STUDENT'S HANDBOOK

Of The Department of Agricultural Extension

School Of Agriculture & Agricultural Technology

FEDERAL UNIVERSITY OF TECHNOLOGY OWERRI, NIGERIA

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI

DEPARTMENT OF AGRICULTURAL EXTENSION

FIRST DEGREE PROGRAMME

B. AGRIC. TECH. (AGRICULTURAL EXTENSION)

COURSE OUTLINE AND DESCRIPTION

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HISTORY OF THE DEPARTMENT

The Federal University of Technology, Owerri was established in October, 1980 and in 1981 the first batch of 7 students opted for Agricultural Economics and Extension during the 1982/83 session. By 1992, Professor C.C. Asiabaka piloted the affairs of the then Department of Agricultural Economics and Extension until 1999. Under the dynamic leadersip of Prof. J.E. Njoku as the Vice-Chanellor of Federal University of Technology, Owerri, the department of Agricultural Extension was carved out of the former Agricultural Economics and Extension in the 2001/2002 academic session.

At the inception, Dr. Edna C. Matthews-Njoku coordinated the young department until 2003 when she was appointed the 1st Ag. Head of Department to fully pilot the affairs of the Department. The first intake of students in the 2001/2002session was about 70 but today intake has risen and the department has over 500 students. The department has graduated its first set of students. The Academic staff strength has also risen from 8 in the 2001/2002 session to 12 in the 2006/2007 session. Presently, the Academic staff strength is composed of: a Professor, two Ass. Professors, two Lecturer I, three Lecturer II, four Assistant Lecturers, with one Graduate Assistant. We are expecting more staff to join, considering the increasing number of students opting for Agricultural Extension.

The Postgraduate programme is fully developed and there are about six areas of specialization being offered:) Rural Community Development, Rural Sociology, Agricultural Extension Administration, Programme Planning and Evaluation.

Agricultural Extension Communication and Indigenous Knowledge Systems. The Department also offers National Diploma (ND), Higher National Diploma (HND), Post Graduate Diploma (PGD) courses through the Centre for Continuing Education programme.

FOREWORD

Agricultural Extension is a universal professional course of study that has both national and international prestige. In the process of attaining the present development status, the newly created Department of Agricultural Extension took into consideration the dynamism of change to allow for wider acceptability. We have struggled over the years to get to where we are today.

I am delighted that the dream we had many years ago has finally materialized into the present Department of Agricultural Extension. I therefore welcome every staff and students on board. To the academic staff, I encourage you to live up to expectation; while projecting the image of the department. I advice everyone to keep abreast of current issues around the globe. As development practitioners, we must be hardworking, creative and innovative

To the students, consider yourselves lucky to be studying Agricultural Extension because this is one of the most dynamic and contemporary course of study.

My vision for the Department is that we produce great and renowned researchers, worthy development agents and practitioners, dependable teachers of development studies, competent social scientists, and rural development consultants.

I must thank the former Vice Chancellor, Professor J.E. Njoku for creating the Department and making our dream a reality. I also thank all the pioneer staff and students. I wish you all the best in your endeavours. To the current Vice Chancellor, Prof. C.O.E. Onwuliri, I say, 'please encourage this your department to

grow bigger. because rural development is the key to Nigeria's prosperity'.

C.C. Asiabaka
Professor of Agricultural Extension

OFFICE OF THE HEAD OF DEPARTMENT

Congratulations as you join the development partners. Agricultural Extension is one of the newest disciplines of study in the field of Agriculture. Many students after gaining admission into the university to study Agriculture begin to appreciate this field of study. In a nutshell, Agricultural Extension is concerned with dissemination and utilization of useful information on improved agricultural technologies for the benefit of the rural pro-poor and urban masses, and for the utmost benefit of mankind. Agricultural Extension study is the key to rural prosperity and sustainable good living standard.

Agricultural Extension students should know that Agricultural Extension agents/workers practice in the urban areas. With urban dwellers getting involved in agricultural production, the job of the extensionist is ever increasing and challenging. Agricultural Extension personnel are development agents and Extension emphasizes sustainable agricultural development through technology development approach.

The department hosts a journal "Global approaches to extension practice." This journal is being subscribed by the British Library today and Dr. Edna Matthews-Njoku is the editor-in-chief. Publish in it. It is an international journal in extension and is listed in African journals online (ajol) www.ajol.journal.gaep. The journal exposes new frontiers in extension practise. Read it.

There are numerous areas of job opportunities for the graduate of Agricultural Extension. These areas include the oil companies, government parastatals, private firms, universities,

international donor agencies and corporate bodies like USAID, FAO, UNDP, UNESCO, UNICEF, etc. A graduate of Extension can establish a viable non-governmental organisation; community-based extension practice, adult education centres, capacity building training centres, etc. aimed at empowering the pro-poor households for sustainable development.

This Handbook contains information on the various courses that the students of the Department of Agricultural Extension are expected to offer that will eventually lead to the award of a degree (B. Agric. Tech.) in Agricultural Extension. The Handbook also provides information on the history of the Department, the list of staff, the programme content, career opportunities, etc. This is the first information Brochure since the inception of the Department of Agricultural Extension. The handbook is an information brochure of the Department of Agricultural Extension designed to provide a useful guide to the students so that they can appreciate their training approaches to become graduates of Agricultural Extension. It will be a useful guide to the students in the department. Agricultural Extension is the pivot of agricultural and community development vis-a-vis national development.

The department has outreach programmes in neighbouring communities. Our community-based extension practice is superb and touching the lives of farmers within the neighbouring communities. Consult us for the latest information on agricultural practices. We are trained to impact upon peoples lives positively, and to produce skilled manpower who can establish and profitably operate their own farming enterprises .

