power Market
Analysis (3 Credits)**

The course describes all segments of midstream sector of the oil and gas industry including refinery, petrochemical, LNG, GTL, and CNG plants with emphasis on its economic features and mechanisms. The concepts and factors affecting margins and margin volatility in the petroleum midstream industry are reviewed including but not limited to its structure and conduct, flexibility and limitations, product constraints and complexity, costs versus margin and profitability, LP modeling and optimization using COS, etc. The course also provides a review of the economics of petroleum products transportation and distribution, an overview of natural gas value chain, gas utility business structure, regulation and pricing, petroleum products trading, evolutions and applications of futures and options.

**MPBM 809 Business Strategy, Change
Management and Policy Formulation
(3 Credits)**

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion.

**MPBM 810 Energy Infrastructure, Project
Finance and Investment Analysis
(3 Credits)**

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries.

**MPBM 811-1 Energy & Petroleum Policy,
Law, Regulation & Ethics (3 Credits)**

A complex legal environment underscores oil, gas and power business relationships and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

**MPBM 811-2 Environmental Sustainability
and Governance in the Oil and Gas Industry (3
Credits)**

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector, community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

**MPBM 812 Economics of Petroleum Refining
& Petrochemicals (3 Credits)**

This course, provides learners with the essence of international oil supply – global reserves, production & trade, introduction to global oil

business - exploration, extraction, refining, marketing, transportation, crude oil classifications, crude oil quality indicators, crude oil characterization by assays, crude oil distillation – refined products introduction to crude oil refining – distillation, refinery configurations, topping, hydro-skimming, cracking, coking. The course also introduces students to refinery economics & petrochemicals, and petrochemical feedstock, processes and equipment

MPBM 813 Economics of Regulation of Petroleum Industries (3 Credits)

A study of Regulation Processes as a major consideration in Petroleum Industry operations with a clear insight on principles that affect Petroleum Industry Regulatory policies. Globalization provides a platform for debates, decisions and policies on what to regulate, whether to regulate and how to regulate. International capital would tend to discourage regulations, however an understanding of the economic and environmental policy framework implications is required for the selection of informed, technically feasible, optimal regulation choices beneficial to the environment, the energy and petroleum industry and the world.

MPBM 814 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course

will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

MPBM 815– 1 Petroleum Reserves Classification (3 Credits)

This course will cover the definitions of, and uses for, oil and gas reserves estimates, and how to be compliant with each of the industry standard and regulator's versions of the reserves requirements. In this course, students will learn how geoscience and engineering evaluation methods should be used for compliance of reserves estimates, the differences in the evaluation assumptions and how the inherent uncertainties in reserve estimates are reflected by the categorization of reserves.

MPBM 815 – 2 Petroleum Assets Valuation (3 Credits)

Valuation of petroleum assets – upstream, midstream and downstream, are essential for adequate decision making in the oil industry. There are fundamental variables that are associated with petroleum assets valuations, as well as risks and uncertainties. The course therefore, focuses on asset valuation of all sectors of the oil and gas industry with particular emphasis on the upstream sector - exploration and production. It is expected that students will be exposed to the challenging issues that commonly arise when valuing petroleum assets as well as interpreting valuation models, develop the practical skills to build and evaluate valuation models, and acquire skills for better economic decisions based on robust valuation models. Specific topics to be covered includes: Upstream Oil and Gas Valuation Model, Financing issues as well as sensitivity and stochastics models to quantify uncertainty.

**PROFESSIONAL MSc. CLIMATE CHANGE MANAGEMENT AND POLICY
LIST OF COURSES, CODES AND CREDIT UNITS**

S/NO	COURSE CODE	COURSE TITLE	CREDIT UNITS
MODULE 1			
1	MCGE 800.1	Fundamentals of the Oil and Gas Industry	3
2	MCGE 800.2	Energy, Energy Resources & the Economy	3
3	MCGE 800.3	Fundamentals of Downstream Petroleum Economics & Policy	3
4	MCGE 800.4	Fundamentals of Natural Gas	3
MODULE 2			
5	MCGE 800.5	Fundamentals of the Energy Industry-Power Sector	3
6	MCGE 800.6	Local Content Development in the Oil & Gas Industry	3
7	MCGE 800.7	Fundamentals of Petroleum Geopolitics	3
8	MCGE 800.8	Entrepreneurship & ICT Applications	3
9	MCGE 800.9	Fundamentals of Micro and Macro Economics	3

10	MCGE 800.10	Introductory Economic Theory	3
MODULE 3			
11	MCGE 800.11	Energy & Petroleum Policy, Law, Regulation & Ethics	3
12	MCGE 800.12	Environmental Sustainability & Community Relations in the Oil and Gas Industry I	3
13	MCGE 800.13	Environmental Sustainability & Community Relations II	3
MODULE 4			
14	MCGE 800.14	Natural Gas Economics & Policy	3
15	MCGE 800.15	Climate Change Science	3
16	MCGE 800.16	Climate Change and Environmental Economics	3
17	MCGE 800.17	Environmental Accounting (Decarbonization, Carbon Capture & Co ₂ Sequestration & Storage) & Policy	3
18	MCGE 800.18	Climate Change and Global Warming	3
19	MCGE 800.19	Climate Change Concepts, Geopolitics & Governance	3
20	MCGE 800.20	Environmental Management, Planning, EIA and Sustainable Development	3
21	MCGE 800.21	Energy Management for Green Economy	3

MODULE 5			
22	MCGE 800.22	Climate Policy & Public Finance	3
23	MCGE 800.23	Climate Economics & Taxation	3
24	MCGE 800.24	Climate Change Learning and Implementation	3
25	MCGE 800.25	Green Economy & Marketing	3
MODULE 6			
26	MCGE 800.26	Energy Policy, Economics & Risk Analysis	3
27	MCGE 800.27	Renewable Energy Technology & Climate Change Policy	3
28	MCGE 800.28	Energy Laws, Regulations & Policy	3
29	MCGE 800.29	Research Methods/Business Communication	2
MODULE 7			
30	MCGE 800.30	Petroleum & Energy Infrastructure Finance & Evaluation	3
31	MCGE 800.31	Strategy formulation, Implementation & Evaluation	3
32	MCGE 800.32	Policy Formulation, Implementation & Evaluation	3
33	MCGE 800.33	Project Management	3
34	MCGE 800.34	Strategies for Change Management	3
MODULE 8			
SGS Compulsory Courses			

35	SGS 801.1	ICT and Research Methodology	2
36	SGS 801.2	Management and Entrepreneurship	2
		Total	105

COURSE DESCRIPTION

MODULE 1

MCGE 800.1: FUNDAMENTALS OF THE OIL AND GAS INDUSTRY (3 CREDITS)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations.

MCGE 800.2: ENERGY, ENERGY RESOURCES & THE ECONOMY (3 CREDITS)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation.

MCGE 800.3: FUNDAMENTALS OF DOWNSTREAM PETROLEUM ECONOMICS & POLICY (3 CREDITS)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality (Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy.

MCGE 800.4: FUNDAMENTALS OF NATURAL GAS (3 CREDITS)

The course will provide Students with a better understanding of Natural Gas and its constituents in sustaining the Petrochemical Industry. The course covers the following: Gas Reservoirs, Estimation of Reserves, Gas Condensate Reservoirs, Natural Gas Drilling/Completions, Production, Well Performance, Transportation,

Gas Flow in Pipes, Dew Point Pressure & Temperature, Gas Metering, Storage, LNG, CNG, NGL GTP etc.

MODULE 2

MCGE 800.5: FUNDAMENTALS OF THE ENERGY INDUSTRY-POWER SECTOR (3 CREDITS)

The objective of the course is to provide a better understanding of the economics of the energy and power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price behavior and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Energy, Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

MCGE 800.6: LOCAL CONTENT DEVELOPMENT IN THE OIL & GAS INDUSTRY (3 CREDITS)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development (Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria.

MCGE 800.7: FUNDAMENTALS OF PETROLEUM GEOPOLITICS (3 CREDITS)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the Political Economy of Oil & Gas Industry, Petroleum Pricing and its Regulation by OPEC, the Global Politics involved, Petroleum & Macroeconomic Issues, Sustainable Petroleum Development, the recent Energy Transition and the Geopolitics involved.

MCGE 800.8: ENTREPRENEURSHIP & ICT APPLICATIONS (3 CREDITS)

The purpose of this course is primarily for the students to be acquainted with ICT skills for entrepreneurship applications. The focus is on computer application and efficiency. Coding, Machine learning, Internet things, Programming Languages (Python, C-Sharp, C++, R-programming, etc).

MCGE 800.9: FUNDAMENTALS OF MICRO AND MACRO ECONOMICS (3 CREDITS)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

MCGE 800.10: INTRODUCTORY ECONOMIC THEORY (3 CREDITS)

The course covers the foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning and management. The topics are as much as possible made relevant to the energy and petroleum sector.

MODULE 3

MCGE 800.11: ENERGY & PETROLEUM POLICY, LAW, REGULATION & ETHICS (3 CREDITS)

This course will expose the students to a complex legal environment underscores oil, gas and power business relationship and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of

legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

MCGE 800.12: ENVIRONMENTAL SUSTAINABILITY & COMMUNITY RELATIONS IN THE OIL AND GAS INDUSTRY I (3 CREDITS)

The objective of the course is to provide a better understanding of the ecological context and mapping, external risks to the industry, strategic risks to the industry, impact of operational incidents, identifying typical operational emissions scenarios, exploring typical mitigation strategies and their resource implications, option appraisal in support of an emission reduction, evolution of emission and incident reduction in the oil and gas industry, risk assessment and mitigation techniques, importance of culture across the organization on emission and human incident reduction, strategic approach to environmental sustainability and responsible conduct and Initiatives/tools that support a culture of emissions and human incident reduction

MCGE 800.13: ENVIRONMENTAL SUSTAINABILITY & COMMUNITY RELATIONS II (3 CREDITS)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector , community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation

of corporate social responsibility (environmental & social responsibilities).

MODULE 4

MCGE 800.14: NATURAL GAS ECONOMICS & POLICY (3 CREDITS)

This course will expose students to understanding the Importance of natural gas in the world energy balance; global reserves and production of natural as well as major demand centres. It will also x-ray international gas markets as well as the impact of unconventional gas production on the world demand/supply and on gas prices. Additional topics to be covered include the role of growing trade in liquefied natural gas (LNG) in increasing emerging markets' access to natural gas, as well as the policy drivers.

MCGE 800.15: CLIMATE CHANGE SCIENCE (3 CREDITS)

The course shall deepen the students' knowledge on the roles that renewable energy transition, energy efficiency and afforestation/reforestation and other low energy carbon solutions could play in globe greenhouse gas emission reduction, especially in meeting the Paris Climate Agreement. The Module will expatiate in details all the parameters that interact to create global warming and how best to mitigate it. Topics to be covered are: Theory of Climate Change, Fundamentals of Climate Change Science, GHG Emissions in Global Warming, Climate Change Adaptation-mitigation/Technologies, Kyoto Protocol Mechanisms and Paris Climate Agreement, Key Sectors affected by Climate Change, Coastal Zone Management in handling Climate Change induced Coastal Erosion/Sea Level Rise, Climate Change on Sustainable Development Goals (SDG), Adaption and Development Planning, Low Carbon Development Processes-Mitigation & Green Economy, Climate Change Policies in Nigeria, Financial/Fiscal & Market instruments for tackling Climate Change, Climate Finance & Clean Energy Investments.

MCGE 800.16: CLIMATE CHANGE AND ENVIRONMENTAL ECONOMICS (3 CREDITS)

Environmental economics is playing an increasingly central role in understanding the causes of, and designing policy solutions to, contemporary environmental and resource problems. It has been instrumental in informing policy across the world, for example in the creation of markets to efficiently regulate pollutants such as acid rain and carbon. Environmental and resource economics also informs the design of new instruments for the conservation of ecosystem services and the efficient use of natural resources,

such as water and forests, and for the promotion of renewable energy and electric vehicles.

In order to make climate change and environmental and resource issues central to the policy debate, it is also necessary to demonstrate the contribution that the environment makes to human well-being, and the serious economic, health effects of pollution and the cost implications.

MCGE 800.17: ENVIRONMENTAL ACCOUNTING (DECARBONIZATION, CARBON CAPTURE & CO₂ SEQUESTRATION & STORAGE) & POLICY (3 CREDITS)

Carbon dioxide capture and storage (CCS), is considered as one of the options for reducing atmospheric emissions of CO₂ from human activities. CO₂ is emitted principally from the burning of fossil fuels, both in large combustion units such as those used for electric power generation and in smaller, distributed sources such as automobile engines and furnaces used in residential and commercial buildings. CO₂ emissions also result from some industrial and resource extraction processes, as well as from the burning of forests during land clearance. CCS would most likely be applied to large point sources of CO₂, such as power plants or large industrial processes. Some of these sources could supply decarbonized fuel such as hydrogen to the transportation, industrial and building sectors, and thus reduce emissions from those distributed sources. This course will therefore expose students to accounting and policy drivers for decarbonization, carbon capture and CO₂ sequestration and storage.

MCGE 800.18: CLIMATE CHANGE AND GLOBAL WARMING (3 CREDITS)

Global warming is a long-term heating of Earth's climate system observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere. The term is frequently used interchangeably with the term climate change, though the latter refers to both human- and naturally produced warming and the effects it has on our planet. It is most commonly measured as the average increase in Earth's global surface temperature. The course also covers Greenhouse Effect, Greenhouse Gases, CO₂ Emission, Biogeochemistry, Carbon Cycling, Climate and Weather, Global Wind System, Cloud, Storms & Climate, Global Ocean Circulation.

MCGE 800.19: CLIMATE CHANGE CONCEPTS, GEOPOLITICS & GOVERNANCE (3 CREDITS)

The objective of the course is to provide a better understanding of the economics of the energy and power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price behavior and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Climate Change Policy and Regulation; Fundamentals of Climate Change Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

MCGE 800.20: ENVIRONMENTAL MANAGEMENT, PLANNING, EIA AND SUSTAINABLE DEVELOPMENT (3 CREDITS)

The course examines environmental management for environmental decision making. Other topics are interrelationship among Assessment; Environmental and Development; Evolution of Environmental Assessment; Procedures and steps in Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), and Health Impact Assessment (HIA), Public Participation; Strategic Environmental Assessment (SEA), Policy formulation; Risk Management Systems, and Environmental Auditing and Management Systems.

MCGE 800.21: ENERGY MANAGEMENT FOR GREEN ECONOMY (3 CREDITS)

This course explores the various perspectives on individual and industrial energy demand, energy management, energy supply, energy markets, and energy policies affecting the markets. More so, the course will cover areas like Fossil Fuel, Renewable Electricity Economics, Nuclear Power Sector/Energy Tax, Price Regulations, Deregulations, Energy Efficiency, Energy Security and Sustainability, and Greenhouse Gas Emission Policies.

MODULE 5

MCGE 800.22: CLIMATE POLICY & PUBLIC FINANCE (3 CREDITS)

The course is aimed at building understanding of the links between climate policy and public finance. The course highlights how jobs will be affected by Climate change and what roles governments are expected to play. It goes into details to explain national and international climate change finance and creates a strategic framework for climate finance management. Also, the course covers: Understand climate change impact, Asia

and Pacific Climate Change Experience, New emerging green jobs, National and International Finance for Climate Change, Strategic Climate Policy, Strategic Framework for Managing Climate Finance, Understand how the Climate Finance Markets affect the oil & gas Industry, Impact of Climate Finance on Automotive Sector, Renewable Energy Sector and impact on Climate Finance, and Strategic National Climate Policy with positive Public Finance outcomes.

MCGE 800.23: CLIMATE ECONOMICS & TAXATION (3 CREDITS)

This course will expose the students to a renewed and increasing interest in policy instruments that put a price on greenhouse gas (GHG) emissions through the adoption of carbon taxes and other economic instruments. It is pertinent to note that climate change includes externalities, common property resources, public goods, renewable and non-renewable resources, and the discounting of costs and benefits over time. Economic policy instruments that can alter patterns of energy use, industrial development, and income distribution are crucial to the mitigation or adoption of climate change plans. Also, the course covers: Global Carbon Economics, Carbon Tax Adoption, and Effects of the Carbon Tax and the use of Revenues, Global Greenhouse Gas Emission Reduction, and Parameters that shape adoption of Carbon Taxation Decision, Approaches for determining Carbon Taxes, and Climate Economics for Climate Change Mitigation.

MCGE 800.24: CLIMATE CHANGE LEARNING AND IMPLEMENTATION (3 CREDITS)

The course will provide students with good knowledge of Climate Change, Adaption, Mitigation, Weather Forecasts, Climate Projections and its Utilization, Different Climate Scenarios, Impacts of Climate Change, Recognize the Opportunities for Low Carbon Future, Climate Change Plan & Finance, and Projects to tackle Climate Change.

MCGE 800.25: GREEN ECONOMY & MARKETING (3 CREDITS)

The transition to an inclusive green economy presents many significant opportunities. Green Procurement Practice and the increasing global demand for environmental goods and services as well as consumer demand for more sustainable products can aid countries in diversifying their economies, reduce commodity dependence and boost long-term sustainable development. The course covers: Legal and Governance Framework for Trade and Green Economy, Challenges and Potential Opportunities related to Trade in the Transition to a Green economy, Enabling Policy to

foster Green Trade Practices, Sectoral Case Studies of Green Trade, and Green Economy Transition within the Framework of International Trade.

MODULE 6

MCGE 800.26: ENERGY POLICY, ECONOMICS & RISK ANALYSIS (3 CREDITS)

This course will cover in details, the basic Energy Policy, Economics and Risk Analysis. The core emphasis on this course are: Fundamentals of Energy Policy, Risk Analysis, International & Local Energy Economics, Fiscal System Mechanisms & Analysis, Energy Risk and Uncertainty Management, Risk Decision Analysis.

MCGE 800.27: RENEWABLE ENERGY TECHNOLOGY & CLIMATE CHANGE POLICY (3 CREDITS)

The course covers renewable energy technologies, economics and policy and is intended to provide an overview of renewable energy concepts, issues relevant to the technologies currently used for providing energy services through renewable energy resources. The course also provides understanding and relevant knowledge in analyzing the integration of renewable energy into the global energy system and emerging issues in renewable energy development along the areas of gender, energy poverty, innovation and new energy technologies. Specific topics include: Renewable Energy Resources; Types and Classification of Renewable Energy Technologies; Introduction to Energy Economics and Energy Markets; Energy Policy Drivers; Renewable Energy Policies and Markets; and Innovations in Renewable Energy Technologies.

MCGE 800.28: ENERGY LAWS, REGULATIONS & POLICY (3 CREDITS)

This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

MCGE 800.29: RESEARCH METHODS/ BUSINESS COMMUNICATION

(3 CREDITS)

Effective communication and ICT (soft) Skills are essential for academic, professional and business success in the contemporary world. This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence. The course further introduces students to research methods in their field.

MODULE 7

MCGE 800.30: PETROLEUM & ENERGY INFRASTRUCTURE FINANCE & EVALUATION (3 CREDITS)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries

MCGE 800.31: STRATEGY FORMULATION, IMPLEMENTATION & EVALUATION (3 CREDITS)

Definition of strategy, components of strategy, hierarchy of strategies, marketing strategy, the marketing mix, strategic decisions, corporate objectives, corporate development strategy, alternative corporate growth strategy, allocation of corporate resources, portfolio models, the BCG model and its limitations, industry attractiveness business position matrix, value based model and its features, strategic decisions at SBU level, SBU's competitive strategy, stakeholder consideration in resources allocation.

MCGE 800.32: POLICY FORMULATION, IMPLEMENTATION & EVALUATION (3 CREDITS)

The course covers background to public policy & policy analysis, agenda setting, quick win model of policy analysis, policy formulation, adoption, implementation and evaluation. Policy formulation and implementation steps, pitfalls in defining a public policy problem, policy implementation plan, policy evaluation after implementation, policy evaluation techniques.

MCGE 800.33: PROJECT MANAGEMENT (3 CREDITS)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

MCGE 800.34: STRATEGIES FOR CHANGE MANAGEMENT (3 CREDITS)

Change management is the people side of business transformation. Business change is complex because of relationships between the business environment, the organization, its people and

supporting technologies. Change can be instigated from within the organization or imposed by external factors, as such, Change needs to be cohesively and proactively managed. Accordingly, this course on change management integrates the transition of people, processes and technology from the current “as-is” state to a continually unfolding future state. During the course, the students will be exposed to how the dynamics of effective change management work and how to identify and unlock resistance to change, enabling teams to work together and speeding up the implementation of change programmes.

**MODULE 7:
SGS COMPULSORY COURSES**

SGS 801.1: ICT AND RESEARCH METHODOLOGY (2 CREDITS)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 801.2: MANAGEMENT AND ENTREPRENEURSHIP (2 CREDITS)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.)

DISSERTATION: In place of dissertation, students are required to attend at least one seminar/conference/workshop every year of the duration of this programme. Submission of approved and graded term papers will also be required.

**PROFESSIONAL MSc. ENERGY TRANSITIONS MANAGEMENT AND POLICY
LIST OF COURSES, CODES AND CREDIT UNITS**

S/NO	COURSE CODE	COURSE TITLE	CREDIT UNITS
MODULE 1			
1	ETSP 800.1	Fundamentals of the Oil and Gas Industry	3
2	ETSP 800.2	Energy, Energy Resources & the Economy	3
3	ETSP 800.3	Fundamentals of Downstream Petroleum Economics & Policy	3
4	ETSP 800.4	Fundamentals of Natural Gas	3
MODULE 2			
5	ETSP 800.5	Fundamentals of the Energy Industry-Power Sector	3
6	ETSP 800.6	Local Content Development in Oil & Gas Industry	3
7	ETSP 800.7	Fundamentals of Petroleum Geopolitics	3
8	ETSP 800.8	Entrepreneurship & ICT Applications	3
9	ETSP 800.9	Micro and Macro Economics	3
10	ETSP 800.10	Introductory Economic Theory	3
MODULE 3			

11	ETSP 800.11	Energy & Petroleum Policy, Law, Regulation & Ethics	3
12	ETSP 800.12	Environmental Sustainability & Community Relations in the Oil and Gas Industry (I)	3
13	ETSP 800.13	Environmental Sustainability & Community Relations (II)	3
MODULE 4			
14	ETSP 800.14	Climate Change Science	3
15	ETSP 800.15	Climate Change Policy & Environmental Economics.	3
16	ETSP 800.16	Environmental Accounting (Decarbonization, Carbon Capture & CO ₂ Sequestration & Storage) & Policy.	3
MODULE 5			
17	ETSP 800.17	Energy Transition Concepts, Geopolitics & Governance	3
18	ETSP 800.18	Energy Infrastructure, Project Management & Finance.	3
19	ETSP 800.19	Energy Transition Modelling, Policy Analysis & Planning.	3
20	ETSP 800.20	Energy Management & Policy	3
21	ETSP 800.21	Energy Management & Economics	3
MODULE 6			
22	ETSP 800.22	Natural Gas Economics & Policy	3
23	ETSP 800.23	Energy Transition-Renewable Energy Sources, Technology, Strategy & Applications.	3
24	ETSP 800.24	Energy Transition- Renewable Electricity, Strategy & Sustainability.	3
25	ETSP 800.25	Energy Transition-Sustainable Transportation, Strategy & Sustainability.	3
26	ETSP 800.26	Energy Modelling & Power Market Analysis for Developing Economy	3
27	ETSP 800.27	Energy Policy, Economics & Risk Analysis	3
28	ETSP 800.28	Research Methods/Business Communications	2
MODULE 7			
29	ETSP 800.29	Petroleum & Energy Infrastructure Finance & Evaluation	3
30	ETSP 800.30	Strategy Formulation, Implementation & Evaluation	3
31	ETSP 800.31	Policy Formulation, Implementation & Evaluation	3
32	ETSP 800.32	Project Management	3
33	ETSP 800.33	Strategies for Change Management	3
Module 8 - SGS Compulsory Courses			
34	SGS 801.1	ICT and Research Methodology	2
35	SGS 801.2	Management and Entrepreneurship	2
Total			102

AIM

The global energy landscape is changing drastically from dependence on fossil fuels to alternative energy sources, especially renewable energy sources. This change possess consequences, especially to oil producing and consuming countries as well as the oil industry in general, depending on the approach adopted to manage the transition. Thus, the aim of this programme is to train students, and empower them with the tools for adequate policy making and management of the transition to greener energy sources in Nigeria and Africa at large.

OBJECTIVES

The objectives of the programme include:

1. To equip professionals with the appropriate level of knowledge and information to guide and superintend over effective policy approaches and management of energy transition.
2. To train and empower students with technical and non-technical knowledge for effective

communication of energy transition policies, and guidance for transitioning to greener energy alternatives.

3. To equip students from both commercial disciplines, government and the industry with sound policy and regulatory approaches for effective policy making and adherence to international best practices in enforcement of the energy transition agenda.

PROGRAMME DURATION

The programme will be run virtually, and on a modular basis for a period of 18 Calendar months.

AWARD OF DEGREE

Students who must have completed and passed all prescribed courses at the end of the programme shall be awarded a Professional M.Sc Degree in **Energy Transitions Management and Policy** of the University of Port Harcourt.

COURSE DESCRIPTION

MODULE 1

ETSP 800.1: FUNDAMENTALS OF THE OIL & GAS INDUSTRY (3 CREDITS)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations.

ETSP 800.2: ENERGY, ENERGY RESOURCES & THE ECONOMY

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation.

ETSP 800.3: FUNDAMENTALS OF DOWNSTREAM PETROLEUM ECONOMICS & POLICY (3 CREDITS)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality(Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy.

ETSP 800.4: FUNDAMENTALS OF NATURAL GAS (3 CREDITS)

The course will provide Students with a better understanding of Natural Gas and its constituents in sustaining the Petrochemical Industry. The course covers the following: Gas Reservoirs, Estimation of Reserves, Gas Condensate Reservoirs, Natural Gas Drilling/Completions, Production, Well Performance, Transportation, Gas Flow in Pipes, Dew Point Pressure & Temperature, Gas Metering, Storage, LNG, CNG, NGL GTP etc.

MODULE 2

ETSP 800.5: FUNDAMENTALS OF THE ENERGY INDUSTRY-POWER SECTOR (3 CREDITS)

The objective of the course is to provide a better understanding of the economics of the energy and power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price behavior and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Energy, Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

ETSP 800.6: LOCAL CONTENT DEVELOPMENT IN THE OIL & GAS INDUSTRY (3 CREDITS)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development (Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria.

ETSP 800.7: FUNDAMENTALS OF PETROLEUM GEOPOLITICS (3 CREDITS)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the Political Economy of Oil & Gas Industry, Petroleum Pricing and its Regulation by OPEC, the Global Politics involved, Petroleum & Macroeconomic Issues, Sustainable Petroleum Development, the recent Energy Transition and the Geopolitics involved.

ETSP 800.8: ENTREPRENEURSHIP & ICT APPLICATIONS (3 CREDITS)

The purpose of this course is primarily for the students to be acquainted with ICT skills for entrepreneurship applications. The focus is on computer application and efficiency. Coding, Machine learning, Internet things, Programming Languages (Python, C-Sharp, C++, R-programming, etc).

ETSP 800.9: FUNDAMENTALS OF MICRO AND MACRO ECONOMICS (3 CREDITS)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

ETSP 800.10: INTRODUCTORY ECONOMIC THEORY (3 CREDITS)

The course covers the foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning and management. The topics are as much as possible made relevant to the energy and petroleum sector.

MODULE 3

ETSP 800.11: ENERGY & PETROLEUM POLCY, LAW, REGULATION & ETHICS (3 CREDITS)

This course will expose the students to a complex legal environment underscores oil, gas and power business relationship and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

ETSP 800.12: ENVIRONMENTAL SUSTAINABILITY & COMMUNITY

RELATIONS IN OIL AND GAS INDUSTRY I (3 CREDITS)

The objective of the course is to provide a better understanding of the ecological context and mapping, external risks to the industry, strategic risks to the industry, impact of operational incidents, identifying typical operational emissions scenarios, exploring typical mitigation strategies and their resource implications, option appraisal in support of an emission reduction, evolution of emission and incident reduction in the oil and gas industry, risk assessment and mitigation techniques, importance of culture across the organization on emission and human incident reduction, strategic approach to environmental sustainability and responsible conduct and Initiatives/tools that support a culture of emissions and human incident reduction

ETSP 800.13: ENVIRONMENTAL SUSTAINABILITY & COMMUNITY RELATIONS II (3 CREDIT UNITS)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector , community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

MODULE 4

ETSP 800.14: CLIMATE CHANGE SCIENCE (3 CREDITS)

The course shall deepen the students' knowledge on the roles that renewable energy transition, energy efficiency and afforestation/reforestation and other low energy carbon solutions could play

in globe greenhouse gas emission reduction, especially in meeting the Paris Climate Agreement. The Module will expatiate in details all the parameters that interact to create global warming and how best to mitigate it. Topics to be covered are: Theory of Climate Change, Fundamentals of Climate Change Science, GHG Emissions in Global Warming, Climate Change Adaptation-mitigation/Technologies, Kyoto Protocol Mechanisms and Paris Climate Agreement, Key Sectors affected by Climate Change, Coastal Zone Management in handling Climate Change induced Coastal Erosion/Sea Level Rise, Climate Change on Sustainable Development Goals (SDG), Adaption and Development Planning, Low Carbon Development Processes-Mitigation & Green Economy, Climate Change Policies in Nigeria, Financial/Fiscal & Market instruments for tackling Climate Change, Climate Finance & Clean Energy Investments.

ETSP 800.15: CLIMATE CHANGE POLICY AND ENVIRONMENTAL ECONOMICS (3 CREDITS)

Environmental economics is playing an increasingly central role in understanding the causes of, and designing policy solutions to, contemporary environmental and resource problems. It has been instrumental in informing policy across the world, for example in the creation of markets to efficiently regulate pollutants such as acid rain and carbon. Environmental and resource economics also informs the design of new instruments for the conservation of ecosystem services and the efficient use of natural resources, such as water and forests, and for the promotion of renewable energy and electric vehicles. In order to make climate change, environmental and resource issues central to the policy debate, it is also necessary to demonstrate the contribution that the environment makes to human well-being, and the serious economic and health effects of pollution and the cost and policy implications.

ETSP 800.16: ENVIRONMENTAL ACCOUNTING - DECARBONIZATION, CARBON CAPTURE & CO₂ SEQUESTRATION & STORAGE (3 CREDITS)

Carbon dioxide capture and storage (CCS), is considered as one of the options for reducing atmospheric emissions of CO₂ from human activities. CO₂ is emitted principally from the burning of fossil fuels, both in large combustion units such as those used for electric power generation and in smaller, distributed sources such as automobile engines and furnaces used in residential and commercial buildings. CO₂ emissions also result from some industrial and resource extraction processes, as well as from the

burning of forests during land clearance. CCS would most likely be applied to large point sources of CO₂, such as power plants or large industrial processes. Some of these sources could supply decarbonized fuel such as hydrogen to the transportation, industrial and building sectors, and thus reduce emissions from those distributed sources. This course will therefore equip students with the policy drivers for decarbonization, carbon capture & CO₂ sequestration & storage.

MODULE 5

ETSP 800.17: ENERGY TRANSITION CONCEPTS, GEOPOLITICS & GOVERNANCE (3 CREDITS)

The objective of the course is to provide a better understanding of the economics of the energy and power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price behavior and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

ETSP 800.18: ENERGY INFRASTRUCTURE, PROJECT MANAGEMENT & FINANCE (3 CREDITS)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual

Energy Finance and Project Management Issues for Developing Countries.

ETSP 800.19: ENERGY TRANSITION MODELLING, POLICY ANALYSIS & PLANNING (3 CREDITS)

This course will provide the students with modelling scheme intended to support energy planning and policy analysis. The concept of 'Integrated National Energy Planning' (INEP), spread sheet models, optimization models, and linear programming models which energy planners use shall be discussed. Environmental considerations are also introduced into the analysis. Techniques are then applied to all energy subsectors.

ETSP 800.20: ENERGY MANAGEMENT & POLICY (3 CREDITS)

The purpose of energy management is primarily to minimize energy consumption and costs. Energy Management and Policy demands a practical balance between energy efficiency and human energy requirements without compromising substantial energy needs and cost reductions. In this course, requisite knowledge needed to understand the key energy challenges, energy options, best principles and practices of managing it, and global energy management and policies would be extensively discussed. Topics to be covered are: Energy Management Concepts, Global Energy Strategies & Policy, Challenges on Global Energy Management, Best Principles & Practices to Energy Management, Energy Planning & Development, Importance of International Energy Policy Framework, Energy supply Challenges, Energy Security & Sustainability, and International Energy Geopolitics in Energy Management.

ETSP 800.21: ENERGY MANAGEMENT & ECONOMICS (3 CREDITS)

This course explores the various perspectives on individual and industrial energy demand, energy management, energy supply, energy markets, and energy policies affecting the markets. More so, the course will cover areas like Fossil Fuel, Renewable Electricity Economics, Nuclear Power Sector/Energy Tax, Price Regulations, Deregulations, Energy Efficiency, Energy Security and Sustainability, and Greenhouse Gas Emission Policies.

MODULE 6

ETSP 800.22: NATURAL GAS ECONOMICS & POLICY (3 CREDITS)

This course will expose students to understanding the Importance of natural gas in the world energy balance; global reserves and production of natural

as well as major demand centres. It will also x-ray international gas markets as well as the impact of unconventional gas production on the world demand/supply and on gas prices. Additional topics to be covered include the role of growing trade in liquefied natural gas (LNG) in increasing emerging markets' access to natural gas, as well as the policy drivers.

ETSP 800.23: ENERGY TRANSITION-RENEWABLE ENERGY SOURCES, TECHNOLOGY, STRATEGY & APPLICATIONS (3 CREDITS)

The course covers renewable energy technologies, economics and policy and is intended to provide an overview of renewable energy concepts, issues relevant to the technologies currently used for providing energy services through renewable energy resources. The course also provides understanding and relevant knowledge in analyzing the integration of renewable energy into the global energy system and emerging issues in renewable energy development along the areas of gender, energy poverty, innovation and new energy technologies. Specific topics include: Renewable Energy Resources; Types and Classification of Renewable Energy Technologies; Introduction to Energy Economics and Energy Markets; Energy Policy Drivers; Renewable Energy Policies and Markets; and Innovations in Renewable Energy Technologies.

ETSP 800.24: ENERGY TRANSITION-RENEWABLE ELECTRICITY, STRATEGY & SUSTAINABILITY (3 CREDITS)

This course will expose the students to the major challenges associated with global renewable electricity generation, transportations and storage. The course will cover specialized areas like: Emerging and Future Energy Mix, Energy Efficiency/Generation, Carbon Capture and Storage in Global Energy Transition, Current Energy Projects/Investments, Hydropower, Wind/Offshore Wind, Solar PV/Solar, Thermal, Geothermal Energy Sources, Nuclear Power and Environmental impacts, Renewable Energy Intermittency, Natural Gas Roles in Energy Transition, Energy Transition Strategy in Oil & Gas Industry, Policies and Strategy for Sustainable Energy Transition.

ETSP 800.25: ENERGY TRANSITION-SUSTAINABLE TRANSPORTATION, STRATEGY & SUSTAINABILITY (3 CREDITS)

To decarbonize the transport sector, the call for clear energy generated so discussions across the globe. The discussions prompted the use of Compressed Natural Gas, Biofuels, Hydrogen Fuel Cells and most recently the Electric Vehicles. This

course will cover: Blue Hydrogen Production, green Hydrogen, Decarbonization Options and Challenges, Telecommuting, Car Pooling, Car Sharing and Smart Cities Planning as Transportation Fuel Reduction Strategies, Carbon Management-Sustainable Transportation Energy Mix, Biofuels-Hydrogen and Electric Vehicles Deployment, Well-to-Wheel Transport Fuels/CO₂ Emissions, Kaya Equation for Decarbonization, Enhanced Energy Efficiency, Energy Policy & Strategies for Sustainable Mobility Transition.

ETSP 800.26: ENERGY MODELLING & POWER MARKET ANALYSIS FOR DEVELOPING ECONOMY (3 CREDITS)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: Introduction to Electricity Industry; Electric Power Industry Structure; Electricity Demand and Supply Dynamics; Cost Structures; Economics of Electric Power Generation, Transmission and Power Flow; Capital Planning: Regulated Versus Restructured; Transmission Access and Wheeling; Ancillary Services; Alternative Energy Policies and Programmes; Climate Change and Impact on Generation Investments; Legal and Regulatory Issues in Electricity Economics; and Global Case Studies and Electricity Sector Reforms.

ETSP 800.27: ENERGY POLICY, ECONOMICS & RISK ANALYSIS (3 CREDITS)

This course will cover in details, the basic Energy Policy, Economics and Risk Analysis. The core emphasis of this course are: Fundamentals of Energy Policy, Risk Analysis, International & Local Energy Economics, Fiscal System Mechanisms & Analysis, Energy Risk and Uncertainty Management, Risk Decision Analysis.

ETSP 800.28: RESEARCH METHODS/BUSINESS COMMUNICATIONS (2 CREDITS)

Adequate knowledge of research, and research methods is a prerequisite every professional. Accordingly, this course will expose students to the various methods for conducting research. The second part of the course, which is business communication provides students with essential skills for communicating their research/reports in a concise and adequate manner. This is essential for academic, professional and business success in the contemporary world. This course will emphasize written, verbal and business communications. It will also focus on effective

report writing and presentation skills as well as computer and internet competence.

MODULE 7

ETSP 800.29: PETROLEUM & ENERGY INFRASTRUCTURE FINANCE & EVALUATION (3 CREDITS)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries

ETSP 800.30 STRATEGY FORMULATION, IMPLEMENTATION & EVALUATION (3 CREDITS)

Definition of strategy, components of strategy, hierarchy of strategies, marketing strategy, the marketing mix, strategic decisions, corporate objectives, corporate development strategy, alternative corporate growth strategy, allocation of corporate resources, portfolio models, the BCG model and its limitations, industry attractiveness business position matrix, value based model and its features, strategic decisions at SBU level, SBU's competitive strategy, stakeholder consideration in resources allocation.

ETSP 800.31: POLICY FORMULATION, IMPLEMENTATION & EVALUATION (3 CREDITS)

The course covers background to public policy & policy analysis, agenda setting, quick win model of policy analysis, policy formulation, adoption, implementation and evaluation. Policy

formulation and implementation steps, pitfalls in defining a public policy problem, policy implementation plan, policy evaluation after implementation, policy evaluation techniques.

ETSP 800.32: PROJECT MANAGEMENT (3 CREDITS)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

ESTP: 800.33: CHANGE MANAGEMENT STRATEGIES (3 CREDITS)

This course provides extensive knowledge of the change process. Students will not only learn about the need for change, and how people respond to it, but also about both the vision and the mission associated with change. Topical contents for this course includes- - the context for change management, leadership and management styles, implications of management style on change

management, organizational culture and its implications to change management, current trends in change management, organizational view of change, sources of inertia that impede change (The 3 Cs) & its implications. Also, the course will cover models of change, categories of change and their adaptation approaches, managing the change process, motivating change. Addition, envisioning the future & roles for successful leaders, mission, vision and value statements will be covered in the course. Finally, the students will be exposed to building coalitions, strategies for introducing change, managing transition, developing guidance structure and the learning process.

MODULE 7: SGS COMPULSORY COURSES

SGS 801.1: ICT AND RESEARCH METHODOLOGY (2 CREDITS)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 801.2: MANAGEMENT AND ENTREPRENEURSHIP (2 CREDITS)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

DISSERTATION: In place of dissertation, students are required to attend at least one seminar/conference/workshop every year of the duration of this programme. Submission of approved and graded term papers will also be required.

PROFESSIONAL MSc, ENERGY REGULATION AND POLICY

LIST OF COURSES, CODES AND CREDIT UNITS			
S/NO	COURSE CODE	COURSE TITLE	CREDIT UNITS
MODULE 1			
1	MERP 800.1	Fundamentals of the Oil and Gas Industry	3
2	MERP 800.2	Energy, Energy Resources & the Economy	3
3	MERP 800.3	Energy Markets	3
4	MERP 800.4	Fundamentals of Downstream Petroleum Economics & Policy	3
MODULE 2			
5	MERP 800.5	Fundamentals of Natural Gas	3
6	MERP 800.6	Fundamentals of the Energy Industry-Power Sector	3
7	MERP 800.7	Local Content Development in Oil & Gas Industry	3
8	MERP 800.8	Fundamentals of Petroleum Geopolitics	3
9	MERP 800.9	Entrepreneurship ICT Applications	3
MODULE 3			
10	MERP 800.10	Micro and Macro Economics	3
11	MERP 800.11	Introductory Economic Theory	3
12	MERP 800.12	Energy & Petroleum Policy, Law, Regulation & Ethics	3

13	MPRP 800.13	Environmental Sustainability & Community Relations in the Oil and Gas Industry (I)	3
14	MPRP 800.14	Environmental Sustainability & Community Relations (II)	3
MODULE 4			
15	MERP 800.15	Energy Resources Infrastructure & Natural Gas Economics	3
16	MERP 800.16	Economics of Power Market Regulation	3
17	MERP 800.17	Economics of Renewable Energy	3
18	MERP 800.18	Electricity Economics and Power System Analysis	3
MODULE 5			
19	MERP 800.19	Renewable Energy Regulation & Policy	3
20	MERP 800.20	Energy Resources Infrastructure Financing & Performance Evaluation	3
21	MERP 800.21	Energy Transition – Sustainable Transportation, Strategy Sustainability & Policy	3
22	MERP 800.22	Power Sector Regulation & Policy	3
23	MERP 800.23	Environmental Accounting & Policy	3
24	MERP 800.24	Research Methods/Business Communications	2
MODULE 6			
25	MERP 800.25	Strategy Formulation, Implementation & Evaluation	3
26	MERP 800.26	Policy Formulation, Implementation & Evaluation	3
27	MERP 800.27	Project Management	3
28	MERP 800.28	Strategies for Change Management	3
Module 7 -SGS Compulsory Courses			
29	SGS 801.1	ICT and Research Methodology	2
30	SGS 801.2	Management and Entrepreneurship	2
Total			87

COURSE DESCRIPTION

MODULE 1

MERP 800.1: FUNDAMENTALS OF THE OIL & GAS INDUSTRY (3 CREDITS)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations.

MERP 800.2: ENERGY, ENERGY RESOURCES & THE ECONOMY (3 CREDITS)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation.

MERP 800.3: ENERGY MARKETS (3 CREDITS)

Energy markets are governed by the laws of economics. Generators and consumers interact to shape the transactions in the energy markets, and thus the energy system. This course will help expose students to the understanding of the

functioning of energy markets as the necessary first step to promotion of the energy transition. Topical issues to be discussed includes the basics of the energy markets, operation and design of those markets, how policy makers can promote investment in electricity generation, how the electricity network operates and how network tariffs are determined.

MERP 800.4: FUNDAMENTALS OF DOWNSTREAM PETROLEUM ECONOMICS & POLICY (3 CREDITS)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality(Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy.

MODULE 2

MERP 800.5: FUNDAMENTALS OF NATURAL GAS (3 CREDITS)

The course will provide Students with a better understanding of Natural Gas and its constituents in sustaining the Petrochemical Industry. The course covers the following: Gas Reservoirs, Estimation of Reserves, Gas Condensate Reservoirs, Natural Gas Drilling/Completions, Production, Well Performance, Transportation, Gas Flow in Pipes, Dew Point Pressure & Temperature, Gas Metering, Storage, LNG, CNG, NGL GTP etc.

MERP 800.6: FUNDAMENTALS OF THE ENERGY INDUSTRY-POWER SECTOR (3 CREDITS)

The objective of the course is to provide a better understanding of the economics of the energy and power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price behavior and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Energy, Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

MERP 800.7: LOCAL CONTENT DEVELOPMENT IN THE OIL & GAS INDUSTRY (3 CREDITS)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development (Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria.

MERP 800.8: FUNDAMENTALS OF PETROLEUM GEOPOLITICS (3 CREDITS)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the Political Economy of Oil & Gas Industry, Petroleum Pricing and its Regulation by OPEC, the Global Politics involved, Petroleum & Macroeconomic Issues, Sustainable Petroleum Development, the recent Energy Transition and the Geopolitics involved.

MERP 800.9: ENTREPRENEURSHIP & ICT APPLICATIONS (3 CREDITS)

The purpose of this course is primarily for the students to be acquainted with ICT skills for entrepreneurship applications. The focus is on computer application and efficiency. Coding, Machine learning, Internet things, Programming Languages (Python, C-Sharp, C++, R-programming, etc).

MODULE 3

MERP 800.10: FUNDAMENTALS OF MICRO AND MACRO ECONOMICS (3 CREDITS)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

MERP 800.11: INTRODUCTORY ECONOMIC THEORY (3 CREDITS)

The course covers the foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning and management. The topics are as much as possible made relevant to the energy and petroleum sector.

MERP 800.12: ENERGY & PETROLEUM POLICY, LAW, REGULATION & ETHICS (3 CREDITS)

This course will expose the students to a complex legal environment underscores oil, gas and power business relationship and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy

sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

MERP 800.13: ENVIRONMENTAL SUSTAINABILITY & COMMUNITY RELATIONS IN OIL AND GAS INDUSTRY I (3 CREDITS)

The objective of the course is to provide a better understanding of the ecological context and mapping, external risks to the industry, strategic risks to the industry, impact of operational incidents, identifying typical operational emissions scenarios, exploring typical mitigation strategies and their resource implications, option appraisal in support of an emission reduction, evolution of emission and incident reduction in the oil and gas industry, risk assessment and mitigation techniques, importance of culture across the organization on emission and human incident reduction, strategic approach to environmental sustainability and responsible conduct and Initiatives/tools that support a culture of emissions and human incident reduction.

MERP 800.14: ENVIRONMENTAL SUSTAINABILITY & COMMUNITY RELATIONS II (3 CREDITS)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector, community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation

of corporate social responsibility (environmental & social responsibilities).

MODULE 4

MERP 800.15: ENERGY RESOURCES INFRASTRUCTURE & NATURAL GAS ECONOMICS (3 CREDITS)

Today's energy systems are highly interdependent and very heterogeneous. The infrastructure that supports the generation and distribution of energy is varied, and requires an understanding of a range of interdisciplinary concepts that impacts energy related projects. This course will explore the various energy infrastructures for delivering energy services. Also, a second part of the course will X-ray Natural gas economics. It will specifically explore the principle of supply and demand is a major factor that governs natural gas pricing; the drivers behind the supply of natural gas including pipeline capacity, storage, and imports. By understanding these fundamental drivers. Students will be equipped with the requisite skills for planning and managing energy resources infrastructures.

MERP 800.16: ECONOMICS OF POWER MARKET REGULATION (3 CREDITS)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: Introduction to Electricity Industry; Electric Power Industry Structure; Electricity Demand and Supply Dynamics; Cost Structures; Economics of Electric Power Generation, Transmission and Power Flow; Capital Planning: Regulated Versus Restructured; Transmission Access and Wheeling; Ancillary Services; Alternative Energy Policies and Programmes; Climate Change and Impact on Generation Investments; Legal and Regulatory Issues in Electricity Economics; and Global Case Studies and Electricity Sector Reforms.

MERP 800.17: ECONOMICS OF RENEWABLE ENERGY (3 CREDITS)

The course covers renewable energy technologies, economics and policy and is intended to provide an overview of renewable energy concepts, issues relevant to the technologies currently used for providing energy services through renewable energy resources. The course also provides understanding and relevant knowledge in analyzing the integration of renewable energy into the global energy system and emerging issues in renewable energy development along the areas of gender, energy poverty, innovation and new energy technologies. Specific topics include:

Renewable Energy Resources; Types and Classification of Renewable Energy Technologies; Introduction to Energy Economics and Energy Markets; Energy Policy Drivers; Renewable Energy Policies and Markets; and Innovations in Renewable Energy Technologies.

MERP 800.18: ELECTRICITY ECONOMICS AND POWER SYSTEM ANALYSIS (3 CREDITS)

This course will expose the students to the major challenges associated with global renewable electricity generation, transportations and storage. The course will cover specialized areas like: Emerging and Future Energy Mix, Energy Efficiency/Generation, Carbon Capture and Storage in Global Energy Transition, Current Energy Projects/Investments, Hydropower, Wind/Offshore Wind, Solar PV/Solar, Thermal, Geothermal Energy Sources, Nuclear Power and Environmental impacts, Renewable Energy Intermittency, Natural Gas Roles in Energy Transition, Energy Transition Strategy in Oil & Gas Industry, Policies and Strategy for Sustainable Energy Transition.

