

COLLEGE OF AGRICULTURAL MANAGEMENT, RURAL DEVELOPMENT AND CONSUMER STUDIES (COLAMRUCS)

DEPARTMENT OF AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

MASTER OF BUSINESS ADMINISTRATION (MBA) AGRICBUSINESS DEGREE PROGRAMME

JUSTIFICATION

Management is a resource in agriculture, and is sine qua non for the success of any farming or Agro-Allied business. The programme will therefore provide an opportunity for managers of Agro-Allied businesses to be well equipped to effectively and efficiently manage such businesses in a fast changing business environment such as we have in Nigeria today. With the fast growing number of Agro-Allied Industries in Nigeria, there is the need to mount Agricultural Business courses in the Universities of Agriculture, to further enhance the attainment of their objectives.

OBJECTIVES OF THE PROGRAMME

The main purpose of the Master's Degree in Agriculture Business in the University of Agriculture, Abeokuta is to produce a core of professionally competent and specialized managers who would effectively and efficiently manage or assist the management of Agro-Allied public and private organizations in Nigeria and abroad.

GRADUATION REQUIREMENTS

- (i) A maximum of 51-hour courses must be taken, of which 27 Credit hours will be for core courses and 18 credit hours of electives, 6 credit hours for dissertation must be passed for MBA degree;
- (ii) The pass-mark for each course shall be 50%; and above;
- (iii) The candidates will be required to complete and submit a project report in accordance with approved regulations governing higher degree programmes in the University.

COURSE STRUCTURE

There will be a group of courses, which will be called core courses. Four (4) core courses will be taken in each of the first two semesters and (1) core course in the last semester. The core courses shall be compulsory for every MBA student. All core courses shall be three (3) units. Each MBA student in each of the three semesters shall take two. The elective courses shall be three (3) units. Students are expected to write their dissertation during the 3rd semester.

For part-time studies, (2) core courses will be taken in each of the first semesters and one in the 5th semester. One elective courses be taken in each of the first 4 semesters and two in the 5th semester. The sixth semester will be for project work. Details of the courses to be offered are as follows.

DETAILED COURSE OUTLINE: MBA (AGRI-BUSINESS)

BACKGROUND COURSES

MBA 701: PRINCIPLES AND PRACTICES OF CROP PRODUCTION (3UNITS)

Climate, Soil, Economic and Socio-Conditions Affecting crop distribution and growth. Agronomic groupings of crops. Crop culture (propagation, climate and soil requirements), fertilizers, handling, distribution and economic analysis of specific crops: maize, cassava, yam, rice, soyabean, cowpea, cotton, cocoa, citrus, oil-palm, cashew, and vegetable. Cropping patterns and land use systems.

Practical: Visits to selected farms. Identification of site, soil, climatic characteristics for land use for given cropping enterprises. Identification of management problems at selected sites: fertility, seed control, pest, diseases, harvesting, storage, processing, utilization problems.

MBA 702: COMMERCIAL PRODUCTION OF FEED STUFF/FEED AND QUALITY (2 UNITS)

Current assessment of feed industry in Nigeria: Production revisited, remedies. Feed Stuffs: definitions, classification, properties, level of production in Nigeria, usefulness and Limitation carbonaceous concentrates of grain, carbonaceous roughage's protein Concentrates plant e.g. groundnut cola, soy bean meal, proteinaceous roughage's Commercial processing of feed stuffs: grinding, pelleting, etc; Feed standards and Quality: nutrient requirements of various classes of livestock, chemical analysis Proximate composition, profile, anti-nutritional factor, feed microscopy; General Aspects of livestock feed formulation Information needed before ration formulation can be done, balancing the ration, computer in feed formulation; Feed mill operation: housing, equipment, records, routine activities, cost consideration in feed mill operation.

MBA 703: PRINCIPLES AND PRACTICES OF ANIMAL PRODUCTION

The role of Farm animals in National Economy, Problems and Prospects of livestock production, Breeds and Breeding in Farm animals, Management of different farm animal species e.g. common farm operations (routine and occasional), feeds and housing, handling and control factors to be considered in establishing commercial livestock enterprises, disease management and control in farm animals.

MBA 704 FOOD PROCESSING TECHNOLOGY: PRINCIPLES AND PRACTICES (2 UNITS)

Philosophy and principles of post-harvest technology, Review of modern techniques in food processing, packaging and storage, Historical developments in the Nigerian food industries, with emphasis on indigenous concepts and cottage industries for various commodities. Discussion to include technological limitations.

Problems, challenges and future prospects. Sensory and nutritional characteristics of foods as affected by method of preservation. Quality control measures, role of regulatory and legislation. Commercialization of research results by the Nigerian food industries: Constraints and the way forward.

MBA 705: FISHERIES MANAGEMENT (2 UNITS)

Fisheries resources and their economic importance with emphasis on Nigeria, Fish production in natural waters rivers, lakes and in ponds. Management techniques for enhanced fisheries production in river, lakes, coastal waters and in ponds. Basic principles of fish culture; role of Biotechnology in hatcheries and grow-cut operations. Integrated fish farming, Field trips to fish ponds, hatcheries and fish markets. Report of field visits to be submitted at the end of course.

MBA 706: FORESTRY AND WILDLIFE INVESTMENT ANALYSIS (2 Units)

Economics of forest resources management. Introduction to capital investment analysis, cost-benefit models. Economics of multiple-use management of forest resources with emphasis on non-market benefits from the forest. Optimal harvest criteria for forest products and wildlife. Any other related introductory to intermediate concepts.

CORE COURSES

MBA 707: QUANTITATIVE TECHNIQUES IN MANAGEMENT (3 UNITS)

Problems in operations management. The nature of operations research management science and system analysis; Resources allocation issues; Linear Programming, Non-linear programming, Dynamic programming and integer programming; Net work Analysis; Inventory and production Control, Transportation assignment, Markov chains, queuing models, Monte-Carlo simulation, Decision Analysis, Computer programming: some language with business applications.

MBA 708: MARKETING MANAGEMENT (3 UNITS)

It includes the study of consumer behaviour, the study of the economic environment competitive and legal constraints as exogenous variables affecting the firm; consideration will be given to marketing information system and marketing research, pricing strategy, product development, channels of distribution, advertising, personnel selling and promotion of commodities/products. Models for marketing analysis and strategies will also be considered.

MBA 709: RESEARCH METHODS AND STATISTICAL ANALYSIS (3 UNITS)

Steps in research processes and application, delineation of research problems and development of research objectives, research designs in social research, data generation, data analysis, result reporting: Sequences and series, set theory mathematics of interests, models involving integration and differential equations, matrix algebra with business applications. Data analysis, probability theory, statistical inference and decision. Analysis of variance, Regression, Time series analysis, short-term and long-term forecasting.