I wish to thank Prof. J.E. Njoku, the former Vice-Chancellor of the Federal University of Technology, Owerri for creating the department. I thank Prof. C.C. Asiabaka, our mentor and motivator, for the struggle to carve out the department and I appreciate the efforts of the then Dean of SAAT, Prof. M.I. Nwufor who is now the Deputy Vice Chancellor (Administration) for encouraging the staff and students of the department in very special ways..

Our special gratitudes go to Prof. Onwuliri C.O.E. the current Vice Chancellor for all the support for the department to grow. We have graduated our first set of students in 2006. And we are very grateful to God who has been our strength in our struggle to stand tall among equals while making the difference in the School of Agriculture and Agricultural Technology.

Dr. Edna C. Matthews-Njoku
Ag. Head of Department
2006

FROM THE SECRETARIAT

Continuous Assessments and Examinations are indispensable and inevitable for successful completion of the Agricultural Extension programme of study. In order to justify students' stay in the university, they should take these formative and summative assessments very seriously. To effectively achieve this, students of the department are advised to shun vices like examination malpractices, and cultism which are detrimental to their academic pursuit. Extra curricular sporting activities and developmental leadership based associations should be embraced.

Students of the Department of Agricultural Extension are expected to be as disciplined as possible in **all** areas of their academic endeavour. This is to uphold the standards that have been set and to ensure that they give the right impression to the outside world. As Behavioural scientists, the students are trained to give agriculture a purposeful direction with a human touch. This is expressed in their public relations activities of which discipline is utmost.

Every student has an academic adviser who advises him or her on academic matters. The adviser counsels, guides and helps direct the student towards successful completion of his programme. A student who consults his adviser will never have problems in his academic pursuits.

It is also advisable that students take advantage of the contemporary Information and Communication Technology facilities like the internet services to be current on information concerning agriculture around the globe.

The Secretariat is ever ready to help students in need. The secretariat is student friendly, service oriented: and maintains an open door policy for students, staff and visitors. **We are simply the BEST in student management**.

PROGRAMME CONTENT

Curriculum for Agricultural Extension Programme

(a) **Programme Title:** Agricultural Extension

(b) **Philosophy:** The philosophy for a degree programme in Agricultural Extension is to produce graduates with indepth knowledge in both practical and theoretical aspect of our course which is broad enough to permit self-employment after graduation. Students spend the first three years receiving instructions in the basic sciences, humanities, workshop practice, engineering drawing and general agriculture while specialization begins in the fourth year of study. In addition, six months industrial attachment is an important component of the degree programme. Students are generally expected to acquire thorough knowledge of extension theory, its application to contemporary agricultural problems as well as the ability to use quantitative/qualitative techniques in conducting agricultural and rural development research problems.

(c) **Objectives:** The objective of the Department is to train technocrats and professional workers with competence in the analysis of socio-economic and cultural problems in agriculture at the micro and macro levels. This is in response to inc!reasing opportunities for our graduates in teaching, research, management, public administration, community and rural development.

Expectations

The graduates of Agricultural Extension are expected to be able

to accomplish the following:

(1) Engage in research that would provide relevant and appropriate solutions to most development problems and improve agricultural productivity in general.

(2) Take up employment within and outside the country in any aspect of agriculture and related areas.

(3) Profitably put their skills into operation by establishing and/or operating their own farming enterprises, and

(4) Serve as channel for the dissemination of agricultural information to farmers.

(5) Help farmer organisations, community based organisations etc. to train the pro-poor in skills needed for economic empowerment.

(d) **Admission Requirements**

To be admitted into the 5 year B. (Agric.) Tech. Degree with specialization in Agricultural Extension, the candidate must have either of the following:

1. ***UME Entry Requirements***

UME subject combinations include English language, Chemistry, Mathematics/Physics and Agricultural Science/Biology. In addition to an acceptable pass in UME, candidates must have:

(i) Senior Secondary School Certificate with credit passes in 5 subjects which must include English Language, Agricultural Science/Biology, Chemistry, Mathematics/ Physics.

(ii) 5 WASC/GCE O'level credits including English Language, Agricultural Science/Biology, Chemistry,

Mathematics/Physics.

In exceptional cases, a pass in English Language may be accepted in (i) and (ii) above.

2. ***Direct Entry Requirements***

(i) HSC/GCE A'level passes in two relevant subjects with SC/GCE O'level credit passes (including English Language) and three other relevant subjects at not more than two sittings.

(ii) HSC/GCE A'level passes in three relevant subjects with SC/GCE O'level credit passes (including English Language) and two relevant subjects at not more than two sittings.

(iii) Holders of OND/ND Certificates with a minimum of lower credit pass are eligible for admission into year II while holders of HND Certificate with a minimum of lower credit passes are eligible for admission into year III.

3. In addition, holders of OND (ND) and/or HND Certificates must have 5 GCE/SC O'level credit passes including Chemistry and Agricultural Sciences/Biology with a credit pass in Mathematics or Physics.

(e) Programme Sub-discipline

Programme/Sub-discipline structure to include periodofformal studies in the Universities, Industrial

STAFF OF THE DEPARTMENT

Academic Staff

1. Prof. C.C. Asiabaka
2. Dr. D.O. Onu
3. Dr. Edna C. Matthews-Njoku
4. E.N. Nnadi
5. M. A. Ukponson
6. S.N.Odurukwe. (Mrs.)
7. E.O.Ugwoke
8. J.O.Ajaero
9. Mr. E.C. Anaeto
10. E.N.Ejiogu-Okereke. (Mrs.)
11. N.O.Anyoha. (Mrs.)