MODULE 5

MERP 800.19: RENEWABLE ENERGY REGULATION AND POLICY (3 CREDITS)

This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks of renewable energy in Nigeria and Globally, critique & review of existing energy policy, basic concepts of energy resource, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

MERP 800.20: ENERGY RESOURCE INFRASTRUCTURE FINANCING & PERFORMANCE EVALUATION (3 CREDITS)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of

Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries

MERP 800.21: ENERGY TRANSITION-SUSTAINABLE TRANSPORTATION, STRATEGY, SUSTAINABILITY & POLICY (3 CREDITS)

To decarbonize the transport sector, the call for clear energy generated so discussions across the globe. The discussions prompted the use of Compressed Natural Gas, Biofuels, Hydrogen Fuel Cells and most recently the Electric Vehicles. This course will cover: Blue Hydrogen Production, green Hydrogen, Decarbonization Options and Challenges, Telecommuting, Car Pooling, Car Sharing and Smart Cities Planning as Transportation Fuel Reduction Strategize, Carbon Management-Sustainable Transportation Energy Mix, Biofuels-Hydrogen and Electric Vehicles Deployment, Well-to-Wheel Transport Fuels/CO₂ Emissions, Kaya Equation for Decarbonization, Enhanced Energy Efficiency, Energy Policy & Strategies for Sustainable Mobility Transition.

MERP 800.22: POWER SECTOR REGULATION & POLICY (3 CREDITS)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: Introduction to Electricity Industry regulation; Electric Power Industry Structure; Electricity Demand and Supply regulation; Cost Structures; Electric Power Generation Policy, Transmission and Power Flow Policy; Tariff billing regulation by NERC, Alternative Energy Policies and Programmes; Climate Change and Impact on Generation Investments; Legal and Regulatory Issues in Electricity Economics; and Global Case Studies and Electricity Sector Reforms.

MERP 800.23: ENVIRONMENTAL ACCOUNTING & POLICY (3 CREDITS)

The interest in environmental accounting issues has grown rapidly in recent years, and the issues impact the various specializations within the field

of accounting, including financial reporting, analysis and disclosure, cost management and managerial decision making, capital investment analysis, auditing, and taxation. Environmental accounting is increasingly being used to support the development and analysis of government policy. Thus, this course aims to provide students with an understanding of the range of measurement, calculation, reporting and auditing requirements and challenges related to climate change and the policy responses to climate change. Students will come away from the course with the skills to both implement and critique carbon accounting methods. In addition to carbon accounting, the course will also explore broader aspects of environmental and natural capital accounting. The course develops both practical knowledge for implementing different carbon accounting methods, and analytical skills for critiquing current accounting and reporting practice. The course will also explore the main policy motivations for carbon accounting, the relationship between carbon accounting and carbon finance, and some of the ethical issues associated with carbon accounting.

MERP 800.24: RESEARCH METHODS/BUSINESS COMMUNICATIONS (2 CREDITS)

Adequate knowledge of research, and research methods is a prerequisite every professional. Accordingly, this course will expose students to the various methods for conducting research. The second part of the course, which is business communication provides students with essential skills for communicating their research/reports in a concise and adequate manner. This is essential for academic, professional and business success in the contemporary world. This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

MODULE 6

MERP 800.25: STRATEGY FORMULATION, IMPLEMENTATION & EVALUATION (3 CREDITS)

Definition of strategy, components of strategy, hierarchy of strategies, marketing strategy, the marketing mix, strategic decisions, corporate objectives, corporate development strategy, alternative corporate growth strategy, allocation of corporate resources, portfolio models, the BCG model and its limitations, industry attractiveness business position matrix, value based model and its features, strategic decisions at SBU level, SBU's competitive strategy, stakeholder consideration in resources allocation.

MERP 800.26: POLICY FORMULATION, IMPLEMENTATION & EVALUATION (3 CREDITS)

The course covers background to public policy & policy analysis, agenda setting, quick win model of policy analysis, policy formulation, adoption, implementation and evaluation. Policy formulation and implementation steps, pitfalls in defining a public policy problem, policy implementation plan, policy evaluation after implementation, policy evaluation techniques.

MERP 800.27: PROJECT MANAGEMENT (3 CREDITS)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

MERP 800.28: STRATEGIES FOR CHANGE MANAGEMENT (3 CREDITS)

Change management is the people side of business transformation. Business change is complex because of relationships between the business environment, the organization, its people and supporting technologies. Change can be instigated from within the organization or imposed by external factors, as such, Change needs to be cohesively and proactively managed. Accordingly, this course on change management integrates the transition of people, processes and technology from the current "as-is" state to a continually unfolding future state. During the course, the students will be exposed to how the dynamics of effective change management work and how to identify and unlock resistance to change, enabling teams to work together and speeding up the implementation of change programmes.

MODULE 7: SGS COMPULSORY COURSES

SGS 801.1: ICT AND RESEARCH METHODOLOGY (2 CREDITS)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 801.2: MANAGEMENT AND ENTREPRENEURSHIP (2 CREDITS)

The course will cover business environment, general management, financial management,

entrepreneurship development, feasibility studies, marketing and managerial problem solving.

DISSERTATION: In place of dissertation, students are required to attend at least one seminar/conference/workshop every year of the duration of this programme. Submission of approved and graded term papers will also be required.

PROFESSIONAL MSc, PETROLEUM REGULATION AND POLICY

LIST OF COURSES, CODES AND CREDIT UNITS

S/NO	COURSE CODE	COURSE TITLE	CREDIT UNITS
MODULE 1			
1	MPRP 800.1	Fundamentals of the Oil and Gas Industry	3
2	MPRP 800.2	Energy, Energy Resources & the Economy	3
3	MPRP 800.3	Fundamentals of Downstream Petroleum Economics & Policy	3
MODULE 2			
4	MPRP 800.4	Fundamentals of Natural Gas	3
5	MPRP 800.5	Fundamentals of the Energy Industry-Power Sector	3
6	MPRP 800.6	Local Content Development in Oil & Gas Industry	3
7	MPRP 800.7	Fundamentals of Petroleum Geopolitics	3
8	MPRP 800.8	Entrepreneurship ICT Applications	3
9	MPRP 800.9	Micro and Macro Economics	3
10	MPRP 800.10	Introductory Economic Theory	3
MODULE 3			
11	MPRP 800.11	Energy & Petroleum Policy, Law, Regulation & Ethics	3
12	MPRP 800.12	Environmental Sustainability & Community Relations in the Oil and Gas Industry (I)	3
13	MPRP 800.13	Environmental Sustainability & Community Relations (II)	3
MODULE 4			
14	MPRP 800.14	Upstream Petroleum Regulation & Policy (Exploration & Production)	3
15	MPRP 800.15	Crude Oil Pricing & Policy (Pricing)	3
16	MPRP 800.16	Refining & Petrochemical Regulation & Policy	3
17	MPRP 800.17	Economics of Regulation of Petroleum Industry	3
18	MPRP 800.18	Natural Gas Economics & Policy	3
MODULE 5			
19	MPRP 800.19	Midstream Petroleum Regulation & Policy (Transportation & Storage)	3
20	MPRP 800.20	Fuels Retailing Regulation & Policy	3
21	MPRP 800.21	LPG Storage & Bottling Regulation (Operation) & Policy	3
22	MPRP 800.22	Downstream Petroleum Pricing Regulation (Pricing) & Policy	3
23	MPRP 800.23	Research Methods/Business Communications	2
MODULE 6			
24	MPRP 800.24	Petroleum & Energy Infrastructure Finance & Evaluation	3
25	MPRP 800.25	Strategy Formulation, Implementation & Evaluation	3
26	MPRP 800.26	Policy Formulation, Implementation & Evaluation	3
27	MPRP 800.27	Project Management	3
28	MPRP 800.28	Strategies for Change Management	3
Module 7 - SGS Compulsory Courses			
29	SGS 801.1	ICT and Research Methodology	2
30	SGS 801.2	Management and Entrepreneurship	2
TOTAL			87

COURSE DESCRIPTION

MODULE 1

MPRP 800.1: FUNDAMENTALS OF OIL & GAS INDUSTRY (3 CREDITS)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream: Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations.

MPRP 800.2: ENERGY, ENERGY RESOURCES & THE ECONOMY (3 CREDITS)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation.

MPRP 800.3: FUNDAMENTALS OF DOWNSTREAM PETROLEUM ECONOMICS & POLICY (3 CREDITS)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality (Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy.

MODULE 2

MPRP 800.4: FUNDAMENTALS OF NATURAL GAS (3 CREDITS)

The course will provide Students with a better understanding of Natural Gas and its constituents in sustaining the Petrochemical Industry. The course covers the following: Gas Reservoirs, Estimation of Reserves, Gas Condensate Reservoirs, Natural Gas Drilling/Completions, Production, Well Performance, Transportation, Gas Flow in Pipes, Dew Point Pressure & Temperature, Gas Metering, Storage, LNG, CNG, NGL GTP etc.

MPRP 800.5: FUNDAMENTALS OF ENERGY INDUSTRY-POWER SECTOR (3 CREDITS)

The objective of the course is to provide a better understanding of the economics of the energy and

power industry in relation to trends in the overall economy and the society, and better quantitative and analytical skills to examine complex price behavior and to develop new revenue generation models and project development approaches. Specific topics include: Introduction to Energy, Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

MPRP 800.6: LOCAL CONTENT DEVELOPMENT IN THE OIL & GAS INDUSTRY (3 CREDITS)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development (Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria.

MPRP 800.7: FUNDAMENTALS OF PETROLEUM GEOPOLITICS (3 CREDITS)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: The Political Economy of Oil & Gas Industry, Petroleum Pricing and its Regulation by OPEC, the Global Politics involved, Petroleum & Macroeconomic Issues, Sustainable Petroleum Development, the recent Energy Transition and the Geopolitics involved.

MPRP 800.8: ENTREPRENEURSHIP & ICT APPLICATIONS (2 CREDITS)

The purpose of this course is primarily for the students to be acquainted with ICT skills for entrepreneurship applications. The focus is on computer application and efficiency. Coding, Machine learning, Internet things, Programming Languages (Python, C-Sharp, C++, R-Programming etc).

MPRP 800.9: MICRO AND MACRO ECONOMICS (3 CREDITS)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of

policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

MPRP 800.10: INTRODUCTORY ECONOMIC THEORY (3 CREDITS)

The course covers the foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning and management. The topics are as much as possible made relevant to the energy and petroleum sector.

MODULE 3

MPRP 800.11: ENERGY & PETROLEUM POLICY, LAW, REGULATION & ETHICS (3 CREDITS)

This course will expose the students to a complex legal environment underscores oil, gas and power business relationship and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

MPRP 800.12: ENVIRONMENTAL SUSTAINABILITY & COMMUNITY RELATIONS IN OIL AND GAS INDUSTRY (I) (3 CREDITS)

The objective of the course is to provide a better understanding of the ecological context and mapping, external risks to the industry, strategic risks to the industry, impact of operational incidents, identifying typical operational

emissions scenarios, exploring typical mitigation strategies and their resource implications, option appraisal in support of an emission reduction, evolution of emission and incident reduction in the oil and gas industry, risk assessment and mitigation techniques, importance of culture across the organization on emission and human incident reduction, strategic approach to environmental sustainability and responsible conduct and Initiatives/tools that support a culture of emissions and human incident reduction

MPRP 800.13: ENVIRONMENTAL SUSTAINABILITY & COMMUNITY RELATIONS (II) (3 CREDITS)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector, community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

MODULE 4

MPRP 800.14: UPSTREAM PETROLEUM REGULATION & POLICY (EXPLORATION & PRODUCTION) (3 CREDITS)

This course provides an overview of the upstream exploration, exploitations and production operations. The key objective is to equip students with a working knowledge of the upstream petroleum industry in all aspects including: resources and reserves, oil and gas assets development, and portfolio management, forecasting production and revenue flow; cash flow analysis, deriving and interpreting deterministic and stochastic economic indicators,

spreadsheet modeling tools to incorporate risk and uncertainty in oil and as well as the substantive regulatory framework of upstream petroleum from inception to the most current Petroleum Industry Act, newly signed and its policy implications.

MPRP 800.15: CRUDE OIL PRICING (PRICING) & POLICY (3 CREDITS)

This course will expose the students to the rudiment of crude oil pricing in the petroleum industry. Again, it will afford the students the opportunities to learn the following topics: introduction to oil trading, global oil prices, what determines oil prices, factors that affects the price of oil in the global market, geopolitics of oil price (OPEC, USA etc), OPEC influence on global oil price, oil & natural gas prices correlations, oil price and inflation impact, oil prices and the global economy. Pricing policies and their implications will also be discussed in this course.

MPRP 800.16: REFINING & PETROCHEMICALS REGULATION & POLICY (3 CREDITS)

Petroleum refining is one of the largest industries globally, and it is an important part of the world economy. However, the actual and potential environmental hazards associated with refineries have caused increased concern for localities in close proximity to them, and the global environment by extension, especially against the backdrop of global concerns on environmental sustainability. This course therefore provides a general overview of the processes involved in petroleum refining & petrochemicals production, and the associated environmental hazards. This course will cover in details, the basic regulatory framework for refining and petrochemical products, Environmental hazards of petroleum refineries, environmental regulation of refining and petrochemical infrastructures, regulation and refinery investment, environmental regulation of refined products, regulation of siting and permitting requirements, regulation and legislation of refining and petrochemical industries.

MPRP 800.17: ECONOMICS OF REGULATION OF PETROLEUM INDUSTRY (3 CREDITS)

A study of Regulation Processes as a major consideration in Petroleum Industry operations with a clear insight on principles that affect Petroleum Industry Regulatory policies. Globalization provides a platform for debates, decisions and policies on what to regulate, whether to regulate and how to regulate. International capital would tend to discourage regulations, however an understanding of the economic and environmental policy framework implications are required for the selection of informed, technically

feasible, optimal regulation choices beneficial to the environment, the energy and petroleum industry and the world.

MPRP 800.18: NATURAL GAS ECONOMICS & POLICY (3 CREDITS)

This course will expose students to understanding the Importance of natural gas in the world energy balance; global reserves and production of natural as well as major demand centres. It will also x-ray international gas markets as well as the impact of unconventional gas production on the world demand/supply and on gas prices. Additional topics to be covered include the role of Growing trade in liquefied natural gas (LNG) in increasing emerging markets' access to natural gas as well as their policy drivers.

MODULE 5

MPRP 800.19: MIDSTREAM PETROLEUM REGULATION & POLICY (TRANSPORTATION & STORAGE) (3 CREDITS)

The midstream sector covers transportation, storage, and trading of crude oil, natural gas, and refined products. Once the oil has been extracted and separated from natural gas, pipelines transport the products to another carrier or directly to a refinery. Crude carriers are classed as either VLCCs (Very Large Crude Carriers) or ULCCs (Ultra Large Crude Carriers) and are designed to transport vast quantities of crude oil over long land and sea routes. Petroleum products then travel from the refinery to market by tanker, truck, or pipelines. The course covers the petroleum storage (farm tanks) regulations, petroleum transportation regulations, petroleum pipeline regulations and policy.

MPRP 800.20: FUELS RETAILING REGULATION & POLICY (3 CREDITS)

Petroleum is one of the most important fuels derived from fossil energy sources, and petroleum-based fuels have been used to power automotive vehicles and industrial production for centuries. With increasing demand for fuels, and the associated environmental concerns, regulation of petroleum-based fuels becomes necessary. Fuels regulation provides for standards regarding the quality of liquid petroleum fuels (AGO, DPK, PMS, etc). This course is important as it will expose learners to the classification, characteristics, properties and performance of liquid petroleum fuels; limit values of additives and other components of fuels for various purposes, and policies. Students will also be acquainted with fuel quality standards and requirements, regulations on blended fuels standards and fuel additives. Students will also be exposed to international best practices in direct and

indirect regulation of emissions from petroleum fuels.

MPRP 800.21: LPG STORAGE & BOTTLING REGULATION & POLICY (OPERATIONS) (3 CREDITS)

LPG is an excellent, environmentally friendly fuel with hundreds of millions of satisfied consumers across all parts of the world. As with all forms of energy, LPG can be hazardous if mishandled or misused. Care in the storage, handling, distribution and use of LPG will mitigate any incidents, accidents and their consequences. Accordingly, this course on LPG storage and bottling regulation is designed to acquaint students with the requisite knowledge and skills promote safety in storage, handling, distribution and use of LPG and promotion of LPG, as well as enabling fair business and investment climate for LPG business operators. Topical issues to be covered in the course include: Regulatory Framework for LPG bottling and storage, regulation of location and operation of LPG storage and handling facilities, regulation of LPG transportation, consumer protection regulations for safety for LPG users. LPG product classification, supply and installation of handling facilities. Also, the course will cover national regulations the minimum safety information on a cylinder as well as international best practices in the regulation of LPG storage and bottling.

MPRP 800.22: DOWNSTREAM PETROLEUM PRICING REGULATION (PRICING) & POLICY (3 CREDITS)

The course will provide students with a working knowledge of understanding key downstream terms and factors, major international industry players and fundamentals of downstream agreements and pricing, Sales/pricing agreements relevant to crude oil; natural gas, and Liquefied Natural Gas (LNG), transportation agreements, gas supply and purchase agreements, downstream oil and gas force majeure clauses, legal framework that governs international downstream contracts and trading, downstream agreements for the disposal of production: petroleum sales. The course will also provide a review of the economics of petroleum products transportation and distribution, an overview of natural gas value chain, gas utility business structure, regulation and pricing, petroleum products trading, and policies.

MPRP 800.23: RESEARCH METHODS/BUSINESS COMMUNICATIONS (3 CREDITS)

Adequate knowledge of research, and research methods is a prerequisite every professional. Accordingly, this course will expose students to the various methods for conducting research. The

second part of the course, which is business communication provides students with essential skills for communicating their research/reports in a concise and adequate manner. This is essential for academic, professional and business success in the contemporary world. This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

MODULE 6

MPRP 800.24: PETROLEUM & ENERGY INFRASTRUCTURE FINANCE & EVALUATION (3 CREDITS)

The course examines the financing options for energy ventures, especially where the attributes above call for multiple sources of funding and sometimes complex arrangements. It also examines how, after funding is secured and relevant projects have been selected, the finance function is integral to the management of projects to ensure successful completion. Specific topics include: Introduction to the Finance Function and Specification of Firm Objectives; Sources of Finance and Determination of Firm or Project WACC; Project Finance and Issues in Petroleum Industry and Gas and Electricity Project Finance; Valuation of Energy Industry Firms; Introduction to Project Management and Project Integration Management and Review of Models; and Energy Project Scope, Time, Cost and Quality Management. Other topics include Project Management Scheduling Tools – An Introduction; Post Project Evaluation and Control; Human Resource and Communication Risk Management and Procurement Management; and Contextual Energy Finance and Project Management Issues for Developing Countries.

MPRP 800.25: STRATEGY FORMULATION, IMPLEMENTATION & EVALUATION (3 CREDITS)

Definition of strategy, components of strategy, hierarchy of strategies, marketing strategy, the marketing mix, strategic decisions, corporate objectives, corporate development strategy, alternative corporate growth strategy, allocation of corporate resources, portfolio models, the BCG model and its limitations, industry attractiveness business position matrix, value based model and its features, strategic decisions at SBU level, SBU's competitive strategy, stakeholder consideration in resources allocation.

MPRP 800.26: POLICY FORMULATION, IMPLEMENTATION & EVALUATION (3 CREDITS)

The course covers background to public policy & policy analysis, agenda setting, quick win model of

policy analysis, policy formulation, adoption, implementation and evaluation. Policy formulation and implementation steps, pitfalls in defining a public policy problem, policy implementation plan, policy evaluation after implementation, policy evaluation techniques.

MPRP 800.27: PROJECT MANAGEMENT (3 CREDITS)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

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Change management is the people side of business transformation. Business change is complex because of relationships between the business environment, the organization, its people and supporting technologies. Change can be instigated from within the organization or imposed by

external factors, as such, Change needs to be cohesively and proactively managed. Accordingly, this course on change management integrates the transition of people, processes and technology from the current “as-is” state to a continually unfolding future state. During the course, the students will be exposed to how the dynamics of effective change management work and how to identify and unlock resistance to change, enabling teams to work together and speeding up the implementation of change programmes.

MODULE 7: SGS COMPULSORY COURSES

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This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 801.2: MANAGEMENT AND ENTREPRENEURSHIP (2 CREDITS)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

DISSERTATION: In place of dissertation, students are required to attend at least one seminar/conference/workshop every year of the duration of this programme. Submission of approved and graded term papers will also be required.

**PhD ENERGY ECONOMICS
LIST OF COURSES, CODES AND CREDIT UNITS**

S/N O	COURS E CODE	COURSE TITLE	CREDIT UNIT
1	SGS 901.1	ICT and Research Methodology	2
2	SGS 901.2	Management and Entrepreneurship	2
3	EEM 900	Business Communications	2
4	EEM 901-1	Fundamentals of the Oil and Gas Industry	3
5	EEM 901-2	Energy & Energy Resources, and the Environment	3
6	EEM 901-3	Fundamentals of Downstream Petroleum Economics & Policy	3
7	EEM 901-4	Fundamentals of Natural Gas	3
8	EEM 901-5	Fundamentals of the Energy Industry - Power Sector	3
9	EEM 901-6	Local Content Development in the Oil and Gas Industry	3

10	EEM 901-7	Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply	3
11	EEM 901-8	Fundamentals of Micro and Macro Economics	3
12	EEM 901-9	Introductory Economic Theory	3
13	901-10	Applied Economics: Theory and Application in the Energy Sector	3
14	PEE 901	Advanced Well Engineering and Drilling Technology	3
15	PEE 902	Advanced Reservoir Engineering Systems & Management	3
16	EEM 902	Oil and Gas Industry and Pollution Issues	3
17	EEM 903	Applied Mathematics, Linear Programming & Optimization Methods	3
18	EEM 904	Applied Econometrics for Energy Policy Analysis and Planning	3
19	EEM 905-1	Energy & Petroleum Policy, Law, Regulation and Ethics	3
20	EEM 905-2	Environmental Sustainability and Governance in the Oil and Gas Industry	3
21	EEM 906	Climate Change Policy & Regulations	3
22	EEM 907	Renewable Energy Technology, Economics and Policy	3
23	EEM 908	Electricity Economics and Power System Analysis	3
24	EEM 909	Advanced Energy Economics, Modelling and Market Analysis	3
25	PEM 808	Petroleum Economics III: Downstream of Gas/ Gas to Power Market Analysis	3
26	PEM 809	Business Strategy, Change Management and Policy Formulation	3
27	PEM 810	Energy Infrastructure, Project Finance and Investment Analysis	3
28	PEM 910	Economics of Regulation of Power markets	3
29	PEM 911	Economics of Renewable forms of Energy	3
30	PEM 912	Project Management	3
31	PEM 913	Research Project/Dissertation	6
TOTAL			93

COURSE DESCRIPTION

SGS 901.1 ICT and Research Methodology (2 Credits)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 901.2 Management and Entrepreneurship (2 Credits)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

EEM 900 Business Communications (2 Credits)

This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

EEM 901-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models

of Transportation & Storage), Downstream; Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

EEM 901-2 Energy & Energy Resources, and the Environment (3 Credits)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy production, electric power generation technologies, etc.

EEM 901-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading

with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality(Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy

EEM 901-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector and will be equipped with the requisite knowledge and skills to make informed judgments on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

EEM 901-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

EEM 901-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of local content in Nigeria, factors that defines local content development, policy framework of local content development in Nigeria, legal framework for Nigerian content development (immigration

acts, the petroleum acts, petroleum development fund acts, the petroleum industry bill, the Nigerian oil & gas industry content development act, etc), challenges of local content development in oil & gas industry in Nigeria.

EEM 901-7 Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: The Political Economy of Oil & Gas Industry, Petroleum Pricing and its Regulation by OPEC, the Global Politics involved, Petroleum & Macroeconomic Issues, Sustainable Petroleum Development, the recent Energy Transition and the Geopolitics involved

EEM 901-8 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

EEM 901-9 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much as possible made relevant to the energy and petroleum sector.

EEM 901-10 Applied Economics: Theory and Applications in the Energy Sector (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from

macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management.

PEE 901 Advanced Well Engineering and Drilling Technology (3 Credits)

This course describes advances and emerging technologies in drilling mechanics and drilling economics, focusing in all aspects of drilling wells. Its topics includes rig equipment and drilling methods, drilling and completion fluids, drilling bits, well planning and cost analysis, hydraulics, cementing technology, casing and casing design, abnormal pressure and well control, directional and horizontal drilling methods.

PEE 902 Advanced Petroleum Reservoir Engineering & Processes (3 Credits)

Reservoir engineering fundamental principles would be explored. Analysis of fluid flow in bounded and unbounded reservoirs, wellbore storage, and phase redistribution, finite and infinite conductivity fractures; dual-porosity systems, gas wells. It will also include material balance in oil and gas reservoirs, fundamental well test analysis, natural water influx, predicting oil reservoir performance and improved oil recovery methods.

EEM 902 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and assessment- safety in design and operation- organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management- atmospheric pollution- flaring and fugitive release- water pollution- drilling waste, produced water, oil spills, cooling water, processed water- soil waste- rock cutting. oil sludge, drilling solid waste, production waste environmental monitoring- environmental impact and decommissioning- environmental management.

EEM 903 Applied Mathematics, Linear Programming & Optimization Methods (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical modeling and techniques in

petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: LP modeling, I-O modeling and analysis, efficiency analysis, industrial mathematics with applications and decision modeling in supply chain management.

EEM 904 Applied Econometrics for Energy Policy Analysis and Planning (3 Credits)

This course is designed to provide a solid foundation for students in the applications of econometrics and statistics in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, classical linear regression analysis, time series models analysis and panel data model & nonlinear models, as well as discrete choice regression models.

EEM 905-1 Energy & Petroleum Policy, Law, Regulation and Ethics (3 Credits)

A complex legal environment underscores oil, gas and power business relationships and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

EEM 905-2 Environmental Sustainability and Governance in the Oil and Gas Industry (3 Credits)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community

relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector, community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

EEM 906 Climate Change Policy & Regulations (3 Credits)

The course will present an overview of energy resources and use with special attention to their impacts on the Environment and Climate. Special focus will be on energy efficiency/security, energy policy, environmental protection, climate change policy/regulations and sustainability issues. The course further elaborates on climate change policy & regulations, Carbon Concerns and Constraints, Mitigation & Adaptation Options, Mainstreaming Climate Change into National Development, Climate Change Agreement (Paris, 2015), COP 26 (Glasgow) Outcomes & Future Directions and energy efficiency/ security & informed energy choices

EEM 907 Renewable Energy Technology, Economics and Policy (3 Credits)

The course provides an overview of renewable energy concepts, issues relevant to the technologies currently used for providing energy services through renewable energy resources. It will also provide understanding and relevant knowledge in analysing the integration of renewable energy into global energy system and emerging issues in renewable energy development.

EEM 908 Electricity Economics and Power System Analysis (3 Credits)

This course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies.

EEM 909 Advanced Energy Economics, Modelling and Market Analysis (3 Credits)

The objective of the course is to engage students in learning how to integrate their knowledge of micro, macro, trade, and other economics courses

to develop a comprehensive, “general equilibrium” perspective on real-world economic problems. The course offers a hands-on curriculum that guides students in using the CGE model as a laboratory in which to study economic behaviour in an economy. Upon completion of the course, participants will be able to understand the general functioning and capabilities of CGE models; the structure of a CGE database and its various inter-linkages; Run CGE simulations using the GAMS software and interpret and present CGE simulation results in a comprehensive manner.

PEM 910 Economics of Regulation of Power markets (3 Credits)

The course will provide students with a working knowledge of power systems and electricity industry restructuring, its impact on industry regulation, and the role of environmental concerns and the development of alternative generation technologies. Specific topics include: Introduction to Electricity Industry; Electric Power Industry Structure; Electricity Demand and Supply Dynamics; Cost Structures; Economics of Electric Power Generation, Transmission and Power Flow; Capital Planning: Regulated Versus Restructured; Transmission Access and Wheeling; Ancillary Services; Alternative Energy Policies and Programmes; Climate Change and Impact on Generation Investments; Legal and Regulatory Issues in Electricity Economics; and Global Case Studies and Electricity Sector Reforms.

PEM 911 Economics of Renewable forms of Energy (3 Credits)

This course introduces students to renewable energy and the basics of energy demand and energy consumption. It explores the types and features of renewable energy resources, the applications of renewable energy technologies, trend analysis of global capacity of renewable energy, renewable energy economics & investment analysis, focusing on renewable energy cost trend analysis as well as renewable energy project investment analysis using DCF Analysis.

PEM 912 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course

will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk

management, procurement management, stakeholder management, as well as team building.

PEM 913 Research project/Thesis

**PHD PETROLEUM ECONOMICS
LIST OF COURSES, CODES AND CREDIT UNITS**

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2	SGS 901.2	Management and Entrepreneurship	2
3	EEM 900-2	Business Communication	2
4	PEM 901-1	Fundamentals of the Oil and Gas Industry	3
5	PEM 901-2	Energy & Energy Resources, and the Environment	3
6	PEM 901-3	Fundamentals of Downstream Petroleum Economics & Policy	3
7	PEM 901-4	Fundamentals of Natural Gas	3
8	PEM 901-5	Fundamentals of the Energy Industry - Power Sector	3
9	PEM 901-6	Local Content Development in the Oil and Gas Industry	3
10	PEM 901-7	Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply	3
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12	PEM 901-9	Introductory Economic Theory	3
13	PEM 901-10	Applied Economics: Theory and Application in the Energy Sector	3
14	PEM 902	Oil and Gas Industry and Pollution Issues	3
15	PEM 903	Applied Mathematics, Linear Programming & Optimization Methods	3
16	PEM 904	Applied Econometrics for Energy Policy Analysis and Planning	3
17	PEM 905-1	Energy & Petroleum Policy, Law, Regulation and Ethics	3
18	PEM 905-2	Environmental Sustainability and Governance in the Oil and Gas Industry	3
19	PEM 906	Economics of Petroleum Supply and Geopolitics of Resources	3
20	PEM 907	Advanced Petroleum Economics, Modelling and Fiscal Analysis	3
21	PEM 908	Economics of Petroleum Refining & Petrochemicals	3
22	PEM 909	Economics of Regulation of the Petroleum Industry	3
23	PEE 901	Advanced Well Engineering and Drilling Technology	3
24	PEE 902	Advanced Reservoir Engineering Systems & Management	3
25	PEE 903	Advanced Petroleum Production Engineering & Process	3
26	PEM 808	Petroleum Economics III: Downstream of Gas/ Gas to Power Market Analysis	3
27	PEM 809	Business Strategy, Change Management and Policy Formulation	3

28	PEM 810	Energy Infrastructure, Project Finance and Investment Analysis	3
29	PEE 910	Project Management	3
30	PEM 911-1	Petroleum Reserves Classification	3
31	PEM 911-2	Petroleum Assets Valuation	3
32	PEM 912	Research project/Thesis	6
TOTAL			96

COURSE DESCRIPTION

SGS 901.1 ICT and Research Methodology (2 Credits)

This course should cover essentials of spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Research, Concepts of Hypothesis, Formulation and testing, Organization of Research and Report Writing.

SGS 901.2 Management and Entrepreneurship (2 Credits)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

EEM 900 Business Communications (2 Credits)

This course will emphasize written, verbal and business communications. It will also focus on effective report writing and presentation skills as well as computer and internet competence.

PEM 901-1 Fundamentals of the Oil and Gas Industry (3 Credits)

The course shall deepen the students' knowledge on the following course outlines: Introduction, History of the Industry, Upstream: Production & Exploration, Midstream: (Transportation, Models of Transportation & Storage), Downstream: Refining and Marketing, Oil & Gas Metering/Pricing, Laws & Regulations. The course further introduces students to development of oil and gas assets and presents the issues of profitability in petroleum exploration and development ventures.

PEM 901-2 Energy & Energy Resources, and the Environment (3 Credits)

The course is an overview of all forms of energy and energy resources and the engineering processes for the transformation of primary energy to its useful forms. The course reviews fossil fuel energy and its forms, renewable energy resources and characteristics as well as the concept of energy technology in terms of location, assessment, processes and transformation. Specific topics include: exploration and exploitation of energy resources, development of unconventional resources, emerging technologies for energy

production, electric power generation technologies, etc.

PEM 901-3 Fundamentals of Downstream Petroleum Economics & Policy (3 Credits)

The course covers both the Downstream Petroleum Economics and Policy with the following contents: Oil Supply & Demand Fundamentals, Petroleum Physical Trading, Financial & Market Trading with hedging & strategies, Overview of main Refining & Petrochemical Process, World Refining & Petrochemicals Demand, Evolution of Downstream Supply: Refining, Production & Quality(Specifications), Main Characteristics of Petrochemical Business: Economic Drivers, Principles of Refining, Management and Constraints, Standard Global Profit Analysis: Cash Flow, Capital Costs, Inflation Impact, etc, Introduction to Risk Analysis. Downstream Petroleum Regulations, and Downstream Petroleum Fiscal Policy

PEM 901-4 Fundamentals of Natural Gas (3 Credits)

Natural gas is evolving globally and in Nigeria as the fossil fuel of choice and the bridge to renewables. The objective of this course is to provide students with an understanding of the natural gas value chain from upstream production through to downstream utilization, policy framework, overview of the evolving Nigerian gas market and monetization economics. Additionally, the course will present the linkages between gas and power sector as well as other gas feedstock industries. As a result of this class, students will have a better understanding of the context and complexity of the natural gas sector and will be equipped with the requisite knowledge and skills to make informed judgements on industry issues as professionals. They will better appreciate government policy efforts in gas as well as the inherent investment and strategic opportunities in the sector. Specifically, the course will provide learners with the overview of global energy trends, overview of natural gas value chain, as well as the Nigerian gas market.

PEM 901-5 Fundamentals of the Energy Industry - Power Sector (3 Credits)

The objective of the course is to provide a better understanding of the economics of the energy and power industry. Courses includes Introduction to

Energy Policy and Regulation; Fundamentals of Energy Policy; Fundamentals of Economic Regulation and Restructuring of the Power Industry; Pricing Policies; Restructuring in Energy Industries; Economic Considerations across the Electric Power Value Chain; Economic Considerations across the Natural Gas Value Chain; and Economics of Energy Efficiency and Conservation.

PEM 901-6 Local Content Development in the Oil and Gas Industry (3 Credits)

The course examines the conceptualization of Local Content in Nigeria, Factors that defines Local Content Development, Policy Framework of Local Content Development in Nigeria, Legal Framework for Nigerian Content Development (Immigration Acts, The Petroleum Acts, Petroleum Development Fund Acts, The Petroleum Industry Bill, The Nigerian Oil & Gas Industry Content Development Act, etc), Challenges of Local Content Development in Oil & Gas Industry in Nigeria

PEM 901-7 Fundamentals of Geopolitics of Energy & Petroleum Resources and Supply (3 Credits)

This course will provide the students a broader view of the petroleum industry, demand/supply, pricing and the oil and gas global geopolitics. The course covers: the political economy of oil & gas industry, petroleum pricing and its regulation by OPEC, the global politics involved, petroleum & macroeconomic issues, sustainable petroleum development, the recent energy transition and the geopolitics involved.

PEM 901-8 Fundamentals of Micro and Macro Economics (3 Credits)

This is an introductory course providing a general understanding of basic macro-economic concepts. Specifically, it acquaints the students with an appreciation of the functions of economic systems, including various approaches to the organization of production and allocation of resources, and of policies to achieve national economic goals. These include the determination of national income, inflation, recession, unemployment, taxation, labor unions, environmental pollution, energy and economic growth. Its main focus is on introducing concepts and models which are used as tools of economic analysis. Concepts such as opportunity cost and approaches such as marginal analysis are introduced and the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending, the multiplier principle and the influence of government spending on income and output are discussed.

PEM 901-9 Introductory Economic Theory (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management. The topics are as much as possible made relevant to the energy and petroleum sector.

PEM 901-10 Applied Economics: Theory and Application in the Energy Sector (3 Credits)

This course covers foundational concepts, precepts and assumptions in economic theory and applications for policy and economic analysis and business decisions. Topics are drawn from macroeconomics, microeconomics, development economics, managerial economics, economic planning, and management.

PEM 902 Oil and Gas Industry and Pollution Issues (3 Credits)

The course will give an overview of the safety and environmental issues in the petroleum industry. It will provide detailed understanding of the methods and techniques to resolve these key issues for making petroleum production and processing, cleaner and safer. The course would educate students to identify and assess hazards in any stage of operation, to quantify and manage them as well. It will also highlight lessons learnt from the past accidents. Topical issues to be covered includes introduction to safety, health and environmental management- basic terms and their definitions- importance of safety- safety assurance and assessment- safety in design and operation- organizing for safety. Hazard classification and assessment- hazard evaluation and hazard control. Environmental issues and management- atmospheric pollution- flaring and fugitive release- water pollution- drilling waste, produced water, oil spills, cooling water, processed water- soil waste- rock cutting. Oil sludge, drilling solid waste, production waste environmental monitoring- environmental impact and decommissioning- environmental management.

PEM 903 Applied Mathematics, Linear Programming & Optimization Methods (3 Credits)

This course is designed to provide a solid foundation for students in the applications of mathematical modeling and techniques in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught

include: LP modeling, I-O modeling and analysis, efficiency analysis, industrial mathematics with applications and decision modeling in supply chain management.

PEM 904 Applied Econometrics for Energy Policy Analysis and Planning (3 Credits)

This course is designed to provide a solid foundation for students in the applications of econometrics and statistics in petroleum and energy economics, management and strategy. The key objective is to provide students with analytical tools for research and decision analysis. Specific topics to be taught include: applied mathematics and statistics with economic applications, classical linear regression analysis, time series models analysis and panel data model & nonlinear models, as well as discrete choice regression models.

PEM 905-1 Energy & Petroleum Policy, Law, Regulation and Ethics (3 Credits)

A complex legal environment underscores oil, gas and power business relationships and activities; and defines the limits of what stakeholders can do. This course provides an overview of the international energy business from a legal perspective within the context of the relationship among stakeholders in their transactions and what makes transactions in the energy business work. A key objective is to give a broad understanding of the legal and regulatory framework within which the energy sector operates. Specific topics include review of legal and institutional frameworks for the energy sector, critique & review of existing energy policy, basic concepts of energy resource ownership, international trade agreements, contract negotiation and agreements, energy purchase and sales agreements, environmental protection laws, and energy business regulations.

PEM 905-2 Environmental Sustainability and Governance in the Oil and Gas Industry (3 Credits)

Environmental sustainability has become a global concern and an issue of contemporary discuss. This is against the backdrop of global climate issues associated with emissions from fossil fuel production and consumption activities. Added to this global concern is the yearning for increased involvement of host countries and communities the operations of the oil and gas industry operators. To this end, environmental sustainability and community relations is designed to provide learners with in-depth knowledge and understanding of the underpinnings of the concept of environmental sustainability, community relations and the interactions between the concepts. Topical issues to be covered in this course include sustainable development (SD) & sustainability, historical perspectives on

sustainability, ongoing efforts of the UN towards SD around the globe, e.g. Agenda21; community relations & the global oil & gas industrial sector , community relations in the oil & gas industry in Nigeria, oil & gas companies, community relations via corporate social responsibility & host communities in Nigeria; community relations & environmental sustainability in the course of oil & gas operations in Nigeria, government regulation of community relations via government regulation of corporate social responsibility (environmental & social responsibilities).

PEM 906 Economics of Petroleum Supply and Geopolitics of Resources (3 Credits)

The course evaluates the major segments of the industry and introduces the oil and gas value sequence. The key players or major drivers impacting the global oil and gas supply outlook and pricing are identified and evaluated, including IOCs, OECD, OPEC, and NOCs. The course also presents a broad view of contemporary discussions on petroleum, economy, and the environment. Other topics covered include, the political economy of oil and gas, oil and gas policy versus market debate, petroleum price regulation and mechanism, resources, petroleum and macroeconomic issues, petroleum and the environment discourse, petroleum and sustainable development, the resource curse debates, geopolitics and energy security.

PEM 907 Advanced Petroleum Economics, Modelling and Fiscal Analysis (3 Credits)

This course will entail selected topics in oil industry economic evaluation including offshore bidding, project ranking and selection, capital budgeting, project management and financing, long-term oil and gas field development projects and incremental analysis for assisted recovery and acceleration.

PEM 908 Economics of Petroleum Refining & Petrochemicals (3 Credits)

This course, provides learners with the essence of international oil supply – global reserves, production & trade, introduction to global oil business - exploration, extraction, refining, marketing, transportation, crude oil classifications, crude oil quality indicators, crude oil characterization by assays, crude oil distillation – refined products introduction to crude oil refining – distillation, refinery configurations, topping, hydroskimming, cracking, coking. The course also introduces students to refinery economics & petrochemicals, and petrochemical feedstock, processes and equipment

PEM 909 Economics of Regulation of the Petroleum Industry (3 Credits)

A study of Regulation Processes as a major consideration in Petroleum Industry operations with a clear insight on principles that affect Petroleum Industry Regulatory policies. Globalization provides a platform for debates, decisions and policies on what to regulate, whether to regulate and how to regulate. International capital would tend to discourage regulations, however an understanding of the economic and environmental policy framework implications is required for the selection of informed, technically feasible, optimal regulation choices beneficial to the environment, the energy and petroleum industry and the world.

PEE 901 Advanced Well Engineering and Drilling Technology (3 Credits)

This course describes advances and emerging technologies in drilling mechanics and drilling economics, focusing in all aspects of drilling wells. Its topics includes rig equipment and drilling methods, drilling and completion fluids, drilling bits, well planning and cost analysis, hydraulics, cementing technology, casing and casing design, abnormal pressure and well control, directional and horizontal drilling methods.

PEE 902 Advanced Petroleum Reservoir Engineering & Processes (3 Credits)

Reservoir engineering fundamental principles would be explored. Analysis of fluid flow in bounded and unbounded reservoirs, wellbore storage, and phase redistribution, finite and infinite conductivity fractures; dual-porosity systems, gas wells. It will also include material balance in oil and gas reservoirs, fundamental well test analysis, natural water influx, predicting oil reservoir performance and improved oil recovery methods.

PEE 903 Advanced Petroleum Production Engineering & Process (3 Credits)

This course provides insight into oil and gas recoveries; and exposes both the benefits and limitations of various production techniques available. Its topics includes well performance, multiphase flow in pipes, artificial lift methods, production decline curves, production well analyses, well stimulation and work-over operations, separation processes, oil and gas treatment, produced water management and oil and gas metering

PEM 910 Project Management (3 Credits)

This course is designed to provide students with the skills to successfully plan and manage

corporate projects and procedures. Furthermore, students will be acquainted with the requisite abilities knowledge of running successful projects, giving them a competitive edge within the marketplace. The program thoroughly explores the inner and outer workings of project logistics, management, constraints, risks and execution necessary to deliver projects within the desired scope. Topical issues to be covered includes - project initiation, planning & execution; project monitoring, control and closure. Also, the course will cover project integration management, scope management, schedule management, cost management, quality management, resource management, communications management, risk management, procurement management, stakeholder management, as well as team building.

PEM 911– 1 Petroleum Reserves Classification (3 Credits)

This course will cover the definitions of, and uses for, oil and gas reserves estimates, and how to be compliant with each of the industry standard and regulator's versions of the reserves requirements. In this course, students will learn how geoscience and engineering evaluation methods should be used for compliance of reserves estimates, the differences in the evaluation assumptions and how the inherent uncertainties in reserve estimates are reflected by the categorization of reserves.

PEM 911 – 2 Petroleum Assets Valuation (3 Credits)

Valuation of petroleum assets – upstream, midstream and downstream, are essential for adequate decision making in the oil industry. There are fundamental variables that are associated with petroleum assets valuations, as well as risks and uncertainties. The course therefore, focuses on asset valuation of all sectors of the oil and gas industry with particular emphasis on the upstream sector - exploration and production. It is expected that students will be exposed to the challenging issues that commonly arise when valuing petroleum assets as well as interpreting valuation models, develop the practical skills to build and evaluate valuation models, and acquire skills for better economic decisions based on robust valuation models. Specific topics to be covered includes: Upstream Oil and Gas Valuation Model, Financing issues as well as sensitivity and stochastics models to quantify uncertainty.