MBA 710: COMPUTER APPLICATION IN MANAGEMENT (3 UNITS)

This is intended to develop the students' word-processing and spread sheet skills. In addition, it will equip them in statistical, linear programming and database package. Practical approaches to computer applications in all aspect of business management related problems and issues will be covered.

MBA 711: FOOD INDUSTRY AND AGRIBUSINESS SYSTEM (3 UNITS)

Students are expected to learn about agro-industrial chains and their environments explicitly, and about technologies.

Detailed examination of food industry and Agribusiness system, Cost structure and sources of revenue in Food industries (Case Studies), International Trade and Agricultural policies, International Monetary Environment as it affects Food and Agro-allied Industries, Social and Economic impact of food and Agro-allied industries on the environment, Development trends of Technologies in Food and Agro-allied industries.

MBA 712: ECONOMICS FOR AGRIBUSINESS MANAGER (3 UNITS)

This course will introduce students to basic economic concepts such as opportunity cost, the theory of the margin, etc, and cover topics such as price determination, costs theory of the firm and industry structure. All the topics will be treated with special emphasis on application to agribusiness ventures. The course will also touch on the macro-economic factors that determine the broader business environment in which firms have to operate.

MBA 713: STRATEGIC MANAGEMENT (3 UNITS)

Review of Management Theories, Leadership Theory. Theoretical and practical elements of strategic management. Strategy formulation; Goals and Action Plans. Strategic Decision making. Strategy Implementation and Control

MBA 714: CORPORATE FINANCE (3 UNITS)

Alternative source of company finance and their importance to Nigeria Industry, The nature and role of the joint-stock banks and merchant banks as provider of corporate finance. The operation and importance of the Stock Exchange and Government Financial Institutions, The importance of internally generated funds e.g. retained profits and depreciation provisions, International source.

Capital/Financial Market analysis, sources and cost of financial structure and operating leverage, financial planning and control. Tools of financial statement Analysis working capital management; Dividend policy and internal financing, small business financing in Nigeria; Industrial and financial risks. The selection and financing of investment opportunities. The theory of optimal investment decisions. A critical comparison of investment and financial decision.

MBA 715: COST AND MANAGEMENT ACCOUNTING (3 UNITS)

Objectives and function of management accounting, strategic planning and management control, budgets Operating and Budgets, budgetary control; Standard and Marginal costing, the contribution margin concept, variance for optimal decisions with reference to prices, output and replacement of assets, cost behaviour, cost-volume profit analysis. Cost profit centres, Management information systems.

MBA 716: BUSINESS POLICY AND CONTRACTS (3 UNITS)

Structural aspects of business system. Executive roles, objectives and strategy. The Company and its environment. International diagnosis. Implementing strategy, System design and planning, Measuring

management performance. Social responsibility and Ethics in Management, Principles of Business Contracts: elements of contracts partnership and company law. All laws relating to business operations in Nigeria will be treated.

MBA 717: AGRICULTURAL PRODUCTION ECONOMICS (3 UNITS)

Theory of production, agricultural production functions; theory of cost; demand and supply functions; pricing of factors of production and income distribution optimization of production and firm planning under uncertainty. Efficiency and innovation in agriculture; Fixed asset theory, dynamics and technical change.

MBA 718: PERSONNEL MANAGEMENT (3 UNITS)

The practice of personnel management. Personnel planning, Recruitment and selection Training and Development Compensations. Labour Relations, Personnel research Evaluation Techniques and performance appraisal. Resource Planning Supervision, Leadership.

MBA 719: AGRICULTURAL MARKETING SYSTEMS AND POLICIES (3 UNITS)

The course analyses agricultural and food marketing systems through a study of the functions they perform and the institutions of which they are composed. Lectures are complemented by case studies drawn from developed and developing economies. The course will also cover the marketing policy agenda in developing economy; food security problems, institutional development, infrastructural development, trade development, etc. and the effectiveness of existing policies national and in international terms, Topics also include pricing policy issues such as price-quality issues, dealing policies, multipart pricing, peak-land pricing franchising. This is designed to assist would-be managers in making pricing decisions.

MBA 720: FINANCIAL ACCOUNTING (3 UNITS)

The basic Accounting process, Accounting, Transactions and the basic accounting education, Collection processing and communication of accounting information, problem of accounting principles. Theories and practice in Nigeria. Calculation and disclosure of period income. Measurement of Assets, Liabilities and income Accounting valuation process. Special Reporting problems of multiple entry, Accounting for non-profit concerns, Financial Statements (Preparation and Interpretation): double-Entry book keeping, trial balance, Preparing profit and loss account and Balance sheet, Analysis of accounting statements, Problems and limitations in the light of the economic environment of firms.

AEM 721: ENVIRONMENTAL RESOURCES MANAGEMENT AND ECONOMICS (3 UNITS)

The theoretical structure underlying the economic problems of the environment, the causes of market failure, policies for the environment, and the economic techniques underlying decisions (cost-benefit analysis).

MBA 722: COMPANY TAXATION (3 UNITS)

Company Taxation, the basis of assessment of company taxes, Capital allowances, Relief for small companies, capital gain tax, capital transfer tax, petroleum profit tax, taxation and international trade, double taxation relief and double tax treaties, A comparable study of income tax law within ECOWAS, An Introduction to tax planning.

MBA 723: MANAGEMENT OF LARGE SCALE AGRO-BASED ENTERPRISES (3 UNITS)

This course will basically be a practical-oriented course. It will involve extensive application of Agri-business management principles to practical business management problems. These include production planning, monitoring and control, marketing management, financial management and control, business growth planning. Case studies will be taken for agro-industrial enterprises as well as large scale farm, field trips will also be a part of the course.

MBA 724: PROJECT APPRAISAL AND EVALUATION (3 UNITS)

Meaning of project appraisal and evaluation, relationship between appraisal and planning, distinction between economic and financial appraisal, tools of project analysis, issues in appraisal of agricultural projects, preparation of feasibility reports, planning of agricultural development, formulation of agricultural plan implementation. The focus of the course will be on public sector cost benefit and cost effectiveness analysis and decision making. It will also highlight some private sector applications topics which will include government economic activities and the need for a theory of public expenditure. The concepts and problems of efficient resource allocation public goods externalities and indivisibility. Social cost and market imperfections. The problem of measurement of benefits and intensities, time factor and treatment of risk and uncertainty. Case studies in cost benefit and cost effectiveness analysis using agricultural and/or agro industrial projects.

COURSE ALLOCATION TO SEMESTERS

The allocation of courses according to semesters in which they will be offered is given in Table 2.