Non-Academic Staff

1. Mrs. M.A. Ibeh
2. Mr. E. Ubeh
3. Mrs. M. Okorie
4. Mr. C.A. Onwuchekwa
5. Mrs. Evlyn N. Oguguom
6. Mr. Peter Odii
7. Mr. Christian Okorafor
8. Mr. Okechukwu Njoku

SCHOOL OF AGRICULTURE & AGRICULTURAL TECHNOLOGY

DEPARTMENT OF AGRICULTURAL EXTENSION

Year I

Course Code	Course Description	L.T.P.	Unit
MTH 101	Elementary Maths I	3,1,0	4
PHY 101	General Physics I	3,0,1	4
CHM 101	General Chemistry I	3,0,1	4
BIO 103	Biology for Agric. & Bio. I	2,0,1	3
ENG 101	Workshop Practice I	0,0,1	1
ENG 103	Engineering Drawing I	0,0,1	1
GST 101	Use of English I	1,1,0	2
GST 103	Philosophy and Logic (Humanities)	1,0,0	1
	Total		20

2nd Semester

Course Code	Course Description	L.T.P.	Unit
MTH 102	Elementary Maths II	3,1,0	4
PHY 102	General Physics II	3,0,1	4
CHM 102	General Chemistry II	3,0,1	4
BIO 104	Biology for Agric. & Bio. II	1,0,1	2
ENG 102	Workshop Practice II	0,0,1	1
GST 102	Use of English II	1,1,0	2
GST 108	Polity and Economy of Nigeria	1,1,0	2
GST 110	Philosophy of Science (Science, Technology & Society)	1,0,0	1
	Total		20

Year II

1st Semester

Course Code	Course Description	L.T.P.	Unit
AGR 203	Introduction to Agriculture	1,0,0	1
CST 201	Botany & Principles of Crop Prod. I	1,0,1	2
AST 201	Principles of Animal Prod. I	2,0,1	3
AGR 205	Agricultural Chemistry	1,0,1	2
AEC 201	Intro. to Micro-Economics	2,0,0	2
AEX 201	Intro. to Agric. Extension	2,0,0	2
GST 201	Nigerian & African Cultural Dev.	1,0,0	1
MTH 211	Statistics	2,1,0	3
CSC 201	Computer & Application I	2,1,1	4
	Total		20

2nd Semester

Course Code	Course Description	L.T.P.	Unit
AGR 202	Farm Practice II	0,0,1	1
CST 202	Tree & Vegetable Crop Production	0,0,1	1
AST 202	Principles of Animal Production II	2,0,1	3
CST 204	Field Crop Production	2,0,0	2
AEC 202	Intro. to Macro Economics	2,1,0	3
AGR 204	Introduction to Biochemistry	1,0,1	2
CST 206	Agric. Climatology and Bio-geography	2,0,1	3
SST 202	Principles of Soil Science	2,1,0	3
SIW 200	Long Vacation Industrial Attachment	0,0,2	2
	Total		20

Year III

1st Semester

Course Code	Course Description	L.T.P.	Unit
AGE 301	Farm Planning & Structures	1,0,1	2
AGR 303	Agricultural Genetics	2,0,1	3
AEX 301	Community Agricultural Extension	2,0,1	3
SST 301	Soil Chemistry and Fertility	1,0,1	2
CST 301	Crop Diseases and their Control	2,1,0	3
AEC 303	Agric. Marketing & Cooperatives	2,1,0	3
AGR 301	Farm Practice III	0,0,1	1
AST 301	Introduction to Tropical Animal Health	2,1,0	3
	Total		20

2nd Semester

Course Code	Course Description	L.T.P.	Unit
FST 312	Processing & Storage of Agricultural Food Products	2,0,1	3
AGE 202	Agricultural Machinery & Mechanization	1,0,2	3
SST 302	Soil and Water Management	3,0,0	3
CST 302	Crop Pest and their Control	2,0,1	3
AGR 302	Farm Practice IV	0,0,1	1
AST 304	Agric. Statistics and Biometry	2,1,0	3
AST 302	Animal Feeds and Feeding I	0,0,1	1
AEX 302	Introduction to Rural Sociology	2,0,0	2
	Total		19

Year IV

1st Semester

Course Code	Course Description	L.T.P.	Unit
AEX 401	Extension Training and Curriculum Development	3,0,0	3
AEX 403	Agricultural Extension Education	3,0,0	3
AEX 405	Diffusion of Innovations	3,0,0	3
AEX 407	Extension Teaching, Learning Process and Methods	2,0,0	2
AEX 409	Extension and Community Development Practices	2,0,1	3
AEX 411	Statistics and Research Methods	2,0,0	2
AGR 401	Farm Practice V	0,0,1	1
MGT 405	Technical Report Writing	1,1,0	2
	Total		19

2nd Semester

Course Code	Course Description	L.T.P.	Unit
SIW 400	Industrial Attachment	0,0,4	4
SIW 401	Industrial Attachment	0,0,2	2
	Total		6

Year V

1st Semester

Course Code	Course Description	L.T.P.	Unit
AEX 501	Comparative Extension Education	2,0,0	2
AEX 503	Agricultural Extension Administration, Organization and Supervision	2,0,0	2
AEX 505	Rural Youth Programme	2,0,0	2
AEC 507	Farm Accounting and Records	2,0,0	2
AEX 507	Programme Planning in Extension	2,0,0	2
AEX 509	Participatory Technology Development & Indigenous Knowledge Systems	2,0,0	2
AEX 511	Research Techniques in Agricultural Extension I (Project)	0,0,2	2
AEX 513	Community Organization and Leadership	0,0,2	2
AEC 515	Agric. Business Management & Finance	2,0,0	2
AGR 501	Farm Practice VI	0.0.1	1
	Total		19