PEM 912 Research project/Thesis

LIST OF ACADEMIC STAFF

S/N	NAME	QUALIFICATION	SPECIALIZATION	RANK
1	Joseph Ajienska	B. Sc., Petroleum Engineering (University of Ibadan), M.Eng. & PhD Petroleum Engineering (UNIPORT)	Petroleum Engineering	Professor
2	Ayo Kuye	BSc. Chemical Engineering (UNILAG), PhD, Chemical Engineering (University of Strathclyde, UK)	Chemical Engineering	Professor
3	Worika L. Ibibia	BL, LLM, LLB, Law (UNILAG); PhD, Energy Law & Policy (University of Dundee, UK)	Energy Law and Policy	Professor
4	Ogbonna Joel	B.Tech, Chemical and Petro-Chemical Engineering (Rivers State University of Science and Technology); MSc. Engineering Management (UNIBEN); PhD, Chemical/Petrochemical Engineering (Rivers State University of Science and Technology)	Oilfield Chemical & Environmental Pollution	Professor
5	Lawrence Ohale	BSc., MSc & Ph.D, Economics (UNIPORT)	Economics	Professor
6	Chijioko Nwaozuzu	BSc. Business Administration (UNN); MBA Management (Edinburgh Business School, Harriot-Watt University); MBA, Oil & Gas Management & PhD Petroleum Management & Policy (University of Dundee, UK.)	Oil & Gas Management	Professor
7	John Ugbebor	B.Eng, Petroleum Engineering (UNN); M.Eng. & PhD, Environmental Engineering (UNIPORT)	Safety	Senior Lecturer
8	Uche Osokogwu	B.Eng. & M.Eng., Petroleum Engineering (UNIPORT); Ph.D Petroleum Engineering (Cranfield University, Bedfordshire, United Kingdom.)	Petroleum Production/Economics	Associate Professor
9	Alwell Nteegah	Ph.D, MSc & BSc., MSc. & PhD, (UNIPORT)	Economics	Associate Professor
10	Adesope Olufemi Martins	BSc. Agriculture Extension (University of Ibadan); MSc & Ph.D Agricultural Extension (FUTO)	Agricultural Economics & Extension	Professor
11	Agiobenebo Tamuno	BSc. Economics (ABU, Zaria); MA & PhD, Economics (University of Pittsburgh, U.S.A)	Economics	Professor
12	Bristol Alagbariya Edward	BA, Law (UNIPORT); BL (UNILAG); PhD, Environmental Law & Policy (University of Dundee, UK)	Environmental Law and Policy	Associate Professor
13	Oduola Koyejo	BSc. Chemical Engineering (UNILAG); MSc. & PhD, Chemical Engineering (National University Levivska Polytechnika, Ukraine)	Chemical Engineering	Professor
14	Chinedu N. Ogbuji	BSc., Marketing (ABSU, Uturu); PGDE, Education (NOUN); MSc. Marketing (UNN); MBA & PhD, Marketing (ABSU, Uturu)	Social/Environmental Marketing and Entrepreneurial Marketing	Professor

15	Mica Leyirah	BSc & MBA, Accounting (Rivers State University of Science & Technology); PhD, Accounting (UNIPOINT)	Environmental Accounting and Taxation	Professor
15	Toyin Odutola	BSc, Petroleum Engineering (LAUTECH), MSc Petroleum Engineering (African University of Science & Technology); PhD Petroleum Engineering (UNIPOINT)	Production Engineering	Senior Lecturer
16	Okodua Henry	B.Sc. Economics (UNILORIN); MSc Economics (UNIBEN); PhD Economics (Covenant University, Ogun State)	Economics	Senior Lecturer
17	Sam Amadi	BL (University of Calabar), LLB, Law (Nigerian Law School) ; LLM, Law MPA (Harvard's Kennedy School of Government); PhD, Law (Harvard University, USA).	Power Sector Economics, Law and Regulation	Professor
18	Felix Dayo	BSc., Chemical Engineering (OAU); MSc, Nuclear Engineering (University Michigan, USA); PhD, Engineering & Public Policy (Carnegie Mellon University, USA)	RE Technology & Policy	Professor
19	Leo Ukpong	BSc. & M.Sc. Economics (Alabama A&M University, USA); MBA, Finance (University of New York, USA.); M.Sc. Petroleum Economics (University of Pennsylvania, USA); Ph.D. Financial Economics 9 The Wharton School of Business, University of Pennsylvania.	Energy Economics Finance	Professor
20	Adenikinju Adeola	Ph.D, MSc, BSc., MSc. PhD Economics (University of Ibadan)	Energy Economics	Professor
21	Gurkan Kumbaroglu	B.S. Industrial Engineering (Gazi University, Turkey); MS & PhD, Industrial Engineering (Middle East Technical University)	Power Systems Economics	Professor
22	Ogbe David	BS and MS, Petroleum Engineering (Louisiana State University, Baton Rouge, Louisiana, USA.); Ph.D. Petroleum Engineering (Stanford University, California, USA).	Petroleum Engineering	Professor
23	Iwayemi Akin	BSc. Economics (University of Ibadan), Ph.D. Economics (The Johns Hopkins University, USA)	Energy Economics	Professor
24	Afees Salisu	BSc., MSc. & PhD. Economics (University of Ibadan)	Applied Econometrics	Professor
25	Nwogwugwu Collins Uche	BSc. Economics (Ahmadu Bello University, Zaria.); PGDE Economics (University of Calabar); MSc & PhD Economics (UNIPOINT)	Economics	Professor

26	Igbokoyi Alpheus	BSc, Petroleum Engineering (University of Ibadan); MBA, Global Energy Management (Haskayne School of Business, University of Calgary, Canada.); MSc, Petroleum Engineering (University of Ibadan); M.Sc, Energy Regulation and Law (Vermont Law School); PhD, Petroleum Engineering (University of Oklahoma, USA)	Petroleum Engineering	Professor
27	Chidi Ibe	BSc. Geology (UNN); MSc., Energy & Environment & Ph. D, Oceanography (Royal School of Mines, Imperial College of Science and Technology, London, United.)	Energy, Environment and Climate Change	Professor
28	Obindah Gershon	B.Sc, Economics (UNN); M.Sc, Oil and Gas Economics & PhD, Petroleum Economics (University of Dundee, UK)	Energy Economics	Senior Lecturer
29	Eme Ekekwe	BA Political Science (University of Western Ontario, Canada.); MA & PhD, Political Science (Carleton University, Ottawa, Canada.)	Political Science	Professor
30	Mike Onyekonwu	BSc. Petroleum Engineering (University of Ibadan); MSc. & PhD Petroleum Engineering (Stanford University, California, USA)	Petroleum Engineering	Professor
31	Wumi Iledare	B.Sc. Petroleum Engineering (University of Ibadan); M.S. Energy Resources (University of Pittsburgh's School of Engineering, USA); Ph.D. Mineral and Energy Resource Economics (West Virginia University, USA)	Petroleum & Energy Economics	Professor
32	Ify Nwaogazie	BS, Civil Engineering & MS, Water Resources Engineering (University of Kansas, USA); Ph.D, Civil & Environmental Engineering (Oklahoma State University, USA)	Civil Engineering	Professor
33	Adewale Dosunmu	B.Sc, Petroleum Engineering (University of Ibadan); M.Eng & Ph.d, Petroleum Engineering (UNIPORT).	Petroleum Engineering	Professor
34	Okey Onuchukwu	BSc., MSc. & PhD Economics (UNIPORT)	Economics	Professor
35	David Ige	BSc & M.Eng, Chemical Engineering (UNILAG); MBA (University of Aberdeen); PhD, Chemical Engineering (University Cambridge, UK)	Engineering	Visiting Lecturer
36	Habib Nuhu	BSc. Applied Geology (Abubakar Tafewa Belewa University); MSc. Petroleum Geosciences (Imperial College, London); PhD petroleum Engineering (Seoul University, Korea)	Energy Economics	Visiting Lecturer
37	Ernest Nwapa	BSc., Civil Engineering (UNN); Ph. D Management Technology (Hon). (FUTO)	Local Content Development	Visiting Lecturer

38	Tim Okon	BSc. Geology (Ahmadu Bello University, Zaria); MBA (Texas A&M University, USA); MSc, PhD, DIC Petroleum Geophysics (Imperial College, London)	Energy Economics	Visiting Lecturer
39	Adiele Nwankwo	BA, Economics (Miami University, USA); Masters, Regional Planning & MSc. Civil Engineering (The Ohio State University, USA); PhD, Philosophy 9University of Michigan, USA)	Project Management	Visiting Lecturer
40	Jude Amaefule	BSc Petroleum Engineering (University of Los Angeles, California, USA); MSc, & PhD, Petroleum Engineering 9University of Southern California, USA).	Petroleum Engineering	Visiting Lecturer
41	Ukawkwu Nwojo	BSc., Petroleum Engineering; MBA, Project Management Technology (FUTO), MSc, Petroleum Engineering & PhD, Petroleum Economics (UNIPORT)	Petroleum Economics	Visiting Lecturer
42	Soala Ariworiokuma	BSc. Business Administration; PGD, Policy Analysis; M.A, Economics; Ph.D Administration. (University of Nebraska, USA)	Economics of Petroleum Supply & Geopolitics	Visiting Lecturer
43	Yusuf Abdulsalam	BSc. Agricultural Engineering (University of Ilorin.); MSc. PhD Agricultural Engineering (Ahmadu Bello University, Zaria)	Energy/Power Market Economics	Visiting Lecturer
44	Joseph Ellah	BSc, Mathematics (Cuttington University College, Liberia); MSc & PhD, Applied Mathematics (University of Durham, UK)	Operations Research, Statistics & Research methods	Visiting Lecturer
45	Suleiman Tahir	BSc., MSc & PhD Economics 9African University of Science Technology, Abuja)	Economics	Visiting Lecturer
46	Joshua Gogo	BSc. Chemical/ Petrochemical Engineering (Rivers State University of Science & Technology, Nigeria); MSc. Computer Information Systems (USA); MA/PhD in Economics (Canada)	Operations Research	Visiting Lecturer

CENTRE FOR PEACE AND SECURITY STUDIES

HISTORY OF THE CENTRE

Centre for Ethnic and Conflict Studies (CENTECS) was established in 2003 (became functional in 2005) as a unit of the Faculty of Social Sciences. CENTECS is a bold initiative by the University of Port Harcourt to revive and sustain the research culture in the University system. It is already common knowledge that little or no research activity is going on in our universities as a result of long years of under-funding and the consequent agitations, in the form of strikes by university lecturers. It is also true that the conventional university academic Departments and Faculties have since ceased to provide effective platforms for organising any meaningful research work. Thus extra departmental structures in the form of research Centres' or Institutes have become the new planks for the rebirth of purposeful work. It is against this background that the Centre for Ethnic and Conflict Studies was established. CENTECS meets this need by conducting researches that provide evidence-based information towards addressing the problem of conflict in the Niger- Delta, Nigeria, Africa and beyond. Between 2016 and 2021 CENTECS was merged with the Centre for Gender Studies. Both Centres became Centre for Conflict and Gender Studies (CCGS). In April 2015, the two Centres were demerged. In consideration of the need to proffer Intellectual responses to contemporary security issues that are threatening the fabrics of national, regional and global integration, the Centre has been registered as Centre for Peace and Security Studies (CPSS) with effect from March, 2021.

Objectives of the Centre are to:

- Make CPSS a Centre of excellence in peace and security studies through cutting- edge teaching and research.
- Transfer knowledge in peace and security studies through teaching, research and workshops.
- Develop our students' understanding of peace and security study problems and their consequences for social life in Nigeria and global society and equip them with skill and competences for managing the phenomenon.
- Deliver a high-quality programmes in Peace and Security studies.
- Provide students with adequate theoretical, methodological and practical foundations for the emerging field of peace and security studies in Nigeria.
- Educate students to appreciate the causes of intrastate and interstate conflict; security, conflict resolution and post-conflict peace building process with special reference to Nigeria and Africa.

- Give students whose initial training was not in peace and conflict studies, an opportunity to achieve their desired goal of obtaining a certificate in the field.
- Apply our skills and competences towards the advancement of evidence based and policy relevant research in peace and security studies to facilitate the development of Nigeria, Africa and the world.

VISION

CPSS envisages the total integration of all Nigerians into a viable and justice-loving nation; the supremacy of citizenship over indigeneship; a nation renowned for upholding justice equity and fairness; a nation where conflicts are reduced to an inconsequential minimum for citizens to enjoy maximum security and the creation of an intellectual haven for research on global peace and security.

MISSION

To apply our skills and competences towards the advancement of evidence- based and policy relevant research in peace and security studies to facilitate the development of Nigeria, Africa and the World.

POST GRADUATE DIPLOMA (PGD) PROGRAMME IN PEACE IN AND SECURITY STUDIES

Entry Requirement

To be eligible for admission into the programme, candidates must possess a first degree (B.Sc. B.Ed., B.A.) from any recognized university. Preference will be given to candidates who have degrees in related fields of study, and to those who work in the peace and security sector. In exceptional cases, candidates without first degrees, but who have attended high professional institutions like the National War College, NIPSS, etc and who have demonstrable practical experience in peacekeeping operations and other peace building activities, may be considered for admission.

Duration

The Post-Graduate Diploma (PGD) in Peace and Security Studies is designed for 12 months full time.

Graduation Requirement

To graduate from the Diploma programme, a candidate must obtain a minimum of 30 credits. This load will include a research project of 6 credits to be completed after the course work. In addition to the Core Courses, the students are required to take at least 2 electives per semester.

FIRST MODULE

COURSE CODE	COURSE TITLE	CREDIT UNIT
PSS 700.1	Concepts and theories of Peace and Conflict Studies	3
PSS 701.1	African Approaches to Conflict Resolution	2
PSS 702.1	Conflict Analyses and Management	2
SECOND MODULE		
COURSE CODE	COURSE TITLE	CREDIT UNIT
PSS 703.1	Non – Violent Conflict Transformation	2
PSS 704.1	Research Methodology in Peace Studies	2
PSS 705.1	Communications and Conflict Management	2
THIRD MODULE		
COURSE CODE	COURSE TITLE	CREDIT UNIT
PSS 706.2	Peace building Strategies and Recovery Frameworks	3
PSS 707.2	Environment and Conflict	2
PSS 708.2	Peace Education and Peer Mediation	2
		7
FOURTH MODULE		
COURSE CODE	COURSE TITLE	CREDIT UNIT
PSS 709.2	Early Warning and Response Mechanisms	2
PSS 708.2	Individual Research Project: Write, Submit and Defend	12
		14

DETAILED DESCRIPTION OF COURSES

PSS 700.1 Concepts and Theories of Peace and Conflict Studies – (3 Credit Units)

The course explores the evolution and development of peace and conflict studies as an academic subject area. It familiarizes the students with basic concepts like conflict, violence, war, and peace, settlement, resolution, order, etc. It also looks at the causes of conflicts; the relationships between peace and violence, peace and conflict, and peace and war; ethics and war, including circumstances, under which the use of military force can be justified; discussions of realist, pacifist and just war responses; ethics of peace and war; relationship between ethical traditions and modern international law; what international law says about war;

unsolved issues of humanitarian intervention, war crimes; relationship between religion and conflict; etc.

PSS 701.1 African Approaches to Conflict Resolution - (2 Credit Units)

This course is aimed at providing the students with an understanding of issues of conflict and peace in Africa, understanding the principle and process of Alternate Dispute Resolution and Traditional Dispute Resolution mechanisms; the nature of the community and state in Africa and its relationship to peace, African institutions as instruments for peace building, Westernization and challenges to African institutions and culture as bases for conflict, African colonial past and implications for conflict, African approaches to conflict, nonviolence and peace-building. Case studies from Nigeria, West Africa and the rest of Africa will be used.

PSS 702.1 Conflict Analyses and Management - (2 Credit Units)

The course is built on the premise that successful; conflict resolution depends largely on adequate analysis. An important tool for conflict understanding is conflict analysis. An important tool for conflict understanding is conflict analysis. The course will cover meaning and issues involved in conflict analysis (its uses) examining the various methods for analysing conflict; the use of self-reflection at individual levels; the use of the ABC method of analysis, pyramid methods, use of case study analysis and mapping of the conflict.

PSS 703.1 Non-violent Conflict Transformation – (2 Credit Units)

This course is designed to equip students with the theories and principles nonviolent conflict transformation. The growing culture of violence in politics and interpersonal relations requires peace education that includes knowledge and application of methods of nonviolence. Some people or individuals in conflict tend to have penchant for attack of life and limbs of opponents rather their power. This alone underlies a need to provide students with an opportunity to explore the concept of nonviolence and related concepts of Non-killing in dealing with conflicts. The course is intended to make students appreciate the values, methods and strategies of nonviolent conflict transformation by focusing on specific cases, including recent nonviolent actions in Africa. As well, it will look at historical cases of nonviolent struggles and ideas credited to Mahatma Gandhi and Martin Luther King Junior. The course will also explore traditional approaches to peace in Africa in context of nonviolence.

PSS 704.1 Research Methodology in Peace Studies – (2 Credit Units)

This course is aimed at introducing research methods in peace and conflict studies. Issues to be covered include, conceptual foundations of research; concepts, constructs, hypothesis, theories, variables, etc. The nature of peace and conflict data, community conflict research, the Participatory Rural Appraisal methodology, the historical methodology, ethics in conflict research. Others are types of research, data collection methods, sampling and sampling designs; measurement; questionnaire construction; organization of project reports; data analysis, and hypothesis testing. The management of conflict research findings as an instrument of peace building

PSS 705.1 Communications and Conflict Management – (2 Credit Units)

This course focuses on the importance of communication to conflict management. It looks at communication theory, and the Media as an instrument of mass communication. It explores attitudes and communication skills in conflict situations. It also covers the meaning of communication; elements of good communication, communication skills and tools; listening techniques, roadblocks to communication and conflict management. It will also involve ethics of reporting conflict, minimizing bias in conflict reporting; use of language in conflict reporting; risks in conflict coverage and reporting; conflict of interest between media proprietors and the ethics in conflict coverage.

PSS 706.2 Peace-Building Strategies and Recovery Frameworks – (3 Credit Units)

In this course students will understand the root causes of conflict and how to address them using different frameworks developed by National and International Organizations engaged in peace work. It will also enable students become conscious of the barriers to sustainable peace and ways of averting them. Finally, this course will expose students to cross-cutting issues like human needs approach to development, sustainable development, participatory development and development cooperation.

PSS 707.2 Environment and Conflict Management – (2 Credit Units)

Students will understand the origin and nature of conflicts caused environmental degradation in Africa, particularly in the Niger Delta Region of Nigeria. It will also examine the impact of war on the environment and global environmental protocols and legislations enacted to protect the environment.

PSS 708.2 Peace Education and Peer Mediation – (2 Credit Units)

The course will introduce students to the definitions and concepts of Peace Education; the culture of

Peace; and Institutions and processes of Peace Education, Institutions of Peace Education, the use of the agencies socialization for teaching non-violence, using subjects like music, art, drama, mathematics, etc, to teach peace education, setting up peer peace groups, etc.

PSS 709.2 Early Warning Response Mechanisms - (2 Credit Units)

This course introduces students to the concepts and practice of early warning mechanisms identification as a fundamental way of preventing violent conflicts in human society. Some of the focus areas of this course include; complexity of conflicts, anticipation of conflict, role of governmental and nongovernmental organizations in intelligence gathering, early warning analysis and how to ensure early response. Your understanding of this course will empower you to critically scrutinize information and conflict indices in order to enhance the design of early and right responses to prevent violence.

PSS 710.2 Individual Research Project: Write, submit and Present (Core) – (12 Credit units)

Every student will write, defend and submit a research project at the end of the course work, leading to the Submission of a project. The topic of research must fall within one of the research areas in peace and conflict studies.

MASTERS OF SCIENCE (M.Sc.) COURSES IN PEACE AND SECURITY STUDIES

Admission Requirements

Candidates for the Master's Degree in Peace and Security Studies must have one of the following:

- A good first-degree honours from any discipline with a minimum of second-class lower division
- A minimum of third-class honours degree from a recognized university plus Postgraduate Diploma in Peace and Conflict Studies at credit level with a CGPA of 3.50
- Credit in HND with Postgraduate Diploma in Peace and Security Studies from a recognized university with a CGPA of 3.50. and;
- Evidence of NYSC discharge or exemption/exclusion certificate.

Duration of Programme

- The Full-time Master degree in Peace and Security Studies shall run a minimum of four Quarters (12 calendar months).
- The Part-time programme shall run for a minimum of six Quarters and a maximum of eight Quarters.

2.05 Requirements for Graduation

To qualify for the award of Master's Degree in Peace and Security Studies, a candidate must pass a

minimum of 37 credit units comprising core, elective and seminars courses and the Thesis.

PSS 888.2 M.Sc Dissertation

6

2.06 Domain of the Programme

All Master's Degree programmes in Peace and Security Studies shall be domicile at Centre for Peace and Security Studies (CPSS), Faculty of Social Sciences University of Port Harcourt.

2.07 Mode of Application

Requests for application forms should be made to the Centre for Peace and Security Studies (CPSS), and such requests must be accompanied by the stipulated fee made payable to the Centre for Peace and Security Studies (CPSS), University of Port Harcourt with the candidate's name, address and course applied for, written at the reverse side.

FIRST MODULE

COURSE CODE	COURSE TITLE	CREDIT UNIT
PSS 800.1	Theoretical Perspectives on Conflict, Peace and Security	3
PSS 801.1	Advanced Research Methodology	3
SGS 801.1	ICT and Research Methodology	2

SECOND MODULE

COURSE CODE	COURSE TITLE	CREDIT UNIT
PSS 802.1	Environment and Conflict	3
PSS 803.1	Peace-making and International Peace - keeping	3
PSS 804.1	African Approaches to Conflict Management and Resolution	3
PSS 805.1	Language, Communication and Conflict Management	3
		12

THIRD MODULE

COURSE CODE	COURSE TITLE	CREDIT UNIT
PSS 806.2	Critical Security Studies	3
PSS 807.2	International Security Studies	3
PSS.808.2	International Organisations, Conflict and Security Management	3
		9

FOURTH MODULE

COURSE CODE	COURSE TITLE	CREDIT UNIT
SGS 801.2	Management and Entrepreneurship	3

DESCRIPTION OF COURSES

PSS 800.1 Theoretical Perspectives on Conflict, Peace and Security (3 Credit Units)

The course examines key concepts, theoretical perspectives and models of conflict analysis, peace-building and the structure of contemporary international security, including contending theories of international relations and regional security complexes. It also enquires into military and non-military sources of insecurity as related to global regional and national/state levels as well as human security. Other issues discussed are: critical security studies; conflicts commonly occurring in all human relations; progress from submerged moments to rising tensions; and the examination of crises/violence in the post-conflict stage and the analysis of causes at every relevant stage. Analysis is approached through such theoretical perspectives as the conflict dynamics triangle; needs-based conflict origins; and rational, strategic calculation and analysis of social psychological processes. Furthermore, the course deals with concepts such as positive peace, a culture of peace and the major approaches/schools on early warning and prevention, conflict management, conflict resolution and transformation/peacebuilding in their historical revolution. The multi-track approach of peace building, particularly the three level analyses of actors and action pyramids, will also be examined. The UN Agenda for Peace will be presented. Discourse on top-down, bottom-up and integrative approaches will be examined featuring state and non-state actors, the varied strategies they deploy in peace interventions and their efforts to ensure coordination for best results.

PSS 801.1 Advanced Research Methodology (3 Credit Units).

This course is aimed at introducing research methods in peace and conflict studies. Issues to be covered include, conceptual foundations of research; concepts, constructs, hypothesis, theories, variables, etc. The nature of peace and conflict data, community conflict research, the Participatory Rural Appraisal methodology, the historical methodology, and ethics in conflict research will be applied. Others are types of research, data collection methods, sampling and sampling designs; measurement; questionnaire construction; organization of project reports; data analysis, and hypothesis testing. The management of conflict research findings as an instrument of peace building.

SGS 801.1: ICT and Research Methodology (2 Credit Units).

This course should cover essentials of spread sheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypothesis, Formulation and Testing, Organization of Research and Report Writing.

PSS 802.1 Environment and Conflict (3 Credit Units)

Students will understand the origin and nature of conflicts caused by environmental degradation in Africa, particularly in the Niger Delta Region of Nigeria. It will also examine the impact of war on the environment and global environmental protocols and legislations enacted to protect the environment.

PSS 803.1 Peace-making and International Peacekeeping (3 Credit Units).

This course will expose students to the problems of peace-making and peacekeeping initiatives around the world. This is with a view to identifying Regional and Global efforts at managing conflict within International Law and UN Security Council mandates. Emphasis shall be placed on the roles of the UN, ECOWAS and NGOS in peace-making and peacekeeping, Chapters and levels of UN engagement in International Conflict and topics on the 'Responsibility to Protect' civilians in times of conflict.

PSS 804.1 African Approaches to Conflict Management and Resolution (3 Credit Units).

This course is aimed at providing the students with an understanding of issues of conflict and peace in Africa, understanding the principle and process of Alternate Dispute Resolution and Traditional Dispute Resolution mechanisms; the nature of the community and state in Africa and its relationship to peace, African institutions as instruments for peace building, Westernization and challenges to African institutions and culture as bases for conflict, African colonial past and implications for conflict, African approaches to conflict, nonviolence and peace-building. Case studies from Nigeria, West Africa and the rest of Africa will be used.

PSS 805.1 Language, Communication and Conflict Management (3 Credit Units)

This course focuses on the importance of communication to conflict management. It looks at communication theory, and the Media as an instrument of mass communication. It explores attitudes and communication skills in conflict situations. It also covers the meaning of communication; elements of good communication, communication skills and tools; listening techniques, roadblocks to communication and conflict management. It will also involve ethics of reporting conflict, minimizing bias in conflict reporting; use of language in conflict reporting; risks

in conflict coverage and reporting; conflict of interest between media proprietors and the ethics in conflict coverage.

PSS 806.2 Critical Security Studies (3 Credit Units)

The course introduces students to the subfield of critical security studies (CSS), which means it takes a broadly constructivist and critical perspective to the study of security. Traditionally, International Relations (IR) security studies literature focuses on state security, studying it especially through realist and sometimes (neo) liberal lenses. This course presumes background knowledge of those mainstream security approaches and issues (such as realism and (neo) liberalism, the causes of war, strategy, deterrence, arms control or alliance theory), but it does not deal directly with them. Instead, we ask, what is security? Who or what is being secured and for and by whom? We question whether the state is the appropriate (or only) referent object for security, and particularly draw on analytical models from outside the mainstream. We also ask how to conduct research in critical studies.

PSS 807.2 International Security Studies (3 Credit Units).

This course introduces students to different concepts of security, such as international, global and human security. It helps students to examine and understand the imperial problems in their historical context as well as facilitate an understanding and appreciation of the changes in continuities of security problems from the cold war to the present. It also helps students to develop an in-depth understanding of different approaches to security problems, both in their historical context as well as contemporary debate. It exposes students to develop critical understanding of the complex dimensions of security and the nature of various threat to security. The course will also examine the military and non-military approaches to security threats and develop critical facilities to apprise their suitability for meeting contemporary security challenges. Finally, the course also provides students with an intellectual environment for enhancing and testing critical, independent analysis of international and global security.

PSS 808.2 International Organisations, Conflict and Security Management

This course examines the role of key international organisations such as the United Nations, Non-Atlantic Treaty Organisation, European Union and African Union in conflict and security management. The historical background dates back to the First World War through the Second World War, the Cold War and the era of globalisation. The course will pay attention to the flashpoints in international conflicts caused by geopolitical and geostrategic struggles for

influence particularly by the United States, Europe, China, Russia and emerging powers.

SGS 801.2 Management and Entrepreneurship (2 Credit Units)

This Course will cover business environment, General Management, Financial Management, Entrepreneurship Development Feasibility Studies, Marketing and Managerial Problem Solving.

PSS 888.2 M.Sc. Dissertation (6 Credit Units).

The M.Sc. Dissertation should be an original work presented in accordance with the regulations of the Graduate School. It shall be accepted and deemed necessary to have contributed to knowledge.

EXECUTIVE MASTERS OF SCIENCE (M.Sc.) IN CRIMINOLOGY AND POLICE PSYCHOLOGY

ADMISSION REQUIREMENTS

Candidates for the Master of Science degree in Criminology and Police Psychology must have one of the following:

- (a) A good first-degree honour in any discipline with a minimum of second-class lower division.
- (b) A minimum of third-class honours degree from a recognized university plus Postgraduate Diploma in Criminology or in related disciplines at credit level with a CGPA of 3.50.
- (c) Upper Credit in HND with Postgraduate Diploma in Criminology or in related disciplines in a recognized University with a CGPA of 3.50.
- (d) Evidence of NYSC discharge or exemption/exclusion certificate is required.

DURATION OF PROGRAMME

- (a) The Executive M.Sc. Degree in Criminology and Police Psychology shall run for 12 calendar months.

REQUIREMENTS FOR GRADUATION

To qualify for the award of an Executive M.Sc. Degree in Criminology and Police Psychology, a candidate must pass a minimum of 37 credit units comprising core, elective and seminars courses and the Dissertation.

FIRST MODULE

Course Code	Course Title	Credit Unit
CPP 800.1	Introduction to Criminology	3
CPP 801.1	Applied Forensic Psychology	3
SGS 801.1	ICT & Research Methods	2

SECOND MODULE

Course Code	Course Title	Credit Unit
CPP 802.1	Advanced Research Methods in Criminology	3
CPP 803.1	Advanced Theories in Criminology	3
CPP 804.1	Policing and Law Enforcement in and Victimology in Nigeria	3
		9

THIRD MODULE

Course Code	Course Title	Credit Unit
SGS 801.2	Management and Entrepreneurship	2
CPP 805.2	Cybercrime and Forensic Investigation	3
CPP 806.2	Practical Psychology for Policing	3
		8

FOURTH MODULE

Course Code	Course Title	Credit Unit
CPP 807.2	Correctional Facilities, Technology and Crime Prevention and Control	3
CPP 888.2	Dissertation	12
		15

3.06 DETAILED DESCRIPTION OF COURSES

CPP 800.1 Introduction to Criminology (3 Credit Units)

This course is aimed at introducing students to the issues of crime punishment and victimization. Topics covered include: Crime as a social phenomenon; Traditional Contextualization of crime; Trends in contemporary crime, domestic violence. Substance abuse and related crime, Kidnapping, Bandit and crime, the mass media and crime reports and mechanisms for responding to crime in Nigeria.

CPP 801.1 Applied Forensic Psychology (3 Credit Units)

This course has been designed against students with the challenges of working with mentally disordered offenders. The course aims to introduce students to the assessment and treatment of offenders, including thinking about context and considering ethical issues relating to working as a psychologist with this group. The topics taught within this module highlight to students the difficulties that can occur when dealing with mentally disordered offenders

and provide students with an understanding of how such offenders are dealt with within the Nigerian criminal justice system.

SGS 801.1 ICT & Research Methods (2 Credit Units)

This course should cover essentials of spreadsheets, Internet technology, Statistics Packages, Precision and Accuracy of estimate. Principal of Scientific Research, Concept of Hypothesis, Formulation and Testing, Organization of Research and Report Writing.

CPP 802.1 Advanced Research Methods in Criminology (3 Credit Units)

This module provides students with an advanced understanding of the research designs commonly employed within criminology and criminal psychology research. It combines both a theoretical and a practical approach to learning, which enables students to develop the research skills that are essential for completing their MSc thesis. Students will be taught both quantitative and qualitative approaches to criminological research through structured units that cover the entire research process from design to write up.

CPP 803.1 Advanced Theories in Criminology (3 Credit Units)

This course is an advanced study and critical appraisal of various theories of crime causation, including an examination of biological psychological, economic, and sociological perspective on the aetiology of crime. The course focuses on major theoretical approaches to the understanding of crime, and different types of crime and criminal behaviour. The purpose of this course is to provide the students with understanding of nature and causes of crime. This course provides students with an understanding of the issues involved in explaining, defining, and measuring crime. Additionally, the course focuses on the nature and causes of crime as well as on patterns and trends in criminal activity. Biological, psychological, and sociological theories are also discussed as explanations of crime and delinquency

CPP 804.1 Policing and Law Enforcement and Victimology in Nigeria (3 Credit Units)

This course has details on Policing, Law Enforcement, Police Organisation, Police Administration, Functions of the Nigeria Police, Power of the Nigeria Police, Methodology of Policing, Crime Detection, Criminal Investigation, Police Discretion, Police Culture, police Sub-Culture, Community Policing, Police Ethics, Police Deviance, Human Rights, Law, Criminal Procedure, Effective Policing, Efficiency Policing, Reform, Victimology, Restitution and Police Cooperate Social Responsibility.

SGS 801.2 Management and Entrepreneurship (2 Credit Units)

This Course will cover business environment, General Management, Financial Management, Entrepreneurship Development Feasibility Studies, Marketing and Managerial Problem Solving.

CPP 805.2 Cyber Crimes and Forensic Investigation (3 Credit Units)

Cybercrime is closely associated with technology. The course first focuses on technology and crime, (CCTV, Surveillance and tracking: Drone Technology & Terrorism: Software early warning& response, Artificial Intelligence, Networking Technology). The course also explores the major types of cybercrimes and their criminological motivations; current law enforcement and prosecutorial responses to cybercrimes, protected right of computer Users and protection of the accused, existing punishment mandates and transitional issues in cybercrime.

This aspect of the course introduces students to the scientific method used to solve crime by gathering and analysing all crime-related physical evidence to come to a conclusion about a suspect. Topic covered will include: such evidence as blood fluid, finger Prints, residue, hard drives, computers or other technology to consider how any crime was committed.

CPP 805.2 Practical Psychology for Policing (3 Credit Units)

The course introduces students to the link between psychology and police practice and how Psychological knowledge can be applied in everyday police services. Topics covered include: Psychology and Policing, suspects interview strategies, street/neighbourhood psychology for police, police decision making, using nudge psychology to prevent crime and how knowledge of criminal career can be used to detect serious offenders.

CPP 806.2 Correctional Facilities, Technology and Crime Prevention and Control (3 Credit Units)

The course explores the various institution practices and procedure of the criminal justice of Nigeria. Students will be exposed to the roles of the police, court and corrections, as well as how the imposition of punishment affect offenders, victims, families and other members of the community. The course equally looks at the role that technology plays in the apprehension and punishment of offenders.

CPP 808.2 Dissertation (12 Credit Units)

The M.Sc. Dissertation should be an original work presented in accordance with the regulations of the Graduate School. It shall be accepted and deemed necessary to have contributed to knowledge.

DEGREE IN VIEW

Executive Masters in Criminology and Police Psychology.

DURATION OF PROGRAMME.

Twelve (12) calendar Months.

MASTERS IN SECURITY MANAGEMENT

ADMISSION REQUIREMENTS.

- Candidates for admission into the programme shall possess an appropriate Bachelor's Degree of the University of Port Harcourt or any other recognized University. Preference shall be given to candidates doing related jobs in Government Ministries, the Private sector, and Security services.
- Candidates for the Master of Science Degree in Security Management must have one of the following:
 - (a) A good first-degree, Honours in any discipline with a minimum of second-class lower division.
 - (b) A minimum of third-class Honours degree from a recognized university plus Postgraduate Diploma in Criminology or in related disciplines at credit level with a CGPA of 3.50.
 - (c) Upper Credit in HND with Postgraduate Diploma in Criminology or in related disciplines in a recognized University with a CGPA of 3.50.
 - (d) Evidence of NYSC discharge or exemption/exclusion certificate is required.

DURATION OF PROGRAMME.

1. The maximum period allowed for the completion of the M.Sc. Degree shall be 18 months.
2. Students may register for a maximum of 45 units, but assessment for the award of the degree is based on the attainment of 37 units.
3. The M.Sc. in Security Management Degree shall be classified in line with the existing regulations of the School of Graduate Studies (SGS) University of Port Harcourt.
4. The M.Sc. Degree in Security Management shall run for 12 calendar months.

GRADUATION REQUIREMENTS.

To qualify for the award of an M.Sc. Degree in Security Management, a candidate must pass a minimum of 37 credit units comprising core, elective and seminar courses and the Dissertation.

4.05 COURSE CONTENT

The course delivery methods will include lectures, group work, case studies, critical reading, discussion and self-assessment. Students will be exposed to online materials to improve their access to diverse sources of reading.

FIRST MODULE

Course Code	Course Title (Core Courses)	Credit Unit
SGS 801.1	ICT and Research Method	2
PSS 800.1	Advanced Research Methodology & Statistics	2
PSS 801.1	Theoretical Perspectives on Peace and Security.	2
PSM 802.1	Information Security and Technology.	2
		8

SECOND MODULE

Course Code	Course Title (Core Courses)	Credit Unit
PSM.803.2	HRM and Organizational Behaviour	2
PSM.804.2	Theories of Management	2
PSM.805.2	Seminar in Business Administration	2
PSM 806.2	Criminal Investigation	2
		8

THIRD MODULE

Course Code	Course Title (Core Courses)	Credit Unit
PSM.807.3	Critical Thinking and Intelligence Analysis	2
PSM.808.3	Forecasting Terrorism: Predictive Analytical Techniques	2
PSM.809.3	Strategic Security Management/ Homeland and Private	2
PSM.810.3	Criminal Profiling – Strategies and Techniques	2
PSM 811.3	Marketing of Security Services	2
		10

FOURTH MODULE

Course Code	Course Title (Core Courses)	Credit Unit
PSM.812.4	Forensics and Crime Scene Investigation	2
PSM.813.4	Corrupt Practices & Financial Crime	2
PSM.814.4	Legal Aspects of Security Management and Entrepreneurship.	2
SGS.801.2	Management and Entrepreneurship.	2
PSS 888	Dissertation	6
		14

COURSE DESCRIPTIONS

SGS 801.1 ICT and RESEARCH. (2 CREDIT UNIT).

A study of quantitative methods for solving management problems. Topics covered include data analysis, probability concepts and applications, break-even analysis, critical path method, PERT/B.Sc. sigma six, queuing theory, statistical quality control, forecasting, inventory control, linear programming, location analysis, transportation problems and other topics.

PSS 800.1 Advanced Research Methods & Statistics (2 Credit Unit).

This module introduces students to research methods and how Private Investigators can effectively carry out meaningful research. Research – a way to thinking, formulating a research problem, conceptualizing a research design, constructing an instrument for data collection, selecting a sample, writing a research proposal, collecting data, Processing and displaying data and writing a research report.

PSS 801.1 Theories In Peace And Security Studies (2 Credit Unit).

Students acquire skills in analyzing and applying theories in peace and security studies. These include: The Social Structure Theories by Karl Marx, Dahrendorf and Robert Merton who argue that conflict is a product of the way societies are structured: Human Needs Theory which highlights the prominence of human needs in generating conflict as a result of frustration aggression or relative deprivation: The Social Theories include Games Theory, Just War Theory etc.

PSM 802.1 Information Security & Technology (2 Credit Unit).

Information technology Security is a field involving the protection of computer systems and the prevention of unauthorized use or changes or access of electronic data. It deals with the protection of software, hardware, networks and its information. Due to the heavy reliance on computers in the modern industry that store and transmit an abundance of confidential information about people and assets, as the security of Information is a critical function and needed insurance of many businesses. The module also covers the practice and principles of “e-security”.

PSM.803.2 HRM &Organisational Behaviour (2 Credit Unit).

The course is a hybrid that deals with the intricacies of behavioural variables in organizations, and the managers that run them and blends these with HRM major functions. It also delves into environmental factors that create or affect such behaviours, interactions of individuals, groups and organization; diversity, emotion and moods, attitude and job

satisfaction, personality, group dynamics, communication and conflict management, values and culture, structure, and motivation management. The course equally deals with pertinent issues of biblical principles, ethics and their interactions as well as application in business organizations.

PSM.804.2 Theories of Management (2 Credit Unit).

Theory, Definition and Building Blocks. The use of theories in management and research. The history of management theories. Fredrick Taylor and Scientific Management. Elton Mayo and the Human Relations Approach. Hertzberg and the Two Factor Theory. Management by Objectives. Contingency Theory of Management. Total Quality Management. Theory Z and Leadership Theory of Management.

PSM.805.2 Seminar in Business Administration (2 Credit Unit).

Students will write seminar papers either as individuals or groups and present them using technology to develop skill in presentation of papers.

PSM 806.2 Criminal Investigation (2 Credit Unit).

The course comprehensively covers the very latest in investigative tools and techniques as well as established investigative procedures. The module stresses practical procedures, techniques, and applications of private and public investigations to provide students with a solid foundation in criminal investigation. It seamlessly integrates coverage of modern investigative tools alongside discussion of established investigation policies, procedures, and techniques for the private investigator. The course also features updated, enhanced coverage of such important topics as terrorism and homeland security, cybercrime, forensics and physical evidence, federal law enforcement investigations, report writing, crimes against children, photography and sketching, preparing and presenting cases in court, and identity theft.

PSM.807.3 Critical Thinking and Intelligence Analysis (2 Credit Unit).

Everyone thinks; it is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed or down-right prejudiced. Yet the quality of our life and that of what we produce, make, or build depends precisely on the quality of our thought. Critical thinking is the art of analyzing and evaluating thinking with a view to improving it. Critical thinking is, self-directed, self-disciplined, self-monitored, and self-corrective thinking. This module focuses on the essence of critical thinking concepts and tools and students can use it to design instruction, assignments, and tests in any subject. Students are also taught on how Critical Thinking can also be used to improve learning in any content area and how its generic skills apply to all subjects -

12 ways of learning, What is critical thinking, Thinking strategies, Why critical thinking, Model of critical thinking, Key critical thinking skills, Brain power for critical thinking and How a critical thinker reasons, Process of understanding, 3 levels of thought, How to build your brain, Standards-Elements-Traits, Critical thinking uses, Dangerous toxins to the brain and Food required for brain enhancement. Criminal Intelligence- Introduction to intelligence, the intelligence process, National intelligence model, Evaluation of source and data, Analysis and analytical process, Basic Analysis Techniques – Link Analysis, Basic Analysis Techniques –Event Charting, Basic Analysis Techniques – Flow Analysis, Basic Analysis Techniques – Tel Analysis, Inference Development, Presentation of Results, Criminal Info & Intelligent Guidelines, Making Recommendations, Criminal Intelligent Databases.

PSM.808.3 Forecasting Terrorism: Predictive Analytical Techniques (2 Credit Unit).

The module focuses on methodology, scope and limitations of Terrorism, observed patterns and trends, Predictive Analytical Techniques, Forecast Global Terror Threats, Data collection models for forecasting, Data management and storage; Designing routes for ventilating forecasts for national strategic security management, and Designing a synergy model for national terrorism profiling

The module focuses on methodology, scope and limitations of Terrorism, observed patterns and trends, Predictive Analytical Techniques, Forecast Global Terror Threats, Data collection models for forecasting, Data management and storage; Designing routes for ventilating forecasts for national strategic security management, and Designing a synergy model for national terrorism profiling.

PSM.809.3 Strategic Security Management (2 Credit Unit).

The history of security and the role of security professionals, Terrorism and national strategies, crime prevention through environmental design, Violence, theft and drugs in the workplace, Insider threats, pre-employment screening and executive/personnel protection, The security of physical structures, Threats to information security, including malware and bonnets and risks to proprietary information and communication, Security law and liabilities, Investigations, interrogations and surveillance, Risk management, threats from natural disasters and business continuity/enterprise resilience, Critical infrastructures and key national resources, The future of security technology. The also course examines processes, tools and systems employ in the management of a community to ensure safety of persons and properties. It content covers community

policing, domestic abuse, homicide, death investigation, interrogation techniques, community crime database development, and surveillance strategies. Furthermore, the course comprehensively looks at the possibility of setting up a private security outfit (business proposal); legal and business requirements. It covers areas like proposal and prospectus development, funding, finding clients/marketing, operational logistics, equipment and facilities, location advantage, business registration, working with law and enforcement agencies and the ethical issues in private security.

PSM.810.3 Criminal Profiling – Strategies and Techniques (2 Credit Unit).

This module focuses on the deductive profiling method developed by criminal profilers and motivated by the limited knowledge available regarding the criminal profiling process. Deductive profiling is different from other forms of profiling in that it focuses on criminal profiling as an investigative process, solving real crime through an honest understanding of the nature and behaviour of criminals. It approaches each criminal incident as its own universe of behaviours and relationships. The course emphasizes the most crucial tenet that any good criminal profiler should adhere to, the enthusiastic desire to investigate and examine the facts. It also include false reports, psychological autopsies, criminal profiling in court, stalking, domestic homicide, sexual asphyxia, and staged crime scenes - History of criminal profiling ,Inductive criminal profiling, Deductive criminal profiling, Case assessment, Introduction to crime reconstruction, Evidence dynamics, Wound pattern analysis, Victimology, The psychological autopsy, False reports, Crime scene characteristics, Understanding modus operandi, Staged crime scenes, Understanding offender signature, Criminal motivation, Offender characteristics, Criminal profiling in court, Fire & explosives: Behavioural aspects, Psychopathic behaviour, Sadistic behaviour, Domestic homicide, Sexual asphyxia, Stalking, Serial homicide, Serial rape, Cyber-patterns – Criminal behaviour on the internet, Ethics and the criminal profiler.

PSM 811.3 Marketing of Security Services (2 Credit Units)

This course underscores the importance of marketing of services generally and security services in particular. It exposes the candidates to the rudiments of the application of marketing strategy in delivering security services. It covers such areas as, the concept and meaning of services and security services, types of security services, services marketing mix, nature and scope of security services, service marketing organization, segmentation of security service markets, security

service marketing environment, client/customer relationship management.

PSM.812.4 Forensics and Crime Scene Investigations (2 Credit Unit).

When forensic recoveries are properly processed and recorded, they are a major intelligence source for crime investigators and analysts. Forensic Intelligence takes the subject of forensics one step further and describes how to use the evidence recovered at crime scenes for extended analysis and the dissemination of new forensic intelligence. The module supplies practical advice on how to use all forensic recoveries in a modern, analysis-driven, intelligence-led policing environment. It also covers evidentiary procedures related to each of the crime types, as well as the production of intelligence products from police data. By mastering the basic crime scene investigation recording and intelligence processes in this course, student investigators can make the best use of all their forensic recoveries- Introducing forensic intelligence, The value of forensics in crime analysis and intelligence, Research and analytical processes, Forensic evidence recovery, processing and best practice, Best practice in recovery of forensic evidence from crime scenes, The need for investment in information technology, Arriving at the crime scene – initial response and prioritization, Preliminary documentation and evaluation of the crime scene, Processing the crime scene, Completing and recording the crime scene investigation, Crime scene equipment and Practical crime scene management.

PSM.813.4 Corrupt Practices And Financial Crime (2 Credit Unit)

This module teaches a management system and leadership philosophy that effectively co-ordinates the sharing of criminal information and maximizes strategic leadership and decision making. It also covers the proof of corrupt practices and financial crimes –Types of Financial crimes, crime linked to terrorist financing ,motivation of employees to fight fraud, vulnerability of financial sector to fraud, Introduction to Intelligence-led policing, Critical thinking and the intelligence analyst, Organizational strategies, Crime analysis strategies, COMPSTAT Integration, strategic leadership and communication, Leadership and planning,

Analytical products, Analytical models and charting, Investigative strategies and Tactical leadership Strategic leadership, ILP – meeting criminal intelligence requirements, Removing the barriers, Synchronization of COP and POP, Strategic Planning, Intelligence analysis, Crime analysis, Criminal investigative analysis, Analytical reporting and Intelligence sharing.

PSM.814.4 Legal Aspects of Security (2 Credit Unit)

Areas to be covered include : Criminal law and procedures, Civil law and procedures, Homeland or national security procedures, Privacy laws and regulations, Information resources and methods of conducting legal research, Statutes, regulations and case law governing or affecting the security industry and the protection of people, property and information, Criminal law and procedures, Civil law and procedures, Employment law (e.g., wrongful termination, discrimination and harassment), Investigation processes, Preservation and rules of evidence, Fact-finding processes and techniques, Interview interrogation processes and techniques, Key concepts in the preparation and/or response to requests for proposals, Contract law, indemnification, and liability insurance principles, Federal laws governing labour relations, including union and management issues, Laws pertaining to developing and managing investigative programs, Laws pertaining to the collection and preservation of evidence, Laws pertaining to managing surveillance processes, Laws pertaining to managing investigative interviews, Laws related to the rights of employees and the employer in conducting an investigation.

SGS 801.2 Management and Entrepreneurship (2 Credit Units)

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

PSS 888 Dissertation (6 Credit Unit)

Independent study of a management or security management topic duly approved by the department under the supervision of a lecturer appointed in the department.

4.07 LIST OF ACADEMIC STAFF

S/N	NAME	QUALIFICATION	AREA OF SPECIALISATION	DESIGNATION
1.	Ifeanacho, M. I.	B.A., M.A. (UCC Cork Ireland), Ph.D. (UPH).	Human Resources Management	Professor (Director)
2.	S.B. Arokoyu	B.Sc., PGDE, M.Sc., Ph.D. (UPH)	Urban and Regional Geography	Professor
3.	Regina Rex Eleazu-Uriri PhD	NCE (Fed. Coll of Edu.Abiokuta) BSc (Ed) (UNICAL) PGD Computer Science(NOUN) MEd Education (UNICAL) Ph.D. (UNICAL).	Security Management	Industry Lecturer
4.	Anthony Abiola Allen	B.Sc.(UNILAG) MBA – Banking and Finance(UNILAG) Ph.D. Forensic Criminology(UNILAG)	Security Management	Industry Lecturer
5.	Chinedu N. Ogbuji	Ph.D(MKT-ABSU), MSc. (MKT-PR-UNEC), MBA(MKT-ABSU), PGDE(NOUN).	Social/Services Marketing	Professor
6.	Chima B. Onuoha,	Ph.D(MGT-ABSU), MBA(MGT-UNEC), MBA(Finance-ABSU), MSc.(International Affairs and Diplomacy) (ABSU), PGDE(NOUN).	Strategic Management	Professor
7.	Abu, O.P.	B.Sc., M.Sc., Ph.D. (UPH)	Industrial Analysis, Medical Sociology & Social Gerontology	Industry Lecturer
8.	Badey, Dinebari K.	B.Sc., MSc., Ph.D. (UPH)	Development Studies	Senior Lecturer
9.	Dr. Kiale Niyiayana	B.Sc., M.Sc. (UPH) M.Sc.(kings College ,London) Ph.D.(UNN).	International Relations (Conflict and Peace Studies)	Senior Lecturer
10.	Dr. (Mrs) Onyinye O. Durueke	B.A., M.A., and Ph.D.(Ibadan)	Gender Studies/ Peace and Conflict Studies	Senior Lecturer
11.	Dr.Gbenemene Kpae	B.Sc., M.A. (Missouri USA) Ph.D. (UPH)	Criminology and Environmental Conflict	Senior Lecturer
12.	Dr. Mezie-Okoye, Charles C.	B.Sc., M.Sc., Ph.D. (UPH).	Peace and Conflict Studies/ Development Studies	Senior Lecturer

MASTERS IN CYBER SECURITY

ADMISSION REQUIREMENTS.

- Candidates for admission into the programme shall possess an appropriate Bachelor's Degree of the University of Port Harcourt or any other recognized University. Preference shall be given to candidates doing related jobs in government ministries, the private sector, and security services.
- Candidates for the Master of Science Degree in Cyber Security must have one of the following:

- a) A good first-degree, Honours in any discipline with a minimum of second-class lower division.
- b) A minimum of third-class Honours degree from a recognized university plus Postgraduate Diploma in Criminology or in related disciplines at credit level with a CGPA of 3.50.
- c) Upper Credit in HND with Postgraduate Diploma in Criminology or in related disciplines in a recognized University with a CGPA of 3.50.

- d) Evidence of NYSC discharge or exemption/exclusion certificate is required.

DURATION OF PROGRAMME.