TABLE 2: COURSE ALLOCATION TO SEMESTERS

First year		Second year	
First Semester	Second Semester	First Semester	Second Semester
MBA 701 (compulsory background)	MBA 702, (Elective background)	MBA 711 (core)	MBA 706 (elective background)
MBA 703 (compulsory)	MBA 704, (elective background)	MBA 713 (core)	MBA 710 (core)
MBA 707 (core)	MBA 708 (core)	MBA 723 (core)	MBA 716 (elective)
MBA 709 (core)	MBA 712 (core)	MBA 715 (core)	MBA 718 (core)
MBA 721 (elective)	MBA 714 (core)	MBA 717 (elective)	MBA 720 (elective)
MBA 705 (elective)	MBA 722 (elective)	MBA 719 (elective)	MBA 724 (elective) MBA 799 (research project)

MASTER OF AGRICULTURE DEGREE IN AGRICULTURAL ECONOMICS

The Department of Agricultural Economics and Farm Management offers a two-year M. Agric. programme in Agricultural Economics. It involves both course work and research thesis.

PROGRAMME OBJECTIVES

The objective of the Postgraduate programme is to produce high level manpower through broad based advance knowledge for work as professional Agricultural Economist in both private and public sectors of the economy;

STRUCTURE OF PROGRAMME

The programme is structured to have series of courses, seminars and thesis. The courses consist of the following core courses and electives.

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C/Code	Course Title	Unit	Status	Group
AEM 701	Advanced Microeconomics Theory	3	C	
AEM 702	Advanced Macroeconomics Theory	3	C	
AEM 703	Research Methodology	3	C	
AEM 704	Econometrics	3	C	II
AEM 705	Production Economics	3	C	I
AEM 706	Farm Management and Finance	3	E	III
AEM 707	Agricultural Marketing and Cooperatives	3	E	III
AEM 708	Agric. Development and Policy	3	E	IV
AEM 710	Project Appraisal and Planning	3	E	IV
AEM 709	Statistical Theory and Analysis	2	C	
AEM 711	Mathematical Economics	2	C	
AEM 712	Agribusiness Management	3	E	III
AEM 713	Quantitative Methods	3	E	II
AEM 714	International Economics	3	E	I
AEM 715	Advance Resource Mgt. and Economics	3	E	I
AEM 790	Research Thesis	6	C	
CSC 701	Use of Computer in Research	3	C	
AGP 790	Seminar in Agric. Economics	2	C	

Footnotes to table

C= Compulsory Course; E = Elective Course; Groups I to IV: Four groups of related electives. A Student must offer at least one course from each group of electives. For a Student to graduate, he/she must offer a minimum of 36 units of courses, out of which 24 units are compulsory. AEM 715 is an adaptation from FRM 703 from Forestry Department.

- (a) Core course have a total of 19 units
 - (b) 9 units of elective courses must be done minimally
 - (c) Seminar 2 units, Project 6 units
- Total = 36
Core Course

Course Code	Course Title	Units
AEM 701	Microeconomic Theory	3
AEM 702	Macroeconomic Theory	3
AEM 703	Research Methodology	3
AEM 711	Mathematical Economics	2
AEM 710	Statistical Theory and Analysis	2
CSC 701	Use of Computer in Research	4
AEM 790	Thesis Research	2
AGP 790	Seminar in Agricultural Economics	6

Electives

Course Code	Course Title	Units
AEM 704	Econometrics	3
AEM 706	Farm Management and Finance	3
AEM 705	Production Economics	3
AEM 707	Agricultural Marketing and Co-operative	3
AEM 708	Agricultural Development and Policy	3
AEM 709	Project Appraisal and planning	3
AEM 712	Agribusiness Management	3
AEM 713	Quantitative Methods	3
AEM 714	International Economics	3
AEM 715	Advanced Resources Management and Economics	3

Course Synopsis.

AEM 701: MICRO ECONOMIC THEORY (3 UNITS)

Micro economic theory, price and distribution theory, theory of production and theory of consumer behaviour. General equilibrium analysis, factor market equilibrium and the exchange economy, Fundamentals of welfare economics.

AEM 702: MACRO ECONOMIC THEORY (3 UNITS)

The Mechanics of national income determination, consumption demand; demand for money investment demand; classical price level determination: Keynesian employment: wage price dynamics; and growth theories.

AEM 703: RESEARCH METHODOLOGY (3 UNITS)

Steps in research process and application: science and the scientific method; delineation of research problems and development of research objectives; research designs in social research: data generation; data analysis and result reporting. Elements of computer programming.

AEM 704: ECONOMETRIC METHODS (3 UNITS)

Basic concepts of statistical inference; Simple Linear regression model. Violations of basic assumptions of ordinary least square techniques, Consequences and remedies. Multiple regression and correlation. Single equation problems. Formulation and estimation of special model, distributed lag models with binary variables, Generalized Least Squares, Simultaneous equation systems.

AEM 705: PRODUCTION ECONOMICS (3 UNITS)

Theories of production, agricultural production functions, resources returns to agricultural resources, in agriculture; agriculture; agricultural cost and supply function, Optimization of production and farm planning under uncertainty, efficiency and innovation in agriculture, Fixed asset theory, dynamics and technical change.

AEM 706: FARM MANAGEMENT AND FINANCE (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; Principles of Financial Management, Cost-Benefit Analysis, Time value of money.

AEM 707: AGRICULTURAL MARKETING AND COOPERATIVES (3 UNITS)

Agricultural marketing theory, concepts and model; marketing functions; processing and transportation models, Marketing institutions co-operatives, marketing boards and others; market structure, conduct and performance; cost prices marketing margins, efficiency, extension; market planning and programmes. Agricultural trade and price analysis concepts underlying agricultural specialization and trade spatial and behavioural price analysis, impact of trade controls and commodity agreements.

AEM 708: AGRICULTURAL DEVELOPMENT AND POLICY (3 UNITS)

Theory of economic development, policies for economics; historical treatment of governmental policies and programmes affecting Nigerian Agricultural Policy in developing, planning and project appraisal, evaluation of agricultural policy in developing economy, co-operative agricultural development; country studies and seminar.

AEM 710: PROJECT APPRAISAL AND PLANNING (3 UNITS)

Meaning of projects appraisal, relationship between appraisal and planning; distinction between financial and economic appraisal; the tools of projects analysis; Issue in appraisal of agricultural projects, planning agricultural development; formulation of agricultural plan implementation.

AGP 790: SEMINAR IN AGRICULTURAL ECONOMICS (2 UNITS)

Reports by students on proposed Thesis research.

CSC 701: USE OF COMPUTER IN RESEARCH (4 UNITS)

AEM 711: MATHEMATICAL ECONOMICS (2 UNITS)

Functions of several variables, geometric interpretation, implicit functions, partial differential and total differentiation. Maxima and Minima Lagrangian multiplier, approximations Taylor's theorem Integration definite and indefinite integrals. Differential and Difference Equations. Sequences and series, Linear dependence determinants, Inverse Matrix, Simultaneous Linear equations Crammer's Rule, Set theory and Basic Logic, Calculus, Control theory, static optimization theory: Theory of competitive markets, Existence and stability Analysis, Optimal growth models. Application of the concepts in Economics will be emphasized.