2nd Semester

Course Code	Course Description	L.T.P.	Unit
AEX 502	Advanced Rural Sociology	2,0,1	2
AEX 504	Technological and Social Change in Agriculture	2,0,0	2
AEX 506	Rural Community Development	2,0,0	2
AEX 508	Group Dynamics and Organization	2,0,0	2
AEX 510	Practice in Extension Methods and Audio-visual Aids	1,0,1	2
AEX 512	Research Techniques in Agric. Extension II (Project)	0,0,4	4
AEX 516	Foundations of Social Action	2,0,0	2
AEX 520	Seminar	0.0.1	2
Elective	**(To be teken from AEC dept)**		2
	Total		19
AEC 502	Agric. Production Economics and Farm Management	2,0,0	2
AEC 504	Agricultural Project Appraisal Management and Evaluation	2,0,0	2

COURSE OUTLINE

YEAR ONE: HARMATTAN SEMESTER

MTH 101: Elementary Mathematics I (2,1,1)

Set Theory: Fields, union, intersection, complements, functions and their inverse.

Real number systems: integers, rational and irrational numbers, mathematical induction; sequences and series; arithmetic and geometric sequences and series; theory of quadratic equations, absolute values, identities, inequalities and partial fractions, permutations and combinations - binomial theorem.

Trigonometry: Circular measure, trigonometric functions and their properties, addition and factor formulae, solution of triangles.

Complex numbers: Algebra of complex numbers, the Argand diagram, De Movies theorem, nth roots of unity.

Calculus and Real Analysis: Elementary functions of a single variable and their graphs, limits and continuity. Rates of change, tangent and normal of a curve. Differentiation of elementary functions - product, quotients, functions of a function.

Implicit differentiation: Maxima, minima and points of inflection, geometrical and physical applications of the derivative, mean value theorem, parametric equations, polar coordinators. Antiderivative, integral, various techniques of integration, volume of resolution, area of surface of revolution.

PHY 101: General Physics I (2,1,1)

Elementary mechanics, Galilean invariance, work, energy, momentum, angular momentum, conservation laws; harmonic

oscillator; rigid bodies; inverse square law forces; ideal fluid; heat and thermodynamics, introduction of kinetic theory of matter.
Prerequisites: O'level physics, MTH 101, MTH 102 should be taken concurrently.

CHM 101: General Chemistry I (2,1,1)
Fundamental concepts, including atomic and molecular structure; states of aggregation of matter, acid-base reactions; homogen, nuclear chemistry and description aspects of inorganic chemistry, kinetic and treatment of chemical reactions in terms of acid-base concepts - physical and chemical properties, state of matter.

BIO 103: Biology for Biological and Agricultural Sciences (2,0,1)
Common life forms and processes, the nature, characteristics and diversity of living organisms, along with a general treatment of process of evolution. Cell structure and cellular metabolism including respiration, growth, and cellular transport. A general treatment of ecology and how living organisms relate to their environment and to each other.
Form and function in plants: A general classification of plants, with emphasis on the families of higher plants that are of economic importance; general angiosperm morphology and anatomy. The process of photosynthesis reproduction, inorganic nutrition, growth and development in higher plants.

ENG 101: Workshop Practice I (0,0,1)
General: Use of engineering measuring instruments, Callipers, gauges, etc.; introduction to hand tools, e.g. practice in wood

plainners, saws, sanders and pattern marking; sampling and sizing techniques of raw materials.

Sheet-metal work: Production of metal products layout, cutting and shaping, wielding, soldering, brazing, fastening and assembly.

Woodwork: Basic working principles and tools - layout methods, cutting and shaping, finishing and evaluation; finished products.

ENG 103: Engineering Drawing I (0,0,1)

Introduction to the use of drawing/drafting instruments, descriptive geometry and geometric construction. Drawing, measuring, lettering and dimensioning objects in various positions. Principles of orthographic projection in the first and third angle.

GST 101: The Use of English (1,1,0)

Use of library, use of words and sentence construction. Function of sentences - purposes structure, correct use of verbs (action words), word order and punctuation. Essay/composition writing, paragraphs - structure, function, links and style. Deposition - description and explanation. Special types of exposition, e.g. letter writing. Layout of a business letter, technical reports, including terms of reference, drafting and editing of reports.

GST 103: Humanities (1,0,0)

Introduction to the humanities definition and rationale. Role of literature in the humanities aspects of the contemporary African novel. Significant examples of African/Western Poetry, dramatic art-role and relevance in modern Nigeria with practical

demonstrations/Performances. role of philosophy in the humanities, and its quest for certainty; materialism, idealism, the meaning and significance of selected concepts - freedom, responsibility, obligation, the good life, art beauty, values - relative; inductive arguments and scientific reasoning. Exposure to African history - its role and relevance. African art and music - its history and development. Religion and the meaning of life - past, present and future.

YEAR ONE: RAIN SEMESTER

MTH 102: Elementary Mathematics II (2,1,1)

Vectors and analytic geometry: Representation of vectors. Vectors addition and multiplication of vector by a scalar. Components of a vector and director casines. Linear dependence and independence of vectors. Scalar and vectors products of two vectors. Scalar and vector products of three vectors. Plane analytic geometry of the straight line, conics (circles, parabola, ellipse, hypabola).

Differential equations: occurrence of differential equation. Differential equations of first degree and first order, like variables, separables, exact homogenous with constant coefficients.

Statistics: Introduction of statistics. Diagrammatic representation of descriptive data. Measures of location and dispersion for discreet and grouped data. Problems of groupings and associated graphs. Introduction to probability. Sample space and events. Addition law, conditional probability and multiplication rule. Bayes Theorem. Use of permutation and combination in scatter diagram, product moment and rank correlation. Linear regression.