1. The maximum period allowed for the completion of the M.Sc. Degree shall be 18 months.
2. Students may register for a maximum of 45 units, but assessment for the award of the degree is based on the attainment of 37 units.
3. The M.Sc. in Cyber Security Degree shall be classified in line with the existing regulations of the School of Graduate Studies (SGS) University of Port Harcourt.
4. The M.Sc. Degree in Cyber Security shall run for 12 calendar months.

GRADUATION REQUIREMENTS.

To qualify for the award of a M.Sc. Degree in Cyber Security, a candidate must pass a minimum of 37 credit units comprising core, elective and seminars courses and the Dissertation.

FIRST MODULE

Course Code	Course Title (Core Courses)	Credit Unit
SGS 801.1	ICT and Research Method	2
PCS 801.1	Advanced Research Methodology	2
PCS 800.1	Data Integrity and Authentication.	2
PCS.801.1	Cyber Security Governance and Cyber Law	2
		8

SECOND MODULE

Course Code	Course Title (Core Courses)	Credit Unit
PCS.802.2	Information Security Engineering.	2
PCS.803.2	Cryptographic Techniques	2
PCS.804.2	Security Strategies for Web Applications and Social Networks.	2
PCS.805.2	Systems Security	2
		8

THIRD MODULE

Course Code	Course Title (Core Courses)	Credit Unit
PCS.806.3	Information Security, Risk Analysis and Management.	2
PCS.807.3	Cloud Computing Security	2
PCS.808.3	Information Storage Security	2
PCS.809.3	Ethical Hacking and Reverse Engineering.	2
		8

FOURTH MODULE.

Course Code	Course Title (Core Courses)	Credit Unit
PCS.810.4	Web and Socket Programming and Cyber Security Management.	2
PCS.811.4	Information Disaster Recovery.	2
PCS.812.4	Multimedia Application and Security	2
SGS.801.2	Management and Entrepreneurship.	2
PSS.888	Dissertation.	6
		14

COURSE DESCRIPTIONS

SGS 801.1 ICT & RESEARCH (2 CREDIT UNIT)

A study of quantitative methods for solving management problems. Topics covered include data analysis, probability concepts and applications, break-even analysis, critical path method, PERT/B.Sc. sigma six, queuing theory, statistical quality control, forecasting, inventory control, linear programming, location analysis, transportation problems and other topics.

PCS 801.1 ADVANCED RESEARCH METHODS (2 CREDIT UNIT).

This module introduces students to research methods and how Private Investigators can effectively carry out meaningful research. Research – a way to thinking, formulating a research problem; Conceptualizing a research design, constructing an instrument for data collection, selecting a sample, writing a research proposal, collecting data, Processing and displaying data and writing a research report.

PCS 800.1 DATA INTEGRITY AND AUTHENTICATION (2 CREDIT UNIT).

This course explains the concepts of authentication, authorization, access control, and data integrity. It explains the various authentication techniques and their strengths and weaknesses. It also explains the various possible attacks on passwords. Topics include:

- Authentication strength:** Multifactor authentication, Cryptographic tokens, Cryptographic devices, Biometric authentication, One-time passwords, and Knowledge-based authentication.
- Password attack techniques:** Dictionary attack, Brute force attack, Rainbow table attack, Phishing and social engineering, Malware-based attack, Spidering, Off-line analysis, and Password cracking tools.
- Password storage techniques:** Cryptographic hash functions (SHA-256, SHA-3, collision

resistance), Salting, Iteration count, and Password-based key derivation.

- d) **Data integrity:** Message authentication codes (HMAC, CBC-MAC), Digital signatures, Authenticated encryption, and Hash trees.

PCS.801.1 CYBER SECURITY GOVERNANCE AND CYBER LAW (L-2; T-0; P-0) (2 CREDIT UNITS)

This course aims to provide students with a broad understanding of the current legal environment in relation to cyberspace. This includes both domestic and international laws as well as the application of jurisdictional boundaries in cyber-based legal cases. Students should have a strong understanding of current applicable legislation and a strong background in the formation of these legal tools.

This course provides an overview of the legal doctrines and principles that apply to the operation and development of computer technology and the Internet. Topics include: issues related to jurisdiction, constitutional issues of free speech, property rights, e-business, and current developments in legislation and case law.

- a) **Constitutional foundations of cyber law:** Executive power, Legislative power, First amendment, Fourth amendment, and Tenth amendment.
- b) Intellectual property related to cyber security: copyright acts
- c) **Privacy laws:** Laws governing Internet privacy, Laws governing social media privacy, and electronic surveillance laws
- d) **Data security law:**
- e) **Digital evidence:**

PCS.803.2 INFORMATION SECURITY ENGINEERING (2 CREDIT UNIT).

It establishes the foundations for designing, building, maintaining and assessing security functions at the end- user, network and enterprise levels of an organization. The faculty instruction, readings, lab exercises, exam, and required student writing assignment are coordinated to introduce and develop the core technical, management, and enterprise-level capabilities that will be developed throughout the information security engineering program.

PCS.803.2 CRYPTOGRAPHIC TECHNIQUES (2 CREDIT UNIT)

Students in this course explores symmetric and asymmetric cryptography, key management, and encryption algorithms such as DES, AES, RSA, and PGP. Discusses PKI, SSL, and VPN including how to use protocols, hashing, digital signatures, and certificates and certificate authorities. It covers policies, procedures, and methods for the proper use of cryptography in secure systems.

Symmetric (private key) ciphers: Block ciphers and stream ciphers (pseudorandom permutations, pseudo-random generators), Feistel networks, Data Encryption Standard (DES), Advanced Encryption Standard (AES), Modes of operation for block ciphers, Differential attack, linear attack, and Stream ciphers, linear feedback shift registers, RC4. Asymmetric (public-key) ciphers: Theoretical concepts (Computational complexity, one-way trapdoor functions), Naive RSA, Weakness of Naive RSA, padded RSA, Diffie-Hellman protocol, El Gamal cipher, Other public-key ciphers, including Goldwasser Micali, Rabin, Paillier, McEliece, and Elliptic curves ciphers.

PCS.804.2 SECURITY STRATEGIES FOR WEB APPLICATIONS AND SOCIAL NETWORKS (2 CREDIT UNIT).

This course provides an in-depth look at how to secure mobile users as customer-facing information migrates from mainframe computers and application servers to Web-enabled applications. The course provides a comprehensive explanation of the evolutionary changes that have occurred in computing, communications, and social networking. In addition, this course covers how to secure systems against all the risks, threats, and vulnerabilities associated with Web-enabled applications accessible via the Internet.

PCS.805.2 SYSTEMS SECURITY (2 CREDIT UNIT).

Security Principles, Account Security, File System Security, Assessing Risk, Risk Analysis, and Encryption. The student's basic network and operating system skills will be expanded to include planning, implementation, and auditing of a system's security package. Secure design and secure coding principles, practices, and methods including least privilege, threat modeling, and static analysis. Covers common vulnerabilities such as buffer overruns, integer overflows, injection attacks, cross-site scripting, and weak error handling.

PCS 806.3 INFORMATION SECURITY RISK ANALYSIS AND MANAGEMENT (2 CREDIT UNIT)

Quantitative risk assessment, Qualitative risk assessment, relating threat to vulnerability, defining impact, risk mitigation, risk transference or avoidance, Communicating Risks and Risk management strategies, Risk management technologies

PCS 807.3 CLOUD COMPUTING SECURITY (2 CREDIT UNIT)

Introduction to cloud computing, cloud computing vendors cloud Computing threats, Cloud Reference Model. Introduction to data centers: servers, data

storage, networking and virtualization. Data center networking, Introduction to server virtualization software: VMware VSphere. Virtual machine management: configuration, placement and resource allocation. Power efficiency in virtual data centers. Fault tolerance in virtual data centers. The Cloud Cube Model and Security or Cloud Computing. Security in the Cloud, Cloud Threats, Threat Mitigation, Cloud and Security Risks, Real World Issues with Cloud Computing, Cloud Security Alliance, National Institute of Standards and Technology, Information Assurance Framework, Cloud Audit, Cloud Management Audit/Assurance Program, Cloud Business Continuity Planning.

PCS 808.3 INFORMATION STORAGE SECURITY (2 CREDIT UNIT).

- a) Disk and file encryption: hardware-level versus software encryption.
- b) Data erasure: Overwriting, degaussing, Physical destruction methods, and Memory remanence.
- c) Data masking: Data masking for testing, Data masking for obfuscation, and Data masking for privacy.
- d) Database security: Access/authentication, auditing, and App integration paradigms.
- e) Data security law: legal aspects of data security, laws and policies that govern data (e.g., HIPAA). It also provides an introduction to other law-related topics in the Organizational Security knowledge area.
- f) Information Security Models: Basic concepts, Access control list (ACL), Bell-La Padula model, Biba model, Brewer and Nash model, Capability-based security, Clark-Wilson model, Context-based access control (CBAC), Graham-Denning model, Harrison-Ruzzo-Ullman (HRU), Lattice-based access control (LBAC), Mandatory access control (MAC), Multi-level security (MLS), Non-interference (security), Object-capability model, Role-based access control (RBAC), Take grant protection model, Protection ring, High-water mark (computer security).

A survey of emerging and leading technologies in the cyber security field. The aim is to research and evaluate emerging technologies and determine secure implementation strategies for best-fit business solutions. Topics include evolutionary technology development and adoption in organizations.

PCS 809.3 ETHICAL HACKING AND REVERSE ENGINEERING (2 CREDIT UNIT).

An exploration of techniques and technologies for understanding the operation of malicious software and attacks. It discusses and explores techniques for detection, identification and prevention. Presents reverse engineering of code and network exploits as a method for understanding and development of countermeasures

PCS 810.4 WEB & SOCKET PROGRAMMING (2 CREDIT UNIT).

Markup Languages Development Tools/Environment overview of network architectures, applications (HTTP, FTP), network programming interfaces (e.g., sockets), transport (TCP, UDP), flow control, congestion control, IP, routing, IPv6, multicast, data link protocols, error-detection/correction, multiple access, LAN, Ethernet, wireless networks, and network security. Examples will be drawn primarily from the Internet (e.g., TCP, UDP, and IP) protocol suite. Over the course of the quarter, students' program in C++ on UNIX systems to build web clients and servers, and a fully compatible TCP/IP stack that can run them.

PCS 811.4 INFORMATION DISASTER RECOVERY (2 CREDIT UNIT).

Disaster Recovery Philosophy, Principles and Planning, Contingency Plan Components, Agency Response Procedures and Continuity of Operations, Planning Processes, Continuity and Recovery Function, Steps of Disaster Recovery Planning, Role of IT and Network Management in Disaster Recovery, Developing the Disaster Recovery, Executive Support, DRP Leadership, Cross Department Subcommittee, Department Level Teams, Relationship between IT and Network Staff with Departments, Planning Team Skill Inventory, DRP Team applications and data and Construct a comprehensive lifecycle approach to Web application security.

PCS 812.4 MULTIMEDIA APPLICATIONS AND SECURITY (2 CREDIT UNIT)

This course addresses the design and implementation of secure multimedia applications. Concentration is on writing software programs that make it difficult for intruders to exploit security holes. The course emphasizes writing secure distributed programs in Java. The security ramifications of class, field and method visibility are emphasized

PSS 888 DISSERTATION (6 CREDIT UNIT).

Independent study of a management or security management topic duly approved by the department under the supervision of a lecturer appointed in the department.

LIST OF ACADEMIC STAFF

S/N	NAME	QUALIFICATION	AREA OF SPECIALISATION	DESIGNATION
1.	Ifeanacho, M. I.	B A., M.A. (UCC Cork Ireland), Ph.D. (UPH)	Human Resources Management	Professor (Director)
2.	Anthony Abiola Allen.	B.Sc,(UNILAG) – MBA – Banking and Finance(UNILAG) Ph.D.(UNILAG) .	Forensic Criminologist.	Professor
3.	Ugwu Chidiebere	B.Sc., M.A., Ph.D. (UPH)	Machine Learning and Intelligent Systems.	Professor
4.	Regina Rex Eleazu-Uriri PhD	NCE (Fed. Coll of Edu.Abiokuta) BSc (Ed) (UNICAL) PGD Computer Science(NOUN) MEd Education .(UNICAL) Ph.D. (UNICAL).	Security Management	Industry Lecturer
5.	Ohale, L.	B.Sc., M.Sc., Ph.D. (UPH)	Economic Development	Professor
6.	Abu, O.P.	B.Sc., M.Sc., Ph.D. (UPH)	Industrial Analysis, Medical Sociology & Social Gerontology	Senior Lecturer
7.	Badey, Dinebari K.	B.Sc., M.Sc., Ph.D. (UPH)	Development Studies	Senior Lecturer
8.	Dr. Kiale Nyiayaana	B.Sc., M.Sc. (UPH) M.Sc.(Kings College ,London) Ph.D.(UNN).	International Relations (Conflict and Peace Studies)	Senior Lecturer
9.	Dr. (Mrs) Onyinye O. Durueke	B.A., M.A., and Ph.D. (Ibadan).	Gender Studies/Peace and Conflict Studies	Senior Lecturer
10.	Dr.Gbenemene Kpae	B.Sc., M.A., Missouri, USA, Ph.D. (UPH).	Criminology and Environmental Conflict	Senior Lecturer
11.	Dr. Mezie-Okoye, Charles C.	B.Sc., M.Sc., Ph.D. (UPH).	Peace and Conflict Studies/ Development Studies	Senior Lecturer

Ph.D. PROGRAMME IN PEACE AND SECURITY STUDIES

Entry Requirement

Eligible candidates for admission into the Ph.D. Programme must possess a Master's Degree in Peace & Security Studies from recognised University and should have an average score of 60% or its equivalent grade. Candidates who possess a Master's degree in other fields of study must also have a postgraduate diploma or Master's Degree in Peace and Security Studies with a minimum of grade "C" to qualify for admission. Admission will also be based on interview performance.

Duration of Programme

(a) The Full-Time Ph.D programme in Peace and Conflict Studies should run for a minimum of Six (6) quarters or a maximum of Ten (10) quarters.

(b) The Part-time programme should run for a minimum of Eight (8) quarters, and a maximum of Twelve (12) quarters.

Requirements for Graduation

A candidate must have fulfilled the following conditions to be awarded a Ph.D. degree in Peace and Security Studies.

FIRST SESSION MODULE

Course Code	Course Title	Credit Unit
PSS 900.1	Peacekeeping and International Conflict Resolution	3
PSS 901.1	Applied Research Methodology in Peace and Conflict	3

PSS 902.1	African and Western approaches to Negotiation and Mediation	3	
		9	DESCRIPTION OF COURSES
SECOND MODULE			PSS 900.1 Peacekeeping and International Conflict Resolution (3 Credit Units)
Course Code	Course Title	Credit Unit	The overall aim of the course is to provide the students with the basic understanding of the field of conflict resolution and its application – theoretical and practically – to peacekeeping intervention in contemporary international conflict. The course explores the emergence and development of the academic discipline of conflict resolution and its relations to the evolution of peacekeeping. The contribution of conflict resolution theory and practice to peacekeeping practice are identified early on and considered throughout the course. The nature of conflict and the dynamics of contemporary conflict are defined, along with the key concepts and techniques for solving conflicts. The course explores the significant areas that will improve responses to today’s complex emergencies, including conflict analysis and mapping, early warning and conflict prevention, contingency and complementarities approaches, interagency coordination, post-conflict peace building and reconciliation, cultural understanding and gender awareness.
PSS 903.1	Refugees and Internally Displaced Persons (IDPs)	3	
PSS 904.1	Framework for Economic Reconstruction in Conflict Affected States	3	
PSS 905.1	Race, Racism and Xenophobia in Africa	3	
		9	
THIRD MODULE			PSS 901.1 Applied Research Methodology in Peace and Conflict Studies (3 Credit Units)
Course Code	Course Title	Credit Unit	This course aims at familiarizing doctoral students with the ways in which a vague interest in research is transformed into a theoretically informed puzzle with concrete hypotheses. It clears the ground for students to discover how an appropriate research method is chosen, how a research question/hypothesis is tested, what problems can be encountered in data collection and analysis, how the data can be interpreted, and how the results can be effectively presented. With these objectives in perspective, the course deals with fundamental issues of philosophy of science; epistemology; ontology; empirical, rational and phenomenological approaches; and case and comparative studies. It also examines the formulation of research aims, the roles of the hypothesis, theories as tools to explain reality, definitions and delimitations, quantitative methods, qualitative methods and mixed methods.
PSS 906.1	Terrorism and Global Security	3	
PSS 907.1	Peacebuilding, Democracy and Development	3	
PSS 908.1	Arms Control and Disarmament	3	
		9	
SECOND SESSION MODULE			PSS 902.1 Refugees and Internally Displaced Persons (IDPs) (3 Credit Units)
FIRST MODULE			This course examines the origin, causes, and dimensions of refugee crisis both in Africa and the large for managing refugee crisis-international, regional and sub-regional case studies. The course also explores the problem and management of internally displaced persons within states and regions, resulting from armed conflicts, internal strife and violation of human rights and disasters with emphasis
Course Code	Course Title	Credit Unit	
PSS 909.2	Advanced Seminar in Peace and Conflict in Africa	3	
PSS 910.2	National Security and Human Rights	3	
PSS 911.2	Civil War, Violent Conflict and Displacements in Africa	3	
		9	
SECOND MODULE			
Course Code	Course Title	Credit Unit	
PSS 999..2	Thesis	6	
		6	
THIRD MODULE			
Course Code	Course Title	Credit Unit	
PSS 999.2	Thesis	6	
PSS 999 .2	Thesis	6	
		18	

on children, women, and other vulnerable groups; a critical look at the capacity and willingness of governments and institutions to address the human society needs of internally displaced persons (IDPs) and how the responses of international community can be better enhanced; socio-psychological dimension of IDPs.

PSS 903.1 Framework for Economic Reconstruction in Conflict Affected States (3 Credit Units)

This course examines a range of a range of challenges and the variety of resources available in the area of economic and conflict management. Discussions focus on the role of economic actors and the inter-relations between conflict and development. It also explores the potential of economic policies and activities to forestall conflict and promote Peace. The course also aims at developing skills required to apply and assess targeted economic interventions and conflict management while encouraging students and guide development in a way that sustains security and welfare as well as economic growth.

PSS 904.1 Terrorism and Global Security (3 Credit Units)

Detailed and careful investigations of international security with emphasis on the activities of both local and international terrorist groups and organisations, such as Boko Haram, ISIS, etc. Methods of recruitment of members, funding of methods of operations (airline bombing, suicide bombing, targeted assassinations, the establishment of caliphates, act of soft targets), are critically examined, as well as the international responses to the threat of global security.

PSS 905. 1 Peacebuilding, Democracy and Development (3 Credit Units)

This course focuses on the issues of planning and the implementation of peace intervention efforts and strategies for conflict transformation. This is done after performing conflict analysis and the requisite baseline study. The three major dimensions of conflict and peacebuilding will be presented: individual, relational, and cultural/structural concerns. Peace intervention aims to bring about transformation in all dimensions with varied focus on inter- and intra-state wars. Post-conflict discussions include mechanisms of transcending incompatibility; resolution and its basic element ; peace agreements; problems of change, the need for trust and legitimacy; Disarmament, Demobilization, and Reintegration (DDR); the security dilemmas and transitional justice; power-sharing and prospects of transition to democracy, particularly in multi-ethnic settings; and rehabilitation and equitable economic development. The course will use practical examples of post-conflict processes and

the struggle to sustain and deepen transitional democracy.

PSS 906.2 Negotiations and Mediation for Peace: African and Western Approaches (3 Credit Units)

This course introduces students to the significance of culture in resolving conflict within and between cultural groups. It is designed to allow students to develop an advanced and critical understanding of African approaches to conflict resolution. It makes an extensive use of case studies in order to encourage students to reflect on the ways in which African approaches relate to theories and practices in the field of conflict resolution, and to explore their potential in the prevention, management and resolution of contemporary conflicts in Africa.

PSS 907.2 National Security and Human Rights (3 Credit Units)

This course gives students a clear understanding of what constitutes human rights. The course also explores why human rights and human security have become such major players in policy, as well as important aspects of the work that NGO's and other non-state actors conduct. Of particular importance to this course is conducting an analysis of the role of civil society (human rights NGO's, church groups, and grassroots groups). The course features important writings by practitioners and experts in the field. The mantra for this course will be to challenge all givens, in an effort to promote critical thinking and awareness of implications while attempting to disabuse various popular and sometimes unfounded narratives. This course will provide the CPSS students a basic, but thorough, survey of the theories, international legal regimes, domestic political forces, key mechanisms, and global debates related to the international human rights movement in the context of Nigeria national security policy. Unlike surveys of the human rights movement or courses in international human rights law, the course is uniquely designed with the student who specializes in a national security-related field in mind.

PSS 908.2 Arm Control and Disarmement (3 Credit Units)

The course addresses issues arising from the anxiety over the proliferation of weapons of mass destruction. The renaissance in nuclear power acquisition and the rebirth of national security interest protections demonstrated in the slogan "American First" and the exist of Britain from the European Union have raised issues that influenced international Peace and Security during the cool war. The students will acquire knowledge o the LPT-Licit nuclear powers (N5) amd NPT Article 6 obligation to disarm. The International Intrigues in limiting the thress states that are currently acquiring

nuclear capabilities. Non -inclusion of non- state groups in the NPT intergovernmental agreements-all against the backdrop of nuclear power for civilian use, nuclear non-proliferation and disarmament.

PSS 909.2 Advanced Seminar in Peace and Conflict Studies in Africa (3 Credit Units)

Students are expected to research on the topical area in a field of Peace and Conflict Studies other than their preferred area of specialization under the guidance of an assigned staff. The seminar is expected to be presented to the panel of Centre’s Ph.D examiners and assessed accordingly.

PSS 910 .2 Race, Racism and Xenophobia African in Diaspora studies(3 Credit Units)

Students will learn about the concepts of race, racism and xenophobia and how they have impacted on African relations with the rest of the world, as well as African experience in the diaspora. **Course Description:** Africa’s contact and relationship with Europe, America, China, Arabia and other Asian countries have inflicted African peoples with the stigma and discrimination of racism. This course will examine the concepts of race, racism and xenophobia and they shaped Africa’s relationship the rest of the world. It will also specifically examine the African experience with racism and xenophobia in the USA, Europe and South Africa, as well in world politics, sports, education, science and technology.

PSS 910.2 Civil Wars, Violent Conflicts, and Displacements in Africa (3 Credit Units)

Students will learn about the impact of civil wars on the political, social and economic development of Africa; and how it has led to the displacement of Africans from their various homes and countries

Course Description: This course will explore the problems of civil wars and violent conflict in Africa, and how they have impacted on the political, economic and social development in Africa. The course will also explore the role of African and international organizations in the management and resolution of conflicts in Africa. Another important component of the course is how violent conflicts have led to internal displacements and refugee crises across and beyond Africa.

PSS 911 2 .Natural Resources and Resource Conflicts in Africa (3 Credit Units)

Students will learn about the role of natural resources in African development and also how natural resources has triggered violent conflicts in African countries. **Course Description:** Natural resources have been a veritable tool for economic development in Africa. But it has also been an important factor in the onslaught of violent conflict and civil wars in Africa. This course will examine how natural resources such as crude oil, gold, diamond, cobalt, uranium, amongst others, have led to violent conflicts in African countries. It will also explore the role of internal and external factors in these conflicts, and what role the international community have played in aiding and abetting these conflicts

PSS 999.2 Thesis (6 Credit Units)

This is a programme of individual research bearing on each student's field of specialization. The focus of the student's research is expected to be on generating new ideas on the processes of Peace and Conflict resolution. The topic of research must fall within one of the research areas in Peace and Security Studies.

ACADEMIC STAFF

S/N	NAME	QUALIFICATION	AREA OF SPECIALISATION	DESIGNATION
1.	Professor Ifeanacho M. I.	B.A.,M.A.,(Cork/Ireland) Ph.D.(UPH)	Human Resources Management	Professor (Director of the Centre)
2.	Professor S. B. Arokoyu	B.Sc., PGDE, M.Sc., Ph.D. (UPH)S	Urban and Regional Geography	Professor
3	Professor Walter C. Ihejirika	B.Sc., PGD, M.Sc., Ph.D. (Rome)	Development communication and Media Studies	Professor
4.	Professor Ohale L.	B.Sc., M.Sc., Ph.D. (UPH)	Economic Development	Professor
5.	Dr. Abu O. P.	B.Sc., M.Sc., Ph.D. (UPH)	Industrial Analysis, Medical Sociology & Social Gerontology	Senior Lecturer
6.	Dr. Badey Dinebari K.	B.Sc., M.Sc., Ph.D. (UPH).	Development Studies	Senior Lecturer

7.	Dr. Kiale Nyiayaana	B.Sc (UPH), M.Sc.,(London) Ph.D.(UPH)	International Relations (Conflict and Peace Studies)	Senior Lecturer (Deputy Director)
8.	Dr. Onyinye O. Durueke	B.A., M.A., and Ph.D. (Ibadan).	Gender Studies/Peace and Conflict Studies	Senior Lecturer
9.	Dr. Gbenemene Kpae	B.Sc., M.A., Missouri, (USA), Ph.D. (UPH).	Criminology and Environmental Conflict	Senior Lecturer
10.	Dr. Mezie-Okoye, Charles C.	B.Sc., M.Sc., Ph.D. (UPH).	Peace and Conflict Studies/ Development Studies	Senior Lecturer
11.	Dr. Chioma Daisy Onyige	B.A. M.Sc, Ph.D (UPH)	Criminology and Feminist Studies	Senior Lecturer
12.	Tubotamuno Boma	B.Sc., M.Sc., (UPH)	Monetary Economist	Lecturer 11

* The Centre will recruit part –time lecturers from the Police formation in Rivers State.

VISITING LECTURERS AND PARTNERS

The Centre will draw expertise and occasional guest lecturers from the Peace and Conflict Studies Programme, University of Ibadan; Halogen Security, and Institute of Peace Keeping Training

Centre (KAIPTC), Accra-Ghana. West Africa Civil Society Institute (WACSI), Ghana, Centre for Advanced Social Scienc (CASS), Port Harcourt and Open Society Initiative of West Africa (OSIWA), Nigeria, PIND and Kebetkache.

INSTITUTE OF INTERNATIONAL TRADE AND DEVELOPMENT (IITD)

PGD, M.Sc AND Ph.D. PROGRAMMES

Introduction

Trade is strategic to economic growth and development. It is a critical engine of growth through employment generation, income and livelihood security and poverty reduction. Trade-led growth requires mutually beneficial agreements among trading partners, either as entities or countries. The growing complexity and competitiveness of global trade order have increased burdens on countries, particularly developing ones, in the areas of creating effective strategies that assure benefit from expanding but increasingly dynamic global trading order.

Nigeria and other countries of Africa participate in bilateral, regional and multilateral trade negotiations that shape the outlook of global trade. Trade agreements largely deliver expanded market access to nations that have the capacity to conduct sound analysis of trade and trade policy, formulate negotiating mandates and articulate positions at the negotiating table. Trade development requires strategic policy focus, strong institutions and knowledgeable human resources. The changing dynamics of trade, trade facilitation and the global trade policy process require regular capacity updates to understand and participate effectively in the global trade process.

The Institute of Trade and Development was established in University of Port Harcourt in October 2010 as a direct response to the observed trade related capacity gaps in trade policy processes in Nigeria and Africa. This is the pioneer institute directed at trade capacity building for academics and trade professionals in Nigeria. The key areas of intervention of the institute include:

- building critical mass of academics to support regular trade capacity building and sound analysis of complex trade issues as inputs into national, regional and global trade policy process.
- building capacity of governments and government agencies to understand and participate effectively in global trade policy process
- conduct research and publish analysis and opinion on on-going and emerging trade issues
- provide platform for debate and international collaboration on trade policy issues

Vision

The vision of the institute is to be the leading research and academic institute in Trade and development Policies in Africa.

Mission

Institute for Trade and Development aims at inculcating and encouraging a culture of quality and collaborative research in trade and development. It will nurture competitive ideas for creative problem solving and produce high quality trade policy analysts who will influence policy on trade and development.

Programmes of the Institute

- Post Graduate Diploma (PGD) in International Trade and Development
- M.Sc in International Trade and Development
- M.Sc in Customs Administration and Border Management
- M.Sc in Ports Management and Maritime Administration
- M.Sc in Shipping and Maritime Security
- PhD International Trade and Development

Professional Capacity Building

- Short Capacity Courses for Government Departments and Agencies, and Private Sector on:
 - Understanding Basic Trade Analysis
 - Understanding International Trade Rules
 - Trade Policy Process
 - Trade Negotiations
 - Trade Defense Processes
 - Trade Facilitation
 - Standards and Trade Quality
 - Value Chain Analysis

Public Debates | Seminars on Domestic and International Trade Concern

- Continental Trade Agreements: Continental Free Trade Agreements
- Regional Trade Agreements: EU-ACP Economic Partnership Agreements, ECOWAS Common External Tariffs
- Multilateral Trade Agreements: WTO

International Collaboration

- Collaboration with recognised trade related institutions including
 - Trade Law Centre of Southern Africa (TRALAC), Stellenbosch, South Africa
 - Trade Policy Centre for Africa (TRAPCA), Arusha, Tanzania, etc.

Partners

- Government Agencies
- Private Sector
- Academic Think-Tanks
- Donor Community
- Civil Society Organizations
- Students

Admission Requirements for PGD Programme

The PGD programme in International Trade and Development is open to candidates who possess an honours degree in any discipline from a recognized University; especially Education, Economics, Political Science, Accounting, Finance, Management, Marketing, History, Geography, law or related fields degree not lower than (3rd class). Holders of Higher National Diploma (HND) from recognized institutions and who passed with a minimum of lower or upper credit are also eligible for admission. Persons in trade related industries with at least 5 years working experience will be considered for admission into the Institute of International Trade and Development PGD programme.

Programme Duration

The programme is designed for one academic session of course work comprising two (2) semesters.

Graduation Requirement

The successful completion of the programme requires a candidate to pass all the prescribed courses and defend a project written by the student at the end of the course work. This will be a total of 28 credit units consisting of 11 credit units of core courses, 5 credit units of compulsory courses, 6 credit units in electives and 6 compulsory credit units of research project. The pass mark in any course shall be 50%, a grade of C.

LIST OF COURSES, CODE AND CREDIT UNITS FOR PGD PROGRAMME

S/No	Course Code	Course Title	Credit Units
Core Courses			
1	ITD 701.1	Introduction to International Trade and Development Theory and Policy	3
2	ITD 702.1	Entrepreneurship and Management	2
3	ITD 703.1	Introductory Microeconomics	3
4	ITD 705.2	Introductory Macroeconomics	3
Subtotal			11
Compulsory Courses			
5	ITD 712.2	Business Economics	3
6	ITD 706. 2	ICT, Research Methodology and Computer Appreciation	2
7	Any two other courses from electives		6
Subtotal			11
8	ITD 717.2	Research Project	6
Total Credit Units for Graduation			28
ELECTIVES			
9	ITD 707.2	Export Risk Analysis and Management	3
10	ITD 708. 2	Legal Issues & Export Administration	3
11	ITD 709.2	Trade Negotiations	3
12	ITD 710.2	History of African Trade	3
13	ITD 711.2	International Relations	3
14	ITD 704.1	Marketing Management	3
15	ITD 713.2	Globalisation, Politics and Foreign Trade	3
16	ITD 714.2	Regional Development Planning	3
17	ITD 716.2	Supply Chain, Physical Distribution and Logistics Management	3

PGD Course Description

ITD 701.1 Introduction to International Trade and Development Theory and Policy

Over the past two decades, there have been fundamental structural changes in the global economy. These changes include trade and payments liberalization, globalization and rapid integration of national economies. This course therefore, is designed to acquaint students with the basic theories and policies of international trade.

ITD 702.1 Entrepreneurship and Management

Definition of Entrepreneurship. The historical and economic role of entrepreneurship. Theory and Practice of entrepreneurship. Starting and Managing a new enterprise. Characteristics of entrepreneurship. The identification and evaluation of new venture opportunities. Resources utilization. Strategy development and successful planning. Implementing and launching new business ventures. Analyses of case studies and developing of detailed business plan for starting and owning an enterprise.

ITD 703.1 Introductory Microeconomics

This course is designed to deepen and widen the critical and analytical understanding of theoretical

and methodological issues in microeconomics. It also addresses the basic questions of resource allocation within our society and the appropriate role of government intervention in the economy. Microeconomic theory, problem of scarce resources and allocation of resources in product and factor markets with application to Nigeria and other economies; equilibrium concept, possibility of disequilibrium, partial equilibrium and general equilibrium analysis; supply of demand theory; cobweb theory; introductory dynamics, consumers behavior, production theory and more topics to be covered.

ITD 712.2 Business Economics

Business Economics otherwise known as managerial economics studies the application of economics theory and methodology to business. Thus, the objective of this course is to among other things; equip the students with the skills for rational decision making in their businesses in the face of scarce resources. Furthermore, participants will learn the art of applying economic principles in developing and managing successful businesses. Some key components of this include: Theory of Production, Demand and Supply investment decision making and profit maximization.

ITD 705.2 Introductory Macroeconomics

Macroeconomics studies the functioning of the economy as a whole. Therefore, the main objective of this course is to enable students to have a good understanding of macroeconomic theory and policy. Macroeconomic problems and policies including the tools used in stabilizing the macro economy are also explored in the course. Macroeconomic theory, national income accounting, macroeconomic aggregates, the classical system, the monetarist system, domestic economic stabilization, monetary and fiscal policies, price control and inflation and more topics to be covered.

ITD 707.2 Econometrics

This course is designed to provide students with the quantitative skills needed in understanding and application of mathematical reasoning and methods in economics. Topics such as the nature and scope of econometrics and methodology will be examined in the course.

ITD 708.2 International Law

All countries regulate trade. The objective of this course is to acquaint students with various international laws that are used to regulate the mobility of labour and capital among nations. Issues relating to immigration, regulation and nationalization and international dispute resolution will also be covered in the course.

ITD 709.2 Trade Negotiation

Traditionally, international trade analysis had focused primarily on the transfer of physical goods from one country to another. But in recent times, the emphasis is on trade in services. Trade in services also plays a major role in the process of economic progress especially in developing countries. This course therefore, examines the objectives of international trade negotiations, types of trade negotiations and the legal dimension of trade negotiations.

ITD 710.2 History of African Trade

The objective of this course is to introduce students to the historical development of trade in Africa. The prospects and challenges in African trade will also be examined in the course.

ITD 711.2 International Relations

This course is designed to acquaint students with various theories of international relations. It will examine also the distribution of power, interactions among nations, national interest and instruments of foreign policy.

ITD 704.1 Marketing Management

Application of managerial functions of planning, organization, directing and controlling on the four Ps of marketing, to set the organization strategic objectives. New product development. Micro and macro environments of marketing. How to manage decline in sales, market segmentation and other strategies.

ITD 713.2 International Finance

The objective of this course is to acquaint students with the various theories and policies of international finance. The role of the International Monetary Fund (IMF) the World Bank, World Bank Group and the African Development Bank (ADB) in mobilizing long-term funds for rapid economic growth and development will also be examined in the course.

ITD 714.2 Regional Development Planning

This course involves a discussion of the concepts of development and dependency theories as they apply to regional development planning. It also covers an overview of economic and related theories and policies of regional development planning.

ITD 715.2 Supply Chain Management

The course will expose students to the challenges involved in managing supply chains and understand the complexity of inter-firm and intra-firm coordination. What is supply chain management, the importance of supply chain management, matching supply chains with products, supply chain value adds, supply chain information technology and integrated supply chain management.

ITD 716.2 Physical Distribution and Logistics Management

A study of the broad range of marketing functions, which include warehousing, inventory management, order processing and the movement of goods across-the-border trade. Logistics management address the

trade activities that are performed to facilitate the efficient movement of goods and their ownership from one nation to the other.

ACADEMIC STAFF LIST

S/N	Name of Staff	Qualification and Educational Institutions Attended	Rank	Area of specialization
1	Ohale, L.	B.Sc, M.Sc. and Ph.D (UPH)	Professor & Director of Institute	Development Economics
2	Gbosi, A. N.	B.Sc New Hampshire, MSc and Ph.D Northeastern	Professor	Labour, Monetary and International Economics
3	Onuchuku, O.	B.Sc, M.Sc and Ph.D(UPH)	Professor	Public Sector and Quantitative Economics
4	Arokoyu, S. B.	B.Sc, M.Sc and Ph.D(UPH)	Professor	Regional Development Planning
5	Nwinee B. F	B.sc (RSUST), MBA, M.Sc, Ph.D (UPH)	Professor	Finance
6	Barikor, I.P	B.Sc, M.Sc, PhD (UPH)	Senior Lecturer	International Relations
7	Kalu, I. E.	B.Sc, M.Sc and Ph.D(UPH)	Professor	Development Economics
8	Kalu, S. E.	B.Sc, BSBA (Manila), MBA, DBA (Philippines)	Professor	Strategic Marketing Management
9	Gbanador, C. A.	B.Sc., M.Sc. and Ph.D (UPH)	Professor	Monetary and Quantitative Economics
10	Udeorah, S. F.	B.Sc, M.Sc, and Ph.D (UPH)	Lecturer, Deputy Director & Coordinator of Programmes	Labour / Human Resources Economics

M.Sc. IN INTERNATIONAL TRADE AND DEVELOPMENT

Admission Requirements

The programme is open to applicants who possess a Post Graduate Diploma of the Institute (IITD) or a bachelor's degree in Economics, Political Science, Finance, Foreign Languages, Accounting, History, Marketing, Management, Geography or related fields in Education or have earned a Law degree

from recognized institutions. Candidates with HND in related fields will be considered for admission. Candidates in the trade related industry with at least five (5) years working experience with university degrees or HND outside the ones listed above may also be considered for admission into the programme. This is a 12 calendar month programme, minimum and maximum of 24 calendar month.

LIST OF M.SC COURSES

S/NO	Course Code	Course Title	Credit Units
1	ITD 800.1	Microeconomic Analysis	3
2	ITD 810.1	Econometrics	3
3	ITD 820.1	International Trade Theory and Policy	3
4	ITD 830.1	Development Economics	3
5	ITD 840.1	International Law	2
6	ITD 850.1	International Trade Financing	2
7	ITD 860.1	International Trade Organizations/ Global Trade Negotiations	2
8	ITD 870.1	History of African Trade	3
9	ITD 880.1	Human Resources Economics & Personnel Management	3

10	SGS 801.1	ICT & Research Methodology	2
11	ITD 800.2	Macroeconomic Analysis	3
12	ITD 810.2	Regional Economic Co-operations and Integration	2
13	ITD 830.2	Research Methods	3
14	ITD 860.2	International Economics & Development Finance	3
15	ITD 870.2	International Marketing	2
16	ITD 880.2	Issues in Entrepreneurship	3
17	ITD 890.2	M.Sc Thesis	6
Total Units for Graduation			48 units

M.Sc. Course Description

ITD 800.1 Microeconomic Analysis

This course is designed to deepen and widen the critical and analytical understanding of theoretical and methodological issues in microeconomics. It also addresses the basic questions of resource allocation within our society and the appropriate role of government intervention in the economy.

ITD 810.1 Econometrics

This course is designed to provide students with the quantitative skills needed in understanding and application of mathematical reasoning and methods in economics. Topics such as the nature and scope of econometrics and methodology will be examined in the course.

ITD 820.1 International Trade Theory and Policy

Over the past two decades, there have been fundamental structural changes in the global economy. These changes include trade and payments liberalization, globalization and rapid integration of national economies. This course therefore, is designed to acquaint students with the basic theories and policies of international trade.

ITD 830.1 Development Economics

This course is intended to survey the basic literature in development economics. It covers the general approaches to the development process, methodological issues, measuring economic development and problems and policies of development.

ITD 850.1 International Finance

The objective of this course is to acquaint students with the various theories and policies of international finance. The role of the International Monetary Fund (IMF) the World Bank, World Bank Group and the African Development Bank (ADB) in mobilizing long-term funds for rapid economic growth and development will also be examined in the course.

ITD 840.1 International Law

All countries regulate trade. The objective of this course is to acquaint students with various

international laws that are used to regulate the mobility of labour and capital among nations. Issues relating to immigration, regulation and nationalization and international dispute resolution will also be covered in the course.

ITD 870.1 History of African Trade

The objective of this course is to introduce students to the historical development of trade in Africa. The prospects and challenges in African trade will also be examined in the course.

ITD 800.2 Macroeconomic Analysis

Macroeconomics studies the functioning of the economy as a whole. Therefore, the main objective of this course is to enable students have a good understanding of macroeconomic theory and policy. Macroeconomic problems and policies including the tools used in stabilizing the macro economy are also explored in the course.

ITD 810.2 Regional Economic Co-operation and Integration

Any form of external economic relations is regarded as a form of economic and monetary co-operation. Therefore, this course is designed to enable students have a broader knowledge of regional economic and monetary co-operation concepts including preferential Trade Agreement, Free Trade Area, Customs Union, Common Market and Economic Union.

ITD860.1 International Trade Organization/ Global Trade Negotiations

Traditionally, international trade analysis had focused primarily on the transfer of physical goods from one country to another. But in recent times, the emphasis is on trade in services. Trade in services also plays a major role in the process of economic progress especially in developing countries. This course therefore, examines the objectives of international trade negotiations, types of trade negotiations and the legal dimension of trade negotiations.

Several international trade organizations have been established to facilitate the free flow of goods and services among nations. These international trade organizations include the World Trade Organization (WTO) and General Agreement on Tariff and Trade

(GATT). The purpose of this course is to examine the economic and political roles of these organizations. In addition, the role of the United Nations Conference on Trade and Development (UNCTAD) will be critically examined.

ITD 830.2 Research Methodology

This course is designed to assist students acquire skills and techniques used in analyzing broad economic and social data.

ITD 860.2 International Relations

This course is designed to acquaint students with various theories of international relations. It will examine also the distribution of power, interactions

among nations, national interest and instruments of foreign policy.

ITD 870.2 International Marketing

The objective of this course is to acquaint students with basic international marketing concepts. It will also cover planning of international marketing operations, evaluating international markets and environmental factors in international marketing.

ITD 880.2 The M.Sc. Dissertation

An original thesis is required of all students in accordance with the general regulations of the University of Port Harcourt, College of Post-Graduate Studies.

LIST OF ACADEMIC STAFF - UNIPOST STAFF

Name of Staff	Qualification and Educational Institutions Attended	Rank	Area of specialization
Ohale, L.	B.Sc, M.Sc and Ph.D (UPH)	Professor & Director of Institute	Development Economics
Gbosi, A. N.	B.Sc New Hampshire, MSc and Ph.D Northeastern	Professor	Labour, Monetary and International Economics
Onuchuku, O.	B.Sc, M.Sc and Ph.D UPH	Professor	Public Sector and Quantitative Economics
Arokoyu, S. B.	B.Sc, M.Sc and Ph.D (UPH)	Professor	Regional Development Planning
Okereke, J.	B.Sc, MBA (ABSU), M.Sc, Ph.D (Futo)	Professor	Finance
Barikor, I.P /Kiale	B.Sc, M.Sc, PhD (UPH)	Senior Lecturer	International Relations
Kalu, I. E.	B.Sc, M.Sc and Ph.D UPH	Professor	Development Economics
Robinson, M.O	B.Sc, M.Sc (UniJos) Ph.D (UniCal)	Professor	Development Economics
Gbanador, C. A.	B.Sc, M.Sc Ph.D (UPH)	Professor	Monetary Economics and Quantitative Economics
Udeorah, S. F.	B.Sc, M.Sc, PhD (UPH)	Lecturer, Deputy Director & Coordinator of Programmes	Labour / Human Resources Economics
Obayori, J.B	B.Sc, M.Sc (UPH) Ph.D (Unizik)	Adjunct Lecturer/ Consultant	Monetary Economics, and Quantitative Economics

**MSc (Customs Administration/Border Management),
MSc (Ports Management and Maritime Administration) MSc (Shipping and Maritime Security)**

Admission Requirements

Candidates seeking admission into the M.Sc. (Customs Administration/Border Management),

M.Sc. (Ports Management and Maritime Administration) and M.Sc. (Shipping and Maritime Security), must satisfy the following conditions in addition to satisfying the conditions specified by the School of Graduate Studies.

- (a) The programme is open to applicants who possess a good bachelor's degree (second class lower division) in any field of the Social Sciences or Management Sciences. Also, good

degree in some selected field in the Arts/Humanities; including History, International Relations, Law etc with not less than **second class lower division** from a reputable University, shall be considered.

- (b) A good degree in Education or Business with cognate work experience in Customs, Immigration, Navy, Nigerian Port Authority or any trade related industry with at least 7 years working experience.
- (c) Third Class Honours Degree in any of the above fields and evidence of Post Graduate Diploma in relevant fields, shall be considered.
- (d) Higher National Diploma with a minimum of Upper Credit in related field of study and evidence of Post Graduate Diploma in relevant fields, shall be considered.
- (e) Holders of a Post Graduate Diploma from the Institute of International Trade and Development with a minimum CGPA of 3 point.
- (f) Evidence of NYSC discharge certificate.

Duration of Programme

This programme is designed to last for a minimum of 12-calendar months and a maximum of 24 calendar months. It shall run on three (3) full time (FT) modules of intensive teachings after which there shall be examinations in line with approved University guidelines.

Graduation Requirement

To qualify for the award of MSc (Customs Administration and Border Management, Port Management and Maritime Administration, Shipping and Maritime Security);

- (b) Candidate must, in addition to preparing and presenting a Research Dissertation, accumulate a Maximum of forty-eight (48) units as specified in the programme; including all compulsory courses and courses for each area of specialization as follows:

	Credit Unit
Six (6) Compulsory courses of 3 and 2 credit units each	15
Five (5) General courses of 3 credit units each	15
Four (4) Core courses (specialization) of 3 credit units each	12
Dissertation of six credit units	6
Total	48

- (c) To be eligible for the award of this degree, the candidate must take and pass all required courses with grade not less than 50 percent. Any student who scores less than 50 percent in any course shall be deemed to have failed the course.

- (d) Each course besides the thesis shall be examined at the end of each module in line with the laid down rules of the University.

M.Sc. COURSES, CODES AND CREDIT UNITS

S/No	Course Code	Title	Credit Units
Compulsory Courses			
1	ITD 800.1	Microeconomic Analysis	3
2	ITD 800.2	Macroeconomic Analysis	3
3	SGS 801.1	ICT and Research Methodology	2
4	SGS 801.2	Management and Entrepreneurship	2
5	ITD 890.3	Computer Appreciation and Informatics	2
6	ITD 880.1	Human Resources Economics and Personnel Management	3
General Courses			
7	ITD 820.1	International Trade Theory and Policy	3
8	ITD 840.1	International Law	2
9	ITD 860.1	International Trade Organizations/Global Trade Negotiations	2
10	ITD 810.2	Regional Economic Co-operation and Integration	2
11	ITD 850.2	International Relations	3
12	ITD 830.2	Research Methods	3
Elective (Each student is to choose 4 core courses from this elective to make up the total number of subject requirement)			
13	ITD 810.3	International Customs Instruments and Customs Legislation in Nigeria	3
14	ITD 850.3	Trade Facilitation and Maritime Security	3
15	ITD 840.3	Tax Laws, Tariffs and Compliance	3
16	ITD 860.3	Customs Administration: Theory and Practice	3
17	ITD 870.3	Legal Framework for Trade and Maritime Law	3
18	ITD 820.3	Port Management and Shipping	3
19	ITD 830.3	Border Management: Customs Procedure and Logistics Planning	3
20	ITD 890.2	Dissertation	6

Total	48
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Specific Course Description

ITD 800.1 Microeconomic Analysis

This course is designed to deepen and widen the critical and analytical understanding of theoretical and methodological issues in microeconomics. It also addresses the basic questions of resource allocation within our society and the appropriate role of government intervention in the economy.

ITD 800.2 Macroeconomic Analysis

Macroeconomics studies the functioning of the economy as a whole. Therefore, the main objective of this course is to enable students have a good understanding of macroeconomic theory and policy. Macroeconomic problems and policies including the tools used in stabilizing the macro economy are also explored in the course.

SGS 801.1 ICT and Research Methodology

This course is designed to assist students acquire skills and techniques used in analyzing broad economic and social data. The students will be acquainted with essentials of spreadsheet, Internet Technology, Statistical Packages, Precision and Accuracy Testing, Organization of Research, Report Writing and research management.