AEM 713: QUANTITATIVE METHODS (2 UNITS)

Linear, non-linear, dynamic and integer programming, Net work Analysis, Inventory and Production Control, Decision Analysis, transportation models, replacement models, queuing models, input-output analysis.

AEM 714: INTERNATIONAL ECONOMICS (3 UNITS)

Introduction to pure theory of international trade, factor-price equalization, trade and growth, commercial policy and economic integration, international finance, balance of payment theory, international monetary system and institutions.

AEM 712: AGRIBUSINESS MANAGEMENT (3 UNITS)

The application of economic theory and management principles to the agribusiness firm. Topics to be covered include capital use and investment appraisal (private and public, financial management, business growth, farm planning techniques, and simulation in decision making.

AEM 709: STATISTICAL THEORY AND ANALYSIS (2 UNITS)

Sets and probability, calculus, random variables and probability distributions, special probability distributions, sampling theory and techniques, Markov's chain process, estimation theory, Test of Hypothesis, Analysis of variance, simple regression and multiple regression.

AEM 715: ADVANCED RESOURCES MANAGEMENT AND ECONOMICS (3 UNITS)

Micro-economics of forest resource, management and policy analysis, capital investment analysis, financial maturity model, timber harvesting scheduling models, capital replacement models, cost-benefit analysis, economics of multiple-use, management of forest resources, with emphasis on non-market benefits from the forest, advantages and disadvantages of alternative models for estimating recreation, wildlife and other non-market benefits.

ACADEMIC STAFF LIST

N/S	NAME	RANK	QUALIFICATION	AREA OF EXPERTISE
1.	Okuneye, P. A.	Professor	B.Sc (Ibadan), Ph.D (Leeds).	Farm Management and Accounting Environmental Economics
2.	Phillip, D. O. A.	Professor	B.Sc, M.Sc (ABU), Ph.D (Iowa State).	Production Economics Strategic Management - Econometrics
3.	Carolyn A. A.	Professor	B. Sc (Ibadan) M.Sc. (Cornell) Ph.D (Ibadan)	- Production Economics - Econometrics
4.	Aromolaran, A. B.	Professor	B. Agric (Nigeria) M.Sc, Ph.D (Ibadan)	- Econometrics - Development Economics
5.	Momoh, S.	Professor	M.Sc, Ph.D (Godollo)	- Farm Management - Agricultural Finance - Agricultural Marketing
6.	Dipeolu, A. O	Reader	B.Sc. (Ife), M.Sc., Ph.D (Ibadan)	- Quantitative Economics - Health Economics
7.	Phillip, B. B	Senior Research Fellow	B.Sc (ABU), M.Sc (Iowa State), Ph.D (ABU)	- Strategic Management - Marketing Management
8.	Adegbite, D. A	Senior Research Fellow	B.Sc, M.Sc., Ph.D (Ibadan)	- Agricultural Finance -Agricultural Cooperatives
9.	Okojie, L. O	Lecturer I	B.Sc (Ibadan) M.Sc. (Jos) Ph. D (Netherlands)	Development Economics
10.	Ashaolu, O. F	Lecturer I	B. Agric, M.Sc., Ph.D (Ife)	Resources Economics Agricultural Policy
11.	Ayinde, I. A	Lecturer I	B.Sc., M.Sc., Ph.D (UNAAB)	-Environmental Economics Production - Farm Management
12.	Agbonlahor, M. U	Lecturer I	B. Agric. (Nsukka) M. Agric. (UNAAB) M.Sc., GIS (Ibadan)	-Production Economics -Agricultural Economics
13.	Adewuyi, S. A	Lecturer II	B.Sc., M.Sc., Ph.D (Ibadan).	-Production Economics -Quantitative Methods

12.2 DOCTOR OF PHILOSOPHY DEGREE IN AGRICULTURAL ECONOMICS

OBJECTIVES

The Department of Agricultural Economics and Farm Management offers the Doctor of Philosophy (Ph.D) Programme in Agricultural Economics and Farm Management with the aim of producing higher level manpower and promoting scholarly study and research in Agricultural Economics, Farm Management and related fields.

STRUCTURE OF PROGRAMME

The programme for the degree of Ph.D shall consist of approved courses and research. Candidates who do not possess the M.Agric degree or M.Phil. degree from a recognized University may be expected to take additional Postgraduate courses which may be stipulated by the Department or Supervisory Committee.

PH. D QUALIFYING/CONVERSION EXAMINATIONS

The programme of the degree of Ph.D shall consist of approved courses and research. Candidates who do not possess the M. Agric. Or M. Phil degree from a recognized University may be expected to take additional Post graduate course which may be stipulated by the Department.

The number of candidates prospecting for Ph.D degree in Agricultural Economics at UNAAB has grown rapidly against the varied theoretical and research backgrounds among the candidates. There is the need to maintain competitive entry and candidacy requirements for the Ph.D degree programme, keeping in view the limited facilities and resources for student supervision.

In this regard, and effective from 2001/2002 academic session, Ph.D qualifying/conversion examinations becomes compulsory for every holder of M.Agric or M.Sc. Degree in agricultural economics, who did not prepare a thesis and/or passed his/her course work with at least a B (or 60%) cumulative average grade. The details of the qualifying examinations are available in the department.

There is no formal course work for the Ph.D programme in Agricultural Economics in UNAAB beyond those prescribed in the M.Agric. programme. However, each Ph.D candidate is expected to prepare and present to future audience applied and/or theoretical seminar papers. The details of the seminar papers as follows:

Course Code	Course Description	Units
AEM 719	Economic Theory Seminar (Micro-or Marco)	2
AEM 720	Field of Specialization Seminar	2
AGP 739	Pre-data Seminar (Thesis)	2
AGP 749	Post-Data Seminar (Thesis)	2
AGP 899	Thesis Research	6
	Total	14

All the non-thesis seminars are expected to be presented and passed before the student presents the Post data seminar. At least one of the non-thesis seminars should be presented before the pre-data seminar.

DEPARTMENT OF AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT

POSTGRADUATE PROGRAMMES

The Department of Agricultural Extension and Rural Development offers advanced study and professional training leading to the Degree of Doctor of Philosophy (Ph.D), Master of Agriculture (M.Agric.) and Postgraduate Diploma (PGD) in several areas of specialization in Agricultural Extension, Subject Matter Extension and Agricultural Communication. The courses are designed to increase student's knowledge of fundamental aspects of their programmes in order to develop an aptitude for designing, executing and interpreting research projects relevant to the need of the industry. Research facilities are available in the department and active research activities are being conducted by members of staff and students. Opportunities for collaborative research with other Universities, at home and abroad or with research institutes exist.