PHY 102: General Physics II (3,0,1)
Electrostatics, conductors and dielectrics: Magnetostatics, magnetic fields and induction, magnetic materials, Maxwell's equations; Waves and Oscillation, Electromagnetic wave; Oscillations, Optics, Modern Physics - Experimental basis of quantum physics, Planck's constant; spectra; basic phenomena of atoms, molecules and nuclei.

CHM 102: General Chemistry II (2,1,1)
Physics and chemical equilibrium, solids solutions, reaction kinetics and kinetic theory. Alkanes and cycloalkanes, reactions of carbon - carbon multiple bonds; elimination and substitution, reactions of alcohols and alkyl, halides, aromatic compounds, carbonyl compounds, organic acids and derivatives, and organic bases.

BIO 104: Biology for Biological and Agricultural Science II (1,0,1)
Form and function in animals. A general classification of animals with emphasis on the characteristic morphology, and anatomy of the economically important groups, such as Mammalia, Aves, Pisces, Arthropoda, Mollusca and Nematoda. Discussion of the following processes in animals: nutrition, excretion, reproduction, movement and confirm regulation.

ENG 102: Workshop Practice II (0,0,1)
Machine shop work: Lathe work, instruction and working process, shaping, milling, grinding, reaming and metal spinning, etc. Design of simple jigs and fixtures. Finished products, sample technique.

GST 102: Use of English II (1,1,0)

Vocabulary, use of classical terms, word formation and affixes, special terms, acronymns, choice of correct words, definitions by examples, synonym or antonym, analytic or operational definitions, basic words in fields of specializations e.g. mechanical, electrical, civil, aeronautical, automobile engineering, metallurgy, mathematics.

GST 108: Polity and Economy of Nigeria (1,0,0)

The nature and scope of economics. The Nigerian political system: polity and means of production in Nigeria. The structure of the Nigeria economy, aspects of economic and technological dualism; internal migration - rural to urban migration and the informal sector. The role of capital in growth and development; public investment criteria choice of 'appropriate' or 'relevant' technology. Human resources development in Nigeria labour utilization, education and manpower development in Nigeria labour.

Agriculture in the development process; land tenure and reform, agricultural technology and the green revolution and integrated rural development. Industrialization; role and type of industry, choice of techniques, import substitution and export expansion.

The economic role of the government expenditure and taxation; the federal structure, fiscal federalism and revenue allocation; the financial system. Problem of development planning and plan implementation in the Nigeria federal system of government. Prospects of the Nigerian economy.

GST 110: Science, Technology and Society (1,0,0)

Section A: science and society

Introduction: The need for science; modern scientific methods and evolution, selected key scientific research, innovations and inventions, science and culture.

Nature of science: History of science, classifications; science in the civilization of man; scientific evolution of man; social implications. Science and man's environment - harnessing science for production, processing, conservation, distribution and utilization of agricultural products, climate and vegetation; terrestrial and cosmic life; implications and scientific advances, e.g. population control, environmental pollution. Science and thermal energy, nuclear energy, fossils fuels, estimates of energy reserves in Nigeria; case studies of demand and supply for energy.

Section B: technology and society

Introduction: Technology in the development of man, roie of technology in the national economy; agriculture, entertainment, transportation, communication, medicine and welfare, war and crime, etc. Disciplines in technology; professional opportunities in technology in Nigeria.

Technology evolution: History of technological education and practice in Nigeria. Some key revolutions in technology, e.g. electronics and computer technology, robotics and cybernetics, and their everyday applications.

Implications of technology: Ethics in technology; implications of technological research and advances, e.g. displacement of man by machines, space travel, threat of nuclear and neutron war, the

genetic research and energy crisis, etc. Technological products liability: effects of merchandization.

Consumerism: Constraints in the utilization of new technological products - reliability, quality control and cost effectiveness, politics and environment.

AGR 102: Farm Practice I (1,0,1)

Visits to Agricultural establishments and institutes for familiarization of agricultural farm practices.

YEAR TWO: HARMATTAN SEMESTER

AEX 201: Introduction to Agricultural Extension (2,0,0)

The need for agric. extension; agricultural extension in Nigeria and the world; basic philosophy behind extension work, institutional setting for agricultural extension. Agricultural development agencies, communication and extension teaching processes, adult education principles, practicals on selected oral and written communication methods and audio-visual aids (AVAs).

AGR 203: Introduction to Agriculture (1,0,0)

Definition and role of Agriculture in national economy, history of agricultural development with particular reference to Nigeria; branches in agriculture - soil, crop, forestry, animal, horticulture and fishery. Career opportunities in agriculture.

CST 201: Botany and Principles of Crop Production (1,0,1)
1 hr. lecture + 3 hrs. lab. weekly
Structure and function of the various parts (especially floral arrangement) of selected crops: maize, rice, sorghum, oil palm, coconut, cotton, cocoa, kola, beans, groundnut, tobacco, etc. elaboration of the general principles and practices involved in crop production. These will include crop sequences, preparation, planting/seeding; weed/disease/pest control, mulching; fertilization; harvesting, processing and storage.

AGR 205: Agricultural Chemistry (1,0,1)
1 hr. lecture + 3 hrs. lab. weekly
Chemistry of the S-block elements and the representative block elements. Brief introduction into the chemistry of first series transition elements. Structure, reactions and functions of hydrocarbons, alcohols, phenols, aldehydes, ketones, organic acids and their derivatives. Atomic structure and bonding. Periodic table. Colloids, chemical kinetics and equilibrium. Oxidation and reduction. Acids, bases. Properties and reactions of elements of importance in agriculture.

AST 201: Ruminant Animal Production (2,0,1)
2 hrs. lecture + 3 hrs. lab weekly
Introduction to the anatomy, physiology, genetics, breeding, nutrition, health economics, and management of the major tropical ruminant farm animals. Specific treatment will be given to cattle, sheep, goat and rabbit production.
Prerequisite: BIO 101/103

AEC 201: Introduction to Macroeconomics (2,0,0)
Scope and methods of economics; price theory including the theory of demand and supply. Theories of production and distribution. National income determination; monetary theory of international trade. Theory and economic growth, development and policy.