SGS 801.2 Management and Entrepreneurship

This course seeks to equip students with entrepreneurial knowledge and skills in a vast and rapidly changing world, where paid employment is going into extinction. The knowledge and skills so imparted are to be concertized in practical case studies, delivered in seminar presentation. Specifically, the course provides the student with an overview of concepts, principles, theoretical and methodological foundations and techniques, and would have learnt how to identify project opportunities, formulate business project and test them for technical, financial, economic, social, political viability and sustainability.

ITD 820.1 International Trade Theory and Policy

Over the past two decades, there have been fundamental structural changes in the global economy. These changes include trade and payments liberalization, globalization and rapid integration of national economies. This course therefore, is designed to acquaint students with the basic theories and policies of international trade.

ITD 840.1 International Law

All countries regulate trade. The objective of this course is to acquaint students with various international laws that are used to regulate the mobility of labour and capital among nations. Issues

relating to immigration, regulation and nationalization and international dispute resolution will also be covered in the course.

ITD 860.2 International Trade Organizations/ and Global Trade Negotiations

Several international trade organizations have been established to facilitate the free flow of goods and services among nations. These international trade organizations include the World Trade Organization (WTO) and General Agreement on Tariff and Trade (GATT). The purpose of this course is to examine the economic and political roles of these organizations. In addition, the role of the United Nations Conference on Trade and Development (UNCTAD) will be critically examined.

Traditionally, international trade analysis had focused primarily on the transfer of physical goods from one country to another. But in recent times, the emphasis is on trade in services. Trade in services also plays a major role in the process of economic progress especially in developing countries. This course therefore, examines the objectives of international trade negotiations, types of trade negotiations and the legal dimension of trade negotiations.

ITD 810.2 Regional Economic Co-operation and Integration

Any form of external economic relations is regarded as a form of economic and monetary co-operation. Therefore, this course is designed to enable students have a broader knowledge of regional economic and monetary co-operation concepts including preferential Trade Agreement, Free Trade Area, Customs Union, Common Market and Economic Union.

ITD 850.2 International Relations

This course is designed to acquaint students with various theories of international relations. It will examine also the distribution of power, interactions among nations, national interest and instruments of foreign policy.

ITD 810.3 International Customs Instruments and Customs Legislation in Nigeria

This course is designed to x-ray the various legal customs instruments of operation both locally and internationally. It further examines the performance of the Nigeria Customs Service within this framework with a view to ascertaining compliance with global best practices. Students will gain knowledge in international customs laws, key conventions and protocols.

ITD 840.3 Tax Law, Tariffs and Compliance

The main objective of this course is to examine the various tax laws and tariffs vis-a-vis compliance by various trade agents especially within the framework of the Nigerian environment. Generally, it discusses the nature, meaning and purpose of tax as well as management of tariff collection, review analysis and maintenance of logistics database. It includes various forms of ports operations and the application of appropriate taxes and tariffs.

ITD 860.3 Customs Administration: Theory and Practice

In a nutshell, this course is designed to examine the customs and Excise Management Act with a view to educating students on the role of the customs in economic development of a country. Students will study the roles and policy objectives of customs administration. Understanding the duties of the customs in domestic and world economies is important in the 21 century. Information Technology (IT) skills, effective communication and efficient service delivery are core ingredients in the performance of modern day customs functions.

ITD 870.3 Legal Framework for Trade and Maritime Laws

Discusses all legal instruments relating to trade across borders. Students of this course will gain knowledge about existing maritime laws and their application in various countries.

ITD 830.3 Border Management: Customs Procedure and Logistics Planning

The customs environment like most establishments is constantly changing. This course provides students with advanced and technical knowledge in the field operations of the customs. The students will examine the strategic and operational issues in the customs; including international trends that impacts customs and international trade such as social expectations, emerging technologies and the global economies.

ITD 820.3 Port Management and Shipping

Shipping and Port Management is very important to International Trade. This course therefore should

deal with general ports operations and management. Students should learn and appreciate the nature of ports, Seaport and dry Port, Resource Planning and allocation, Port Security and Safety as well as general port and shipping management.

ITD 850.3 Trade Facilitation and Maritime Security

This course deals with general issues on trade facilitation including government policies in this direction. Students will appreciate issues relating to trade across border, supply chain management, transportation logistics, maritime safety and security etc.

ITD 880.1 Human Resources Economics and Personnel Management

The intention is to provide participants in the course with a broad range of topics and issues related to development, management and the utilization of human resources in the economy or in the process of social development. The selection we have made or offered, hopefully, will be wide enough to capture the interest of the students and other external participants. The basic idea is to provide students with exposure to participate in the field of human resources economics, work environment and its role in national development. We also hope to relate these topical issues or principles to practical realities of the labour market in developing economies and applying them in simulated experiences.

ITD 890.3 Computer Appreciation and Informatics

Informatics study is the representation, processing and communication of information in Natural and engineering systems. It has computational, cognitive and social aspect. This course will therefore expose participating students to basic skills in the use of computer in the first instance. Thereafter, students are exposed to new technological knowledge including: computer science, cognitive science, artificial intelligence, data management, computing and analysis etc.

(A) MASTERS IN CUSTOMS ADMINISTRATION AND BORDER MANAGEMENT

S/No	Course Code	Title	Credit Units
Compulsory Courses			
1	ITD 800.1	Microeconomic Analysis	3
2	ITD 800.2	Macroeconomic Analysis	3
3	SGS 801.1	ICT and Research Methodology	2
4	SGS 801.2	Management and Entrepreneurship	2
5	ITD 890.3	Computer Appreciation and Informatics	2
6	ITD 880.1	Human Resources Economics and Personnel Management	3
General Courses			
7	ITD 820.1	International Trade Theory and Policy	3
8	ITD 840.1	International Law	2

9	ITD 860.1	International Trade Organizations/Global Trade Negotiations	2
10	ITD 810.2	Regional Economic Co-operation and Integration	2
11	ITD 850.2	International Relations	3
12	ITD 830.2	Research Methods	3
Specialization			
13	ITD 810.3	International Customs Instruments and Customs Legislation in Nigeria	3
14	ITD 840.3	Tax Laws, Tariffs and Compliance	3
15	ITD 860.3	Customs Administration: Theory and Practice	3
16	ITD 830.3	Border Management: Customs Procedure and Logistics Planning	3
17	ITD 890.2	Dissertation	6
Total			48

(B) MASTERS IN PORTS MANAGEMENT AND MARITIME ADMINISTRATION

S/N o	Course Code	Title	Credit Units
Compulsory Courses			
1	ITD 800.1	Microeconomic Analysis	3
2	ITD 800.2	Macroeconomic Analysis	3
3	SGS 801.1	ICT and Research Methodology	2
4	SGS 801.2	Management and Entrepreneurship	2
5	ITD 890.3	Computer Appreciation and Informatics	2
6	ITD 880.1	Human Resources Economics and Personnel Management	3
General Courses			
7	ITD 820.1	International Trade Theory and Policy	3
8	ITD 840.1	International Law	2
9	ITD 860.1	International Trade Organizations/Global Trade Negotiations	2
10	ITD 810.2	Regional Economic Co-operation and Integration	2
11	ITD 850.2	International Relations	3
12	ITD 830.2	Research Methods	3
Specialization			
13	ITD 840.3	Tax Laws, Tariffs and Compliance	3
14	ITD 820.3	Port Management and Shipping	3
15	ITD 850.3	Trade Facilitation and Maritime Security	3
16	ITD 870.3	Legal Framework for Trade and Maritime Law	3
17	ITD 890.2	Dissertation	6
Total			48

(C) MASTERS IN SHIPPING AND MARITIME SECURITY

S/N o	Course Code	Title	Credit Units
Compulsory Courses			
1	ITD 800.1	Microeconomic Analysis	3
2	ITD 800.2	Macroeconomic Analysis	3
3	SGS 801.1	ICT and Research Methods	2
4	SGS 801.2	Management and Entrepreneurship	2
5	ITD 890.3	Computer Appreciation and Informatics	2
6	ITD 880.1	Human Resources Economics and Personnel Management	3
General Courses			
7	ITD 820.1	International Trade Theory and Policy	3
8	ITD 840.1	International Law	2
9	ITD 860.1	International Trade Organizations/Global Trade Negotiations	2
10	ITD 810.2	Regional Economic Co-operation and Integration	2
11	ITD 830.2	Research Methods	3
12	ITD 850.2	International Relations	3
Specialization			
13	ITD 850.3	Trade Facilitation and Maritime Security	3
14	ITD 840.3	Tax Laws, Tariffs and Compliance	3
15	ITD 870.3	Legal Framework for Trade and Maritime Law	3
16	ITD 820.3	Port Management and Shipping	3
17	ITD 890.2	Dissertation	6

Total	48
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ACADEMIC STAFF LIST

S/N	Name of Staff	Qualification and Educational Institutions Attended	Rank	Area of specialization
1	Ohale, L.	B.Sc, M.Sc and Ph.D (UPH)	Professor & Director of Institute	Development Economics
2	Kalu, S. E.	B.Sc, BSBA (Manila), MBA, DBA (Philippines)	Professor	Strategic Marketing Management
3	Onuchuku, O.	B.Sc, M.Sc and Ph.D (UPH)	Professor	Public Sector and Quantitative Economics
4				
5	Arokoyu, S. B.	B.Sc, M.Sc and Ph.D (UPH)	Professor	Regional Development Planning
6	Nwinee B. F	B.sc (RSUST), MBA, M.Sc, Ph.D (UPH)	Professor	Finance
7	Ironkwe, U.	LL.B, B.L, LL.M (Lagos), Ph.D (UPH)	Professor	Law/Accounting
8	Kalu, I. E.	B.Sc, M.Sc and Ph.D (UPH)	Professor	Development Economics
9	Gbanador, C. A.	B.Sc., M.Sc. and Ph.D (UPH)	Professor	Monetary Economics and Quantitative Economics
10	Udeorah, S. F.	B.Sc, M.Sc, PhD (UPH)	Lecturer, Deputy Director & Coordinator of Programmes	Labour / Human Resources Economics
11	Barikor, I.P	B.Sc, M.Sc, PhD (UPH)	Senior Lecturer	International Relations
12	Ugwu, C.	B.Sc, M.Sc, PhD (UPH)	Professor	Intelligent Systems and Machine Learning

ADJUNCT STAFF

S/N	Name of Staff	Qualification and Educational Institutions Attended	Rank	Area of specialization
1	Orji, K. E.	BA, MA and Ph.D(UPH)	Professor	World Economic History
2	Obi, E.	B.Sc Imo, MBA Lagos, M.Sc, Ph.D (UPH)	Head of Finance, Halliburton	Monetary Economics and International Finance
3	Agorua, A.A	B.A, MA PhD (UNIJS)	Rtd. Customs Comptroller	Customs Administration and Border Management
4	Ochelebe, J.O	B.A/ED, MPA, MA	Rtd. Customs Comptroller	Customs Administration
5	Offisong, N.A.	PhD, FNIM	Capacity Building Director, NPA	Maritime Administration
6	Olumati, I.F	B.Sc, MBA, PGD(Maritime Affairs)	Senior Manager, Tariff and Billing NPA	Shipping and Maritime Administration

The Ph.D. Programme

The Ph.D. programme in Trade and Development Finance is open to students who possess the Institute's M.Sc Degree in International Trade and Development with at least a CGPA of 3.50. Applicants with HND Upper Credit or good M.Sc./MBA degrees in Economics, Accounting, Finance & Banking, Marketing, Business Administration, or other such relevant disciplines in Social Sciences and Humanities, international Finance, International Relations or Mathematics and

having not less than a CGPA of 3.50 will also be considered for admission into the programme.

Also, persons with HND or Masters degrees in relevant fields with CGPA of at least 3.5 and having up to 10 years work experience in Trade/Finance may be considered for admission into our PhD programme.

The Ph.D will last for a minimum of 24 calendar months and maximum of 60 calendar months.

LIST OF Ph.D COURSES

S/No	Course Code	Course Title	Credit Units
1	ITD 900.1	Advanced Microeconomic Theory	3
2	ITD 910.1	Selected Topics in International Trade Theory and Policy	3
3	ITD 920.1	Research Methodology/Techniques in Dissertation Writing	3
Total			9
1	ITD 900.2	Advanced Macroeconomic Theory	3
2	ITD 910.2	Selected Topics in Development Economics	3
3	ITD 970.1	Dissertation	12
Total			18
3. Free Electives			
Any 2 from the following courses			
1	ITD 930.1	Selected Topics in Advanced Econometrics	3
2	ITD 930.2	Selected Topics in International Economics.	3
3	ITD 940.1	African Trade and the Global Economy	3
4	ITD 940.2	Selected Topics in International Trade Financing	3
Total			6
4. Seminars			
1	ITD 950.1	Seminar 1: Seminar in Regional Economic Integration	3
	ITD 950.2	Seminar 2: Seminar in Development Finance and Trade	3
Total			6

Note:

- (1) Total credit units for graduation is **39**
- (2) This programme has been prepared in accordance with the NUC bench mark for Ph.D. Programmes for Nigerian Universities.

Course Description

ITD 900.1 Advanced Microeconomic Theory

The major objective of this course is to deepen and widen the critical and analytical understanding of theoretical and methodological issues in microeconomic theory. Topics such as demand and supply functions, general equilibrium model, consumer revealed theory, theory of market structure, theory of costs and revenue, and welfare economics will be covered in the course. A good understanding of linear algebra analysis will be useful to students taking the course.

ITD 900.2 Advanced Macroeconomic Theory

Macroeconomics studies larger components of the economy. Therefore, the purpose of this course is to enable students have a good understanding of advanced topics in macroeconomic theory and policy. Topics to be covered in the course include consumption and investment theory, money demand and supply, government spending and taxation and the problems of inflation and unemployment. The on-going debate between Keynesians and monetarists are critically examined in the course.

ITD 910.1 Selected Topics in International Trade Theory and Policy

Over the past two decades, there have been fundamental structural changes in the global economy. These changes include trade and payments liberalization, globalization and rapid

integration of national economics. This course surveys selected topics in international trade theory and policy. Topics such as international trade theory, the politics of international trade policy, balance of payments theory and international mobility of capital and labour will be discussed.

ITD 910.2 Selected Topics in Development Economics

Development is one of the most important challenges facing the human race. Despite the vast opportunities created by the technological revolution of the 20th century, more than 10 percent of the world's population live on less than one dollar per day. The situation is very disturbing in Africa relative other developing regions of the world. In this course, the focus will be on selected topics in Development Economics. Such topics include General Approaches to Development processes, Economic Growth, Neoclassical and Keynesian Development Policy and the millennium goals.

ITD 920.1 Research Methodology/ Techniques in Dissertation Writing

This course introduces students to various research methodologies. The various techniques used in dissertation writing are also presented in the course. Such techniques include Simple Linear Regression Model, Correlation Model, Analysis of Variance and Statistical Test of Significance of estimate.

ITD 930.1 Selected Topics in Advanced Econometrics

This is an advanced course in quantitative techniques. The purpose of the course is to acquaint students with advanced quantitative skills needed in understanding and application of mathematical

reasoning and methods in social and management sciences. Topics to be covered include methodology of econometric research, co-integration theory and error correction model, three stage least squares and auto correlation.

ITD 930.2 Selected Topics in International Economic Relations

All countries around the world regulate trade through various national policies. Therefore, this course is designed to acquaint students with various theories of international economic relations. Some of the topics to be covered include International Organizations such as the United Nations (UN), the European Union (EU), African Union (AU), International Criminal Justice System and International Law.

ITD 940.1 African Trade and the Global Economy

International trade plays a major role in promoting economic growth and development. Therefore, the purpose of this course is to analyze globalization integration and trends in African trade in the global economy. Topics such as Trade and Development in Africa, the prospects and challenges of African Trade, the role of the African Development Bank (ADB) in Promoting African Trade and barriers to African Trade, will be covered.

ITD 940.2 Selected Topics in International Trade Financing

This course analyzes the various methods used in financing foreign trade. Students can choose their seminar topics from the role of Export-Import Banks, Export and Import Financing, and Contemporary Issues in International Trade Financing, and the role of the International Monetary Fund (IMF) will be examined.

ITD 950.1 Seminar in Regional Economic Integration

This course enables students to write a seminar paper in regional economic integration under the supervision of the seminar coordinator. Seminar topics can be selected from areas such as Trade Negotiations, the World Trade Organization (WTO) and Trade Regulation, the European Union, International Trade and Tariff Aggregations and Regional Integration in Africa.

ITD 950.2 Seminar in Development Finance and Trade

One of the sources of development finance is through trade. Apart from trade, other ingredients of Development are, remittances and external loans. Students are expected to write a seminar paper in any of the areas outlined above under the supervision of the seminar coordinator.

UNIPORT STAFF

Name of Staff	Qualification and Educational Institutions Attended	Rank	Area of specialization
Ohale, L.	B.Sc, M.Sc and Ph.D (UPH)	Professor/ Director of Institute	Development Economics
Gbosi, A. N.	B.Sc New Hampshire, MSc and Ph.D Northeastern	Professor	Labour, Monetary and International Economics
Onuchuku, O.	B.Sc, M.Sc and Ph.D(UPH)	Professor	Public Sector and Quantitative Economics
Arokoyu, S. B.	B.Sc, M.Sc and Ph.D(UPH)	Professor	Regional Development Planning
Okereke, J.	B.Sc, MBA (ABSU), M.Sc, Ph.D (Futo)	Professor	Finance
Barikor, I.P	B.Sc, M.Sc, PhD (UPH)	Senior Lecturer	International Relations
Kalu, I. E.	B.Sc, M.Sc and Ph.D(UPH)	Professor	Development Economics
Robinson, M.O	B.Sc, M.Sc (Jos) Ph.D (Calabar)	Professor	Development Economics
Gbanador, C. A.	B.Sc, M.Sc and Ph.D(UPH)	Professor	Monetary Economics and Quantitative Economics

ADJUNCT STAFF

Name of Staff	Qualification and Educational Institutions Attended	Rank	Area of specialization
Nnadi, K. U	B.Sc, M.Sc and Ph.D(UPH)	Professor	Development Economics
Orji, K. E.	BA, MA and Ph.D(UPH)	Professor	World Economic History
Obideyi, G. G.	B.Sc Lagos, M.Sc, Ph.D(UPH)	Director of Trade ECOWAS Commission	Monetary Economics and International Trade
Obi, E.	B.Sc Imo, MBA Lagos, M.Sc, Ph.D(UPH)	Head of Finance, Halliburton	Monetary Economics and International Finance
Kalio, G.	B.Sc Lagos, M.Sc Holland, Ph.D (UPH)	Branch Controller, Central Bank of Nigeria, Calabar	Monetary Economics and International Finance

CENTRE FOR LOGISTICS AND TRANSPORT STUDIES (CELTRAS)

Preamble

The University of Port Harcourt was founded among other things “to contribute to national development, self-reliance and unity through the advancement and propagation of knowledge, and to humanity”. This University has been achieving this not only through the conventional Faculties and Departments but through specialized Centres and Institutes. As is the case in many other universities all over the world, specialized Centres and / or Institutes focus specifically on aspects of socio-economic phenomena which gives the university concerned an advantage in promoting the existential realities of its immediate and wider environment. In addition to the academic and practical objectives of such Centres / Institutes, they have the added value of generating enormous funds for the University. It is against this background that the University of Port Harcourt through its Department of Geography and Environmental Management, Faculty of Social Sciences established the *Centre for Logistics and Transport Studies (CELTRAS)*.

The Philosophy of the Programme

The *Centre for Logistics and Transport Studies* will offer that desire to improve on the general absence of proper planning, coordination and efficient management of and logistics activities in both public and private sectors of the economy by preparing and training qualified transport and logistics professionals.

The different areas of specialization reflect and emphasize the dynamic nature of the programmes while allowing for the flexibility of the graduates to move from one transport/logistics-oriented job to another.

Vision

CELTRAS envisages the professionalization of the logistics and transport sector of the Nigerian economy such that in the not too distant future the transport and logistics sectors of the Nigeria economy will be managed by well trained and better qualified persons.

Mission Statement

The mission of CELTRAS is to produce qualified professionals in transport planning and management as well as logistics/supply chain management as well as in, for the Nigerian economy in particular and Africa in general. The idea is to provide adequate knowledge and practical skills for understanding and solving transportation and logistics and supply chain problems in Nigeria as well as generate international support in funding for

intellectual exchanges through conveyances, seminars and publications.

Objectives

The objectives of CELTRAS include to:

- Encourage the study of the science and art of transport and logistics and supply chain management,
- Provide educational programmes through research and examination leading to postgraduate degrees in transport/logistics and supply chain management,
- Provide an opportunity for in-service training for staff of logistics and transport and related institutions and organizations,
- Assist in the development and improvement of logistics and transport sector through research.
- Provide students with solid intellectual, theoretical, methodological foundations and skills to work competently in varied logistics and transport planning and management positions in the public and private sectors.

PROGRAMMES

The academic programmes of the Centre include:

- Postgraduate Diploma. [PGD]
- Master of Science [MSc]
- Doctor of Philosophy [Ph.D]

POSTGRADUATE DIPLOMA [PGD]

Admission Requirements

- a. A minimum of a third class Honours Degree in any academic discipline from the University of Port Harcourt or any other recognized University
- b. A HND or its equivalent with at least an Upper Credit;
- c. Holders of recognized professional qualification in logistics/transport with at least an Upper Credit e.g. Chartered Institute of Logistics and Transport [CILT]; Institute of Transport Engineers; Chartered Institute of Transport Administration, [CIOTA] etc with at least 5 years working experience in a transport or related organization.
- d. Candidate must have completed the National Youth Service where applicable

Duration of the Programme

The programmes shall be on Full/Part Time basis.

- The Full-Time PGD run for a minimum of 12 calendar months and a maximum of 24 calendar months.

- Part-Time shall run for a minimum of 24 calendar months and a maximum of 36 calendar months.

Graduation Requirements

To obtain a degree in PGD in Transport/Logistics Management candidate must have passed ALL 36 course units including research Project.

Course Organization

The PGD in Transport and Logistics programme requires a minimum of 36 credit units made up as follows:

- Ten courses (3 credit units each) 30 units
- Project 6 units
- Total 36 units

All courses must be taken and passed as well as the Project.

Pass Mark

To pass a course the mark must be 50% and above.

Course Code and Numbering System

The course code for the PGD programme is LAT and the numbering for the courses is between 701 & 798. Research Project is numbered: 799

Course Description

Code	No	Description	Unit	Status
LAT	701	Transport Geography	3	C
LAT	702	Transport Economics	3	C
LAT	703	Fundamentals of Logistics & Supply Chain Management	3	C
LAT	704	Urban and Rural Transport	3	C
LAT	705	Research and Quantitative Methods	3	C
LAT	706	Law of Business and Carriage	3	C
LAT	707	Purchasing and material management	3	C
LAT	708	Information systems in logistics and transport and ITS	3	C
LAT	709	Transport/Logistics Safety & Security	3	C
LAT	710	Introduction to Transport Planning	3	C
LAT	799	Project	6	C
		Total	36	

All 36 course units must be taken in the 12 months for full-time students.

The modules may not be taught in the serial order listed.

COURSE CONTENT/DESCRIPTION

Module 1 [3 Weekends]

LA T 701: Transport Geography

History of transport development; management of Technology in transport; modal characteristics; comparative advantages and disadvantages, infrastructure/network; etc. Transport theories, concepts and models: the Gravity Model, the Spatial Interaction Model etc. models of Network evolution and development, theories of mode choice, theories of competition in transport, transport and development, etc. Transport flows, trip generation, attraction and distribution, modal split and competition. Transport data. Pedestrianisation. public transport, urban and rural transport; Technical aspects of transport and world standards.. Energy and Transport. Modal systems and the Environment

Module 2 [3 Weekends]

LAT 702: Transport Economics and Management

Characteristics and scope of transport economics; analysis of demand; analysis of supply; models of passenger traffic; pricing policies in transport; investment; the structure of transport costs and the location of economic activity; transport- cost minimization models, government transport policy - scope, rationale and effects; transport subsidies 1 fares and charges; demand and supply; economics of scale; cost/benefit analysis. Transport needs and accessibility, politics and transport and economic planning.

Module 4 [3 Weekends]

LAT 703: Fundamentals of Logistics and Supply Chain Management

Definition of logistics management; Development of logistics; Systems approach/integration; The role of logistics in the economy; The role of logistics in the organization; Total cost concept; Channels of distribution; Why do channels of distribution develop; Structure and operations of channels of distribution; Logistics and supply chain management for logistics activities; The relationship of logistics activities to logistics costs; Issues in logistics.

Module 3 [3 Weekends]

LA T 704: Urban Transport

Introduction; Classification of transport operation: mode of operation; principles; Categories of transport operation: Passenger transport, Freight

transport and their types; Determinants of passenger transport operation; Quality of service measures; Costs in transport operation. Vehicle maintenance; Vehicle replacement; Transport integration. Inter-modalism and modern logistics. Transport coordination. Challenges of public transport Operations and management in Nigeria

Module 5 [3 Weekends]

LAT 705: Research and Quantitative Methods in Transport & Logistics

Research project writing: determination of the research problem, choosing a topic, development of central idea and research questions, literature review. Types of transport data: origin destination survey, trip purpose and accident survey. Instruments of data collection: questionnaire, interview, and observation. Sampling. Application of statistical / mathematical concepts in transport planning and supply chain management. Parametric and non- parametric tests, regression and correlation analysis and other data analytical techniques. Result interpretation. Referencing. Writing an abstract.

Module 6 (3 Weekends)

LAT 706: Insurance and Law of Business and Carriage

Law of business and carriage; contracts agency and transport liability. Liability for loss and damages of freight/passenger regarding sea, air and land-based transport. Various Rules and Conventions in air and sea transport Acts/decrees on carriage of freight/passenger. Carriage of animals and dangerous goods. Special considerations affecting the use of containers. Legal basis of statutory transport organizations and statutory obligations of transport undertakings. Principles of insurance in transport industry; Air, land and marine insurance. Insurance law and practice, Cargo practice, Oil rigs insurance, protection and indemnity (P& I) cover and pipeline insurance.

Module 7 [3 Weekends]

LAT 707: Purchasing and Material Management

The role of purchasing in supply chain purchasing activities, purchasing research and planning; purchasing cost management; E-procurement-paperless purchasing. Nature and importance of warehousing. Types of warehousing; warehousing; operations, warehouse productivity, financial dimensions. Basic inventory concepts and management; Inventory costs; poor inventory management; improving inventory management; Case studies. Scope of materials management; forecasting; Total Quality Management (TQM); materials flow, logistics/ manufacturing interface; case study. Materials handling equipment packaging; reverse logistics.

Module 8 [3 Weeks]

LAT 70H: Information and communication and intelligent transport Systems in Transportation and Logistic

Introduction, customer order cycle; advanced order-processing systems; inside sales/telemarketing; Electronic data interchange; integrating order processing; financial considerations; Decision Support Systems; artificial intelligence and expert systems; Data base management; case study. Transport: Intelligent Transportation; Communication as a substitute for transportation.

Module 9 [3 Weekends]

LAT 709 Transport/Logistics Safety

Road transport safety regulations and traffic accident trends; Rail transport safety regulations and railway accident trends; inland water way safety regulations and accident trends; maritime transport and accident trend; maritime transport safety regulations and accident trend; Air Transport safety regulations and accident trends; Pipeline safety regulations and accident trends. Material handling safety and management.

Module 10 [3 Weekends]

LAT 710: Introduction to Transport Planning

Transport demand and supply, transport pricing, taxes and subsidies in transport, consumer satisfaction. Examples from models of transport .Transport networks, transport flows, modal split, transport competition, land use/transportation Transport data: origin-destination matrix. Public transport and mass transit; public and private involvement in public transportation. Organization and control of transport, laws and regulations to improve traffic flow. Traffic signal and control; pedestrianisation; builder and user cost; operation and administration of public transport, public transport in Nigeria the different programmes by local governments, states and the Federal Government. Land use/transportation planning, trip generation, trip distribution traffic assignment, traffic forecasting, urban transport, public transport in Nigeria. Organization and control of transport, traffic signals and control transport policy.

LAT 799: PGD Research Project

Students' independent research works. Projects should be a minimum of 5,000 words or 50 pages of A4 paper typed double spacing.

MASTER OF SCIENCE (M.SC) IN TRANSPORT/LOGISTICS MANAGEMENT

Programme Specialisation

The Centre comprises six (6) programme specialisations as follows:

1. Road Transportation Management
2. Rail Transportation Management
3. Maritime Transport Management

4. Air Transportation Management
5. Pipeline Transportation Management
6. Logistics and Supply Chain Management

Admission Requirements

- a. A Postgraduate Diploma in Transport and/or Logistics Management from a recognized University.
- b. A First Degree (not lower than Second Class Lower) in Transport, Logistics or related disciplines e.g. in Social Sciences, Management Sciences, Health Sciences, Town Planning, Engineering, etc.

Duration of the Programmes

The programmes shall be on Full/Part Time basis. The Full-Time M.Sc. shall run for a minimum of 12 calendar months and a maximum of 24 calendar months.

Part-Time shall run for a minimum of 24 calendar months and a maximum of 36 calendar months.

Requirements for the Award of M.Sc

Transport/Logistics Management Degree in area of Specialisation

Candidate shall be allowed to graduate when he/she obtains in not less than 12 calendar months for Full-Time or 24 calendar months for part-time at least 36 course units including a Dissertation approved by the University Senate on the recommendations of the CELTRAS and the School of Graduate Studies.

The MSc in Transport and Logistics programme requires a minimum of 36 credit units made up as follows:

- Ten courses (3 credit units each) 30 units
- Dissertation 6 units
- Total 36 units

All courses must be taken and passed as well as the Dissertation.

Pass Mark

To pass a course the mark must be 50% and above.

Course Code and Numbering System

The course code for the programme is: LAT and the numbering for the courses starts from 801 - 898. Dissertation is 899.

Course Code and title

A) General Courses

Course code	Course title	Units	Status
SGS 801.1	ICT and Research Methods	2	C
LAT 801	Transport. Energy and Environment	3	C
LAT 802	Transport Finance and Economics	3	C
LAT 803	Logistics & Supply Chain Management (LSCM]	3	C
LAT 804	Transportation Planning Studies	3	C
LAT 805	Information & Communication Systems in Transportation & LSCM	3	C
SGS 801,2	Entrepreneurship and Management	3	C
SUB TOTAL		21	units

[B] Programme Specialization Courses

Road Transportation Management

Course code	Course Title	Units	Status
LAT 810	Road Transportation Operations	3	C
LAT 811	Road Transportation Management	3	C
LAT 812	Urban Transportation and Intercity Travel	3	C
LAT 899	Dissertation	6	C
SUB TOTAL		15	unit

[2] Rail Transport Management

Course code	Course Title	Units	Status
LAT 820	Rail Transportation Operations (Structure and Economics	3	C
LAT 821	Rail Transport Management	3	C
LAT 822	Rail Freight and Intermodalism	3	C
LAT 899	Dissertation	6	C
SUB TOTAL		15	unit

[3] Maritime Transport Management

Course code	Course Title	Units	Status
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LAT 831	Maritime Transport Operation	3	C
LAT 832	Maritime Transport Management	3	C
LAT 833	Port and Shipping Administration	3	C
LAT 899	Dissertation	6	C
SUB TOTAL		15	unit

[4] Air Transport Management

Course code	Course Title	Units	Status
LAT 841	Air transport operations	3	C
LAT 842	Air Transport Management	3	C
LAT 843	Airline Management	3	C
LAT 899	Dissertation	6	C
SUB TOTAL		15	unit

[5] Pipeline Transport Management

Course code	Course Title	Units	Status
LAT 851	Pipeline Transport Operations	3	C
LAT 852	Pipeline Transport Management	3	C
LAT 853	Oil and Gas Pipeline Transport	3	C
LAT 899	Dissertation	6	C
SUB TOTAL		15	unit

[6] Logistics and Supply Chain Management

Course code	Course Title	Units	Status
LAT 861	Procurement/Purchasing and Materials Management Warehousing and Storage	3	C
LAT 862	Planning for Logistics	3	C
LAT 863	Global Logistics	3	C
LAT 899	Dissertation	6	C
SUB TOTAL		15	unit

Summary

1. General Courses: 21 Units
 2. Programme Specialization 9 Units
 3. Dissertation 6 Units
- Total 36 Units**

COURSE CONTENTS

SGS 801.1: ICT and Research Methods

Data Requirement for regional models: Inventory of existing conditions, land use data, demographic and economic data, travel inventories, house hold interview survey, transit onboard survey, workplace survey, external survey, commercial vehicle survey. Regional travel demand models: Networks; "Four-Step" Modeling Process: Trip purposes, trip generation, trip attraction, trip distribution, mode choice, time of day models, trip assignment. Model Calibration and Validation: Land use and trip generation; network development; mode choice vehicle assignment validation, transit time validation. Evaluation of Options. Regional software packages, Improvement to regional models. Introduction to discrete models. Traffic simulation models. Site Traffic Analysis: Traffic forecasting; level of service analysis; mitigation; impact fees. Post processors. Limitations of the Models. Statistical Analysis: General observations, Descriptive Statistics, Probability Distributions, normal distribution, sampling and inference, Regression overview.

LAT 801: Transportation, Society, Energy and Environment

Transportation and economic development; possible changes in the future; Intelligent transportation system. Congestion, history, measurements, Tolerance; Operational efficiency and congestion pricing. Communication as a substitute for transportation; growth in intermodal transportation; safety; public expectation of transportation. The concept of predictive modeling. Noise Analysis: Basics of sound, Highway traffic noise analysis, Airport noise analysis, Rail noise Analysis. Air Quality and Water quality: Regulations; description of air pollutants; Emissions; Dispersion modeling; Analysis. Energy Considerations: Petroleum dependence; consumption analysis. Environmental laws and regulations. Global change.

LAT 802: Transport Finance and Economics

Cost estimating; Funding Sources and Allocation; Sources, public-private ventures; Financial Analysis; Economic Evaluation Tools; Societal Quantification of Costs and Benefits; Setting Priorities and Developing and Implementing Programs; Uncertainties: Information credibility, contingency and cost ranges, risk and sensitivity analysis.

LAT 803: Logistics and Supply Chain Management

Definition of logistics management; Development of logistics; Systems approach/integration; The role of logistics in the economy; The role of logistics in the organization; Total cost concept; Channels of distribution; Why do channels of distribution develop; Structure and operations of channels of distribution; Logistics and supply chain

management; Key logistics activities; The relationship of logistics activities to logistics costs; issues in logistics.

LAT 804: Transportation Planning Studies

Overview of Principal Planning Studies; Description of Specific Methods; Capacity Studies; Travel time Studies; Trip Generation; Modal Studies, Statistical Analysis.

LAT 805: Information & Communication Systems in Transportation & LSCM

Introduction; Data Modeling and Data Base Design; GIS-T Data Models; Transportation Data Sources and integration; Shortest Path and Routing; Network Flows and Facility Location; GIS-Based Spatial Analysis and Modeling; Transportation Planning; Intelligent Transportation Systems; Transportation, Environment and Hazards; Logistics.

SGS 801.2: Entrepreneurship and Management

PROGRAMMES SPECIALISATION

Specialization 1: Road Transport Management

LAT 810: Road Transport Operations

Historical perspectives; the sub modal agencies; road network and analysis; Road Transportation infrastructure; Flow Analysis; Safety and Security issues; Recent technological Developments. Freight Transport; Modal Choice; Intermodal Transport, Intercity Transport, The Nigeria's scenario.

LAT 811: Road Transport Management

Background and Perspectives, the Spectrum of Strategies; Planning Vision; Design and Implementation; Freight Transport; Vehicle replacement, selection, costing and legislation, unions. Road transport policy of Nigeria. Road transport regulations, Road Safety Corps of Nigeria institutional frameworks fed min of transport, state transport ministries.

Lat 812 Urban Transport and Intercity Travel

Introduction and background. Understanding the urban transportation plan, public participation; goals and objectives; financial plan; metropolitan transportation system; travel characteristics; inventories, forecasting travel, etc. Urban Transit: Transit in cities; defining transit; transit use and performance trends; transit modal design; system design; transit planning and operations; Para- transit service organization and financing. Intercity Passenger Travel: introduction ad definitions; dimensioning existing intercity passenger travel and trends affecting future of intercity travel.

LAT 899: DISSERTATION

Students' independent research works. Dissertation should not be less than 25,000 words or 100 pages of A4 papers typed double spacing.

Specialization 2: Rail Transport Management

LAT 820: Rail Transport Operations

Historical perspectives; the sub modal agencies; rail transportation network and analysis; Rail transportation infrastructure; Flow Analysis; Rail transportation Data Safety and Security issues; Policies and recent technological Developments, etc. The economics of rail manning and operations. Navigation planning; the trip planning, collision avoidance systems planning, cargo operations; cargo planning and loading shipboard maintenance and safety; fire containment methods. Human factors in rail operations. Commercial practice, marketing analysis in rail transport. The management of human resource Personnel development.

LAT 821: Rail Transport Management

Development of rail transport in the world and Nigeria in particular; Types of rail transport; The rail network and its maintenance; Route determination and selection; Methods of financing the rail infrastructure; track and load gauge in use and advantages and disadvantages; optimizing line capacity.

Performance characteristics of motive power units; inter-relationship of rail transport to other modes; intercity commuter passengers services; and high speed container and bulk commodity freight services. National, regional and Local organization of rail transport; Policy formulation and implementation.

Operation practice in railway management operation. Legal requirements for safety of operation and training of operating staff; the Rail Act. NRC Act etc; government regulations, social services and subsidies/grants. **LABORATORY:** Project Work.

LAT 822: Freight Transport and Intermodal Transport

Transport mode characteristics, operational factors; consignment factors; cost and service requirement intermodal equipment; intermodal vehicles; intermodal infrastructure; freight facilities grants; vehicle selection; vehicle costing; vehicle costing, road freight legislation, Road freight transport planning and resourcing.

LAT 899: Dissertation

Students' independent research works. Dissertation should not be less than 10,000 words or 100 pages of A4 papers typed double spacing.

Specialization 3: Maritime Transport

LAT 831: Maritime Transport Operations

The economics of ship manning. Shipboard operations. Navigation planning; cargo operations; fire containment methods. Human factors in shipboard operations. Commercial practice, marketing analysis in shipping. Major shipping line of the world, types of sample, performance and capacity. Various means of motive power; palletisation and containerization. Shipping in relation to other forms of transport. Multipurpose vessels etc. Maritime transport organization. Management and operation, policy formulation and implementation, operating practices (schedule, routes and Crews). Legal requirement and operation. Design and construction of vessels, the prevention, maintenance of vessels and equipment, Training and licensing operating crews. Marketing and commercial policy. Regulatory licensing of maritime transport. Future development in maritime transport.

LAT 832: Maritime/ Transport Management

Historical perspectives; the sub modal agencies; maritime network and analysis; Maritime transportation infrastructure; Flow Analysis; Safety and Security issues; Policies and recent technological Developments. The maritime industry in Nigeria, the current structure and composite financial and traffic statistics; the Port Concession Act; the Cabotage Act; the growth of regional carriers; problem and prospects. Economic characteristics of the Maritime industry.

LAT 833 Port and Shipping Administration

Shipping and export; imports ownership structure; organization of a shipping company; policy formulation and implementation. Distraction and control. Liner inferences, Tramps, Types of charters and charter parties. The ship broker, freight rate, port dues and rate. Ship chartering, management techniques, control and operating cost, transshipment and distribution of cargo.

Cargo clearing and forward. The IMO, UNCTAD and the Liner Code and Conventions on pollution. The Nigerian Shipping Council, National Maritime and Safety Agency. Corporate planning, directing and control of sea pollution, training and certificate navigation and engineering officers. Relevant international adversary and regulatory use analysis. Administration of individual Nigeria merchant and Naval ports. Documentation procedures at the ports. Comparison of global practices in ports administration.

LAT 899: Dissertation

Students' independent research works. Dissertation should not be less than 10,000 words or 100 pages of A4 papers typed double spacing.

Specialization 4: Air Transport Management

LAT 840: Air Transport Operation

The characteristics, scope, and major economic significance of the aerospace industry and its major segments: the government market and the commercial market for air transport and general aviation aircraft; definition of the air transport industry and its economic importance; global historical perspectives [emphasis on the US]; the Airline Deregulation Act of 1978 and post deregulation ; spatial and temporal development in the aviation industry; Air transportation regulators and associations; statistics in the general aviation industry; general aviation airports and the general aviation support industry - the manufacturers, the fixed-base operators [FBO]; and the users of general aviation aircraft. The airport types and characteristics, flight delay cancellation. Causes and coping strategies.

The airline industry in Nigeria, the current structure and composite financial and traffic statistics; the Deregulation Act of 1988; the growth of regional carriers; problem and prospects. Economic characteristics of airlines

LAT 841: Airline Management

Airline Management and Organization - Forecasting Methods - primary forecasting methods used by firms engaged in air transportation. Airline Passenger Marketing: Computerized reservation systems [CRSs], travel agents. Hub-and-spoke service. Airline Pricing, demand, and Output determination: determinants of airline passenger demand and elasticity of demands, air fares, pricing process - pricing strategies and objectives; Air Cargo; Principles of Airline Scheduling; Fleet planning - Aircraft Selection Processes; Airline Labour Relations; Airline Financing.

LAT 842: Air Transport Management

International Conferences and Conventions [ICAO and IATA] and their impacts on world aviation; the International Aviation Market/ International Air Transportation Act of 1979; globalization and international airline alliances; airline security and safety. Flight delay and cancellation – passengers rights etc.

LAT 899: Dissertation

Students' independent research works. Dissertation should not be less than 10,000 words or 100 pages of A4 papers typed double spacing.

Specialization 5: Pipeline Transport Management

LAT 850: Pipeline Transport Operation

The characteristics, scope, and major economic significance of the pipeline industry and its major segments: the government market and the commercial market for pipeline transport; definition of the pipeline transport industry and its economic importance; global historical perspectives; Pipeline transportation regulators and associations; statistics in the pipeline industry; general aviation airports and the general aviation support industry - the manufacturers, the fixed-base operators [FBO]; and the users of general aviation aircraft.

The pipeline industry in Nigeria, network, flows; the current structure and composite financial and traffic statistics; the growth of regional carriers; problem and prospects. Economic characteristics of the pipeline industry.

LAT 851: Pipeline Transport Management

The principal characteristics and organization of pipeline and petroleum Transportation Terminal and handling equipment in petroleum marketing; Interface with other modes and terminals; Route determination and selection; development and closure of lines; methods of optimizing pipeline capacity on distribution system; Land-use pattern in relation to pipeline and petroleum development; Marketing and distribution of petroleum products, the effects of subsidy on petroleum consumption; environmental considerations in oil exploration, distribution and marketing.

LAT 852: Oil and Gas Pipeline Transport

Description and Importance, Oil and Gas pipeline layout, oil pipeline laying configuration; Oil pipeline vandalism and sabotage politics of oil and gas pipeline transportation; the Nigerian experience.

LAT 899: Dissertation

Students' independent research works. Dissertation should not exceed 10,000 words or 100 pages of A4 papers typed double spacing.

Specialization: 6: Logistics and supply Chain Management

LAT 860: Procurement, Materials Management/ Warehousing and Storage

The role of purchasing in supply chain purchasing activities, purchasing research and planning; purchasing cost management; E-procurement paperless purchasing. Basic inventory concepts and management; Case studies; Scope of materials management; forecasting; Total Quality Management[TQM]; materials flow; logistics/manufacturing interface; case study; Materials handling equipment packaging; reverse

logistics; Principles of Warehousing; Storage and Handling Systems; Receiving and Dispatch.

LAT 861 Planning Logistics

Importance of logistics planning process, factors in logistics planning process: product characteristics, product life cycle, packaging and unit loads. Key logistics processes, tools and techniques of logistics planning process. Logistics network planning, logistics management and organisation.

Manufacturing and materials management concepts: introduction; just-in-time concept, materials Requirement Planning [MRP, Manufacturing Requirement Planning [MRP]; The MRP System; Flexible fulfillment [postponement]; the Effects on distribution activities.

LAT 862: Global Logistics

Global logistics definition; International distribution channel strategies; Management of export shipment; Characteristics of global markets. Definition of strategy and strategic planning; logistics and corporate strategy; organization and planning process; the strategic logistic plan. Challenges and critical issues.

LAT 899: Dissertation

Students' independent research works. Dissertation should not be less than 20,000 words or 100 pages of A4 papers typed double spacing with Times New Roman font.

DOCTOR OF PHILOSOPHY (PH.D)

The Centre offers a doctor of philosophy degree with specialization in:

- Transport Management
- Logistics & Supply Chain Management

Admission Requirements

An M.Sc Degree in Transport. Transport Economics, Transport Geography. Transport Management, Transport Engineering. LSCM etc with a minimum CGPA of 3.5 on a 5 point scale.

Duration of the Programme

The programme shall be on Full/Part-Time basis. The Full-Time shall run for a minimum of 24 calendar months [2 years] and a maximum of 48 calendar months [4 years],

Part-Time shall run for a minimum of 48 calendar months [4 years] and a maximum of 72 calendar months [6 years].

Requirements for the Award of PhD Transport/Logistics Degree

Candidate shall be allowed to graduate when he/she obtains in not less than 2 years for Full-Time or 4 years for Part-Time, a minimum of an average of 60% in a Thesis approved by the University Senate on the recommendations of CELTRAS through the

Faculty of Social Sciences Graduate Board of Studies and the School of Graduate Studies.

The academic programme comprises

- Courses
- Seminars
- Thesis

Each of the *PhD* programmes in *Transport or Logistics* require a minimum of 24 credit units made up as follows:

- Five courses (3 credit units each) 15 units
- Thesis 9 units
- Total 24 units**

All courses must be taken and passed as well as the Thesis.

Pass Mark

To pass a course the mark must be 50% and above.

Course Code and Numbering System

The course code for all the programmes is: LAT and the numbering for the courses begin with 901. The code for the thesis is 999.

Course Code and Title

Year 1

All:

LAT 901	Research Processes in Transport & LCSM	3 Units
LAT 902	Statistical Package for Social Sciences (SPSS)	3 Units

Transport Management Option

Course Code	Course title	Unit	Status
LAT 911	Information System and Communication Technology in Transportation (Seminar)	3	B
LAT 912	Entrepreneurship in Transportation (Seminar)	3	B
LAT 913	Contemporary Issues in Transportation (Area Paper).	3	B
LAT 999	Ph.D Thesis	9	B
Total (6+ 9+ 9)		24 units	

Logistics & Supply Chain Option

Course Code	Course title	Unit	Status
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LAT 921	Information Systems and Communication Technology in Logistics and Supply Chain Management (Seminar)	3	C
LAT 922	Entrepreneurship in Logistics and Supply Chain Management (Seminar)	3	C
LAT 923	Contemporary Issues in Logistics and Supply Chain Management (Area Paper).	3	C
LAT 999	Ph.D Thesis	9	C
Total (6+9+9)		24 units	

Course Content/Description

LAT 901: Research Processes in Transport and LSCM

Transport/Logistics Research Problem identification. Relationship between the research problem, research questions, research topic and objectives of study. Transport Data and Services. Literature search in transport studies. Relationship between gap in literature, findings and recommendations. Data collection and analysis in transport and logistics research.

LAT 902: Statistical Package for Social Sciences (SPSS).

This is a workshop.

Seminars

LAT 911-913 Seminars Courses for Transport Management option.

LAT 921-923 Seminars Courses for Logistics & Supply Chain Management Option.

LAT 999: PhD Thesis

Students' independent research. The thesis should not be less than 50,000 words or 200 pages on A4 sized paper typed double spacing with New Times Roman Font and size 12..