The graduate programmes emphasize course work as well as guided research with provision for seminar presentation to the University community on research achievements, which will eventually be presented in the form of thesis. Each student's research programme is designed in consultation with a supervisor or a team of supervisory academic members of staff. Students are encouraged generally to specialize in a particular area of Agricultural Extension and Rural Development, but depending on professional objectives, may find it desirable to pursue a programme of studies, which combines subject material from different areas of specialization, or interdisciplinary research programme (Subject Matter Extension).

Students wishing to enroll, especially for programmes leading to the degree of Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.), in the department should have flare for detail, mental alertness and critical analysis of information, ability to inquire, think and communicate logically, desire to explore the unknown patiently and persistently, and reporting absolutely honest judgment of thought and observations.

All matters relating to postgraduate admission into the department, courses required to be taken, appointment or change of supervisor(s), acceptance/rejection/modification of research topics, presentation of research seminars and generation of research data within the department or outside are considered by a Postgraduate Committee in the department. Recommendations are made to the College Postgraduate Board Committee or the University Postgraduate School for further action. These measures are put in place, especially on reliability and honesty with regard to data collection and presentation in order to protect the interests of students and staff, and the University. The Departmental Postgraduate Committee is chaired by the Head of Agricultural Extension and Rural Development Department, who not only maintains keen interest in the progress of all students, but also ensures that there is evidence of originality or scholarship in the students' work.

Objectives of Postgraduate Programmes

The objectives of the postgraduate programmes in the Department of Agricultural Extension and Rural Development are to:

- (i) Produce competent agricultural extension experts, who will take up challenges in the areas of research, training and developmental needs in the agricultural sector, academic institutions, and research institutes.
- (ii) Develop high-level manpower for the increasing scope of activities in the agricultural education and production of the nations economy.

Rationale for Postgraduate Diploma Programmes

Postgraduate Diploma in Agricultural Extension and Rural Development

The diploma in Agricultural Extension and Rural Development programme is designed to upgrade the skill and knowledge of rural development practitioners in the public service, private agencies, and NGOs in the area of rural extension, social work, and administration of rural and community development programmes. It will also prepare individuals with minimum deficiencies for direct admission into the master's programme to overcome such deficiencies and subsequently qualify for admission to UNAAB master's degree programme.

M. Agric. Degree Programmes in Agricultural Extension and Rural Development

The M. Agric. Degree programme is designed to upgrade the scholarship and skill of Agricultural Extension practitioners as well as furnish both private and public sectors with the much-needed competent agricultural extension manpower.

M. Agric. Degree Programmes in Agricultural Communication

M. Agric. Agricultural Communication graduates should be generally knowledgeable in the practice of journalism, broadcasting, advertising, marketing and public relations particularly as they concern the field of agriculture.

M. Agric. Degree Programmes in Subject Matter Extension

At the end of this programme, graduates should be able to educate farmers and would-be-farmers and offer advisory services to them in their core subject areas, having in mind the principles and tenets of agricultural extension and rural development. The areas of specialization could be any of the following:

- Crop science
- Fisheries
- Animal Science/Livestock Production
- Vocational Agricultural Education
- Forestry
- Soil Science
- Home Economics and other areas of agriculture

These programmes will run in collaboration with relevant subject matter departments. The courses to be covered in these subject matter areas will be 40% core subjects and 60% Extension and Rural Development courses. The graduation requirements for the M.Agric Programme comprise 6 units of Thesis/Seminar and 30 units of courses.

Postgraduate Specialization

The following programmes are available:

- (a) **One year Postgraduate Diploma (PGD):** Agricultural Extension and Rural Development.
- (b) **Two years Master of Agriculture (M.Agric.) Degree in:**
 - (i) Agricultural Extension and Rural Development;
 - (ii) Agricultural Communication;
 - (iii) Subject Matter Extension
- (c) **Two years or more for the Doctor of Philosophy (Ph.D.) degree:** All areas listed under (a) and (b) above

POSTGRADUATE COURSE LISTS

Courses for Postgraduate Diploma in Agricultural Extension and Rural Development

FIRST SEMESTER

CODE	COURSE TITLE	UNIT
AXD 701	Principles and Practice of Agricultural Extension and Rural Development	3
AXD 703	Supervision and Administration of Rural Development Projects	3
AXD 705	Research Methods, Social Statistics and Measurement in Rural Development	3
AXD 707	Principles and Practice of Livestock Production	2
AXD 709	Principles and Practice of Crop Production	2

SECOND SEMESTER

CODE	COURSE TITLE	UNIT
AXD 702	Agricultural Communication Principles and Methods	3
AXD 704	Planning, Monitoring and Evaluating Rural and Community Development Projects	3
AXD 706	Projects	3
AXD 708	Fundamentals of Agric. Economics and Farm Management	2
AXD 710	Fundamentals of Soil Science	2

Total Number of Units

26

Courses for M.Agric. and Ph.D. Programmes

M.Agric. Agricultural Extension and Rural Development

Core/Compulsory Courses for all options

CODE	TITLE	UNIT
CSC 701:	Use of Computer in Research	3
AEM 701	Research Methods	3
ARD 701	Principles and Philosophy of Agric. Ext.	3
ARD 703	Measurement and Scaling	3
ARD707	Social Statistics	3
ARD 704	Programme Planning and Evaluation	3

Core/Compulsory Courses for M. Agric. Agricultural Communication Option

ARD 714	Public Relations in extension	3
ARD 712	Broadcast Media production	3
ARD 708	Mass Communication Theories and Practice	3

Elective Courses for M. Agric. Programme

ARD 705	Advanced Rural Sociology	3
ARD 709	Economics of extension	3
ARD 706	Comparative Extension System	3
ARD 716	Psychology for Extension Personnel	3
ARD 718	Extension Organization and Administration	3
ARD 799	Thesis/Seminar	6

Ph. D. Agricultural Extension and Rural Development Programme

CODE	TITLE	UNIT
ARD 791	Agric. Ext. Theories, Models and Readings	3
ARD 792	Advanced Social Statistics	3
ARD 793	Advanced Extension Administration	3
ARD 794	Agric Journalism	3
ARD 795	Advanced Mass Communication Models	3
ARD 796	Communication Law	3
ARD 797	Topical Issues in Mass communication Research	3
ARD 798	Advanced Social Theories and Social Devt.	3
ARD 799	Advanced Economics of extension	3
ARD 790	Comparative Rural Social Systems	3
ARD 999	Ph. D. Thesis/Seminar (Compulsory)	3

POSTGRADUATE COURSE SYNOPSES

FIRST SEMESTER (13 Units)

AXD 707 - Principles and Practice of Livestock Production (2 Units)

Trends in livestock production in Nigeria. Components of livestock feeds. Functions of carbohydrates, fats, vitamins, water and minerals. Digestive system of ruminants and non-ruminants. Balanced rations. Feed formulation, animal breeding and reproduction. Beef and dairy cattle production. Sheep and goats breeds, rearing, diseases. Principles of raising poultry birds, management practices, diseases/control. Pig production breeds, housing, feeding and management diseases.