MTH 211: Statistics (2,1,0)
Frequency distributions, measures of location and dispersion in simple and grouped data. Laws of probability. The binomial poisson and normal distributions. Estimation and tests of regression and correlation, contingency tables and X^2 - applications. Prerequisites: MTH 101 or 102.

CSC 201: Computer and Applications I (2,1,1)
Brief history of computers and computer generation. Classification of computers. Structure of a general purpose computer, number systems. The stored program. Technique of problem solving. Flowcharting. Stepwise refinement. Algorithm for sorting and merging of ordered lists. Data preparation I/0 devices. Data types. Data representations. Data capture. Problem-oriented languages. BASIC and FORTRAN programming: Logic expression; arrays; sequencing; alterbation and iteration; auburograms and parameters. Elementary numerical algorithms.
Prerequisites: MTH 101 or MTH 102

AGR 201: Farm Practice II (0,0,1)
Students will be required to be intimately involved in the

performance of various farm operations. Skill will be taught in various aspects of crop production and animal husbandry.

YEAR II: RAIN SEMESTER

AST 202: Non-Ruminant Animal Production (2,0,1)

Introduction to anatomy, physiology, genetics, breeding, nutrition, health economics and management of the major tropical non-ruminant farm animals. Specific treatment will be given to various kinds of poultry, as well as swine.

Prerequisite: BIO 101/103

CST 204: Field Crop Production (2,0,0)

Detailed treatment of the major field crops; yam, cocoyam, cassava, sweet potato, maize, rice, sorghum, beans, groundnut, winged beans, sugarcane, tobacco, etc. For each crop there will be detailed discussions on time of planting, site selection, land preparation, planting materials, seed rate, spacing, mulching, fertilization (type, rate and frequency), crop protection (weed, pest and disease control), harvesting, processing and storage.

AEC 202: Introduction to Macroeconomics (2,1,0)

Fundamental treatment of demand and supply; theory of production, pricing and market systems, pricing and employment of resources. Introduction to different fields of Agricultural economics, farm management, production economics, marketing, credit and finance, resource economics, project analysis.

SST 202: Introduction to Tropical Soils (2,0,1)

Fundamental discussions on the distribution and classification

of tropical soil: their physical, chemical and biological properties. As well, the relationship of the crop productivity will be dealt with.

AGR 202: Farm Practice III (0,0,1)
Students will be required to be intimately involved in the performance of various farm operations. Skills will be taught in various aspects of crop production and animal husbandry.

SIW 200: Long Vacation Industrial Attachment

AGR 204: Introduction to Bio-Chemistry (1,0,1)
Cellular composition and morphology, chemistry, metabolism and synthesis of carbohydrates, lipids and proteins. Importance of pH and buffers. Structure and functions of enzymes.

YEAR THREE: HARMATTAN SEMESTER

AEX 301: Community Agricultural Extension (2,0,1)
Introduction to agricultural extension: meaning, concept, philosophy and principles of agricultural extension, role of governmental and non-governmental organizations (NGOs), agricultural extension service in agricultural innovations. Students will visit rural communities, conducting investigations into their agricultural practices and characteristics of the farmers and observe development activities of formal agencies in rural areas.

AEC 301: Introduction to Farm Management and Production Economics (2,0,1)

Goals, scope and features of farm management; theory of agricultural production and resource allocation; farm records and accounting; valuation and depreciation; farm business assessment; farm planning and control; enterprises and resource management. Applications of theory to practical situations will be strongly emphasized.

Prerequisites: AEC 202: Introduction to Macroeconomics

AGR 303: Agricultural Genetics (2,0,1)

Elaboration of the general principles applicable in agricultural production, with specific discussions on Mendellian genetics including functions, nature and structure of genes; basic concepts in the genetics of populations, and quantitative traits of economic importance in plants and animals. Rudiments of selection; and an introduction to breeding objectives and priorities in agriculture. Such objectives as yield, quality resistance, adaptation, stress tolerance and machinizability will be highlighted. Practical and field illustrations of these concepts will be emphasized.

Prerequisites: BIO 103 and 104: Biology for Agricultural Biology

AEC 303: Agricultural Marketing and Cooperatives

Discussion of basic marketing concepts and interrelationships between agricultural production and marketing; approaches to the study of agricultural marketing and elements of international trade. Application of marketing principles to the identification and

solution of agricultural development problems.
Prerequisites: AEC 202: Introduction to Agricultural Economics

SST 301: Soil Chemistry and Fertilty (2,0,1)
The chemical properties of soils in relation to plant growth. Emphasis will be placed on tropical soils. Topics include chemical composition of soils; the origin and chemistry of plant nutrients, the origin, formation and properties of clay minerals; ion exchange and nutrient absorption by plant roots; leaching of plant nutrients; influence of soil properties on nutrient absorption; inorganic fertilizers and their management; organic manure, soil acidity, soil alkalinity; soil fertility evaluation based on soil testing and plant analysis; oxidation-reduction potential.
Prerequisite: SSC 202

CST 301: Crop Diseases and their Control (2,0,1)
Causes and control of diseases prevalent among the crops grown in the country. Topics include an introduction to the structure, life history, classification and importance of fungi, bacteria and viruses; the development and spread of plant diseases; principles and method of disease control; the major diseases of tropical crops and stored products and their control.

AST 301: Introduction to Tropical Animal Health (1,0,1)
Introduction to the occurrences, economic impacts, causes (including environmental) etiology, treatments and methods of prevention of common diseases of livestock in the tropics. Emphasis will be placed on practical health management techniques against these diseases.