CELTRAS ACADEMIC STAFF LIST

S/N	NAME	QUALIFICATIONS	AREA OF SPECIALIZATION	DESIGNATION
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1	Prof. Osi S. Akpoghomeh	PhD – Ibadan M.Sc – Ibadan BSc - Ibadan	Transport Planning, Intelligent Transport System, Safety & Management	Professor/Director
2	Prof. G.C. Emenike	PhD – UPH M.Sc – Uniben BSc - Unijos	Transport Planning & Management	Professor
3	Prof. A.C. Ezirim	PhD M.Sc BSc	Logistics, Project Mgt; Marketing	Professor
4	Prof. G. Otto	PhD – Nigeria MSc – UPH BSc - UPH	Supply Chain Mgt, Development Economics	Professor
5	Prof. C.C. Ibe	PhD – FUTO MSc – FUTO BSc - FUTO	Transport Economics	Professor
6	Prof. V. Weli	PhD – UPH MSc - UPH BSc - UPH	Climatology	Professor
7	Dr J.C. Ugbebor	PhD MSC B. Eng	Civil Engineering	Reader
8	Dr Obiora Madu	PhD – SMC Swiss MSc BSc	Logistics & Supply Chain Management	CEO Multimix Academy, Lagos
9	Dr Mbee Daniel Mbee	PhD MSc BSc	Population Geography	Snr Lecturer
10	Barr Sotonye	LLB	Transport Law	-
11	Dr Chukwu-Okeah Gift	PhD PhD (in view) MSc – UPH BSc - UPH	Coastal Geomorphology, Transport Planning (in view)	Snr Lecturer

CLAUDE AKE SCHOOL OF GOVERNMENT MASTER IN PUBLIC ADMINISTRATION (MPA) PROGRAMME

INTRODUCTION

PHILOSOPHY

The Claude School of Government aims to be a centre of excellence both in the training and retraining of manpower for the public service, in promoting research and scholarship that will contribute positively in improving the quality of governance in the society as well as in raising public consciousness that will press public institutions to be responsive and accountable. Because of the primacy which the School attaches to scholarship, it seeks collaboration with national and international institutions with similar interests and objectives and will strive to attract to its faculty (retired and serving) academics and administrators who have distinguished themselves in their areas of service. Those who pass through the portals of the School will be trained to take pride in their culture and country: to regard as unacceptable the status quo that encourages servility and poor governance. The School will encourage its alumni to stay involved in public affairs, always seeing themselves as active agents of positive change wherever they are.

The Claude Ake School of Government will not engage in scholarship for its own sake. It will engage in scholarship that is relevant to identified social, economic and political needs of the country in particular and Africa in general. It will not shy away from in engaging in policy advocacy, promoting policy positions it feels will improve governance as well as enhance the delivery of public goods and services. But in doing so, it will always be fiercely objective and non-partisan. Needless to say, the School will collaborate with other non-partisan bodies and institutions interested in promoting quality scholarship, good governance, pro-poor policy positions and in enhancing the quality and level of public services delivery.

Vision Statement:

The Claude Ake School of Government, working with the best international practice and standards, will always be Africa's number one centre for transformation where theory meets practice, intuition and thought guide public policy to deliver public goods and services as well as to improve governance.

Mission Statement:

To produce manpower and carry out research that will drive the wheels of good governance and responsible service delivery through quality learning and application of thought.

ACADEMIC PROGRAMME:

At present the School runs a Master in Public Administration (MPA) degree programme aimed at improving the skills and orientation of senior administrators. Details of the current programme, as approved by the Senate of the University of Port Harcourt, are presented below:

A. Programme Objectives

The objective of the programme of the Claude Ake School of Government is to train administrators in Nigeria's public and private sectors as k contribution by the University of Port Harcourt to the promotion of good governance and productivity in the civil service and in the economy. The MPA provides an advanced and specialized course in Public Administration and Management. It is aimed at improving the administrative and analytical skills of mid-career officers in the private and public sectors, who have had several years of practical experience, so that they easily reach the higher levels in administration and management.

The programme has been designed as an executive, hands-on and problem-solving type. It will emphasize case studies and deal with the daily challenges that administrators face at work. Holders of the MPA will find it an advantage if in future they plan to do a PhD course but they may not present it as a prerequisite for admission into a PhD degree course of study.

The programme of study takes the modular format. At the end of each module/week participants will be examined to test their comprehension of what was taught. Any participant who fails such an exam will have to take it again in the subsequent year in order to earn the MPA degree.

On completion of the executive MPA degree programme participants would have

- acquired the analytical skills to qualify for promotion into the highest echelons of administration in both the public and private sectors
- gained the skills and orientation required of policy advisers and planners
- acquired critical knowledge of the politics and economy of the country
- vastly improved their writing and presentation skills

B. Admission Requirements

1. Any applicant for admission to the MPA degree course shall be:
 - a) a graduate of the University of Port Harcourt; or

- b) a graduate of any other approved University; or
 c) a person who holds a recognised qualification approved by the Senate of the University of Port Harcourt.

2. The applicants first degree shall be at least a Second Class Honours Lower Division, However, candidates with third class or pass degree classifications, or those whose degrees are not normally classified, may be considered, provided such candidates have been in relevant employment for not less than five (5) years for those with third class or seven (7) years for those with pass degrees, from the date of their graduation.

C. Programme Duration

The duration of the Executive M. P. A. programme is twelve (12) calendar months, consisting of two semesters and field research/report writing and presentation period.

D. Requirements for the Award of Degree

1. In line with the School of Graduate School Regulation, to fulfil the requirements for the award of the Diploma/Degree, every candidate shall:

- a) obtain a weighed minimum coursework average of 50 (C) or better in the written examination as a whole and a grade which is not less than 50% (C) in any written paper(s) and
 b) satisfy any other additional requirements of the School.

2. No Post graduate student shall fail (that is, score less than 50% (C) in more than two modules/courses in a session at any level of coursework. If a student fails ANY one of the repeated modules/courses, he/she shall be asked to withdraw irrespective of the weighted average at the time of failure of the repeated course(s).

3. Where a candidate has been absent with good cause approved by the Senate, he/she shall be allowed to take the examination at the next available opportunity without penalty.

4. Each module carries 3 credits, except for module 9 (Field Research/Report Writing) which carries 6 credits. A student who has taken and passed 33 credit units of modules/courses and earned a CGPA of at least 3.0 shall be recommended for the award of the Executive M.P.A degree.

PAD 801: SUSTAINABLE DEVELOPMENT:

WEEK	COURSE CODE	TITLE
1	PAD 801-1	The Concepts of Development & Sustainability

2	PAD 801-2	Public Ethics and Accountability
3	PAD 801-3	Corruption and National Development
4	PAD 801-4	Urban and Rural Development in Nigeria

PAD 802: SECTORAL ADMINISTRATION WEEK COURSE CODE TITLE

WEEK	COURSE CODE	TITLE
5	PAD 802-1	Educational Administration I: Primary & Secondary
6	PAD 802-2	Educational Administration II: Tertiary
7	PAD 802-3	Agricultural Administration
7	PAD 802-4	Public Health Administration

PAD 803: GOVERNANCE AND POLICY ANALYSIS

WEEK	COURSE CODE	TITLE
9	PAD 803-1	Issues in Good Governance
10	PAD 803-2	Local Government Administration
11	PAD 803-3	Policy-Making, Implementation & Analysis
12	PAD 803-4	State and Economy in Nigeria

PAD 804: PUBLIC FINANCE AND BUDGETING

WEEK	COURSE CODE	TITLE
13	PAD 804-1	Principles of Public Finance
14	PAD 804-2	Budgeting Processes and Preparation of Estimates
15	PAD 804-3	Financial Regulations and Budgetary Control
16	PAD 804-4	Approaches to Development Planning

PAD 805: DEVELOPMENT ADMINISTRATION AND PROJECT MANAGEMENT

WEEK	COURSE CODE	TITLE
17	PAD 805-1	Politics and Administration of the State

18	PAD 805-2	Human Resources Management
19	PAD 805-3	Administration of Public Enterprises
20	PAD 805-4	Project Management

PAD 806: INTERGOVERNMENTAL RELATIONS

WEEK	COURSE CODE	TITLE
21	PAD 806-1	Fiscal Federalism in Nigeria
22	PAD 806-2	Federalism and Intergovernmental Relations
23	PAD 806-3	Management of Intergovernmental Relations
24	PAD 806-4	Issues in Management of Intergovernmental Relations

PAD 807: REGULATION PROCESSES AND ADMINISTRATION

WEEK	COURSE CODE	TITLE
25	PAD 807-1	The Regulation/Deregulation Debate
26	PAD 807-2	Nigeria's regulatory Policies
27	PAD 807-3	Challenges of Regulations Management
28	PAD 807-4	Case Studies

PAD 808: RESEARCH METHOD AND ANALYSIS

WEEK	COURSE CODE	TITLE
29	PAD 808-1	Tools for Social Research
30	PAD 808-2	Sources of Data; Data Storage and Retrieval
31	PAD 808-3	Methods of Data Analysis
32	PAD 808-4	Trends, Frequencies and Probability

PAD 809: FIELD RESEARCH/REPORT WRITING

WEEK	COURSE CODE	TITLE
33	PAD 809-1	Report Writing
34	PAD 809-2	"
35	PAD 809-3	"
36	PAD 809-4	"

PAD 810: FIELD REPORT SEMINARS

WEEK	COURSE CODE	TITLE
37	PAD 810-1	Seminar Presentations
38	PAD 810-2	"
39	PAD 810-3	"
40	PAD 810-4	"

F. Course Description

1. PAD 801: Sustainable Development

One of the contemporary imperatives for any serious training is some critical understanding of the concepts of development and sustainable development. This course will sensitize the administrator to the debate on what constitutes sustainable development and the urgency of weaving it into all aspects of policy and practice both in the public and private sectors. It will focus less on the theoretical issues and more on the practical situation, drawing attention to the need to incorporate it in regional planning, and the reduction of the factors militating against sustained and sustainable development - such as corruption, low level of public ethics as well as and lack of transparency and accountability.

2. PAD 802: Sectoral Administration

This course focuses on the administration of social service institutions such as in education and health, as well as in agriculture. It will examine the nature of educational; administration at the primary, secondary and tertiary levels. It will also examine the challenges of education management; strategies and problems of curriculum designing; evaluation of programmes; problems of administering higher educational institutions; case-studies of management education programmes; food and security issues; patterns of agriculture in Nigeria; philosophy and strategies of government intervention; management of public agricultural agencies; role of international institutions; administrative and policy issues of rural agricultural development; politics of institutional cooperation.

3. PAD 803: Governance and Policy Analysis

Definition; structure and operation of the Nigerian political process; governance problems from the perspective of key institutions, political actors and groups in Nigeria; managerial and leadership strategies and skills; case studies and practice in selected institutional and leadership contexts; issues of policymaking, policy implementation and policy

analysis which are germane to occupants of top-level policy positions

4. PAD 804: Public Finance and Budgeting

Principles of public finance, taxation public finance in a Federal System, Fiscal Policy, Public Debt Management.

Relationship between Fiscal Policy and Monetary Policy. Budgeting, Budget Concepts, Budgeting process in Government, Budgets and National Development Plans, Preparation of Estimates, Financial Regulations and Budgetary Control, Control of Expenditure, Concepts and Practices of Financial Management, Pricing of Public Services.

5. PAD 805: Development Administration and Project Management

The course sensitizes the participants to the nature of public enterprises: their origins, development and classification. A survey of the major issues in the management of public enterprises; organizational patterns; financial management, staffing control and relations with other public. Private enterprises and the public, It examines in addition, the politics of administration and the often subtle but significant impact it plays in development planning and administration; the strategic place of the local system in planning and implementing development as well as field administration systems. Significance of local governments. Special problems encountered by local governments in respect of intergovernmental relations, finance, and personnel resources management. Also why public enterprises tend to fail, and how to make them sustainable.

6. PAD 806: Intergovernmental Relations

A study of intergovernmental relations, as a growing sub- theme of public administration. Federalism and intergovernmental relations as well as their management. Issues in the management of intergovernmental relations: constitutional, legal, political, economic, financial, personnel. Also to be examined include institutional mechanisms for

managing intergovernmental relations; fiscal federalism in Nigeria in a comparative perspective, with special reference to the experience of countries such as the U.S.A., India, Brazil and Canada.

7. PAD 807: Regulation Processes and their Administration

With deepening globalization, the debate on whether to regulate or not to regulate will get more prominence, with the tendency that international capital will discourage regulation and push for deregulation. Public servants must be in a position to know the implication of either side of the debate in order to guide their principals aright. On focus will be existing regulatory processes and policies in Nigeria, their successes and challenges

8. PAD 808: Research and Analysis

Recognizing that there is a dearth of accurate data for policy making and implementation, the course will provide the participants the relevant skills to gather, store and retrieve data, as well as those they need to engage in planning and analysis. It will cover the methods, purposes and tools of social investigation; scientific method; purpose of research; observation, questionnaires, interviews and focus group discussions, secondary sources, proxy, measures; graphic representation of data; frequencies; central tendency; dispersion normal distribution and probability

9. PAD 809: Field Research/Report Writing

As essay of between 7,000 words - 10, 000 words, on some practical challenge faced by senior management staff in Ministries and companies under the supervision of a Lecturer in the School on a chosen topic. Topics would have been agreed on before hand and a supervisor assigned.

10. PAD 810: Field Report Seminar

Course participants make presentations on their field experience and research.

CENTRE FOR DISASTER RISK MANAGEMENT AND DEVELOPMENT STUDIES (CDRMDS)

Programme Course Structure and Description

FIRST SEMESTER

1. DRM 801.1: Research and Analytical Methods (3 Units)

The course is concerned with exposing the students to the scientific methods for collecting organizing, summarising, presenting, and analysing data. Emphasis will be on field processes, research design, hypotheses testing, probability assessment; descriptive, simple inferential and spatial statistics.

2. DRM 802.1: Fundamentals of Disaster Management. (3 Units)

Introduces students to the Global Disaster Risk situation, basic concepts, elements, disaster categories and overview of disaster management. It will cover the various categories of environmental hazards such as extreme geo-physical, atmospheric, hydrologic, biologic and technologic events.

3. DRM 803.1: Teaching Tools in Disaster Risk Management. (3 Units)

It will introduce students to various tools of disaster management such as remote sensing, global positioning system (GPS) and geographic information system. Emphasis will be on their applications to planning, mitigation and management of disaster risk situations.

4. DRM 804.1: Disaster Risk Assessment /Analysis. (3 Units)

Introduces students to the dimensions to hazards and risks impacts and trends covering identification, nature, categories, perception, communication, assessment, and management of risks. Emphasis will be on the assessment of damage, loss and recovery.

5. DRM 805.1: Disaster Risk Vulnerability and Adaptation Planning. (3 Units)

Introduces students to disaster risk vulnerability and adaptation planning. Covers concepts, elements and factors of human vulnerability and adaptation. Also emphasizes vulnerability and capacity assessments, procedures, index and framework.

6. DRM 806.1: Disaster Preparedness Planning. (3 Units)

Covers principles, dimensions, measures and problems of disaster preparedness planning. Also involves disaster preparedness practices, information resources, setting up disaster committee, documenting disaster arrangements, conducting preparedness training and testing preparedness arrangement.

7. DRM 807.1: Development Planning. (3 Units)

This course covers basic development planning issues and theories with regards to disaster prone areas. Emphasis on basic development concepts, processes, issues and problems, planning issues, variables and strategies of sustainable development; mainstreaming disaster risk reduction into development planning, Millennium Development Goal, Hyogo Framework for Action and Africa Regional Strategy for Disaster Risk Reduction.

SECOND SEMESTER

8. DRM 808.2: Modern Safety and Emergency Services 3

(Additional emphasis on Fire Safety). Course covers the following: dynamics of hazards and safety challenges, safety audits and accident investigations. It also covers basics of fire prevention and protection, fire spread mitigation measures, fire emergency procedures, emergency response as well safety challenges in National Development among others.

9. DRM.809.2: Oil & Gas Disaster Risk, Response and Management.

It covers factors exacerbating community vulnerability — coping capacity to natural hazards, and resilience of communities. It will provide knowledge of community participatory approaches to risk identification, assessment, evaluation, communication, prediction and formulation of community disaster risk management systems and implementation.

10. DRM. 810.2: Climate Change Impact, Mitigation & Adaptation Basic Climatology and weather patterns; Factors influencing climate fluctuations at varying scales; The Greenhouse Effect - Natural forcing - Water vapour - Solar inputs - CO₂ and its feedbacks with temperature - Anthropogenic forcing, Agriculture The Global Carbon Balance - Carbon pools and their relative significance. Evidence for Recent Climate Change - Global air temperature records (ground based and satellite) — Sea-level rises - Arctic sea ice decline - Global glacial retreat - Animal behavioural modifications - Changes in floral timings, eg flowering, fruit set, harvest times - Species extinctions and vulnerabilities - Increases in extreme events eg heat- waves, fires, drought severity, hurricanes - Ocean acidification Future Climate Scenarios and the IPCC - Likely climates in 50, 100 years - Positive and negative feedbacks as the climate warms.

11. DRM. 811.2: Public! Occupational Health & Safety Management. This course will promote

improved disaster preparedness and response in the health sector and increase capacity of health workers and volunteers to response to disasters. Critical issues include: the management and coordination of health personnel and equipment, emergency health facilities, first aids, movement of victims, public health risks of disasters and handling pandemic health emergencies-influenza (fowl/swine flu), cholera, anthrax etc.

12. DRM.812.2: National Disaster Management Systems [with additional emphasis on Humanitarian Principles & Values] The course focuses on the concept, philosophy, institutional arrangement, organisational structures, issues and problems in the formulation of efficient national disaster risk management systems. Also covers environmental management systems standardization and the reviews of national disaster risk management systems of selected countries.

13. DRM. 813.2: Capacity Building for Disaster Reduction [with additional emphasis on Knowledge Management & Community participation] Provides assistance to national disaster management institutions to formulate and design disaster management strategy. Issues include the role of experts, information dissemination,

capacity-building principles, coordination of planning and management teams. It also covers best practice in disaster mitigation financing.

14. DRM.814.2: Disaster Response & Recovery Planning/Mitigation Management. The course seeks to provide adequate knowledge on the immediate and long- term management of post-impact phase of a disaster. It covers units such as themes, activities, structure and challenges of disaster response management; damage and loss estimation; damage and reconstruction needs assessment; themes of disaster response planning; resource mobilization for reconstruction; and case studies and simulation exercises.

15. DRM.815.2: Transportation Disaster Risk & Management [with additional emphasis on Search & Rescue Operations]. The focus of this course is to introduce students to basics of transportation safety management. Emphasis is placed on Air and Road transport Safety, journey management planning, external influences on human error, accident investigation and risk assessment. Moreso, the concept of search and rescue operation is introduced as accident management technique.

ACADEMIC STAFF LIST

S/NO	NAME OF STAFF	RANK / DESIGNATION	QUALIFICATION	AREA OF SPECIALIZATION
1	Mbee Daniel Mbee	Director	M.Sc (Manchester), M.Sc, B.Sc (Uyo)	Geo-Informatics System (GIS)
2	S.B. Arokoyu	Professor	Ph.D, M.Sc., B.Sc. (UPH), REM (USA)	Regional / Rural Development, Resource Management, Env. Mgt.
3	P.C. Mmom	Professor	Ph.D (Calabar), M.Sc. (UPH), B.Sc. (Ibadan), REM (USA)	Urban planning / Environmental & Resource Management, ETA
4	A.A. Obafemi	Professor	Ph.D, M.Sc., (UPH), M.Sc., (Lagos), B.Sc., (Ilorin), REM, (USA)	Cartography, Env. Mgt., Urban Geography, Techniques / Application
5	O.S. Akpoghomeh	Professor	Ph.D, M.Sc, B.Sc (Ibadan), CMILT	Transport Geography, Tourism Development, Env. Mgt. & EIA
6	C.H. Wazor	Professor	Ph.D (UPH), M.Sc., B.Sc. (UPH)	Urban Geography
7	V. Weli	Professor	Ph.D (Ibadan), M.Sc., B.Sc. (UPH)	Climatology
8	Johnson Nna	Professor	B.Sc., M.Sc., Ph.D	International Relations/ Development Studies
9	J.E. Ugbebor	Reader	B.Eng., M.Eng, PhD	Environmental Engineering
10	Allwell Ntegha	Reader	B.Sc, M.Sc, Ph.D (UPH)	Development/ Quantitative Economics
11	E. Elenwo	Senior Lecturer	Ph.D. (RUST), M.Sc. Phil, B.tech	Environmental Management
12	M. Ogoro	Senior Lecturer	Ph.D	Coastal Geomorphological Studies, Geo-Spatial Technique (Cartography, GIS and Remote sensing)
13	Deekor T.N.	Senior Lecturer	M.Sc (UPH), B.Sc (Calabar)	Biogeography
14	O.S. Eludoyin	Reader	Ph.D, M.Sc (UI), B.Sc (ED) (Ife)	GIS/Biogeography, Techniques/ Application
15	G.O. Chuku-Okeah	Senior Lecturer	B.Sc, M.Sc. (UPH)	Geomorphology
16	Ejeba, S. O.	Senior Lecturer	BA ABU, MA, PhD UPH	Morphology and syntax
17	Austin Sado	Senior Lecturer	BA, PGDPR, MSc (UNN), Ph.D (UPH)	Kiswahili, Sociolinguistics, Applied Linguistics, Ethnography of Communication, Obolo, Creoles Studies

CENTRE FOR GENDER AND DEVELOPMENT STUDIES (CGDS)

GUIDELINE FOR POST GRADUATE DIPLOMA (PGD), MASTERS (M.SC.) AND PhD IN GENDER AND DEVELOPMENT STUDIES; UNIVERSITY OF PORT HARCOURT.

HISTORY

Centre for Gender and Development Studies (CGDS) University of Port Harcourt came into being following the de-emerging of former Centre for Conflict and Gender Studies (CCGS) by the university authority in March, 2021. The authority's reason for de-emerging of the Centre is that each study area should be able to be visible as to attract international and national supports.

The core mandate of this Centre revolves around research, teaching and community service which is stemmed on research thereby providing evidence without creating ambiguity in the minds of such organizations as to what the Centre stands for.

This Centre is wired to make relevant contributions in the area of gender and development through research, teaching and community service by addressing challenges that arise in our society due to power relations between the gender which is a major obstacle to development and an anathema to the improvement in the social status of women in the nation's development studies. It will further provide ways and means (way forward) for the elimination of practices that hinder and prevent the two groups that make up gender from existing harmoniously thereby enthroning gender equity and inclusiveness.

PHILOSOPHY

The philosophy of the Centre is to promote harmonious existence between the males and females by encouraging the complementarily in their roles thereby bringing about gender equity that will lead to meeting the sustainable development goals of equality of human species.

VISION

This Centre seeks to be the best in global south when it comes to Gender and Development research, teaching, training and community services. The multi-disciplinary nature of its staff and team of experts. Its ability to establish and carry out responsibilities in compliance with global best practice and professional standards.

MISSION

Our Centre mission is to expose male and female populations to the knowledge of social, cultural, economic and political hindrances to development at the local, national and international levels, in order to attain peaceful co-existence for sustainable development. This will be achieved by

the application of relevant skills and competencies toward evidence based policy research in gender and development studies.

RATIONALE /JUSTIFICATION

The location of gender matters/issues is an index to measure development. The continued hues and cries as occasion by the deprivation, oppression and exclusion of some humans by others especially in the developing nation are undesirable, therefore gender and development practitioners need specialized skills and knowledge in order to bring about gender mainstreaming and ensure national and institutional polices on gender which is needed to bring equality of humans.

OBJECTIVE OF THE POST GRADUATE PROGRAMME

the goal of the postgraduate programme is to provide quality graduate training and research that students need to be able to identify challenges gender divide contribute to the under development of people and therefore adopt appropriate measures / strategies to eliminate or bring them to the barest minimum. The specific objectives of the programme include;

1. To deliver high level post-graduate programmes at the Post-graduate Diploma, Masters' and Doctoral Philosophy levels.
2. To prepare students with theoretical, methodological and practical skills and knowledge in contemporary gender and development studies.
3. To enable those who have interest in gender and development discourses, whose first degrees are not in the opportunity to achieve their desired target
4. To engage in practical projects that build capacity for achieving sustainable development goals through community engagement, dialogue, negotiation and networking.

ELIGIBILITY

To be eligible for admission into the Post-graduate diploma programme, a candidate must possess a first degree, and/or HND degree with a third class or, pass from any recognized university. For admission into a master's degree and Doctor of Philosophy degree. The requirements are as stipulated by the school of graduate studies, University of Port Harcourt.

DURATION

The Post Graduate Diploma programme is for a period of twelve months.

The Master's Degree, a maximum of twenty four months; while the Ph.D. Programmes tests for a maximum of thirty six months. All the programmes run on modular basis.

MODE OF APPLICATION

The request for application form should be made to the centre for Gender and Development Studies, University of Port Harcourt accompanied by the stipulated fee. The applicant's name, address and desired course written at the reverse side of the receipts.

METHOD OF TEACHING

The course will include lectures, group work, case studies, directed reading, presentation and individual assessment. There will be some video materials utilized to support theoretical concepts in ceruse of the lectures.

METHOD OF ASSESSMENT

A three – hour examination will be written by each student for each course. Examinations are conducted to enable us test for the student understanding and critical evaluation. A term paper and test shall be part of a continuous assessment.

GRADUATION

A student shall be eligible for the award of Postgraduate Diploma if;

- He/She obtains a cumulative CGPA of 3.00 on a 5 point grading scale at the end of the programme
- He/She has obtained a "Pass" in the project To obtain a Master's and /or Doctoral degrees shall follow the school of Graduate Studies guideline to the latter.

COURSE REQUIREMENTS

To graduate from the Diploma programme, a candidate must obtain a minimum of 30 credit units. This credit load will include a research project of 6 credits to be completed after the course work, the students are required to take at least 2 elective courses per quarter (module). For the Masters' and for Ph.D, this is in with the School of Graduate Studies Guidelines.

POST-GRADUATE DIPLOMA (PGD) IN GENDER AND DEVELOPMENT STUDIES

QUALIFICATION FOR ADMISSION:

To qualify for admission into the Post-Graduate Diploma programme, a candidate must possess a third class (3rd) degree or equivalent level with a

CGPA of 1.5 points on 5-point scale of the University of Port Harcourt in any field. For HND background, lower credit pass shall be considered

DURATION:

The Post-Graduate Diploma programme in Gender and Women Development Studies runs full time for twelve (12) calendar months minimum duration and 24 months maximum duration.

REQUIREMENTS:

A candidate is required to offer nine (9) taught courses which shall lay emphasis on gender and women development issues. In addition, one seminar paper is to be presented by every candidate before graduation. On successful completion of the programme, each candidate is awarded a PGD Certificate in Gender and Women Development Studies.

FIRST QUARTER

Course Code	Course Title	Credit Unit
GDS 701.1	Introduction to Gender and Development Studies	2
GDS 702.1	Gender, Culture and Society	2
GDS 703.1	Male and Masculinity versus Female and Femininity	2
Total		6

SECOND QUARTER

Course Code	Course Title	Credit Unit
GDS 704.1	Introduction to Feminist Theory	2
GDS 705.1	Gender, Education and Politics	2
GDS 706.1	Gender Relations in Organizations	2
Total		6

THIRD QUARTER

Course Code	Course Title	Credit Unit
GDS 707.2	Gender, Science and Technology	2
GDS 712.2	Women and Development	2
GDS 709.2	Gender and Law	2
Total		6

FOURTH QUARTER

Course Code	Course Title	Credit Unit
GDS 710.2	Introduction to Research Method	3

GDS 711.2	Research Seminar on Domestic Violence	3
GDS 708.2	Individual Research Project	6
Total		12

COURSE ASSESSMENT

Each course will be assessed on the basis of

- 30% continuous assessment
- 70% end of semester written examination.

Candidates are expected to obtain a minimum grade of 'C' (50%) in each course they registered for and a seminar in order to be qualified for the award of the Post-Graduate Diploma in Peace and Conflict Studies. Grades per performance shall be:

A	=	70% - 100%
B	=	60% - 69%
C	=	50% - 59%
F	=	0% - 49%

DIPLOMA CLASSIFICATION

The PGD in Peace and Conflict will be awarded with Distinction, Upper Credit, Lower Credit and a Merit. The cumulative grade point for classification shall be:

CLASS OF DIPLOMA	CGPA
Distinction	4.50 – 5.00
Upper Credit	4.00 – 4.49
Lower Credit	3.50 – 3.99
Merit	3.00 – 3.49
Fail	1.00 – 2.99

COURSE DESCRIPTION

GDS 701.1 Introduction to Gender and Development Studies

This course aims to highlight the key role women have and can play in economic development. Basic Concept will be looked at like; Gender, Sex, Gender Roles, Gender Equity, Gender Equality and development. Individual, community lands, gender inequalities in development will also be looked at. An introductory survey of conceptual approaches to gender is followed by a treatment of central topics which include; the move from Women in Development (WID) to Gender and Development (WAD) as critical perspectives in development studies, conceptual approaches to households, men and masculinities in development, globalization and women's employment, gender, state and governance, women's movements and state-civil society relations, gender, conflict and post-conflict, and finally an appraisal of prospects for gender-aware planning and empowerment.

GDS 702.1 Genders, Culture and Society

Examination of the international emergence of the field of women's studies; the achievements and limitations of scholarly work exploring oppression

and discrimination based on sex and sex differences; the development of the category "gender" and its uses and abuses; and the relevance of changing understandings of the term "culture" for the study of women, gender, and/or sexuality across diverse historical periods, regions, nations, and societies. Particular attention devoted to the ways in which "gender" as practice, performance, and representation has differed for women and men according to race, class, and other divisions.

GDS 703.1 Male and Masculinity versus Female and Femininity

Masculinity (also called manhood or manliness) is a set of attributes, behaviours, and roles associated with boys and men. Although masculinity is socially constructed, some research indicates that some behaviour considered masculine is biologically influenced. "Femininities" and "Masculinities" describe gender identities. They describe socio-cultural categories in everyday language; these terms are used differently in biology (see below). Because femininities and masculinities are gender identities, they are shaped by socio-cultural processes, not biology. Femininities and masculinities are plural and dynamic; they change with culture and with individuals. Students will be taught the Single-factor as well as Multi-factorial Approaches to Masculinity and Femininity. We will also at different types of abuses as well as sexual harassment.

GDS 704.1 Introduction to Feminist Theory

This course will familiarize students with some of the key issues, questions, and concepts in feminist thought. The readings included in the syllabus reflect a range of perspectives and methodologies. Through readings and discussions, we will explore the ideas and methods that articulate and define the field of feminist theory. This course is designed to introduce you to some of the canonical texts in feminist thought, and to enhance your ability to think critically about the world we live in. Students are expected to participate in classroom discussions every week. This course fulfils both the "writing intensive" and "philosophy" general education requirements.

GDS 705.2 Gender, Education and Politics

The course examines feminist theories in relation to male and female participation in education and politics. Critical analysis of both legal and legislative demands of women in both developed and developing countries will be considered.

GDS 706.2 Gender Relations in Organisations

This course focuses on a study of different social relationships among and between males and females in different organisations. Such areas include job position/responsibility, promotions,

violence and the like. This provides an opportunity to observe and reflect on the already acquired knowledge.

GDS 707.2 Gender, Science and Technology

This course's topic touches on central and controversial issues in our lives and society, namely sex and gender, and particularly interaction between sex and gender and medicine, science, and technology. The main theoretical lenses for the course will include feminist philosophy, critical gender studies, history and philosophy of science, and philosophy of technology. This course will build on the lectures in this year's Centre for Values in Medicine, Science, and Technology series, "Sexing Science, Gendering Technology: Rethinking Sex and Gender in Science, Technology and Medicine." Students will have opportunities to attend lectures and interact with experts in the field.

GDS 712.2 Women and Development

Women's role expectations in traditional and modern periods are compared. Particularly, attention is given to role expectations of women in the globalizing world. Discussions include recent policies that focus on women development in the New Millennium. Responses from different developing countries, especially in Africa, are compared in order to identify possible obstacles and propose the way forward.

GDS 709.2 Genders and Law

The aim of the course is to analyse legal phenomena from a gender perspective. To achieve this aim, the course starts with a general overview of different gender theories, for example feminist theories, post-modern gender theory and Queer-theories. Starting from these theories particular fields of application of the law where gender has significant importance will be studied. With these theories as a basis field of application is chosen where gender have significant importance. Special attention is directed to issues about equality, affirmative action and discrimination and violence.

GDS 710.2 Introduction to Research Methods

Areas to be covered include an introduction to the principles of research in gender and women development studies, bearing in mind the multidisciplinary nature; design of research instrument; empirical studies design as well as the qualitative and quantitative methods of analysis, bearing in mind the different approaches for project writing.

GDS 711.2 Research Seminar

Independent topics in different areas of interest are to be researched and presented as seminar series. However, chosen topics shall be supervised to be

in line with the area of specialization of each candidate.

GDS 708.2. Individual Research: Write, Submit and Present (Core) – 6 CREDITS

Every student will write, defend and submit a research project at the end of the course work, leading to the Submission of a project. The topic of research must fall within one of the research areas in peace and conflict studies.

MASTER OF SCIENCE (M.Sc.) IN GENDER AND DEVELOPMENT STUDIES

QUALIFICATION FOR ADMISSION:

The qualification for admission into the Master of Arts programme will be considered as follows:

- A candidate must possess at least a Second Class Lower Division (2²), in Gender and Development Studies or a degree in Social Sciences/Humanities/Education from any recognized Tertiary Institution, with a CGPA of 3.00 on 5-point scale of the University of Port Harcourt.
- A candidate must possess the University of Port Post-Graduate Diploma in Gender and Development Studies, with a minimum grade of merit.

DURATION:

The Master's Degree Programme in Gender and Development Studies shall run full time for one year minimum duration and two years maximum. On the other hand, the Part-time will run for two years minimum duration and four years maximum duration.

REQUIREMENTS:

For the Master's Degree programme, a candidate is required to offer eight (8) taught courses, including Seminar and Thesis, all of which shall focus on gender and women development issues. On successful completion, each candidate is awarded a Master of Arts Degree in Gender & Development Studies.

FIRST QUARTER

Course Code	Course Title	Credit Unit
GDS 801.1	Feminist Theories	3
SGS 801.1	ICT and Research Methods	2
GDS 803.1	Introduction to Gender and Development Studies	3
Total		8

SECOND QUARTER

Course Code	Course Title	Credit Unit
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GDS 804.1	Race and Culture in Africa	3
GDS 810.1	Gender Issues in Health	3
SGS 801.2	Entrepreneurship and Management	2
Total		8

institutions, and the distribution of power and resources in Nigerian society? The ways that ethnicity, 'race' and class modify and give meaning to gender debates in an Nigerian and international context will also be a central concern.

GDS 804.2 Race and Culture in Africa

Topics should concentrate on contemporary issues in different parts of Africa to be able to compare and contrast different experiences of gender and development issues with local experiences such as anatomy and control, equality of educational opportunity, stratification and employment opportunity, gender and occupational choice, etc.

THIRD QUARTER

Course Code	Course Title	Credit Unit
GDS 805.2	Gender, Peace and Conflict Management	3
GDS 806.2	Advanced Theories in Gender and Development Studies.	3
GDS 807.2	Gender and STEM	3
Total		9

GDS 805.2 Gender, Peace and Conflict

This course focuses on the intersection between gender and peace and conflict research. It aims to develop students' abilities to understand the complex role that gender plays in patterns of war and peace. Gender is defined as the "socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women" The course will explore topics such as gendered differences in participation and suffering; sexual violence in armed conflict; the social and political variation associated with gender equality goals and outcomes; the challenges of peacekeeping; women's participation in conflict resolution; and implications for peace building and transitional justice.

FOURTH QUARTER

Course Code	Course Title	Credit Unit
GDS 812.2	Seminar on Gender and Globalization	3
GDS 809.2	Seminar on Globalisation and the Environment.	3
GDS 811.2	Research Methods in Gender and Development Studies	3
GDS 808.2	Individual Dissertation	6
Total		15

GDS 810.1 Gender Issues on Health

To realize gender equality in health care, sex and gender dimension needs to be integrated in all aspects of research and clinical practice. This course brings together experts from a multitude of disciplines including clinical, basic science, public health and policy and provides participants with resources that will assist them in developing and strengthening gender-equal clinical care and research programs. The course will focus on the critical health issues for women and men through the life cycle, challenges of integrating sex and gender from the health research, practice, and policy perspectives, as well as strategies to address these challenges.

COURSE DESCRIPTIONS

GDS 801.1: Feminist Theories

The course explores information on contemporary feminist debate as presented Structuralism, Marxism and Socio-cultural studies, to mention a few. The main objective is to analyse unequal conditions of male and female population in society. It provides an opportunity to critical issues such as sexuality, values and identity. The Nigerian context of feminist theory is equally discussed.

GDS 803.1 Introduction to Gender and Development Studies

Gender is encountered in every aspect of our lives. It informs public debate, legislation, how much money we earn, who dies younger and our exposure to risk and sexual violence. The course examines contemporary gender relations in Nigerian society, in our everyday lives, the school, the workplace, and the home. To what extent can we explain these relations in terms of women's and men's choices and to what extent in terms of masculinities and femininities, laws and

GDS 807.2. Gender and Stem

This course examines the historical path of the subject matter and how men and women's lives have been impacted in the process of developing The Third World Nations. It will evidentially using statistics to expose how STEM contributes to the incorporation of our region to global economic and political systems of the globe. The course begins with theoretical and concept clarifications, inhibitors to the effective utilisation of STEM in

national development and thereby make recommendations that will bring out development of the nation.

GDS 812.2 Seminar on Gender and Globalisation

The concept of globalization is examined. The course introduces gender issues in development, particularly with reference to developing areas where poverty, high illiteracy rate, unemployment, underemployment and early retirement appear to be common, yet the effort is to achieve partnership between and among nations. In addition, both feminist and queer theories are considered as issues of nationality, ethnicity, race and sexuality are discussed in the effort to identify a universal ground to effectively accommodate male and female population in the globalized world.

GDS 809.2 Seminar on Globalisation and the Environment

This course exposes students to the various issues relating to the environment, especially environment protection and preservation. It will also examine the role of environmental groups and NGOs to ensure that big corporations reduce greenhouse emission significantly. The course shall highlight the difficulties and challenges faced by poor and developing countries in ensuring that advanced countries enforce Laws against environmental pollution due to greenhouse emission.

GDS 811.2 Research Methods on Gender and Development Studies

Gender plays a major role in structuring societies. It is also an innovative concept that grasps sexual differentiation and reproduction of inequalities between men and women in an increasingly numerous and varied number of fields. The development of a genuine interdisciplinary approach around these questions has contributed to the emergence of an impressive range of theories and methods. However, the plurality of institutional contexts in which gender is mobilised as well as its privileged but complex relationship with the different branches of feminist theorization and practice make it sometimes difficult to use. If, in theory, any situation or phenomenon is likely to be subject of a gender analysis, the choice and establishment of a method is certainly an issue in itself. The aim of this course is to introduce students to research methods in gender studies. It teaches different ways of mobilising the concept in order to produce a critical emancipatory knowledge. It also examines the epistemological challenges of the research process in the context of gender studies. The aim is to equip students so that they can carry out their own reflections on a subject of their choice. The course also examines

whether and how research methods involving gender lead to doing research in a “different” way.

GDS 808.2 Supervised Individual Dissertation

A candidate’s choice of topic must be related to his area of specialisation, and the work must be original

Ph.D. IN GENDER AND DEVELOPMENT STUDIES

Eligible candidate for admission into the Ph.D Programme must possess a Master’s Degree in Gender & Development Studies from recognised University and should have an average score of 60% or its equivalent grade. Candidates who possess a Master’s degree in other fields of study must also have a postgraduate diploma or Master’s Degree in Gender and Development Studies with a minimum of grade “C” to qualify for admission. Admission will also be based on interview performance.

METHOD OF APPLICATION

Same as in the Masters programme, the PhD candidate must in addition submit a proposed plan of research along with his/her application.

DURATION OF PROGRAMME

- (c) The Full-Time Ph.D programme in Gender and Development Studies should run for a minimum of Six (6) Semester or a maximum of Ten (10) semesters.
- (d) The Part-time programme should run for a minimum of Eight (8) semester, and a maximum of Twelve (12) semesters.

REQUIREMENTS FOR GRADUATION

A candidate must have fulfilled the following conditions to be awarded a Ph.D. degree in Gender and Development Studies.

- (a) To proceed to Ph.D. candidacy, a candidate must pass a comprehensive upgrading examination at a minimum score of CGPA of 4.0 or 60%.
- (b) A candidate who after two attempts fails a comprehensive examination shall be asked to withdraw.
- (c) The degree of Doctor of Philosophy enables a student with an interest to carry out independent, original research culminating in a thesis. This programme is usually completed within three years. A PhD thesis should not exceed 100,000 words and must be a thorough, comprehensive and original study of a topic or issue which makes a significant contribution to the knowledge of the particular field.

FIRST QUARTER

Course Code	Course Title	Credit Unit	COURSE DESCRIPTION FOR Ph.D. IN GENDER STUDIES
GDS 900.1	Advanced Feminist Theories	3	<p>FIRST SEMESTER</p> <p>CGS 900.1. Advanced Feminist Theories The course explores information on contemporary feminist debate as presented by Structuralism, Marxism and Socio-cultural studies to mention a few. The main objective is to analyse unequal conditions of male and female population in society. It provides an opportunity to critical issues such as sexuality, values and identity. The Nigerian context of feminist theory is equally discussed.</p> <p>GDS 901.1. Gender and Domestic Violence This course will explore violence against women, focusing specifically on domestic violence, intimate partner violence, sexual assault, stalking, sexual harassment, and human trafficking. Additionally, the course will examine issues related to same-sex violence and cross-cultural abuse, how violence against women becomes normalised, and the role of male allies (HE FOR SHE).</p> <p>GDS 902.1. Gender and Development In this course we will analyse the varieties of women experiences in contemporary world, consider how gender relations may be changing, and investigate the historical, social, political, economic, and cultural forces that shape our lives relative to gender (power relation). Feminist thinking within and across academic disciplines frames the exploration of these topics. We will also explore relations of inequality organised along lines of race, ethnicity, nationality, class, sexuality, ability, appearance, age, and other categories of difference, in addition to gender.</p> <p>SGS 903.1. ICT and Research Methods This course is School of Graduate Studies' and it is compulsory for all the students and a success in this course guarantee's the graduation of the student. It will expose the students on how to carry out their research and in line with international best practice standards.</p> <p>GDS 904.1. Research Methods in Gender & Development Studies This course covers all the principles of research with particular reference to gender and development studies, bearing in mind the multi-disciplinary nature of the programme. This will capture designing of research instrument; empirical studies design; qualitative and quantitative methods of analysis and different approaches for project writing.</p> <p>GDS 905.1. Theories and Concepts of Gender and Development Studies</p>
GDS 901.1	Gender and Domestic Violence	3	
GDS 902.1	Gender and Development	3	
SGS 903.1	ICT and Research Methods	2	
		11	
SECOND QUARTER			
Course Code	Course Title	Credit Unit	
GDS 904.1	Research Methods in Gender & Development Studies	3	
GDS 905.1	Theories and Concepts of Gender and Development Studies	3	
ELECTIVE COURSES (CHOOSE ONE)			
GDS 906.1	Gender Violence, Law and Social Justice	3	
GDS 907.1	Gender and the Environment	3	
Total		9	
THIRD QUARTER			
Course Code	Course Title (Core Courses)	Credit Unit	
GDS 908.2	Gender and Religion	3	
GDS 909.2	Gender and Governance	3	
GDS 910.2	Gender Mainstreaming and Nation Building	3	
Total		9	
FOURTH QUARTER			
Course Code	Course Title	Credit Unit	
GDS 912.2	Research Seminar	3	
GDS 913.2	Gender, Migration and Human Trafficking	3	
GDS 916.2	Individual Thesis	6	
ELECTIVE COURSES (CHOOSE ONE)			
GDS 914.2	Gender, Culture and Human Development	3	
GDS 915.2	Gender and Health Issues	3	
Total		15	

The course introduces the students to the concepts and theories used in the gender and development studies. It traces the evolution of the discipline and its main concerns; as well as it orients the main philosophical thoughts and social science theories that impacted on the evolution of gender and development studies as an academic discipline.

(ELECTIVE COURSES – CHOOSE ONE)

GDS 906.1. Gender Violence, Law and Social Justice

This course offers an in-depth examination of the phenomenon of gender-motivated violence. Following a survey of the prevalence and varieties of sexual violence and coercion around the world, we consider questions such as: How, if at all, is violence against women different from other types of violence? How effective have been legal strategies to address violence against women, and what shifts in thinking about gender-motivated violence would be necessary finally to eradicate it? How does the toleration of sexual violence shape people's expectations and sense of entitlements? What are the implications of gender-based violence for the constitutional guarantee of equal protection of the laws? Does equal protection itself have a gendered meaning and impact? Among the types of violence against women we will consider are: intimate-partner violence; domestic homicide; prostitution; rape; sex trafficking; and violence facilitated by the Internet.

GDS 907.1 Gender and the Environment

This course will compare relationships between gender and the environment in a developed country, the U.S., and a developing country, Nigeria. We will look at the history of gender constructions of nature and natural resources and their relationship to environmental practices. We will examine the disproportionate impact of environmental destruction on women and children, particularly from poor and minority communities, as well as rapidly changing ideas and practices about environmental degradation and climate change.

SECOND SEMESTER

GDS 909.2 Gender And Religion

The theme of gender and religion preoccupies increasingly academic research as well as the public sphere, in institutional, national, and global contexts. This course's focus is the intertwining of gender and religion, and various positioned attempts to comprehend and see through, or beyond, the tangle. We are concerned with religious realities in their own terms: gendered visions of power in mythic, symbolic, and ritual phenomena. We also want to consider the ways religious realities reflect and mould gender roles and gender hierarchies in society, and the ways

political and economic conditions influence these configurations.

GDS 910.2 Gender and Governance

Students will be taught how governance in this nation and beyond had been and this will enable them to identify any gap based on gender in this area. This course aims to introduce you to the various approaches and assumptions that are implicit in the phrase Gender and Governance. It also seeks to know why the popular argument that women should be given opportunity to participate in the governance of where ever they may be. Any myths and misconceptions surrounding women participating effectively in governance in this region will be cleared.

GDS 911.2. Gender Mainstreaming and Nation Building

This course will scholarly conceptualise major concepts relevant to it, identify the link between the subject matter. It will also find out and elaborate on gender policies and programmes and explore if gender mainstreaming is actualized in Nigeria. If yes, how has it contributed to the development/ transformation of the nation and if no, identify and expatiate on the limiting factor(s) and then proffer solution(s). It will further identify nations where gender is mainstreamed and thus draw the comparison as to how such influences the quality of life of the people. Any other useful and relevant points to enhance and improve the standard of living of the people will be addressed.

GDS 912.2 Research Seminar

Independent topics in different areas of interest are to be researched and presented as seminar. However, chosen topics shall be supervised to be in line with the area of specialization of each student.

GDS 999.2 Supervised Thesis

Every student will write, submit, and defend a research at the end of the course work, leading to the submission of a dissertation. The topic of research must fall within one of the research areas in Gender and development studies and the work must be adjudged to be original to the student

GDS 913.2 Gender, Migration and Human Trafficking

The purpose of this study is to contribute to the identification and understanding of what it means to be 'taking into account the gender perspective, to strengthen the prevention of this crime and protection of the victims thereof', as required in Article 1 of European Union (EU) Directive 2011/36/EU on Preventing and Combating Trafficking in Human Beings and Protecting its Victims in the context of the EU Strategy (COM

(2012) 286 final) Towards the Eradication of Trafficking in Human Beings. The study addresses the five priorities of the EU Strategy: identifying, protecting, and assisting victims of trafficking; stepping up the prevention of trafficking in human beings; better law enforcement; enhanced coordination and cooperation among key actors and policy coherence; and increased knowledge of an effective response to emerging concerns. Through narratives, case studies and secondary data from different regions and countries, it points out the very different significance of female labour migration compared to men's. On-going conflicts and forcible displacement against 'newcomers', where women are particularly vulnerable, are discussed, as are the complexities of ethnic identity. This book will give readers a comprehensive idea of the scale and complexity of women's migration today. The study identifies and draws on EU law and policy competence in gender equality in its identification of the gender dimensions of trafficking. The gender dimensions are clustered into five issues: gender specificity and equal treatment; gender expertise, gender balance in decision-making and gender mainstreaming; the relationship between prostitution and trafficking; gendered policy fields and strategic priorities; gendered systems and the theory of prevention.