AXD 709 - Principles and Practice of Crop Production (2 Units)

Classification of crops, cultivation principles. Types of propagation. Land preparation, penury and nursery techniques. Fruit tree production: varieties, soil/climatic requirements, cultivation and harvesting method, pests and diseases (cocoa, rubber, citrus, oil palm, cola). Vegetable crops. (solanum family, spinach, okro, carrot). Cereals and legumes (maize, rice, sorghum, groundnut, cowpea).

AXD 701 Principles and Practice of Agricultural Extension and Rural Development (3 Units)

Philosophy and principles of agricultural extension. Extension objectives. Teaching learning process. Extension methods for innovation dissemination, training & visit extension technique. unified agric. extension system (AUES). Meaning of rural sociology. Concept of culture, elements of culture. Agents of socialization. Patterns of

relationship in rural setting. Principles of community development. Rural development strategies, rural development in Nigeria.

AXD 703: Supervision and Administration of Rural Development Projects (3 Units)

The place of supervision in administration. Role of extension supervisors. Basic principles of agric. extension supervision. Functions of administrators. Qualities of an administrator. Functions of management (planning, organizing, controlling, staffing, coordinating, reporting, Budgeting). Management theories, Organograms in administration. Motivation theories and their application to rural development administration.

AXD 705: Research Methods, Social Statistics and Measurement Rural Development (3 Units)

Statement of research problem design, hypotheses, and data collection methods. Literature review modalities. Analysis of data and their interpretation. Measures of central tendency and dispersion (mean, mode, median, standard deviation etc.). Pearson product moment correlation. Spearman rank and Kuder Richardson methods of correlation. T-test, chi-square, McNemar test, wilcoxon's test, analysis of variance, regression analysis. Levels of measurement (nominal interval scale etc.). Validity and reliability. Measurement of variables using Likert scales and item analysis procedure. Normalization of scores.

SECOND SEMESTER

AXD 708 - Fundamentals of Agric. Economics and Farm Management (2 Units)

Scope and nature of economics. Agricultural economics and its subdivisions. Opportunity cost. factors of production. General principles of demand and supply. Price determination and elasticities. The concept of costs. The production function. Long and short-run effects in economic analysis. Cost-benefit analysis in project appraisal. Types of farm records, farm management decision-making principles. Agric. co-operatives. Marketing channels. Role of credit in agric. Development. Agricultural development policy in Nigeria.

AXD 710 - Fundamentals of Soil Science (2 Units)

Origin and formation of soils. Physical and chemical properties of soil. Soil profile. Soil organic matter. Soil colloids and reactions. Mineral nutrients. Clay mineralogy, soil micro-organisms. Soil erosion. Soil fertility management. Soil moist conservation. Types of irrigation. Soil classification.

AXD 702 Agricultural Communication Principles and Methods (3 Units)

A review of the concept of communication. Levels of communication. Elements of communication. Effectiveness of communication. Communication barriers. Models and theories of communication. Theories of adoption. Diffusion process. Research extension linkages. Extension communication methods. Audience analysis. Agricultural news writing and delivering. Radio script. Practical application of visual aids. Post-independent development communication in Nigeria's agric. programmes.

AXD 704 Planning, Monitoring and Evaluating Rural and Community Development Projects (3 Units)

Importance of programme planning in agric. extension. Clientele participation in development of programmes. (Relevance/importance & citizen's participatory strategies). Criteria for priority setting. Programme planning process. A typical plan of work and calendar of work. Distinction between monitoring and evaluation. Strategies for monitoring and evaluating extension/rural development projects.

AXD 706 Project (3 Units)

Total Number of Units: 26 Units. Timing and study schedule: 1 day/week for a year)

M.Agric Degree Programmes in the Department of Agric. Extension & Rural Development

General Objective

The M.Agric Degree is designed to upgrade the scholarship and skill of agricultural extension practitioners as well as furnish both private and public sectors with the much-needed competent agricultural extension manpower.

Specific Objectives

M.Agric Agricultural Communication: Graduates in this area should be generally knowledgeable in the practice of Journalism, Broadcasting, Advertising, Marketing and Public Relations particularly as they concern the field of Agriculture.

M.Agric Subject Matter Extension: At the end of this programme, graduates should be able to educate farmers and would-be-farmers and offer advisory services to them in their core subject areas, having in mind the principles and tenets of Agricultural Extension and Rural Development.

M.AGRIC AGRICULTURAL COMMUNICATION

In addition to the general requirements established by the post-graduate school, candidates for admission to the degree shall be graduates of the University of Agriculture, Abeokuta or other Universities recognized by Senate, with degree in Agricultural Extension or related disciplines. A Bachelor of Science in Agriculture or Bachelor of Agriculture with a minimum of Second Class Honours Lower Division with three years relevant work experience.

Candidates with degrees other than the above (Adult Education, Sociology, Mass Communication, Communication Arts, Psychology and other relevant disciplines) who possess in addition relevant professional qualifications and/or experience are eligible. Degree in Agriculture, Vocational Agricultural Education, and Vocational Home Economics Education will be an advantage.

M.AGRIC SUBJECT MATTER EXTENSION

Candidates for admission to this programme shall be holders of Bachelor of Science in Agriculture or Bachelor of Agriculture with specialization in any of the following fields of Agriculture:

- Crop Science
- Fisheries
- Animal Science/Livestock Production
- Vocational Agric. Education
- Forestry
- Soil Science
- Home Economics/Home Science and other areas of Agriculture.

Structure of the Programme

The M. Agric degree shall follow the course system format in use in the University. There shall be one level of courses numbered 700 to 799 applicable to all the Master's programme in the Department. The Department's subject Code shall preface Master's degree course number ARD.

** Agricultural Communication (M.Agric).

** Subject Matter Extension (M.Agric) with possible specialisation in the following areas:-

- Livestock Extension
- Agronomy Extension
- Forestry Extension
- Fisheries Extension
- Home Science and Management Extension (M.Sc.)

These programmes will be run in collaboration with relevant subject matter departments. The courses to be covered in these subject matter areas will be 40% core subject matter and 60% Extension and Rural Development courses.