YEAR THREE: RAIN SEMESTER

AGR 302: Farm Practice IV (0,0,1)
Practical illustration and do-it-yourself involvement of students in the agricultural practices of plant spacing and orchard layouts; manure and compost making; weeds soil conservation techniques; antemoetem inspection and slaughter management in animals (agricultural economics questionnaire design and conduct of interviews).

CST 302: Crop Pests and their Control (2,0,1)
The identification and control of pests of crops. Emphasis will be on pests of crops grown in the country. Topics include introductory aspects of the structure, life history, identification of insects, nematodes and weeds; principles and methods of insect control and management; introduction to weed ecology and control; the major basis and parasitic nematodes of tropical crops and stored products.

AEX 302: Introduction to Rural Sociology (2,0,0)
Basic principles, concepts of rural sociology and understanding of rural situations. Importance of rural institutions, social processes and changes in rural areas. Leadership and community power structure. Various agricultural extension and rural sociological communication strategies and their uses.

AST 302: Animal Feeds and Feeding I (0,0,1)
Definition, importance, digestion and absorption of nutrients. Common tropical feedstuffs. Energy and protein feeds. Practical demonstration of techniques of feed milling.

SST 302: Soil and Water Management (3,0,0)
The general principles of managing soils for the optimum production of crops. Emphasis will be on the application of these principles in the management of tropical soils. Topics include an elementary treatment of causes (wind and water) and control (cultural methods) of erosion: methods of land clearing in the forest and savannah zones and their effects on soil properties: role of mulches, green manures, crop rotation, and fallows in the maintenance of organic matter and improvement of other soil properties. Role of no-till farming on soil improvement of other soil properties. Role of no-till farming on soil improvement, soil compaction and root growth, management of soil acidity: management of low native soil fertility, moisture needs of crops, soil-water-plant relationships, irrigation water application, timing of irrigation; methods of irrigation; drainage.
Prerequisite: SST 202

AGR 304: Agricultural Statistics and Biometry (2,1,0)
Introduction to simple linear models in agricultural research, and their utilization in the design and analysis of farm experiments. Particular emphasis will be placed on the formulation of appropriate experimental designs and analysis of variance and covariance for completely randomized designs; randomized block designs, Latin square design and factorial experiments. Estimation of variance components, regression and correlation coefficients, and simple test statistics will be discussed. Recent advances in Bio-statistics will be highlighted as well as introduction to the development of computer-assisted capability for analysis of farm data.
Prerequisite: MTH 211: Statistics

FST 312: Processing and Storage of Agricultural Product (2,0,1)

Scope, theory, practice, role of food science and technology; an overview of food spoilage, preservation and poisoning principles, practices and machinery involved in processing major agricultural food products of plant and animal origin including food packaging and storage. (Open to non-FST students).

YEAR FOUR: HARMATTAN SEMESTER

AEX 401: Extension Training Curriculum Development (3,0,0)

Objectives of pre-service and different categories of extension personnel; farmers' training programmes; developing curriculum and organization of course evaluation.

AEX 403: Agricultural Extension Education (3,0,0)

Extension education in agriculture and related disciplines such as human nutrition, adult education, home economics and public health; communication methods and the extension teaching methods, adult learning, domains of learning as they pertain to the non-formal education in agriculture.

AEX 405: Diffusion of Innovations (2,0,0)

Definition and element of diffusion. Processes of adoption and diffusion of innovation, the innovation decision processes characteristics of innovation, adoption rate and adopter categories opinion leadership; change agents, theoretical formulations on the diffusion of innovation sectors, related differential rate of

adopting of new agricultural technology: implication of the processes and factors of effective agricultural extension in rural areas.

AEX 407: Extension Teaching, Learning Process and Methods (2,0,1)

Nature and element of communication process, principles of analyzing communication problems in extension. The meaning of the concept of teaching, learning and motivation, motivation theories: steps of teaching and learning: extension teaching methods. Preparation and use of teaching materials and aids.

AEX 409: Extension and Community Development Practices (1,1,0)

Concepts of rural development agricultural/forestry/fisheries extension in rural development techniques for community mobilization, the role of extension agents in providing organizational and administrative support and back stopping in agricultural/forestry/fisheries community development programme. Training requirement for agricultural/forestry/ fisheries community development programmes.

AEX 411: Social Statistics and Research Methods (1,1,0)

Introduction to sampling, scaling, inferential statistical techniques and methodology for empirical investigations pertaining to rural areas and rural people. Application of statistical procedures for research problems, encountered by development practitioners such as extensionist, home economists, health practitioners, rural sociologists, and other specialist working in rural communities.

YEAR FOUR: RAIN SEMESTER

SIW 400/401: Students Industrial Work-Aid Scheme
Students are expected to undergo a six-months industrial attachment in an agriculture/agricultural related establishment. On completion, the student will make a detailed report of his practical experiences in the field and of the structure and workings of the organisation where he underwent the training.

YEAR FIVE: HARMATTAN SEMESTER

AEX 501: Comparative Extension Education (2,0,0)
Extension education strategies in selected countries in the world, comparison of those systems with Nigerian extension systems.

AEX 503: Agricultural Extension Administration, Organisation and Supervision (2,0,0)
Concepts, theories, principles and guidelines of administration, organization and supervision as applied to extension. Administrative functions and responsibility in Agricultural Extension Services, staff recruitment and selection, placement and supervision, budget development and fiscal control; importance of programme planning in agricultural extension and rural development; needs, objectives of education, learning experience, clientele participation in extension and rural development. The role of public relations, cooperation and leadership in extension or organization, administrations and supervision.