ELECTIVE COURSES (CHOOSE ONE)

GDS 914.2 Genders, Culture and Human Development

The main objective of this study is to present cultural concepts, traditions and practices as important determinants of development in Africa. It is also aimed at enunciating how cultural knowledge and traditional practices structure and shape gender relations. Other specific objectives include a review of diverse definitions of culture and development concepts as they intertwine to form a framework for assessing the increasing

awareness of the need to mainstream cultural approaches to development strategies in Africa. Another important objective is to reveal the centrality of cultural approach to development in the on-going international call for an inclusive gender and development strategy to enhance sustainability. The new emphasis on cultural approach to development can be traced to the World Conference on Cultural Policies (MONDIACULT) held in Mexico City in 1982 and the subsequent declaration of the United Nations Decade of Culture. This global awareness has contributed to the global reawakening to the centrality of culture to any meaningful progress in the development process.

GDS 915.2 Gender and Health Issues

In this course, we will examine woman's health issues from multiple standpoints, theories, and methods, drawing upon perspectives from the social sciences, humanities, and sciences. Students will have the opportunity to meet and engage with subjects experts from across the University and beyond. Together, we will investigate, interrogate, and critique research and research methodologies related to specific health issues experienced primarily by women¹. Through dialogue and debate, critical thinking skills will enhance as dominant lines of scholarship and innovative methodologies are considered across disciplinary domains and epistemologies.

Visiting Lecturers and Partners

The Centre will draw expertise and occasional guest lecturers from the Gender and Development Studies Programme, University of Ibadan; and Institute of Gender and Development, Abuja. The Centre will also collaborate with West African Civil Society Institute (WACSI), Ghana, West Africa Network for Peace building (WANEP) and Open Society Initiative of West Africa (OSIWA), Nigeria, Partnership Initiative for Peace Building in the Niger Delta (PIND), etc.

LIST OF ACADEMIC STAFF

S/NO.	NAME	QUALIFICATION	AREA OF SPECIALISATION	DESIGNATION
1.	Ifeanacho, M. I.	B.Sc., M.A., Ph.D.	Human Resources Management	Professor
2.	Okodudu, B.S..	B.Sc., M.Sc., Ph.D. UPH	Development Studies	Professor
3.	Anele, K. A.	B.Sc., M.Sc., Ph.D.	Social Dynamics	Professor
4.	Dr. Heoma Nsirim-Worlu	RNE (Ibadan), B.Sc., M.Sc., Ph.D. (UPH), PGD (N. Texas)	Development, Studies Environment/ Gender & Conflict Research, Aging Studies.	Senior Lecturer (Director of the Centre)
5.	Abu, O.P.	B.Sc., M.Sc., Ph.D.	Industrial Analysis, Medical Sociology & Social Gerontology	Senior Lecturer
6.	Badey, Dinebari K.	B.Sc., M.Sc., Ph.D.	Development Studies	Senior Lecturer
7.	Dr. Kiale Nyiayaana	B.Sc., M.Sc., Ph.D.	International Relations	Senior Lecturer (Asst. Director)
8.	Dr. (Mrs) Onyinye O. Durueke	B.A., M.A., and Ph.D. (Ibadan).	Gender Studies/Peace and Conflict Studies.	Senior Lecturer
9.	Dr. Amadi	PhD, M.Sc and B.Sc	Theories	Senior Lecturer
10.	Dr. Wonah	PhD, M.Sc and B.Sc	Development Studies	Senior Lecturer
11.	Dr. C. Erondu	Ph.D, M.Sc and B.Sc	Development Studies	Senior Lecturer

COUNSELLING AND HUMAN DEVELOPMENT CENTRE (CHDEC)

Introduction

Counseling Psychology is a specialized profession that deals with various mental health, emotional, educational, vocational and other psychosocial problems of clients. It is a hybrid profession in Psychology because the trained counselors will work with diverse clients in diverse settings and fields, hence it is very important for them to acquire general counseling skills, competences as well as specialized skills and competences that will enable them discharge their functions effectively and efficiently. This specialization course is a timely shift and incorporation that will help our students to acquire sellable skills, be more marketable, relevant and globally accepted.

Vision

Our vision is to become the leading institutional Centre in Counselling Psychology

Mission

Our mission is to meet the needs of the various clients in school and non-school settings (the society at Large) in the area of Counselling Psychology. This will be achieved through commitment to outstanding training of Counsellors with adequate theoretical background, techniques and skills to deliver widely accepted services

Rationale

The Counselling Association of Nigeria (CASSON) in its quest for professionalization and licensure has tasked counsellor Training Institutions and centres to train specialists in specific disciplines of Counselling Psychology, thus the breaking down of the General Counselling Psychology into specialization areas at Masters and Ph.D levels for training. Each of the specialization areas in Counselling Psychology is targeted to train, reposition, and equip the products (trained counsellors) with the necessary universally accepted skills thus increasing their marketability globally.

POST GRADUATE DIPLOMA PROGRAMME IN COUNSELLING PSYCHOLOGY

Admission Requirements

Candidates who possess a Bachelor's degree from a recognized University with a minimum of Third Class Honors or Higher National Diploma (HND) from a recognized Polytechnic with a minimum of Upper Credit in Social Science and Education or any other related field would be considered.

Programme Duration

The full-time programme is for a minimum of 12 calendar months and maximum of 24 calendar months while Part-Time is for a minimum of 24 calendar months and a maximum of 48 calendar months, during which the student is expected to take the complete modules and carry out an individual project.

The programme is both Modular and On-line. It is a standalone programme.

Graduation Requirements

A student is presented for graduation after attempting and passing all fourteen modules, including individual research project as well as fulfilling all School of Graduate Studies requirements; and in good standing with the university policies.

Course Outline

Code	Course title	Credit units
DIC 701	Fundamentals of Education Research	3
DIC 702	Fundamentals of Guidance and Counselling	3
DIC 703	Group Dynamics and Procedures in Counselling	2
DIC 704	Theories and Techniques in Guidance and Counselling	2
DIC 705	Family and Couple Counselling	2
DIC 706	Adolescent/Youth Counselling	2
DIC 707	Special Needs Counselling	2
DIC 708	Addiction and Crisis Counselling	2
DIC 709	Career and Vocational Counselling	2
DIC 710	Introduction to Gerontological Counselling	2
DIC 711	Mental Health Counselling/Rehabilitation	2
DIC 712	Practicum in Counselling	3
DIC 713	Seminar and presentations	2
DIC 714	Use of ICT in Counselling	2
DIC 715	Project	4
	Total Credit Units	35

COURSE DESCRIPTION

DIC 701: Fundamentals of Educational Psychology and Research 3

What is Education?; Overview of Fundamental Concepts in Psychology, Branches of Psychology and their contributions, Sports in Counselling, Types of Research in Psychology

DIC 702: Fundamentals of Guidance and Counselling 3

Overview of basic Concepts in Guidance and Counselling, Principles of Guidance and Counselling, Counselling skills; Umbrella services in Guidance, Specialization areas in Counselling, Ethical Code of Conduct in Counselling

DIC 703: Group Dynamics and Procedures in Counselling 2

Definition of basic concepts, Group work in Counselling, Use of Counselling Theories in Group Work, Group work with special populations

DIC 704: Theories and Techniques in Counselling 2

Overview of Counselling Theories; Techniques applied in Counselling; Tools used in Counselling; Practical application of the Theories and Techniques

DIC 705: Family and Couple Counselling 2

Overview of Family Life and Marital Relationship; Pre-marital Counselling and Dating; Dysfunctional Families and Marriage; Approaches to Family and Couple Counselling; Family Mental Health

DIC 706: Introduction to Adolescent/Youth Counselling 2

Counseling across the Lifespan; Concept of Adolescence and their basic needs; Problems of Adolescents; Drug Use and Abuse among Adolescents; Food and Spending Spree; Pornography and Sex Obsession; Depression among Adolescents; Use of Sports in Adolescent Counselling

DIC 707: Special Needs Counselling 2

Different Special Needs areas among children; Family and Parenting of Special Needs children; Learning Disabilities and Counselling; Mainstreaming and Inclusion of Special Needs children; History and Myths behind Special Needs children

DIC 708: Addiction and Crisis Counselling 2

Overview of Addiction and Behaviour; Difference Areas/Types of Addiction; Crisis Intervention Strategies; Various Management Strategies of Addiction

DIC 709: Career and Vocational Counselling 2

Overview of various Career Areas and needs of students; Vocational Theories and their applications; Instrumentation in Vocational Counselling

DIC 710: Introduction to Gerontological Counselling 2

Overview of Gerontological Counselling; Needs of the Aged; Theories of Human Aging and Interventions; Crisis in Aging and Interventions

DIC 711: Mental Health Counselling 2

Overview of Mental Health across various ages and gender; Various Mental Health Needs and problems in Families and Organizations; Stress; Burnout; Depression; Suicide; Use of Sports in Mental Health Counselling; Sexual Deviations

DIC 712: Practicum in Counselling 3

What is Practicum in Counselling (various tools); Why Practicum in Counselling (responsibilities of the various stakeholders); Areas of concerns in schools and non-school settings; Establishment of Counselling Offices/Centres

DIC 713: Seminars and Presentations 2

Seminar Writing Skills; Seminar Presentations; Presentation Skills;

DIC 714: Use of ICT in Counselling 2

Use of On-line Counselling Site (better help, Regain, Faithful Counselling, Camelry, Teen Counselling, talk space, on-line-therapy.com, text, voice, live video); Web tools (wikis, blogs, youtube, fb, googledocs) for on-line Counselling Services.

DIC 715: Final Project (Each student is expected to choose a topic) 4

Each student will be guided by an experienced supervisor; Supervisors will ensure the use of acquired research skills in writing; Student will be assessed at major presentations namely: Proposal Stage, Post Field and Final Defense.

MASTER OF SCIENCE PROGRAMME IN COUNSELLING PSYCHOLOGY

Areas of Specialization:

1. SCHOOL COUNSELLING
2. MARITAL, COUPLE AND FAMILY COUNSELLING
3. CHILD AND ADOLESCENT COUNSELLING
4. ADDICTION AND REHABILITATION COUNSELING

5. CLINICAL AND MENTAL HEALTH COUNSELLING
6. GERONTOLOGICAL AND GRIEF COUNSELLING
7. SOCIAL WORK AND REHABILITATION COUNSELLING

Admission to the Master's Counselling Psychology is open to all candidates who hold a B.Sc./B.Ed in Social Sciences and Education or Post Graduate Diploma(PGD) in Guidance and Counselling, Social Work, Management and other related disciplines with at least second class lower division from a recognized University.

Status

Registration for the Masters programme shall be open to Full Time and Part Time students.

Duration of Programme

The full time programme is for a minimum of 12 calendar months and maximum of 24 calendar months while Part time is for a minimum of 18 calendar months and a maximum of 36 calendar months, during which the student is expected to take the complete modules and carry out an individual research project.

Award of Degree

Successful students at the end of the programme shall receive the appropriate degrees in Counselling Psychology of the University of Port Harcourt.

Admission Requirements

Mode of Study

The programme offers a flexible modular hybrid onsite and real-time video conferencing that offers students excellent choices of time of study.

Academic Staff

Lectures will be drawn from University of Port Harcourt, other universities and Industry.

Graduation Requirements

To qualify for an award of the Masters of Science in Counselling Psychology of the University of Port Harcourt, a student must meet the following requirements:

1. The student must have successfully completed and passed all the prescribed courses in the programme with at least C grades (50%);
2. The student must have met other requirements of the School of Graduate Studies and the University of Port Harcourt.

Course Grading System

The course work grading system shall be as follows:

% SCORE	LETTER GRADE	GRADE POINTS	CUM. GRADE POINT AVERAGE	CLASS OF DEGREE
70 and above	A	5.00	4.50 – 5.00	DISTINCTION
60 – 69	B	4.00	3.45 – 4.49	CREDIT
50 – 59	C	3.00	3.00 – 3.44	PASS
Below 50	F	0.00	Below 3.00	FAIL

MASTER'S DEGREE IN COUNSELLING PSYCHOLOGY

Areas of Specialization: MASTER OF SCIENCE (M.Sc.) IN

- SCHOOL COUNSELLING
- MARITAL, COUPLE AND FAMILY COUNSELLING
- CHILD AND ADOLESCENT COUNSELLING
- ADDICTION AND REHABILITATION COUNSELLING
- CLINICAL AND MENTAL HEALTH COUNSELLING
- GERONTOLOGICAL AND GRIEF COUNSELLING
- SOCIAL WORK AND REHABILITATION COUNSELLING

MASTERS IN SCHOOL COUNSELLING PSYCHOLOGY

MODULE	TITLE CODE	COURSE TITLE	CREDIT UNIT
GENERAL	SGS 801.1	ICT & Research Methodology	2
	SGS 801.2	Management & Entrepreneurship	2
	MCP 802.1	Psychopathology and Counselling	2
	MCP 803.1	Fundamentals of Educational & Social Psychology	2
	MCP 804.1	Advanced Practicum	5
	MCP 805.1	Fundamentals & Principles of Social Work	2
SCHOOL	MSC 806.1	Principles and Techniques of Creative Thinking	2
	MSC 807.1	Ethics and Professional Issues in School Counselling	2

	MSC 808.1	Psychology of Academic Adjustment	2
	MSC 809.1	Planning, Implementation and Evaluation of Counselling programmes in schools	2
	MSC 810.1	Career Guidance and Counselling	2
	MSC 811.1	Child and Adolescence Psychology & Counselling	2
ELECTIVE *students are expected to compulsorily offer any ONE of these courses related to their area of specialization	MCP 812.1	Principles of Teaching & Learning	2
	MCP 812.2	Developmental Milestones across Life-span	2
	MCP 812.3	Behaviour Modifications	2
	MCP 812.4	Introduction to Personality Development & Theories	2
SEMINAR	MCP 813.1		3
DISSERTATION	MCP 813.2		6
TOTAL CREDIT UNITS			38

COURSE DESCRIPTION

SGS 801.1: ICT & Research Methodology (3 credit units)

Essentials of Spread sheet and Internet Technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of Hypothesis, Formulation and Testing, Organisation of Research and Report writing.

SGS 801.2: Management and Entrepreneurship (2 credit units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MCP 802.1: Psychopathology and Counselling (2 credit units)

Intensive coverage of the ethology; diagnosis; and treatment of developmental problems and abnormal behaviour from infancy to adolescence. Counselling techniques and strategies for handling such **behavioural problems**, Application of rehabilitative counselling techniques, Ethics and Legal Issues in Counselling.

MCP 802.2: Fundamentals of Educational & Social Psychology (2 credit units)

This course will inform the students about Psychology, the different branches and better understanding of basic concepts that will help them as counsellors.

Meaning and nature of social psychology, rationale for the study of perception, pro-social behaviour, social influence, aggression, attitudes, application of the study to life situations, theories in the study of social psychology (Reward, Balance, Reinforcement theory, social interaction).

MCP 804.1: Advanced Practicum I (other areas of specialization) (4 credit units)

A supervised practicum in counselling techniques and guidance activities. The course has the following objectives, to upgrade a student's counselling knowledge and attitude in working with youths/adults; to integrate his theories with practice in the road fields of counselling and promising organization pattern of practices. Opportunities are provided for practical application of testing vocational and personal social information and referred procedures.

MCP 804.1: Advanced Practicum in Social Work (4 credit units)

Students participate in supervised social work practice internship in community agencies and facilities. Students apply classroom knowledge to activities and interventions serving individuals, families, groups and communities for a specified period

MCP 805.1: Fundamentals & Principles of Social Work (2 credit units)

This course will expose the participants to the detailed study of Social Problems and interventions - Promoting social change, development, coercion and empowerment of people and communities. It will help them to understand individuals, groups, community and institutions in relation to the social boundaries of each category.

MSC 806.1: Principles & Techniques of Creative Thinking (2 Credit Units)

Mental abilities and man, thinking, types of creative thinking, application of creative thinking in science, technology, business, arts, academics etc. Tools and techniques of creative thinking; Barriers to creative thinking.

MSC 807.1: Ethics and Professional Issues in School Counselling (2 credit units)

A study of ethics and ethical standards in counselling theory and practice; Current discussions in professional issues in relation to school counselling.

MSC 808.1: Psychology of Academic Adjustment (2 credit units)

This includes a study of personality, personality and adjustment, types of adjustment, rationale for the study of psychology or adjustment. Theoretical models of adjustment (moral, medico-biological, socio-generic/cultural, socio-psychological/behaviour mode). Theories of psychological adjustment; Freud psychoanalytic; Adler's individual, Jung Karen, frustration and adjustment.

MSC 809.1: Planning, Implementation & Evaluation of Guidance and Counselling programmes (2 credit units)

Planning programme evaluation(what do you want to evaluate, what information is needed). Major types of programme evaluation (evaluating progress processes, goals, outcomes etc) overview of methods to collect information (questionnaires, interviews, focusing groups etc) selecting methods, analysing and interpreting information, reporting evaluation results and content evaluation plan.

MSC 810.1: Career Guidance and Counselling (2 credit units)

A survey of the theories of career guidance - Ginzberg, Supper, Holland, meaning of career, career choice and career development relationship between career choice and personality development, career aspiration, patterns of satisfaction.

MSC 811.1 Adolescence Psychology (2 credit units)

This course examines the physical, cognitive, social and moral development of adolescent in the contexts of family, peers, school work and media. It discusses major theories, methods of studying adolescent, adolescent development in contemporary and adolescents issues concerns and problems (eg information and communication technology, sexuality, etc.).

ELECTIVES – Offer any ONE course related to area of specialization

MCP 812.1: Principles of Teaching and Learning (2 credit units)

This course will expose the participants to who a Teacher is, a Learner, responsibilities and management of the classroom and various problems of the learners.

MCP 812.2: Developmental Milestones across Life-span (2 credit units)

This course will help the students understand the stages of Development, when life starts and ends; the principles of growth and development, the Developmental task of each stage of Development, etc.

MCP 812.3: Behaviour Modifications (2 credit units)

This will equip students in the understanding of the different behaviour modification strategies, management and interventions.

MCP 812.4: Introduction to Personality Development & Theories (2 credit units)

This course will give students understanding of whom they are and their clients. The theories will enable them to manage the various clients effectively with their basic knowledge of persons and their traits.

MCP 813.1: Seminars (3 credit units)

Clinical analysis and discussion of cases resulting from field work experience.

MCP 813.2: Dissertation (6 credit units)

Candidates are required to demonstrate research competencies by selecting a topic in their relevant areas of specialization. The research is carried out by the individual student under the guidance of a competent supervisor according to the graduate School requirements. The candidate is expected to make some significant contributions to knowledge. The Dissertation is defended before an appropriate constituted examining committee chaired by the Centre Director, External Examiner's verdict shall override all other decisions.

MASTERS IN MARITAL, COUPLE AND FAMILY COUNSELLING

MODULE	TITLE CODE	COURSE TITLE	CREDIT UNIT
GENERAL	SGS 801.1	ICT & Research Methodology	2
	SGS 801.2	Management & Entrepreneurship	2
	MCP 802.1	Psychopathology and Counselling	2
	MCP 803.1	Fundamentals of Educational & Social Psychology	2
	MCP 804.1	Advanced Practicum	5

	MCP 805.1	Fundamentals & Principles of Social Work	2
MARITAL, COUPLE AND FAMILY	MFC 806.1	Premarital Counselling	2
	MFC 807.1	Ethics and Professional Issues in Marital Counselling	2
	MFC 808.1	Psychology of Marital Adjustment	2
	MFC 809.1	Marital Communication and Counselling	2
	MFC 810.1	Theories of Marital Counselling	2
	MFC 811.1	Family Conflict and Stress Management	2
ELECTIVE *students are expected to compulsorily offer any ONE of these courses related to their area of specialization	MCP 812.1	Principles of Teaching & Learning	2
	MCP 812.2	Developmental Milestones across Life-span	2
	MCP 812.3	Behaviour Modifications	2
	MCP 812.4	Introduction to Personality Development & Theories	2
SEMINAR	MCP 813.1		3
DISSERTATION	MCP 813.2		6
TOTAL CREDIT UNITS			38

COURSE DESCRIPTION

SGS 801.1: ICT & Research Methodology (3 credit units)

Essentials of Spread sheet and Internet Technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of Hypothesis, Formulation and Testing, Organisation of Research and Report writing.

SGS 801.2: Management and Entrepreneurship (2 credit units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MCP 802.1: Psychopathology and Counselling (2 credit units)

Intensive coverage of the ethology; diagnosis; and treatment of developmental problems and abnormal behaviour from infancy to adolescence. Counselling techniques and strategies for handling such **behavioural problems**, Application of rehabilitative counselling techniques, Ethics and Legal Issues in Counselling.

MCP 802.2: Fundamentals of Educational & Social Psychology (2 credit units)

This course will inform the students about Psychology, the different branches and better understanding of basic concepts that will help them as counsellors.

Meaning and nature of social psychology, rationale for the study of perception, pro-social behaviour, social influence, aggression, attitudes, application of the study to life situations, theories in the study of social psychology (Reward,

Balance, Reinforcement theory, social interaction).

MCP 804.1: Advanced Practicum I (other areas of specialization) (4 credit units)

A supervised practicum in counselling techniques and guidance activities. The course has the following objectives, to upgrade a student's counselling knowledge and attitude in working with youths/adults; to integrate his theories with practice in the road fields of counselling and promising organization pattern of practices. Opportunities are provided for practical application of testing vocational and personal social information and referred procedures.

MCP 804.1: Advanced Practicum in Social Work (4 credit units)

Students participate in supervised social work practice internship in community agencies and facilities. Students apply classroom knowledge to activities and interventions serving individuals, families, groups and communities for a specified period

MCP 805.1: Fundamentals & Principles of Social Work (2 credit units)

This course will expose the participants to the detailed study of Social Problems and interventions - Promoting social change, development, coercion and empowerment of people and communities. It will help them to understand individuals, groups, community and institutions in relation to the social boundaries of each category.

MFC 806.1: Premarital Counselling (2 Credit Units)

This covers concept of marriage, why people marry, factors that influence choice of marriage

partner, courtship, cohabitation, sex and sexually transmitted diseases. Others include building and maintaining a stable and harmonious marriage.

MFC 807.1: Ethics and Professional Issues in Marital Counselling (2 credit units)

A study of ethics and ethical standards in counselling theory and practice; Current discussions in professional issues in relation to marital counselling.

MFC 808.1: Psychology of Marital Adjustment (2 credit units)

This includes a study of personality, personality and adjustment, types of marital adjustment, rationale for the study of marital adjustment. Theoretical models of adjustment (moral, medicobiological, socio-generic/cultural, socio-psychological/behaviour mode). Theories of psychological adjustment; Freud psychoanalytic; Adler's individual, Jung Karen, frustration and adjustment with their implications to marital counselling.

MFC 809.1: Marital Communication and Counselling (2 credit units)

Concept of communication, type of interpersonal communication, types of linguistic communication (syntax, phonology and semantics), contents of couples' communication (sex, childbearing, child upbringing, finance management, religion, etc.) Communication & marital stability and counselling strategies for effective marital communication.

MFC 810.1: Theories of Marital Counselling (2 credit units)

A review of the theories of marital counselling such as psychodynamic theory, conjoin theory, structural family theory among others are to be covered. Emphasis is on their intervention approaches and techniques with reference to Nigerian and African setting. A review of Nigerian traditional theories and approaches is required.

MFC 811.1: Family Conflict and Stress Management (2 credit units)

This course examines the current trends and issues in the field of conflict resolution and stress management. Introduce methods for understanding and effectively responding to

temporary challenges. Techniques necessary to break impasse and reach agreement including - negotiation, mediation and arbitration.

ELECTIVES – Offer any ONE course related to area of specialization

MCP 812.1: Principles of Teaching and Learning (2 credit units)

This course will expose the participants to who a Teacher is, a Learner, responsibilities and management of the classroom and various problems of the learners.

MCP 812.2: Developmental Milestones across Life-span (2 credit units)

This course will help the students understand the stages of Development, when life starts and ends; the principles of growth and development, the Developmental task of each stage of Development, etc.

MCP 812.3: Behaviour Modifications (2 credit units)

This will equip students in the understanding of the different behaviour modification strategies, management and interventions.

MCP 812.4: Introduction to Personality Development & Theories (2 credit units)

This course will give students understanding of whom they are and their clients. The theories will enable them to manage the various clients effectively with their basic knowledge of persons and their traits.

MCP 813.1: Seminars (3 credit units)

Clinical analysis and discussion of cases resulting from field work experience.

MCP 813.2: Dissertation (6 credit units)

Candidates are required to demonstrate research competencies by selecting a topic in their relevant areas of specialization. The research is carried out by the individual student under the guidance of a competent supervisor according to the graduate School requirements. The candidate is expected to make some significant contributions to knowledge. The Dissertation is defended before an appropriate constituted examining committee chaired by the Centre Director, External Examiner's verdict shall override all other decisions.

MASTERS IN CHILD & ADOLESCENT COUNSELLING

MODULE	TITLE CODE	COURSE TITLE	CREDIT UNIT
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GENERAL	SGS 801.1	ICT & Research Methodology	2
	SGS 801.2	Management & Entrepreneurship	2
	MCP 802.1	Psychopathology and Counselling	2
	MCP 803.1	Fundamentals of Educational & Social Psychology	2
	MCP 804.1	Advanced Practicum	5
	MCP 805.1	Fundamentals & Principles of Social Work	2
CHILD & ADOLESCENT	CAC 806.1	Human Growth and Development	2
	CAC 807.1	Child /Adolescent Counselling & Psychotherapy	2
	CAC 808.1	Psychology of Adolescent Adjustment	2
	CAC 809.1	Child/Adolescent Communication and Counselling	2
	CAC 810.1	Theories of Growth and Development	2
	CAC 811.1	Adolescence Psychology	2
ELECTIVE *students are expected to compulsorily offer any ONE of these courses related to their area of specialization	MCP 812.1	Principles of Teaching & Learning	2
	MCP 812.2	Developmental Milestones across Life-span	2
	MCP 812.3	Behaviour Modifications	2
	MCP 812.4	Introduction to Personality Development & Theories	2
SEMINAR	MCP 813.1		3
DISSERTATION	MCP 813.2		6
TOTAL CREDIT UNITS			38

COURSE DESCRIPTION

SGS 801.1: ICT & Research Methodology (3 credit units)

Essentials of Spread sheet and Internet Technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of Hypothesis, Formulation and Testing , Organisation of Research and Report writing.

SGS 801.2: Management and Entrepreneurship (2 credit units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MCP 802.1: Psychopathology and Counselling (2 credit units)

Intensive coverage of the ethology; diagnosis; and treatment of developmental problems and abnormal behaviour from infancy to adolescence. Counselling techniques and strategies for handling such **behavioural problems**, Application of rehabilitative counselling techniques, Ethics and Legal Issues in Counselling.

MCP 802.2: Fundamentals of Educational & Social Psychology (2 credit units)

This course will inform the students about Psychology, the different branches and better understanding of basic concepts that will help them as counsellors.

Meaning and nature of social psychology, rationale for the study of perception, pro-social behaviour, social influence, aggression, attitudes, application of the study to life situations, theories in the study of social psychology (Reward, Balance, Reinforcement theory, social interaction).

MCP 804.1: Advanced Practicum I (other areas of specialization) (4 credit units)

A supervised practicum in counselling techniques and guidance activities. The course has the following objectives, to upgrade a student's counselling knowledge and attitude in working with youths/adults; to integrate his theories with practice in the road fields of counselling and promising organization pattern of practices. Opportunities are provided for practical application of testing vocational and personal social information and referred procedures.

MCP 804.1: Advanced Practicum in Social Work (4 credit units)

Students participate in supervised social work practice internship in community agencies and facilities. Students apply classroom knowledge to activities and interventions serving individuals, families, groups and communities for a specified period

MCP 805.1: Fundamentals & Principles of Social Work (2 credit units)

This course will expose the participants to the detailed study of Social Problems and interventions - Promoting social change, development, coercion and empowerment of people and communities. It will help them to understand individuals, groups, community and institutions in relation to the social boundaries of each category.

CAC 806.1: Human Growth and Development (2 credit units)

Intensive exposure on who a Child/Adolescent is, Characteristics of both children and adolescents; developmental milestones and task, behaviour from infancy to adolescence.

CAC 807.1: Child/Adolescent Counselling & Psychotherapy (2 credit Units)

Problems of children and adolescents (physical, psychological social, emotional, etc.); Basic Counselling skills of handling children and adolescents' problems. Psychological difficulties in children and adolescents in their contexts and counselling-based skills for working with them and their care givers. Meaning and nature of Psychotherapy, theories in the study of psychotherapy.

CAC 808.1: Psychology of Adolescent Adjustment (2 credit units)

This includes a study of personality, personality and adjustment, types of adolescent adjustment, rationale for the study of adolescent adjustment. Theoretical models of adjustment (moral, medico-biological, socio-generic/cultural, socio-psychological/behaviour mode). Theories of psychological adjustment; Freud psychoanalytic; Adler's individual, Jung Karen, frustration and adjustment with their implications to adolescent counselling.

CAC 809.1: Child/Adolescent Communication and Counselling (2 credit units)

Concept of communication, type of interpersonal communication, types of linguistic communication (syntax, phonology and semantics), contents of Child/Adolescent Communication; behavioural stability and counselling strategies for effective Child/Adolescent communication.

CAC 810.1: Theories of Child/Adolescent Counselling (2 credit units)

A review of the theories of child/adolescent counselling are to be covered. Advanced theoretical understanding of counselling with children and adolescents. Emphasis is on intervention approaches and techniques with reference to Nigerian and African setting. A review of Nigerian traditional theories and approaches is required.

CAC 811.1: Adolescence Psychology (2 credit units)

This course examines the physical, cognitive, social and moral development of adolescent in the contexts of family, peers, school work and media. It discusses major theories, methods of studying adolescent, adolescent development in contemporary and adolescents issues concerns and problems (eg information and communication technology, sexuality, etc.).

ELECTIVES – Offer any ONE course related to area of specialization

MCP 812.1: Principles of Teaching and Learning (2 credit units)

This course will expose the participants to who a Teacher is, a Learner, responsibilities and management of the classroom and various problems of the learners.

MCP 812.2: Developmental Milestones across Life-span (2 credit units)

This course will help the students understand the stages of Development, when life starts and ends; the principles of growth and development, the Developmental task of each stage of Development, etc.

MCP 812.3: Behaviour Modifications (2 credit units)

This will equip students in the understanding of the different behaviour modification strategies, management and interventions.

MCP 812.4: Introduction to Personality Development & Theories (2 credit units)

This course will give students understanding of whom they are and their clients. The theories will enable them to manage the various clients effectively with their basic knowledge of persons and their traits.

MCP 813.1: Seminars (3 credit units)

Clinical analysis and discussion of cases resulting from field work experience.

MCP 813.2: Dissertation (6 credit units)

Candidates are required to demonstrate research competencies by selecting a topic in their relevant areas of specialization. The research is carried out by the individual student under the guidance of a competent supervisor according to the graduate School requirements. The candidate is expected to make some significant contributions to knowledge. The Dissertation is defended before an appropriate constituted examining committee chaired by the Centre Director, External Examiner's verdict shall override all other decisions.

MASTERS IN ADDICTION AND REHABILITATION COUNSELLING

MODULE	TITLE CODE	COURSE TITLE	CREDIT UNIT
GENERAL	SGS 801.1	ICT & Research Methodology	2
	SGS 801.2	Management & Entrepreneurship	2
	MCP 802.1	Psychopathology and Counselling	2
	MCP 803.1	Fundamentals of Educational & Social Psychology	2
	MCP 804.1	Advanced Practicum	5
	MCP 805.1	Fundamentals & Principles of Social Work	2
ADDICTION/ REHABILITATION	ARC 806.1	Therapies in Addiction & Rehabilitation Counselling	2
	ARC 807.1	Intervention & Management Strategies in Addiction & Rehabilitation Counselling	2
	ARC 808.1	Addictions and Comorbidity	2
	ARC 809.1	Planning, Implementation and Evaluation of Addictions & Rehabilitation Counselling Interventions	2
	ARC 810.1	Theories of Counselling – Addiction & Rehabilitation	2
	ARC 811.1	Addiction across Diverse Population	2
ELECTIVE *students are expected to compulsorily offer any ONE of these courses related to their area of specialization	MCP 812.1	Principles of Teaching & Learning	2
	MCP 812.2	Developmental Milestones across Life-span	2
	MCP 812.3	Behaviour Modifications	2
	MCP 812.4	Introduction to Personality Development & Theories	2
SEMINAR	MCP 813.1		3
DISSERTATION	MCP 813.2		6
TOTAL CREDIT UNITS			38

COURSE DESCRIPTION

SGS 801.1: ICT & Research Methodology (3 credit units)

Essentials of Spread sheet and Internet Technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of Hypothesis, Formulation and Testing , Organisation of Research and Report writing.

SGS 801.2: Management and Entrepreneurship (2 credit units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MCP 802.1: Psychopathology and Counselling (2 credit units)

Intensive coverage of the ethology; diagnosis; and treatment of developmental problems and abnormal behaviour from infancy to adolescence. Counselling techniques and strategies for handling such **behavioural problems**, Application of

rehabilitative counselling techniques, Ethics and Legal Issues in Counselling.

MCP 802.2: Fundamentals of Educational & Social Psychology (2 credit units)

This course will inform the students about Psychology, the different branches and better understanding of basic concepts that will help them as counsellors.

Meaning and nature of social psychology, rationale for the study of perception, pro-social behaviour, social influence, aggression, attitudes, application of the study to life situations, theories in the study of social psychology (Reward, Balance, Reinforcement theory, social interaction).

MCP 804.1: Advanced Practicum I (other areas of specialization) (4 credit units)

A supervised practicum in counselling techniques and guidance activities. The course has the following objectives, to upgrade a student's counselling knowledge and attitude in working with youths/adults; to integrate his theories with practice in the road fields of counselling and

promising organization pattern of practices. Opportunities are provided for practical application of testing vocational and personal social information and referred procedures.

MCP 804.1: Advanced Practicum in Social Work (4 credit units)

Students participate in supervised social work practice internship in community agencies and facilities. Students apply classroom knowledge to activities and interventions serving individuals, families, groups and communities for a specified period

MCP 805.1: Fundamentals & Principles of Social Work (2 credit units)

This course will expose the participants to the detailed study of Social Problems and interventions - Promoting social change, development, coercion and empowerment of people and communities. It will help them to understand individuals, groups, community and institutions in relation to the social boundaries of each category.

ARC 806.1: Therapies in Addiction & Rehabilitation Counselling (2 Credit Units)

The different types of therapies in Addiction and Rehabilitation Counselling should be discussed in details. (Family Therapy, Group therapy, behavioural therapy, ECT – electro Convulsive Therapy, MET – Motivational Enhancement Theory, etc)

ARC 807.1: Intervention & Management Strategies (2 credit units)

A study of all the intervention and management strategies in Addiction and Rehabilitation. – Play, Art, Music, Journalling, Natural scenes, etc.

ARC 808.1: Addictions and Comorbidity (2 credit units)

This includes an overview of addiction eg. Substance, internet, alcohol, food, gambling, pornography, sex, etc.; social anxiety, negative reinforcement, personality issues, Wernicke-korsakoff's syndrome, cognitive deficits, alcoholic hallucinosis, suicide risk, other substances.

ARC 809.1: Planning, Implementation & Evaluation of Addiction and Rehabilitation Counselling Intervention (2 credit units)

Planning programme evaluation (what do you want to evaluate, what information is needed). Major types of programme evaluation (evaluating progress processes, goals, outcomes etc) overview of methods to collect information (questionnaires, interviews, focusing groups etc) selecting methods, analysing and interpreting

information, reporting evaluation results and content evaluation plan.

ARC 810.1: Theories of Counselling (2 credit units)

A survey of the theories of career guidance Ginzberg, Supper, Holland, meaning of career, career choice and career development relationship between career choice and personality development, career aspiration, patterns of satisfaction.

ARC 811.1: Addiction across Diverse Populations (2 credit units)

This course examines the various ages, stages in life span and likely addictions – the young, youths, middle aged, and old aged; multicultural communities, etc.

ELECTIVES – Offer any ONE course related to area of specialization

MCP 812.1: Principles of Teaching and Learning (2 credit units)

This course will expose the participants to who a Teacher is, a Learner, responsibilities and management of the classroom and various problems of the learners.

MCP 812.2: Developmental Milestones across Life-span (2 credit units)

This course will help the students understand the stages of Development, when life starts and ends; the principles of growth and development, the Developmental task of each stage of Development, etc.

MCP 812.3: Behaviour Modifications (2 credit units)

This will equip students in the understanding of the different behaviour modification strategies, management and interventions.

MCP 812.4: Introduction to Personality Development & Theories (2 credit units)

This course will give students understanding of whom they are and their clients. The theories will enable them to manage the various clients effectively with their basic knowledge of persons and their traits.

MCP 813.1: Seminars (3 credit units)

Clinical analysis and discussion of cases resulting from field work experience.

MCP 813.2: Dissertation (6 credit units)

Candidates are required to demonstrate research competencies by selecting a topic in their relevant areas of specialization. The research is carried out

by the individual student under the guidance of a competent supervisor according to the graduate School requirements. The candidate is expected to make some significant contributions to knowledge.

The Dissertation is defended before an appropriate constituted examining committee chaired by the Centre Director, External Examiner's verdict shall override all other decision.

MASTERS IN CLINICAL AND MENTAL HEALTH COUNSELLING

MODULE	TITLE CODE	COURSE TITLE	CREDIT UNIT
GENERAL	SGS 801.1	ICT & Research Methodology	2
	SGS 801.2	Management & Entrepreneurship	2
	MCP 802.1	Psychopathology and Counselling	2
	MCP 803.1	Fundamentals of Educational & Social Psychology	2
	MCP 804.1	Advanced Practicum	5
	MCP 805.1	Fundamentals & Principles of Social Work	2
CLINICAL/MENTAL HEALTH	CMC 806.1	The Mental Health Profession- An Overview	2
	CMC 807.1	Theories and Therapies of Counselling in Mental Health	2
	CMC 808.1	Mental Health and Family Counselling	2
	CMC 809.1	Multicultural Counselling & Mental Health	2
	CMC 810.1	Foundation and Ethics of Mental Health Counselling	2
	CMC 811.1	History & Development of Clinical/Mental Health Counselling	2
ELECTIVE *students are expected to compulsorily offer any ONE of these courses related to their area of specialization	MCP 812.1	Principles of Teaching & Learning	2
	MCP 812.2	Developmental Milestones across Life-span	2
	MCP 812.3	Behaviour Modifications	2
	MCP 812.4	Introduction to Personality Development & Theories	2
SEMINAR	MCP 813.1		3
DISSERTATION	MCP 813.2		6
TOTAL CREDIT UNITS			38

COURSE CONTENTS

SGS 801.1: ICT & Research Methodology (3 credit units)

Essentials of Spread sheet and Internet Technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of Hypothesis, Formulation and Testing, Organisation of Research and Report writing.

SGS 801.2: Management and Entrepreneurship (2 credit units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MCP 802.1: Psychopathology and Counselling (2 credit units)

Intensive coverage of the ethology; diagnosis; and treatment of developmental problems and abnormal behaviour from infancy to adolescence. Counselling techniques and strategies for handling

such **behavioural problems**, Application of rehabilitative counselling techniques, Ethics and Legal Issues in Counselling.

MCP 802.2: Fundamentals of Educational & Social Psychology (2 credit units)

This course will inform the students about Psychology, the different branches and better understanding of basic concepts that will help them as counsellors.

Meaning and nature of social psychology, rationale for the study of perception, pro-social behaviour, social influence, aggression, attitudes, application of the study to life situations, theories in the study of social psychology (Reward, Balance, Reinforcement theory, social interaction).

MCP 804.1: Advanced Practicum I (other areas of specialization) (4 credit units)

A supervised practicum in counselling techniques and guidance activities. The course has the following objectives, to upgrade a student's counselling knowledge and attitude in working

with youths/adults; to integrate his theories with practice in the road fields of counselling and promising organization pattern of practices. Opportunities are provided for practical application of testing vocational and personal social information and referred procedures.

MCP 804.1: Advanced Practicum in Social Work (4 credit units)

Students participate in supervised social work practice internship in community agencies and facilities. Students apply classroom knowledge to activities and interventions serving individuals, families, groups and communities for a specified period

MCP 805.1: Fundamentals & Principles of Social Work (2 credit units)

This course will expose the participants to the detailed study of Social Problems and interventions - Promoting social change, development, coercion and empowerment of people and communities It will help them to understand individuals, groups, community and institutions in relation to the social boundaries of each category.

CMC 806.1: The Mental Health Profession – An Overview (2 credit units)

Understanding of Mental Health, ethical, professional and legal issues in mental health. Who is a Mental Health Counsellor, characteristics of an effective mental health counsellor, self-awareness, empathy, active listening and communication;

CMC 807.1: Theories and Therapies of Counselling in Mental Health (2 credit units)

Psychodynamic, cognitive- Behavioural, Humanistic, etc; Application of the theories in mental health counselling; counselling skills and Helping Relationship; Therapies – Biological Model, Cognitive Model, Psychodynamic model, CBT, Psychotherapy, etc.

CMC 808.1: Mental Health and Family Counselling (2 credit units)

A system approach to the Dysfunctional family and amental health; culturally diverse families and mental health; mental Development in Childhood and its effect on mental wellbeing; personality development theories, emotional, social and physical development.

CMC 809.1: Multicultural Counselling and Mental Health (2 credit units)

Racial and Religious heritage; sexual orientation/deviation differences; culturally diverse groups and mental health conditions.

CMC 810.1: Foundation and Ethics of Mental Health Counselling (2 credit units)

Professional dilemmas in mental health; choice of management/intervention strategies; record keeping, third party involvement, Ethical Boundaries, etc

CMC 811.1: History & Development of Clinical/Mental Health Counselling (2 credit units)

This course examines the principles, models and documentation format of bio psychosocial case conceptualization and treatment planning; theories and models related to mental health counselling; diagnostic process, including differential diagnosis and use of current classification, systems (DSM) of mental disorder, etc.

ELECTIVES – Offer any ONE course related to area of specialization

MCP 812.1: Principles of Teaching and Learning (2 credit units)

This course will expose the participants to who a Teacher is, a Learner, responsibilities and management of the classroom and various problems of the learners.

MCP 812.2: Developmental Milestones across Life-span (2 credit units)

This course will help the students understand the stages of Development, when life starts and ends; the principles of growth and development, the Developmental task of each stage of Development, etc.

MCP 812.3: Behaviour Modifications (2 credit units)

This will equip students in the understanding of the different behaviour modification strategies, management and interventions.

MCP 812.4: Introduction to Personality Development & Theories (2 credit units)

This course will give students understanding of whom they are and their clients. The theories will enable them to manage the various clients effectively with their basic knowledge of persons and their traits.

MCP 813.1: Seminars (3 credit units)

Clinical analysis and discussion of cases resulting from field work experience.

MCP 813.2: Dissertation (6 credit units)

Candidates are required to demonstrate research competencies by selecting a topic in their relevant areas of specialization. The research is carried out by the individual student under the guidance of a

competent supervisor according to the graduate School requirements. The candidate is expected to make some significant contributions to knowledge. The Dissertation is defended before an appropriate

constituted examining committee chaired by the Centre Director, External Examiner's verdict shall override all other decisions.

MASTERS IN GERONTOLOGICAL AND GRIEF COUNSELLING

MODULE	TITLE CODE	COURSE TITLE	CREDIT UNIT
GENERAL	SGS 801.1	ICT & Research Methodology	2
	SGS 801.2	Management & Entrepreneurship	2
	MCP 802.1	Psychopathology and Counselling	2
	MCP 803.1	Fundamentals of Educational & Social Psychology	2
	MCP 804.1	Advanced Practicum	5
	MCP 805.1	Fundamentals & Principles of Social Work	2
GERONTOLOGICAL AND GRIEF	MGC 806.1	Geriatric Counselling and Management of the Aged	2
	MGC 807.1	Theories of Individual, Family, Learning and Personal Development	2
	MGC 808.1	Aging and Nutrition	2
	MGC 809.1	Advocacy and Empowerment of the Aged	2
	MGC 810.1	Multicultural and Pluralistic Trends	2
	MGC 811.1	Aging and Comorbidities	2
ELECTIVE *students are expected to compulsorily offer any ONE of these courses related to their area of specialization	MCP 812.1	Principles of Teaching & Learning	2
	MCP 812.2	Developmental Milestones across Life-span	2
	MCP 812.3	Behaviour Modifications	2
	MCP 812.4	Introduction to Personality Development & Theories	2
SEMINAR	MCP 813.1		3
DISSERTATION	MCP 813.2		6
TOTAL CREDIT UNITS			38

COURSE CONTENTS

SGS 801.1: ICT & Research Methodology (3 credit units)

Essentials of Spread sheet and Internet Technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of Hypothesis, Formulation and Testing, Organisation of Research and Report writing.

SGS 802.2: Management and Entrepreneurship (2 credit units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MCP 802.1: Psychopathology and Counselling (2 credit units)

Intensive coverage of the ethology; diagnosis; and treatment of developmental problems and abnormal behaviour from infancy to adolescence. Counselling techniques and strategies for handling

such **behavioural problems**, Application of rehabilitative counselling techniques, Ethics and Legal Issues in Counselling.

MCP 802.2: Fundamentals of Educational & Social Psychology (2 credit units)

This course will inform the students about Psychology, the different branches and better understanding of basic concepts that will help them as counsellors.

Meaning and nature of social psychology, rationale for the study of perception, pro-social behaviour, social influence, aggression, attitudes, application of the study to life situations, theories in the study of social psychology (Reward, Balance, Reinforcement theory, social interaction).

MCP 804.1: Advanced Practicum I (other areas of specialization) (4 credit units)

A supervised practicum in counselling techniques and guidance activities. The course has the following objectives, to upgrade a student's counselling knowledge and attitude in working

with youths/adults; to integrate his theories with practice in the road fields of counselling and promising organization pattern of practices. Opportunities are provided for practical application of testing vocational and personal social information and referred procedures.

MCP 804.1: Advanced Practicum in Social Work (4 credit units)

Students participate in supervised social work practice internship in community agencies and facilities. Students apply classroom knowledge to activities and interventions serving individuals, families, groups and communities for a specified period

MCP 805.1: Fundamentals & Principles of Social Work (2 credit units)

This course will expose the participants to the detailed study of Social Problems and interventions - Promoting social change, development, coercion and empowerment of people and communities It will help them to understand individuals, groups, community and institutions in relation to the social boundaries of each category.

MGC 806.1: Geriatric Counselling & Management of the Aged (2 Credit Units)

Meaning of Aging; things applied to aging; effects of aging on the body system; Depression management, loneliness and isolation, retirement, Dementia training, Suicide ideations; various care systems of the Elderly – Home care, Institutional care, community care, etc.

MGC 807.1: Theories of Individual, Family, Learning and Personality Development and Transition (2 credit units)

A study of family organisation; socialization; technological distancing; early upbringing and morals; neurobiological behaviour; emotional development and wellbeing across life span; intellectual development; physical development, etc.

MGC 808.1: Aging and Nutrition (2 credit units)

This includes a study of Selection of Food (Fibres, fruits, veggies, etc); Change of Lifestyle/Education; Common Diseases if the Elderly; Geriatric Rehabilitation.

MGC 809.1: Advocacy and Empowerment of the Aged (2 credit units)

Pre-retirement training; sports and gardening; Poultry/Livestock Farming; Health Promotions.

MGC 810.1: Multicultural and Pluralistic Trends (2 credit units)

Understanding Aging in diverse cultures; education on Aging in a pluralistic society; Cultural taboos and myths about aging.

MGC 811.1: Aging and Comorbidities (2 credit units)

This course examines the conditions that may result from Aging – sedentary, Poor diet, Hypertension, Diabetes, Arthritis, Chronic Pain Disorder, Overweight, Tobacco and Alcohol Use.

ELECTIVES – Offer any ONE course related to area of specialization

MCP 812.1: Principles of Teaching and Learning (2 credit units)

This course will expose the participants to who a Teacher is, a Learner, responsibilities and management of the classroom and various problems of the learners.

MCP 812.2: Developmental Milestones across Life-span (2 credit units)

This course will help the students understand the stages of Development, when life starts and ends; the principles of growth and development, the Developmental task of each stage of Development, etc.

MCP 812.3: Behaviour Modifications (2 credit units)

This will equip students in the understanding of the different behaviour modification strategies, management and interventions.

MCP 812.4: Introduction to Personality Development & Theories (2 credit units)

This course will give students understanding of whom they are and their clients. The theories will enable them to manage the various clients effectively with their basic knowledge of persons and their traits.

MCP 813.1: Seminars (3 credit units)

Clinical analysis and discussion of cases resulting from field work experience.