** Agricultural Extension and Rural Development (M.Agric)

FIRST SEMESTER

M.Agric. Communication

COURSE CODE	COURSE TITLE	UNITS	C/E
ARD 701	Prin. And Philosophy of Agric. Ext.	3	C
ARD 703	Measurement and Scaling Technique	3	C
ARD 707	Social Statistics	3	C
ARD 702/AEM 702	Research Methods	3	C
CSC 701	Computers in Agric.	4	C

SECOND SEMESTER

M.Agric. Communication

COURSE CODE	COURSE TITLE	UNITS	C/E
ARD 714	Public Relations in Extension	3	C
ARD 712	Broadcast Media Production	3	C
ARD 708	Mass Communication Theories And Practice Programme	3	C
ARD 704	Planning & Evaluation	3	C
ARD 706	Comparative Extension System	3	E
ARD 716	Psychology for Extension Personnel	3	E
ARD 705	Advanced Rural Sociology	3	E
ARD 718	Extension Organisation & Admin.	3	E
ARD 799	Thesis/Seminar	6	C

Graduation Requirements: A total of 36 Units comprising 6 Units of Thesis/Seminar and 30 Units of course work is required.

FIRST SEMESTER

Subject Matter Extension (M.Agric)

COURSE CODE	COURSE TITLE	UNITS	C/E
ARD 701	Principles and Philosophy of Agric. Ext	3	C
SME 701	(A course on Field Experimentation/On-Farm Adaptive Research (OFAR)	3	C
ARD 707	Social Statistics	3	C
ARD 702/AEM 702	Research Methods	3	C
CSC 701	Computers in Agriculture	4	C

SECOND SEMESTER

Subject Matter Extension (M.Agric)

9 Units must be taken in the subject matter area, plus at least 6 units of electives:

COURSE CODE	COURSE TITLE	UNITS	C/E
ARD 714	Public Relations in Extension	3	C
ARD 712	Broadcast Media Production	3	C
ARD 708	Mass Communication Theories And Practice Programme	3	C
ARD 704	Planning & Evaluation	3	C
ARD 706	Comparative Extension System	3	E
ARD 716	Psychology for Extension Personnel	3	E
ARD 705	Advanced Rural Sociology	3	E
ARD 718	Extension Organisation & Admin.	3	E
ARD 799	Thesis/Seminar	6	C

COURSE CODE	COURSE TITLE	UNITS	C/E
ARD 714	Public Relations in Extension	3	C
ARD 709	Economics of Extension	3	C
ARD 704	Programme Planning & Evaluation	3	E
ARD 705	Advanced Rural Sociology	3	E
ARD 714	Public Relation in Extension	3	E
ARD 706	Comparative Extension System	3	E
ARD 708	Advanced Rural Sociology	3	E
ARD 716	Psychology for Extension & Practice	3	E
RD 718	Extension Organisation & Admin.	3	E
ARD 799	Thesis/Seminar	6	C

Graduation Requirements: A total of 36 Unit comprising 6 Units of Thesis/Seminar and 30 Units of courses.

M. Agric Course Synopses

ARD 701 Philosophy and Principles of Agric. Extension (3 Units)

Lecture hours - 30

The Philosophy of Agric. extension: The principles governing extension practices. Processes in agric. extension (communication process, adoption/diffusion processes). Concepts of adult and community education. Strategies for community, rural, and agric. development. Training and Visit Extension system.

ARD 702 Research Design and Methodology in Extension (3 Units)

Lecture hours - 30

Characteristics of scientific method, selection and formulation of a research problem and hypothesis. Exploratory and descriptive research studies the survey, the questionnaire and interview, observational studies, critical incident techniques, action research, etc. Developmental and growth studies. Experimental designs for testing casual hypotheses one group pre-test past test design, randomized control design, etc. Methods for data collection. Sampling techniques. Tabulation analysis and interpretation of data. Concept of evaluation and procedure for evaluating and extension project. Preparing a research report.

ARD 703 Measurement and Scaling Techniques (3 Units)

Lecture hours - 30

Meaning and scales of measurement. Factors influencing the choice of appropriate parametric tests. Principles of test construction-statistical concepts, item analysis, and types and measurements of reliability and validity. Techniques for attitude scale, construction methods of paired comparison, equal-appearing intervals, successive intervals, summated ratings, and scale-gram analysis.

ARD 704 Programme Planning and Evaluation in Agric. Extension (3 Units)

Lecture hours - 30

Objectives of the Course: The course is essentially an attempt to assist students gain an understanding of the need for and steps in programme developmental and evaluation in agricultural extension work to actual field work and on-the-job situations.

At the completion of the course, students should be able to evolve a programme of work, calendar of operation and a model for evaluating and establishing knowledge of when an extension programme has accomplished its set out objectives.

Course Outline: Principles and concepts of programmes. Planning and evaluation as applied to agricultural extension.

Basic steps in programme development: Determination of needs, clarification of problems, setting objectives, development of a plan, obtaining staff and clientele commitment to action, programme implementation, and appraisal.

ARD 705 Advanced Rural Sociology (3 Units)

Lecture Hours - 30

General sociology theory and analysis of rural social systems. Relation of the individual to his/her social environment, group dynamics, and leadership patterns. Social change and community Organization, and special topics in rural sociology.

ARD 706 Comparative Extension Systems (3 Units)

Lecture hours - 30

Extension education strategies and organizations in selected countries comparison of those systems with that of Nigeria. The countries and organization are universities, private companies, Nigeria, French speaking West African Countries, Tanzania, Japan, U.S.A.. Britain etc.

ARD 707 Social Statistics and Computer Science I & II (3 Units)

Lecture hours - 30

The courses aim at intimating students with advanced concepts and principles of statistical methods and their subsequent application in solving social science issues. The format of course will be in the shape of quizzes, assignments and group work, all of which count in the final course grading.

Course Description: Meaning of statistics, descriptive/inferential statistics, definition of common terms; data, variable, hypotheses, parameter etc: Types of scales nominal, ordinal, interval and ratio scales, measure of central tendency, measures of dispersion. Hypothesis testing, (The Z-test, t-test, F-test). Higher level ordinal scale of measurement. Higher level interval/ratio scale of measurement. Introduction to computer. Research methodology. Coding procedures. Approach to the computer. Computer output.

ARD 708 Mass Communication Theories and Practice (3 Units)

Lecture hours 30

Models in communication research, Information theories, the measurement of readability, persuasion and attitude change, propaganda, groups and communication, mass media in modern society, effects of mass communication. Writing for the ear and the eye Radio, News talks, features, magazines, special reports, drama, panel discussions and interviews, advertising techniques; and televisions documentary magazines news, announcements, panel discussions and interviews, drama, commentaries and their application, agricultural extension services. The course will include excursions to selected media houses and organized practicals.

ARD 709 Economics of Extension (3 Units)

Lecture hours 3

Rural Economics: Meaning and scope, organizing rural production, project and project identification. Programme development and appraisal, cost/benefit analysis, cost/effectiveness, output measurement in extension and marketing, growth models and rural development.

ARD 710 Seminar on Extension Science (3 Units)

Lecture hours - 30

Changing issues in Extension science, the logic of extension, diffusion research, essentials of active utilizer systems, Agricultural information systems, and agricultural information system targeting.