AEX 505: Rural Youth Programmes in Extension (2,0,0)
History objectives, organization, promotion of all types of rural youth programmes in Nigeria and selected countries in Africa, Europe and North America. Youth agitations and role of government and non-governmental agencies in solutions to youth problems in Nigeria.

AEX 507: Programme Planning in Agricultural Extension and Rural Development (2,0,0)
The programme planning process, priority setting in agricultural extension and rural development; steps in programme planning, development participation, stakeholder analysis and participation.

AEX 509: Participatory Technology Development and Indigenous Knowledge Systems (2,0,0)
Concept of Participatory Technology Development (PTD) and Indigenous Knowledge Systems (IKS) in agriculture and rural development; steps in PTD, Concept and activities of PTD, role of PTD, and IKS in agricultural extension and rural development, the concept of Participatory Rural Appraisal (PRA) Focus Group Discussion (FGD) and other tools for development research and work.

AEX 511: Research Techniques in Agricultural Extension and Rural Development I (0,0,2)
Students' project as part of the final year project development and reporting under the guidance of a supervisor.

AEX 513: Community Organization and Leadership (2,0,0
Identification, evaluation and training of leaders for communit development, professional leaders and local leaders, opinio leaders, community key informants, types of organizations community organization and leadership structure.

AEC 515: Business Management and Finance (2,0,0)
The scope of agricultural business and management. Role of agri business, enterprise selection, production planning, publi policies affecting agric. Business farm growth, organization large-scale farms, legal organizations and tax strategies economies of agricultural processing, marketing managemen principles of agricultural finance, principles of farm credit, capita needs of agricultural industries, sources of loan funds an collateral security for loans, loans/credit agencies and governme credit policy and approaches to efficient credit management; far management, inventory, balance sheet, cash book analysis.

YEAR FIVE: RAIN SEMESTER

AEX 502: Advanced Rural Sociology (2,0,0)
General sociology theory, analysis of social structure of rura agrarian systems and societies. Selected theories of social chang and their potential for modernization of rural communities; socia change and attitude change, measurement of change in rura societies; Resistant and conducive forces to change. Traditiona institutions and their transformations, leadership patterns involvement of local people in directed change; problems of rura communities, their course and solutions. Selected case studies

AEX 504: Technological and Social Change in Agriculture (2,0,0)

Understanding technological change, basic sociological concepts, technological changes, agricultural development, agricultural extension, ethical considerations in introducing technological change in agriculture and related sectors.

AEX 506; Rural Community Development (2,0,0)

Meaning and scope of community development, principles and philosophy of agricultural extension and rural development, organization, staffing, functions and current problems, and issues in extension and community development.

AEX 508: Group Dynamics and Organization (2,0,0)

The nature of groups, formation of groups, types of groups leadership and organization, maintenance of group cohesion and stability, record keeping, leadership styles. Definition of organization, structure and function of organization, organizational hierarchy, organization theories; importance of groups, participatory monitoring and evaluation as it relates to groups and organization.

AEX 510: Practice in Extension Mehtods and Audio-Visual Aids (1,0,1)

Extension reports and records - materials and methods: preparation and utilization of extension audio-visual aids such as posters, flip charts, exhibits and displays/bill boards, pamphlets: preparation and presentation of radio and television programmes/ campaigns. Projected visuals - motion pictures, slides, film strips,

etc. Students will visit rural communities, conduct investigations into their agricultural practices and social characteristics of the farmers and observe development activities of formal agencies in rural areas.

AEX 512: Research Techniques in Agricultural Extension II (Project)
Final year project under the supervision of staff (0,0,4)

AEX 516: Foundations of Social Action (2,0,0)
Stages in Social Action Process. Human factors in resource development, with particular reference to rural dwellers, method in the social action process in rural areas, selected case studies in social action, programme evaluation.

AEX 520: Seminar (0,0,1)
Studetns should present seminars on contemporary issues in agricultural extension and rural development. Seminar topics span through all aspects of extension practise in Nigeria and beyond.

AEX 500: Electives
(Choose from Agricultural Departments) (2,0,0)

THE UNIVERSITY WEIGHTING SYSTEM
The University adopts an even weighting system of 20% for each level in assessment of students performance. The results generated from the academic programme are converted to Total Grade Point (TGP), Total Number of Units (TNU) and then Grade

Point Average (GPA). The cumulative of the GPA over the period of the programme provides the Cumulative Grade Point Average (CGPA) from which the final degree classification is determined. Students performance on the course are recorded in letter grades (after due conversion from percentage scores) as follows:

% Score	*Letter Grade*	*Grade Point Equivalent*
70 - 100	A	5: Excellent
60 - 69	B	4: Very Good
50 - 59	C	3: Good
45 - 49	D	2: Pass
40 - 44	E	1: Poor pass
0 - 39	F	0: Failure

* ***Note that students with CGP less than 1.00 will be asked to withdraw from the University.***

The number of grade points for each course completed by a student is computed by multiplying the number of units for the course by the grade point equivalent obtained in the course. When the grade points for all course units on each level of courses have been assembled each student's Cumulative Grade Point Average (CGPA) is worked out by dividing the total number of grade points by the number of units taken.

POST GRADUATE DEGREE PROGRAMME

The Department of Agricultural Extension offers Postgradua programmes leading to the award of M.Sc and Ph.D degrees the following areas of specialization:

1. Community and Rural Development
2. Programme Planning and Evaluation
3. Agricultural Extension Administration
4. Indigenous Knowledge Systems
5. Rural Sociology
6. Extension Communication Technology Systems.

CENTRE FOR CONTINUING EDUCAITON (CCE)

The Department of Agricultural Extension offers courses leadi to the award of ND, HND and PGD through the centre f continuing education. For more information, contact the Hea of Department who is ever ready to partner with you.

Welcome on Board.

Dr. Edna C. Matthews-Njoku
Ag. Head of Department

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