MCP 813.2: Dissertation (6 credit units)

Candidates are required to demonstrate research competencies by selecting a topic in their relevant areas of specialization. The research is carried out by the individual student under the guidance of a competent supervisor according to the graduate School requirements. The candidate is expected to make some significant contributions to knowledge. The Dissertation is defended before an appropriate constituted examining committee chaired by the Centre Director, External Examiner's verdict shall override all other decisions.

MASTER IN SOCIAL WORK AND REHABILITATION COUNSELLING

MODULE	TITLE CODE	COURSE TITLE	CREDIT UNIT
GENERAL	SGS 801.1	ICT & Research Methodology	2
	SGS 801.2	Management & Entrepreneurship	2
	MCP 802.1	Psychopathology and Counselling	2
	MCP 803.1	Fundamentals of Educational & Social Psychology	2
	MCP 804.1	Advanced Practicum	5
	MCP 805.1	Fundamentals & Principles of Social Work	2
SOCIAL WORK/ REHABILITATION	MSW 806.1	Foundation Social Work Practice	2
	MSW 807.1	Human Behaviour in Individual, Family, Local and Global Social Environments	2
	MSW 808.1	Advanced Social Work Intervention	2
	MSW 809.1	Social Work/Healthcare, Social Welfare Policy and Services	2
	MSW 810.1	Advanced Social Policy and Social Justice	2
	MSW 811.1	International Social work	2
ELECTIVE *students are expected to compulsorily offer any ONE of these courses related to their area of specialization	MCP 812.1	Principles of Teaching & Learning	2
	MCP 812.2	Developmental Milestones across Life-span	2
	MCP 812.3	Behaviour Modifications	2
	MCP 812.4	Introduction to Personality Development & Theories	2
SEMINAR	MCP 813.1		3
DISSERTATION	MCP 813.2		6
TOTAL CREDIT UNITS			39

COURSE CONTENTS**SGS 801.1: ICT & Research Methodology (3 credit units)**

Essentials of Spread sheet and Internet Technology, statistical packages, precision and accuracy of estimates, principles of scientific research, concepts of Hypothesis, Formulation and Testing, Organisation of Research and Report writing.

SGS 801.2: Management and Entrepreneurship (2 credit units)

Business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

MCP 802.1: Psychopathology and Counselling (2 credit units)

Intensive coverage of the ethology; diagnosis; and treatment of developmental problems and abnormal behaviour from infancy to adolescence. Counselling techniques and strategies for handling such **behavioural problems**, Application of rehabilitative counselling techniques, Ethics and Legal Issues in Counselling.

MCP 802.2: Fundamentals of Educational & Social Psychology (2 credit units)

This course will inform the students about Psychology, the different branches and better understanding of basic concepts that will help them as counsellors.

Meaning and nature of social psychology, rationale for the study of perception, pro-social behaviour, social influence, aggression, attitudes, application of the study to life situations, theories in the study of social psychology (Reward, Balance, Reinforcement theory, social interaction).

MCP 804.1: Advanced Practicum I (other areas of specialization) (5 credit units)

A supervised practicum in counselling techniques and guidance activities. The course has the following objectives, to upgrade a student's counselling knowledge and attitude in working with youths/adults; to integrate his theories with practice in the road fields of counselling and promising organization pattern of practices. Opportunities are provided for practical application of testing vocational and personal social information and referred procedures.

MCP 804.1: Advanced Practicum in Social Work (5 credit units)

Students participate in supervised social work practice internship in community agencies and facilities. Students apply classroom knowledge to

activities and interventions serving individuals, families, groups and communities for a specified period.

MCP 805.1: Fundamentals & Principles of Social Work (2 credit units)

This course will expose the participants to the detailed study of Social Problems and interventions - Promoting social change, development, coercion and empowerment of people and communities. It will help them to understand individuals, groups, community and institutions in relation to the social boundaries of each category.

MSW 806.1: Foundation social Work (2 Credit units)

This course, in addition to assisting students in expanding an intermediate level of knowledge, values, and skills in the area of ethics in social work, explores generalist social work theory and practise methodology in problem solving with individuals, families, organisations, communities and groups, emphasizing data collection, assessment, intervention planning and evaluation. As a skill development course, it will also develop the student's interpersonal and communication skills with clients and other professionals.

MSW 807.1: Human Behaviour in Individual, Family, Local and Global Social Environments (2 Credit Units)

This graduate course presents individual and family dynamics across the life cycle, centring on human development, individual and group strengths, and the effects of cultural diversity. It enhances critical thinking and assessment skills about human behaviour in social environments, and incorporates material on professional values, ethics, and social justice through learning content on diversity, populations at risk, and social economic justice using developmental and eco-systems frameworks.

MSW 808.1: Advanced Social Work Intervention (2 credit units)

This course focuses on

- i. Drug Addiction & Abuse: Commonly used and abused drugs as well as the dynamics and treatment of addiction emphasizing on intervention aimed at addiction prevention and treatment.
- ii. Child Abuse & Neglect: Child Welfare services available to abused and neglected children in their own homes, in substitute care, and through the community, emphasizing intervention with children and their families.
- iii. Interdisciplinary Perspectives on Aging: Knowledge and skills used to address a wide

range of needs among the aging population, their families and support systems.

- iv. Helping Troops Transition Back to their families and communities: The Invisible Wounds of War. Examines topics related to troops who are returning from current combat operations and their families.
- v. Innovative Community Engagement with Vulnerable Populations.
- vi. Advanced Assessment, Leadership and Supervision in Social Service Organisations.
- vii. Advanced Diagnostic Assessment and Intervention with Individuals.
- viii. Advanced Intervention with Families and Groups.

MSW 809.1: Social Work/ Health Care, Social Welfare Policy and Services (2 credit units)

This course provides a generalist view of social work practice in mental health and public health, considering the social problems that affect health care, and ethically and effective intervention strategies and service delivery systems. It will also look at the social welfare system, emphasizing how social welfare policies affect diverse populations through social welfare history; Policy Development, Implementation, Evaluation, and Values.

MSW 810.1: Advanced Social Policy and Social Justice (2 credit units)

This course, a study of social legislation affecting disadvantaged persons, emphasizes policy analysis, values, and advocacy through studying social policy history. Developing, implementing, and evaluating policy; and influencing social and economic justice.

MSW 811.1: International Social Work (2 credit units)

This course covers advanced theoretical and practical approaches to empowerment, social and economic justice, and rights. Particular cultures and specific global problems are examined in depth to promote student acquisition of an international worldview for human global change based on social work values and research-informed practice.

ELECTIVES – Offer any ONE course related to area of specialization

MCP 812.1: Principles of Teaching and Learning (2 credit units)

This course will expose the participants to who a Teacher is, a Learner, responsibilities and management of the classroom and various problems of the learners.

MCP 812.2: Developmental Milestones across Life-span (2 credit units)

This course will help the students understand the stages of Development, when life starts and ends; the principles of growth and development, the Developmental task of each stage of Development, etc.

MCP 812.3: Behaviour Modifications (2 credit units)

This will equip students in the understanding of the different behaviour modification strategies, management and interventions.

MCP 812.4: Introduction to Personality Development & Theories (2 credit units)

This course will give students understanding of whom they are and their clients. The theories will enable them to manage the various clients

effectively with their basic knowledge of persons and their traits.

MCP 813.1: Seminars (3 credit units)

Clinical analysis and discussion of cases resulting from field work experience.

MCP 813.2: Dissertation (6 credit units)

Candidates are required to demonstrate research competencies by selecting a topic in their relevant areas of specialization. The research is carried out by the individual student under the guidance of a competent supervisor according to the graduate School requirements. The candidate is expected to make some significant contributions to knowledge. The Dissertation is defended before an appropriate constituted examining committee chaired by the Centre Director, External Examiner's verdict shall override all other decisions.

ACADEMIC STAFF

S/N	Name of staff	Qualification	Specialization	Rank
1	Prof. T.A. Jamabo	Ph.D, M.Ed. (UNICAL) B.Ed. (UI)	Counselling Psychology	Professor
2	Prof. O.C. Nwankwo	Ph.D, M.Ed. (UNN), B.Sc. (UNIJOS)	Educational Psychology	Professor
3	Prof. P. J. Kpolovie	Ph.D, M.Ed., B.Ed (UNIPORT)	Measurement & Evaluation	Professor
4	Prof. A.N. Amasiatu	Ph.D, M.Ed., (UNILAG). B.Sc.(Ed) (UNN)	Sports Psychology	Professor
5	Prof. P.C. Stanley	Ph.D, MBBS, B.Med. (UNIPORT)	Neuro-Psychiatry FWACP(Psych); FMC Psychology; Geriatric/Addiction Psychology	Professor
6	Prof. P.U. Ekeh	Ph.D, M.Ed. (UNIPORT), B.Ed. (UNN), NCE (UI)	Educational Psychology	Professor
7	Prof. C.G. Awujo	Ph.D, M.Ed., B.Ed (UNIPORT)	Guidance Counselling	Professor
8	Prof. C.J. Ugwu	Ph.D, M.Ed.(UNIPORT), B.Ed. (UI)	Guidance Counselling	Professor
9	Prof. G.W. Orluwene	Ph.D, M.Ed. (UNIPORT), B.Ed. (UI)	Measurement & Evaluation	Professor
10	Prof. Glory Amadi	Ph.D, M.Ed (UNIPORT), B.Ed. (UI)	Educational Psychology	Professor
11	Prof. R.O. Ekechukwu	Ph.D(UNIPORT), M.Ed., B.Ed., NCE (UNIJOS)	Counselling Psychology	Professor
12	Dr. C. Eheazu	Ph.D, M.Ed., B.Ed (UNIPORT)	Environmental Education	Reader
13	Dr. C. Agbakwuru	Ph.D (UNICAL), M.Ed. (UNN), B.Ed. (UNICAL)	Guidance Counselling	Reader
14	Dr. J.N. Onukwufor	Ph.D, M.Ed., B.Ed (UNIPORT)	Educational Psychology	Reader
15	Dr. L. Oghenemagwe	Ph.D, M.Ed., B.Ed (UNIPORT)	Anatomy	Reader
16	Dr. J.C. Chujor	Ph.D, M.Ed., B.Ed (UNIPORT)	Counselling Psychology	Senior Lecturer
17	Dr. H.A. Agbarakwe	Ph.D, M.Ed (UNIPORT), B.Ed. (RSUST)	Educational Technology	Senior Lecturer

VISITING LECTURERS

S/N	Name of Staff	Qualification	Specialization	Rank
1.	Prof. J.B. Kinanee Ignatius Ajuru University of Education, Rivers State	Ph.D (UNICAL), M.Ed.(UNIPORT), B.Ed. (UI)	Counselling Psychology	Professor
2.	Prof. C.S. Ike. Ifelunni University of Nigeria, Nsukka	Ph.D, M.Ed., B.Ed (UNN)	Guidance Counselling	Professor
3.	Prof. K.C.Uzoечи Ignatius Ajuru University of Education, Rivers State.	Ph.D (UNICAL), M.Ed.(UNIPORT), B.Ed. (UNN)	Counselling Psychology	Professor
4.	Prof. S. Ordu	Ph.D (DELSU), M.Ed.(UNIPORT),	Marriage Counselling	Professor

	Ignatius Ajuru University of Education, Rivers State.	B.Ed. (UI)		
5.	Prof. P. Otese Benue State University, Markurdi.	Ph.D,(UI), M.Sc. (ABSU), M.Ed. (UNIJOS)	Counselling Psychology	Professor
6.	Prof. C. Williams University of Abuja	Ph.D. M.Ed.(UNIPORT) B.Sc.(Ed) (UI)	Educational Technology	Professor
7.	Prof. U.S.A Osuji National Open University, Abuja.	Ph.D, M.Ed.(ABSU) B.Ed (UNICAL)	Measurement & Evaluation	Professor
8.	Prof. C.W. Agi Rivers State University, Port Harcourt.	Ph.D,(UNICAL) M.Ed. (UNIPORT) B.Ed. (UI)	Guidance Counselling	Professor
9.	Prof. E. Egbochukwu University of Benin.	Ph.D, M.Ed., B.Ed (UNIBEN)	Guidance Counselling	Professor
10.	Dr. Angela Abba National Open University, Abuja.	Ph.D,(ABSU) M.Ed. (UNIPORT) B.Ed. (UNN)	Guidance Counselling	Senior Lecturer

CENTRE FOR MARINE POLLUTION MONITORING AND SEAFOOD SAFETY (CEMPOS)

VISION

The environmental pollution studies program aligns with the University of Port Harcourt's mission of being one of Africa's premier environmental investigation, research innovation, and knowledge transfer centers. The emphasis will be on providing a standard that will allow graduates to expand their knowledge and abilities and contribute to national development, self-reliance, or entrepreneurship, as well as knowledge propagation in the field of environmental pollution studies.

MISSION

The program's mission is to provide students with solid instruction in relevant practical, investigative, and research abilities that will allow them to build generic skills that will considerably boost intellectual capacity and critical reasoning.

RATIONALE

Today's globe faces enormous environmental difficulties that necessitate big changes in the way we work, play, live, and govern. Everyone will need to become better educated about environmental issues in order to learn how to adapt to or mitigate these changes. This reality emphasizes the necessity for graduates who are highly skilled in environmental pollution studies.

SPECIFIC OBJECTIVES

The program's goal is to contribute to the University's overarching academic goals, which are "TO CONTRIBUTE TO NATIONAL DEVELOPMENT, SELF-RELIANCE, AND UNITY THROUGH THE ADVANCEMENT AND PROPAGATION OF KNOWLEDGE AND TO USE KNOWLEDGE FOR SERVICE TO THE COMMUNITY AND HUMANITY."

The programme seeks to achieve this goal by focusing on the following areas:

1. Improving the quality of education, research, and skill acquisition.
2. Providing quality administration that is responsive to the requirements of both employees and students.
3. Using cutting-edge technology in teaching, research, and information transfer.
4. Establishing a functional e-library and information database.

PhD Programme: Doctor of Philosophy (Ph.D.) in Environmental Pollution Studies

Available Options

Full time – 24 calendar months (minimum) to 48 calendar months (maximum)

Part-time – 48 calendar months (minimum) to 60 calendar months (maximum)

Admission Requirements

1. Candidates admitted to any of the PhD programs must have:

- A relevant Masters' degree with a CGPA of at least 3.50 on a 5.0-point scale.
- Presented a statement of purpose, which should include a proposal for the research he or she intends to conduct;
- Provide two letters of recommendation, one from an employer or supervisor and the other from the university where the candidate obtained the master's degree; and
- Be found suitable for admission after an interview by the Faculty's Postgraduate Degree Committee.
- Candidates with master's degrees in food science and technology, food microbiology, and other related fields are eligible to apply for the PhD in nutritional biochemistry/toxicology.

2. Each PhD candidate will be allocated at least two supervisors who have conducted considerable research and published widely in the individual's intended area of inquiry. The primary supervisor will take the lead in providing research direction.

3. The candidate will be given a pathway that includes an interactive chronology of his or her important advancement milestones related to the study program. Candidates who have had their milestones interrupted, extended, or modified must notify the department's Postgraduate Committee of their new advancement milestone deadlines.

Graduation Requirements

To be eligible for the Ph.D., the candidate must have completed all of the prescribed courses in the program, completed a thesis under supervision, published a minimum of two (2) journal articles from their work in a reputable journal prior to their external defense, and attended a minimum of one (1) scientific conference.

The courses for the programmes are outlined below:

List of courses, code, and credit units

Code	Credit Unit	Course
EPS 901	2	Advanced Statistics and Data Science
EPS 902	3	Advanced Oceanography
EPS 903	3	Marine Oil Spill, Monitoring and Clean-up methods
EPS 904	2	ICT, Writing Skills & Research Methodology
EPS 905	2	Management and Entrepreneurship
EPS 906	3	Marine Biogeochemistry and Radioecology
EPS 907	3	Water Quality assessment and pollution monitoring
EPS 908	3	Aquatic Toxicology & Seafood safety
PUT 909	3	Seminar
EPS 910	12	Thesis
Total Credit Units	36	

COURSES DESCRIPTION

EPS 901: ADVANCED STATISTICS AND DATA SCIENCE - 2 Credits

MODULE CONTENT

The focus of this course is on the application of statistical and epidemiological approaches in public health research, which covers a selection of appropriate methods. The course covers use of survival analysis, meta-analysis, Bayesian statistics or general analysis of the paired data to analyze the main features of the processes under investigation. In this course, several regression models will be described and applied. The course will start with a repetition of linear and logistic regression models. Subsequently, several other regression models will be introduced and discussed, including Poisson-, Cox -and multilevel regression. Basic concepts in survival analysis will be described and discussed. The multilevel modeling course will cover both the linear and the logistic case. The Poisson regression course will focus on the analysis of aggregated and count data that are common in publicly available public health data, including the use of offset terms. As machine learning is a huge subject, this course will focus on “supervised learning” methods used in classification problems such as the prediction of patient risk. Furthermore, various epidemiological methods are introduced to analyze causality as well as aspects of data management and sampling. Public health research articles will be used for group discussion, where students focus on the application of the statistical and epidemiological methods. The theoretical part will be illustrated

using public health examples and students will practice the application of different analytical approaches in computer exercises and practical exercises.

MODULE CONTENT

Big Data in Health: We Will discuss issues relating to access, confidentiality, privacy and data stewardship; Methodological challenges related to data linkage will be discussed; working with large environmental databases including public health administrative data, and various other databases.

Biostatistics 1 with SAS or R:- introduction to important topics in biostatistical concepts and reasoning. Specific topics include tools for describing central tendency and variability in data, probability distributions, sampling distributions, estimation, and hypothesis testing. Assignments will involve computation using the SAS programming language;

Categorical and censored data analysis:- Overview of methods of analysis for binary and other discrete response data, with applications to epidemiological and clinical studies.; 2×2 tables, $m \times 2$ tables, tests of independence, measures of association, power and sample size determination, stratification and matching in design and analysis, interrater agreement, and logistic regression analysis; basic concepts for censored data and Kaplan-Meier; selection of appropriate methods and how to interpret the results from categorical data analysis and Kaplan-Meier.

Advanced Statistical Modelling: An introduction to the fundamental statistical methods used in environmental data science including the interpretation and communicating of the results of these methods, modeling using an epidemiological paradigm such as the assessment for modification and confounding. Fundamental health research methods including study design and the evidence hierarchy;

Data Science (R, SAS, and Python): introduction to data science using both the R and python or SAS programming languages; reproducible research, exploratory data analysis, data manipulation, data visualization techniques, simulation design, and unsupervised learning methods.

Hierarchical modeling and longitudinal data analysis:-Use of mixed-effect models, mixed-effect ANOVA, generalized linear mixed models (GLMM), mixed-effect Cox-regression, Bayesian hierarchical models, repeated measure and longitudinal data analysis with appropriate covariance structures;

Study Design:- description, application and measurement of environmental incidence and prevalence, and measures of effect; explanation of the basic principles underlying different study designs, including descriptive, ecological, cross-sectional, cohort, case-control and intervention

studies; assess strengths and limitations of different study designs; identify problems interpreting epidemiological data: chance, bias, confounding and effect modification; address validity, intra-rater reliability and inter-rater reliability;

Biostatistics II: Regression Analysis:- statistical methods for analyzing censored data, non-normally distributed response data, and repeated measurements data that are commonly encountered in environmental pollution research; linear regression, logistic regression, cox proportional hazards regression and generalized estimating equations. Examples from the environmental sciences; coding of explanatory variables, residual diagnostics, model selection techniques, random effects and mixed models, and maximum likelihood estimation.

EPS 902: ADVANCED OCEANOGRAPHY – 3 Credits

MODULE CONTENT

Introduction; Geological Oceanography:- Formation of the atmosphere and the ocean basins: Continental drift; plate tectonics; seafloor spreading; age of ocean floor; Major Plate boundaries; hotspots; Marine provinces; bathymetry; Marine sediments. **Chemical Oceanography:** Properties of water and seawater; salinity; acids, bases & buffers; thermocline & pycnocline; desalination of seawater; Major ions of seawater; Mass balance - the cornerstone of chemical oceanography; What controls the composition of river water and seawater: Equilibrium versus kinetic ocean:- •Gas exchange •The redox sequence and sediment diagenesis •Ocean carbonate system; •Radiocarbon and ocean age.

Physical Oceanography: - •Surface currents; gyres; Ekman transport; geostrophic currents upwelling & downwelling; circulation patterns; • ENSO effects; thermohaline circulation. •Power from ocean Currents– oceanic influences on climate; currents; waves and tides. • Waves & wave characteristics; wave development; wave interference; refraction & reflection. • Tsunami basics; historical tsunamis; tsunami warning system; wave power. • Gravitational attractions; tidal patterns; whirlpools; tidal power. • Beaches; sand movement; longshore drift & barrier islands; stabilization of shorelines. • Principles and components of the dynamic ocean system.

Biological oceanography:- •Marine Ecosystems; •Phytoplankton; •Zooplankton; •Marine Invertebrates; •Marine Mammal; •Fisheries; •Primary productivity patterns.

Ocean resources: - Coastal Ocean laws & EEZ; estuaries; lagoons; coastal wetlands; Marine pollution; historical oil spills; human impacts on

the ocean, biological deep-sea monitoring; sampling techniques of the deep sea

EPS 903: MARINE OIL SPILL, MONITORING AND CLEAN UP METHODS - 3 Credits

MODULE CONTENT:

Introduction; Causes of Maritime oil Spill: Natural Sources; Offshore drilling operations, Oil Spill Caused by Acts of War; Oil Spill During Maritime Transportation (Water Transportation using Oil Vessels; Oil Transportation Using Pipeline; Dry-docking; Marine terminals; Oil Bunkering); The Operation of Artisanal refinery; **Impacts Of Marine Oil Spill:-** Damage to coastal vegetation, Reduction in healthy Mangrove, Surface water Pollution, Sediment contamination, Impact on birds and marine mammals, Impact on fish, Destruction of food resources and habitats, Recreational areas, Disruption of fishing activities, Effects of spill on aquatic habitats;

Control Measures:- Oil Spill Response (Case Study: Niger Delta); Sampling and monitoring of Marine Oil Spill; Contingency planning for marine oil Spill;

Methods for Marine Oil Spill Cleanup: Natural dispersion of oil, Mechanical, Chemical, Biological, Enhanced Photo-oxidation, Etc.; Disposal of Oil and Debris; Treatment of Contaminated Sediments; Remediation approaches for Mangrove and other Vegetation; Challenges of Oil Cleanup, Recommendations

EPS 904: ICT, WRITING SKILLS & RESEARCH METHODS - 2 Credits

MODULE CONTENT:

essential computer applications and Internet technology skills for personal, academic, and professional success; use of current Windows operating system and appropriate file management resources; application of word processing and desktop publishing functions to create, edit, manipulate, format, cite resources, print, and store common personal and academic documents; apply spreadsheet functions to solve mathematical, and statistical problems; create and edit charts and graphs to interpret spreadsheet data; design and create databases to extract, sort, calculate, and report presentation; design, create, and PowerPoint presentation which includes appropriate text formatting, graphics, animation, and public speaking skills, and use the Internet in an ethical manner to research, communicate, collaborate, and efficiently retrieve information; Introduction to ICT Research Methodology and Statistics, ICT Research Tools and Techniques, ICT Research Methods, ICT / Software Research Methodologies, Ethical Issues in ICT Research; introduction to project design and planning;

various methods in conducting scientific medical research; quantitative and qualitative designs including how to conduct clinical trials and documentation. the use of computers in data analysis and the use of operational research and functional analysis in project design and evaluation; Planning a Research; Ethical Issues in Research; Study Designs in Environmental Pollution Studies; Choice of Topic; Introduction (Problem Definition, Objectives); Formulation of hypothesis; Testing of hypothesis; Literature Search/Literature Review; Materials & Methods; Sample Size determination/Calculation; Instrument for data collection; Data Collection/Management; Presentation of Results (Data Presentation, Analysis, etc); Discussion, Conclusion, and Recommendations; Referencing; Thesis Write-Up

EPS 905: MANAGEMENT & ENTREPRENEURSHIP

2 Credits

MODULE CONTENT

Covers concepts, history and development of entrepreneurship, the entrepreneur, Qualities and characteristics. The Entrepreneur and Business Environment, Identifying Business Ownership and Registration, starting and developing business ventures, Legal forms of business ownership and registration. Types of business ownership, feasibility studies, Role of Small and Scale Enterprise (SME) in the economy, Role of Government in Entrepreneurship, Business location and layout. Accounting for SME, Financing, SME, managing of SME, Risk Management of SME, success and failure factors of SME, Prospects, and challenges of Entrepreneurship in Nigeria Entrepreneurship in Nigeria Entrepreneurship. The practice of applied management and entrepreneurship. How to enhance entrepreneurship skills and manage a business. Business prospects for students in higher institutions would be taught and the student would learn how to get into the right business. Research as an enterprise, conversion of intellectual property to business, how to patent breakthroughs in research.

EPS 906: MARINE BIOGEOCHEMISTRY AND RADIOECOLOGY -3 Credits

MODULE CONTENT:

The distribution of chemical components into the ocean, their residence time and the ways in which they are transported; an overview of how different processes influence the chemistry of the ocean, including the role of vertical mixing, advection, biological processes and gas exchange between the

air-sea interface; The use of chemical tracer elements to quantify the mixing processes in the ocean. Based on the natural cycling of carbon; climate change, human influence, changes in the ocean uptake of carbon dioxide and ocean acidification; environmental radioactivity with sources of radionuclides in the environment, factors influencing radionuclide migration and uptake in food chains and our ecosystems; sampling (biological sampling, marine sediments), for radionuclide monitoring; pre-treatment of environmental samples, radionuclide separation methods and specific counting techniques for low-level samples; marine biogeochemistry of radionuclides; interactions of radionuclides with marine biota; sources and distribution of anthropogenic radionuclides in different marine animals ; anthropogenic radionuclides in the marine environment (Case studies); assessment of alpha, beta and gamma-emitting nuclides in marine samples; collection and preparation of marine samples for radionuclides analysis; radioecology in every-day life

EPS 907: WATER QUALITY ASSESSMENT AND POLLUTION MONITORING- 3 Credits

MODULE CONTENT

An introduction to water pollution: pollution, pollutants, sources, and types (point and area, primary and secondary), Chemical, Physical and Biological Properties of Water, Water ecosystems, Integrated Water Resources Management, Freshwater, brackish water, marine and groundwater pollution, types of aquatic pollutants, Sources, environmental effects, control and management strategies of following types of aquatic pollutants: sediments and suspended matter, nutrients and algal toxins, pesticides, Persistent Organic Pollutants, oil, human sewage, Waterborne Pathogen,s and Water Microbiology. Thermal pollution, Radioactive material, Acid deposition, Heavy metals, PAH, PCBs, Plastic waste, Monitoring of aquatic pollution, Water quality standards, Global and national case studies on aquatic pollution. Acidification, alkalization and salinization, Leaching requirement and other remedial measures, Water logging and reclamation of waterlogged fields, Water resourcing Monitoring, Point source Protection, water and sewage purification (treatment), Decontamination Methods, Water quality indicators, Water Legislations, Standards, Instructions.

EPS 908: AQUATIC TOXICOLOGY AND SEAFOOD SAFETY- 3 Credits

MODULE CONTENT

What is Aquatic Toxicology? The History of Aquatic Toxicology, The Main Present, and Future Challenges, what is measured?

What Causes Aquatic Contamination?; Introduction; Metals, Metalloids, and Organometallic Compounds; Other Inorganic Compounds, Including Factors Causing Eutrophication; Organic Compounds; Nanomaterials; Radiation; Genetic Modification;

Classes of toxic chemicals (carcinogens, mutagens, teratogens, and others); Sources of toxic chemicals entering the aquatic environment; Exposure pathways for aquatic organisms; Biological, physical, and chemical factors affecting bioavailability and toxicity; Bioaccumulation, bioconcentration, and biomagnification; Modes of toxic chemical action, including enzyme inhibition and endocrine disruption; Types of toxic effects: biochemical, molecular, physiological, behavioral, population, and community; Toxicity testing methods: acute and chronic, single and multiple species. Laboratory assessment of toxicity: LC50, EC50, NOEC, LOEC, MATC, and dose-response curves. Field application of toxicology using the biomarkers; emerging pollutants of concern such as heavy metals, organic pesticides, PAHs, PCBs, PBDEs, pharmaceuticals, personal care products, and nanoparticles. Fate and transport as it relates to bioavailability and pollutant partitioning in aquatic environments will be discussed.

WORLD SEAFOOD PRODUCTION AND CONSUMPTION; Fish utilization;

DEVELOPMENTS IN FOOD SAFETY AND QUALITY SYSTEMS; Traditional quality control, Principles of sampling, The concept of probability, Modern safety and quality assurance methods and systems; Methods to manage quality and safety; Risk analysis, food safety objectives;

ASPECTS OF SEAFOOD RISK ASSESSMENT; IDENTIFICATION OF

HAZARDS IN SEAFOOD, Statistics on seafood-borne diseases, Detentions and rejections of seafood in international trade, Natural toxins in fish;

CHARACTERIZATION OF HAZARDS IN SEAFOOD:- Biological hazards; Pathogenic bacteria, Production of biogenic amines, Viruses, Parasites, Aquatic biotoxins, Chemical hazards, Industrial and environmental contaminants, Veterinary drugs, Physical hazards;

RISK MANAGEMENT TOOLS:-

INTERNATIONAL REGULATORY FRAMEWORK FOR FISH SAFETY AND QUALITY, The World Trade Organization (WTO) agreement; The agreement on the Application of Sanitary and Phytosanitary Measures; The agreement on Technical Barriers to Trade; The Food and Agriculture Organization of the United Nations (FAO) ; Codex Alimentarius;

The FAO Code of conduct for responsible fisheries; Sediment toxicity and seafood safety

EPS 909: SEMINAR - 2 Credits

Seminar topics related to environmental pollution and seafood safety and in the candidate's area of interest will be developed and presented in a report and examined orally by a panel of internal examiners. The students are expected to undertake a detailed systematic review of current literature on the basic concepts that are related to the seminar topic

EPS 910: THESIS - 12Credits

The candidate must design and execute an acceptable original project in any area related to marine pollution monitoring and seafood safety under the supervision of an academic member of staff. For these projects, students will carry out original research. They will thus be exposed to practical research methods such as the design of empirical studies, data collection, collation, analysis interpretation, and reporting. Referencing shall be the APA style. Ethical approval MUST be obtained from the Research and ethics committee of the university. Defense of the completed project shall be done at a date fixed by the centre graduate committee and according to the guidelines set by the graduate school. The project shall be submitted in a quarto-size paper in BLACK bounded format and duly certified by the project supervisor and must be submitted before the closing date given by the Centre.

MSC PROGRAMME

Admission Requirements

Candidate must possess 5 credits in relevant subjects (Mathematics, English, Biology, Chemistry or Physics and one other subject) in addition to B.Sc. in Fisheries, Crop and soil science, relevant course obtained from institutions recognized by the Senate of the University of Port Harcourt. The degree should not be less than Second Class Lower Division.

PROGRAMME DURATION

The minimum and maximum length of time for a full-time M.Sc Degree candidate is 12 calendar months and Part-time 24 calendar months respectively.

GRADUATION REQUIREMENT

To obtain a Master of Science Degree in environmental pollution studies, the candidate must be registered in the programme for not less than 12 months, complete the academic programme, pass all courses and successfully defend a research dissertation.

M.Sc. Programme

Courses		Unit
EPS 801	Statistics and Modeling	2
EPS 802	Biogeochemistry	3
EPS 803	Oceanography	3
EPS 804	GIS and RS for Water Resource Management	3
EPS 805	Ecotoxicology and Risk Assessment	3
EPS 806	Environmental Policies and Laws	2
EPS 807	Seafood Safety and Quality Control	2
SGS 801.1	ICT & Research Methods	2
EPS 809	Aquatic Pollution Management and Restoration	3
EPS 810	Environmental Economics and Sustainability	2
EPS 811	Mangrove Biodiversity and other Aquatic Macrophytes	2
EPS 813	Sustainable Coastal Tourism	2
EPS 814	Seminar	2
EPS 815	Research Project	6
SGS 801.2	Management and Entrepreneurship	2
Electives (Choose any one of the electives courses below)		
EPS 808	Air quality evaluation and management	2
EPS 812	Environmental Physiology for Terrestrial and marine animals	2
Total Units		41

COURSE DESCRIPTION OF M.SC PROGRAMME

EPS 801.1 Statistics and Modeling- 2 Credit

Basic parametric and non-parametric statistics; probability theory; Bayesian theorem and use of risk analysis software; common experimental designs (CRD, RCBD, Latin-Square, Factorial Experiments, and Split plot); Simple linear regression, regression. Examples of statistical techniques in biological research

Research Method

- Academic writing (structure and contents);
- Hypothesis formulation and research question;
- Referencing;
- Research design; and
- Use of ICT in research.

ESP 802.1 Biogeochemistry- 3 Credit

Factors that influence Soil biogeochemical processes, chemical transformation, and spatial movement of materials (Soil, water-sediment exchange, plant uptake, and organic exports, etc.). Nitrogen cycle (nitrogen mineralization, ammonia transformation, and nitrification, nitrate transformations and denitrification, nitrogen

fixation); Sulfur and carbon cycles; Phosphorus cycle.

ESP 803.1 Oceanography- 3 Credit

General introduction; Topography (bathymetry) of the sea; Physical and Chemical Oceanography (density, temperature, illumination, electrical conductivity, diffusion, viscosity, pressure, acoustic characteristics, salinity, dissolved gases); Ocean Currents; Coastal Processes (waves, tides, and coastal erosion). Biological Oceanography; species composition, distribution, and adaptation of marine organisms (photosynthetic bacteria, cyanobacteria heterotrophic bacilliarophyta, chlorophyte phaeophytrhodophyta, plankton, invertebrates, fish, reptiles and mammals); Biological linkage with estuaries, and estuarine processes.

EPS 804.1 GIS and RS for Water Resource Management – 3 Credit

Introduction to Geographic Information Systems (GIS) and Remote Sensing (RS). Spatial data model and fundamentals of RS. Aquatic RS, sensors, data products and their uses, RS data processing tools relevant for water resources. Application of GIS and RS in water resources management.

EPS 805.1 Ecotoxicology and Risk Assessment – 3 Credit

Principles of toxicological hazard and risk assessment: Ecosystem concepts; Structure and function; The conceptual model and risk hypotheses; The risk assessment analysis; Hazard identification; Techniques for establishing dose-response relationships; Characterizing exposure concentration in the environment; Environmental sampling. Tiers in ecological risk assessment; Frameworks for ecotoxicological risk assessment; Toxicity, hazard and risk; The first tiers of risk assessment - scoring systems; Hazard quotients; The probabilistic approach; Uses of probabilistic risk assessment; Methods for conducting a probabilistic risk assessment; the exposure profile and case studies.

DEFINITION of Ecotoxicology Bioassays (Acute toxicity tests and chronic toxicity tests); Microbial bioassays (Microtox tests), Marine algal growth inhibition tests, Copepod acute toxicity tests, Oyster larval toxicity tests, acute toxicity tests using fish finger lines (*Tilapia guineensi*, *Mugilicephalus*); procedures for ecotoxicity tests (selection of test organism, acclimation tests preliminary range-finding tests, definitive toxicity tests); Determination of median lethal concentration using prohibit tests, logit tests, etc; Calculation of Toxicity factors, Synergistic ratios etc.

EPS 806.1 Environmental Policies and Laws- 2 Credit

Concept and importance (Sources) of Environmental Laws, Environmental protections and Enforcement, the Constitutions and ownership of private property, Right to private Recourse, Nuisances, Negligence, the Rule in Ryland V Fletcher, liability for Animals, trespass. Environmental Impact Assessment (EIA), Minimum Contents of an EIA, and advantages of EIA, EIA process and procedure, Environmental legislation in Nigeria; National and international Environmental protection Policies and laws. Impact Assessment (Environmental Impact Assessment (EIA), Environmental Evaluation studies (EES/EER), Post Impact Assessment (PIA) Studies, Environmental Audits (EA), Environmental Compliance Monitoring studies (ECM), Environmental Baseline Studies (EBS), Biological Monitoring studies (BMS); Biodiversity Assessment studies; Impact Assessment tools; Federal Ministry of Environmental EIA procedure/ steps, Department of Petroleum Resources (DPR) EIA procedure/ steps; The role of National Regulations (FMEnv, DPR, NOSDRA, NIMASA etc) in Environmental Monitoring and Legislation;

EPS 807.1 Seafood Safety and Quality Control – 2 Credit

Food safety, seafood safety Hazards (biological, chemical (allergen, a chemical added intentionally and unintentionally) and physical), foodborne illness, Harvesting of finfish and shellfish, Handling and Storage of seafood, Quality aspect associated with seafood, Microbiological contamination and Spoilage, seafood-borne diseases (intoxication-shell fish biotoxins, Tetrodotoxins, scombrottoxins, Ciguatera toxins Gempylotoxins and infections- Norovirus, Hepatitis A virus, *Vibrio vulnificus*, *Vibrio parahaemolyticus*, *Vibrio cholera*, *Staphylococcus aureus*, *Salmonella sp*, *Listeria monocytogenes*, *Bacillus cereus*, *Clostridium botulinum*) Microorganisms of public health significance and their control, Methods of quality assessment, Hazard Analysis Critical control point (HACCP) for fish and fishery products, Microbiological critical for seafood. Seafood Quality Monitoring and National and International Legislation for seafood quality and Standards (NAFDAC, Codex etc.)

SGS 801.1 ICT & Research Methods – 2 Credit

Academic writing (structure and contents); Hypothesis formulation and research question; Citation and Referencing; Research design; and Use of ICT in research (MS Excel, MS PowerPoint, SPSS/SAS/STATA).

EPS 809.2 Aquatic Pollution Management and Restoration- 2 Credit

Sources, extent and characterization of aquatic pollution; Physical, chemical and biological processes affecting the distribution, fate and transport of contaminants in water, sediments and biota (natural and anthropogenic toxic contaminants - nutrient input and dynamics, eutrophication, thermal pollution, oil pollution and other global environmental changes); Concept of water quality and environmental management and restoration of degraded hydro-ecosystem; In-situ, ex-situ and onsite remediation techniques (chemo, phyto, rhizo and general bioremediation), coastal resource management and conservation (exploring conventional and non-conventional techniques); Traditional and integrated approach in managing the aquatic ecosystem. Students are expected to undertake some practical work that applies classroom knowledge to field experience.

EPS 810.2 Environmental Economics and Sustainability – 2 Credit

Definition of Sustainability, type of Sustainability (Social, Economic, Environmental). Issues of Sustainability in Nigeria. Basic Concepts of Environmental Economics. Theories in Environmental Economics, Tools and Policies in Environmental Economics (PPP, Pigno Tax, Tax, Tariffs, Levy etc) Coase Theorem and marked Principles in Environmental Economics.

EPS 811.2 Mangrove Biodiversity and Other Aquatic Macrophytes - 2 Credit

Distribution/structure of the mangrove ecosystem; Flora and fauna diversity in mangrove ecosystem; ecosystem dynamics in mangroves; socioeconomic and ecological importance of the mangrove ecosystem; Drivers of mangrove deforestation and degradation; regeneration and restoration of mangroves; mangrove biodiversity assessment.

EPS 813.2 Sustainable Coastal Tourism – 2 Credit

Tourism operations, activities, facilities and coastal environmental pollution and protection; Event management in coastal areas; Safety issues in coastal tourism; Effect of tourism on wildlife species; Conservation of Manatee, Sea turtle, Crocodiles, Hippopotamus and other wildlife species in the coastal environment; Impact of coastal tourism on destination host communities.

EPS 814.2 Seminar – 2 Credit

Candidates must extensively review a current topic in a discipline complementary to their area of

training to broaden their knowledge of Environmental Pollution.

EPS 815.2 Research Project – 6 Credit

An innovative research project to be carried out by the candidates following stringent scientific procedures that will yield results acceptable by experts worldwide. Each project must contribute to knowledge in Environmental Pollution Studies.

SGS 801.2 Management and Entrepreneurship – 2 Credit

This course covers business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem-solving.

ELECTIVES (Choose any one of the electives courses below)

EPS 808.2 Air Quality Evaluation and Management – 2 Credit

Type and sources of gaseous air pollutants, particulate matter, hazardous air pollutants, global and atmospheric climate change, health effects, effects on various segments of the ecosystem. Measurement of air quality, Air quality control.

EPS 812.2 Environmental Physiology for Terrestrial and Marine Animals – 2 Credit

Climate and the interrelationship between terrestrial and marine animals; Acclimatization and Adaptation of terrestrial and marine animals; Physiological basis of their adaptation; Heat stress and their physiological response to it; Heat stress index; Modification of the micro-climate to enhance their productivity.

PGD PROGRAMME

Admission Requirements

Candidate must possess 5 credits in relevant subjects (Mathematics, English, Biology, Chemistry or Physics and one other subject) in addition to B.Sc. in Fisheries, Crop and soil science, relevant course obtained from institutions recognized by the Senate of the University of Port Harcourt. The degree should not be less than a third class degree.

PROGRAMME DURATION

The minimum and maximum length of time for a full-time PGD Degree candidate is 12 months and Part-time 24 calendar months respectively.

GRADUATION REQUIREMENT

To obtain Postgraduate Diploma in environmental pollution studies, the candidate must be registered in the programme for not less than 12 months, complete the academic programme, pass all courses and successfully defend a research project.

TABLE OF LIST OF COURSES, CODE AND CREDIT UNITS FOR PGD PROGRAMME

Courses	Credit units
EPS 701 Statistics and Modeling	2
EPS 702 Biogeochemistry	3
EPS 703 Oceanography	3
EPS 704 GIS and RS for Water Resource Management	3
EPS 705 Ecotoxicology and Risk Assessment	3
EPS 706 Environmental Policies and Laws	2
EPS 707 Seafood Safety and Quality Control	2
EPS 708 Seafood and Safety	2
EPS 709 Aquatic Pollution Management and Restoration	3
EPS 710 Environmental Economics and Sustainability	2
EPS 711 Seminar	2
EPS 712 Research Project	6
EPS 707 Air quality evaluation and management	2
Total Units	35

COURSE OUTLINE FOR PGD PROGRAMME

EPS 701.1 Statistics and Modeling – 2Credit

Basic parametric and non-parametric statistics as applied to marine pollution studies; Simple linear regression, regression. Basic application of statistical analysis in biological research, Multivariate statistical techniques and Referencing.

EPS 702.1 Biogeochemistry – 3 Credit

Air and water pollution (sources, effects and abatement) Water chemistry and water pollution, characteristics and methods of control of pollution, Biogeochemical cycling - Nitrogen cycle (nitrogen mineralization, ammonia transformation and nitrification, nitrate transformations and denitrification, nitrogen fixation); Sulfur and carbon cycles; Phosphorus cycle.

EPS 703.1 Oceanography – 3 Credit

General introduction to Oceanography: Topography (bathymetry) of the sea; Physical and Chemical Oceanography (temperature, illumination, electrical conductivity, acoustic characteristics, salinity, dissolved gases); Ocean currents; Coastal Processes (waves, tides and coastal erosion). Biological Oceanography; species composition, distribution and adaptation of marine organisms plankton, invertebrates, fish, reptiles and mammals); Biological linkage with estuaries, and estuarine processes.

EPS 704.1 GIS and RS for Water Resource Management – 3 Credit

Introduction to Geographic Information Systems (GIS) and Remote Sensing (RS). Basic applications of GIS and RS in water resources management.

EPS 705.1 Ecotoxicology and Risk Assessment – 3 Credit

Basic concepts of toxicology, Principles of toxicological hazard, toxicological evaluation, pesticide pollution, pollution by heavy metals, biotransformation, bioaccumulation, biodeterioration and biocorrosion. Ecosystem concepts; characterizing exposure concentration in the environment; Environmental sampling. Frameworks of ecotoxicological risk assessment.

EPS 706.1 Environmental Policies and Laws - 2 Credit

Concept and importance (Sources) of Environmental Laws, Environmental protections and Enforcement. Nuisances, Negligence, the Rule in Ryland V Fletcher, liability for Animals, trespass. Definition and concepts of Environmental Impact Assessment (EIA). Environmental legislation in Nigeria.

EPS 707.1 Air Quality Evaluation and Management – 2 Credit

Type and sources of gaseous air pollutants, hazardous air pollutants, climate change, health effects, effects on various segments of the ecosystem. Measurement of air quality, Air quality control.

EPS 708.2 Seafood Safety – 2 Credit

Importance of seafood safety, symptoms of foodborne illnesses, Morphology and physiology of Pathogenic bacteria, helminths (Nematode,

Trematodes, cestodes), protozoa, yeasts molds and viruses of seafood, Laboratory methods for screening seafood, Mechanisms of spoilage, Handling Storage and preservation, Regulatory Agencies roles and responsibilities, National and International Legislation for food safety, introduction to Hazard Analysis and critical control points (HACCP).

EPS 709.2 Aquatic Pollution Management and Restoration – 3 Credit

Sources, extent and characterization of aquatic pollution; Physical, chemical and biological processes affecting the distribution, fate and transport of contaminants in water, sediments and biota (natural and anthropogenic toxic contaminants - nutrient input and dynamics, eutrophication, thermal pollution, oil pollution and other global environmental changes); Concept of water quality and practical field experience.

EPS 710.2 Environmental Economics and Sustainability – 2 Credit

Definition of Sustainability, type of Sustainability (Social, Economic, Environmental). Introduction to Coase theorem and market principles in Environmental Economics.

EPS 711.2 Seminar – 2 Credit

Candidates must extensively review a current topic in a discipline complementary to their area of training to broaden their knowledge of Environmental Pollution.

EPS 712.2 Research Project – 6 Credit

An innovative research project to be carried out by the candidates following stringent scientific procedures that will yield results acceptable by experts worldwide. Each project must contribute to knowledge in Environmental Pollution Studies.

LIST OF ACADEMIC STAFF

S/N	Name	Qualifications	Designation	Specialisation
1	Prof. F. Sikoki	PhD	Professor	Eco-Toxicology
2	Prof. O. Akaranta`	PhD	Professor	Writing skills
3	Prof. L.O. Odokuma	PhD	Professor	Environmental Microbiology
4	Prof. O.S. Akpogomeh	PhD	Professor	Environment Management
5	Prof. O.E. Orisakwe	PhD	Professor	Toxicology
6	Prof. Leo Osuji	PhD	Professor	Petroleum and Environmental Assessment
7	Prof. P.C. Mmom	PhD	Professor	Environmental Management
8	Prof. E.B. Essien	PhD	Professor	Nutritional Biochemistry/ Toxicology
9	Prof. A.O. Asimiea	PhD	Professor	Environmental Remediation
10	Prof. C. Ugwu	PhD	Professor	ICT
11	Prof. N. Zabbey	PhD	Professor	Hydrobiology/ Oceanography
12	Prof. C.J. Ogugbue	PhD	Professor	Environmental Microbiology
13	Prof. Chad Umoren	PhD	Professor	Radiation Toxicology
14	Prof. L.N. Onyejegbu	PhD	Professor	ICT
15	Prof. F.C. Anacletus	PhD	Professor	Medical Biochemistry
16	Dr. I. Vincent-Akpu	PhD	Professor	Ecotoxicology
17	Dr. K.C. Patrick-Iwuanyanwu	PhD	Reader	Toxicology/ Food Safety
18	Dr. M.C. Onojake	PhD	Reader	Petroleum Chemistry
19	Dr. O. Lawal	PhD	Reader	GIS/ Environmental Management
20	Dr. O. C. Eruteya	PhD	Senior Lecturer	Food Microbiology
21	Dr. Y. Momoh	PhD	Senior Lecturer	Environmental Engineering
22	Dr. A. Oji	PhD	Senior Lecturer	Chemical Engineering
23	Dr. A.O. Numbere	PhD	Senior Lecturer	Ecology
24	Dr. J.K. Igbo	PhD	Senior Lecturer	Oceanography
25	Dr. D. Amachree	PhD	Senior Lecturer	Hydrobiology/ Radioecology
26	Dr. M.A. Ijomah	PhD	Senior Lecturer	Statistics
27	Dr. O. Omokheyeke	PhD	Snr. Research Fellow	Hydrobiology / Oceanography
28	Dr. F. Obinduka	PhD	Research Fellow	Occupational Health, Safety & Environment