ARD 716 Psychology for Extension Personnel (3 Units)

Lecture hours - 30

Concept of human development, intelligence, individual differences teaching, learning motivation and emotion relation to extension education.

ARD 717 Statistical Theory and Analysis (3 Units)

Lecture hours - 30

Sets and probability, random variables and probability distributions. Mathematical expectations, sample theory, estimation theory, tests of hypotheses and significance, regression and correlation, and analysis of variance.

ARD 718 Organization and Administration of Community Development (3 Units)

Lecture hours - 30

Involvement and participation of local people in developmental programmes, concept of community development, issues in organization of community development, goals and strategies of community organization. Influence of urbanization, urbanization and bureaucratization on community life in developing countries, principles and methods of administering community development programmes, concept of organization and administration and problems involved in practical life.

ARD 798 Seminar on Extension Science (3 Units)

A student will select/or be given a topic of current interest and prepare a report based on review of literature. The report will be presented in class.

ARD 799 Special Project (3 Units)

This is the M.Agric. thesis for which individual students will have supervisor. Students shall spend the last six months of the programme duration to concentrate on their M.Sc research project.

STRUCTURE OF PROGRAMME

The programme for the degree of Ph.D shall consist of approved courses and research. Registration shall normally be completed within 3 weeks of the first semester. Each student shall however be required to renew his registration at the beginning of each academic year. There shall be one level of course work numbered 800 to 899. Each course number being preceded by the departmental subject code (AXD). Full time candidates shall be required to register for and pass a minimum number of units approved by the Senate on the recommendation of the Postgraduate School.

Part-time students shall be required to register for not more than 60% of the minimum course work for the award of the degree in any one year.

Candidates shall be required to carry out their research under supervisors appointed by the Department and approved by the Postgraduate school. Each candidate is required to submit a thesis, the language of which shall be English as part fulfillment for the award of the degree. Doctoral students will register the titles of their thesis or dissertation as AXD 999.

COURSE OUTLINE

Ph.D: Agricultural Communication/Subject Matter Extension

COURSE CODE	COURSE TITLE	UNITS	C/E
ARD 791	Agric. Ext. Theories, Models & Readings	3	E
ARD 792	Advanced Social Statistics	3	E
ARD 793	Advanced Extension Administration	3	C
ARD 790	Comparative Rural Social Systems	3	C
ARD 798	Advanced Social Theories & Social Dev.	3	C
ARD 791	Advanced Economics of Extension	3	E
ARD 794	Agric. Journalism	3	E
ARD 795	Advanced Mass Communication Methods	3	E
ARD 796	Communication Law+	3	E
ARD 797	Topic Issues in Mass Comm. Research	3	E
ARD 999	PhD Thesis/Seminar (Compulsory)	3	E

Doctoral students are expected to register for a minimum of 9 units and maximum of 12 units.

ARD 791 Agric Extension Theories, Models and Readings (3 Units)

Lecture hours - 30

Adoption Technology transfer, change and innovation. Diffusion, Social action process, attitude formation, and measurement of attitude, motivation theories, agricultural extension systems and their underlying features.

ARD 792 Advance Social Statistics (3 Units)

Lecture hours - 30

Research context and basic concepts, aspects of research work, research types, analyzing and interpreting Data.

ARD 793 Advanced Extension Administration (3 Units)

Lecture hours - 30

Analysis of the organization of modern bureaucracy and public services: Theoretical concepts and empirical research relating to administrative behavior in complex organizations with particular reference to extension services. Problems of organizing, staffing and control, managing, development and research projects.

ARD 794 Agricultural Journalisms (3 Units)

Lecture Hours - 30

Theory and practice of scientific research writing and production of scientific journals. Preparation, writing, editing and production of educational publications. Techniques of exhibition and advertising in agriculture.

ARD 795 Advanced Mass Communication Methods (3 Units)

Lecture hours - 30

Communicating process and environment, skills of communication, use of selected audio visual aids.

ARD 796 - Communication Laws (3 Units)

Lecture hours - 30

Scope and forms of legal constraints for effective dissemination of information and publication in agricultural extension and community development

ARD 797 Topical Issues in Mass Communication Research (3 Units)

Lecture hours - 30

Topical Analysis, Readability, and the application to agricultural publications. New world information and communication order and the community, grass-root mobilization and information utilization.

ARD 798 - Advanced Social Theory And Social Development (3 Units)

Lecture hours - 30

The students are expected to air their views on issues of development, cultures, North-South dialogue, rural involvement of peasants in development. Presentation of papers on developmental issues, role of Multinational organizations (NGO) in development. The concept of development in historical perspective, the history of sociology of development the anthropological tradition, traditional sociology of modernization, and practical implications.

ARD 799 Seminar

The presentation of Ph.D Thesis proposal. The students will be expected to present their special research proposals to a forum consisting of academic staff and students of the department and other members of the University academic staff.

ARD 999 Ph.D Thesis

STAFF LIST

N/S	NAME	RANK	QUALIFICATION	SPECIALIZATION
1.	Fakoya, E. O		B.Sc (Nigeria), M.Sc, Ph.D (Ibadan)	Agric Ext & Rural Sociology
2.	Omotayo, A. M	Professor	B.S, M.S (Virginia State), Ph.D. (ABU)	Agric Ext & Rural Sociology
3.	Apantaku, S. O		B.Sc (Nigeria), M.S, Ph.D. (Southern Illinois)	Agric Ext & rural Social System
4.	Ladebo, O. J		B.Sc, M.Sc, Ph.D (Ibadan)	Agric Extension Management
5.	Oloruntoba, A	Reader	B.Sc (Ibadan), M.S (Calif. Berkeley), Ph.D (Ibadan)	Rural Ext Training & Gender
6.	Awotunde, J. M	Senior Lecturer	M.Sc, Ph.D (CLSU, Philippines)	Rural Sociology
7.	Adebayo, K		B.Agric, M.Agric, Ph.D. (Abeokuta)	Agric Comm. & Dev Modeling
8.	Sodiya, C. I		B.Sc (Ago-Iwoye), B.Sc (Ibadan), Ph.D (UNAAB)	Agric Ext & Rural Sociology
9.	Fabusoro, E		B.Agric, M.Agric, Ph.D. (UNAAB)	Agric Ext & Rural Dev.
10.	Ashimolowo, O. R		B.Tech (Akure), M.Sc, Ph.D (Ibadan)	Agric Ext & Rural Sociology

DEPARTMENT OF HOME SCIENCE AND MANAGEMENT

MASTER OF SCIENCE IN CLOTHING AND TEXTILES

The Department of Home Science and Management offers a two-year M.Sc Programme in Clothing and Textiles. It involves both coursework and research thesis.

Candidates for admission to the degree shall be graduates of the University of Agriculture, Abeokuta or other Universities recognized by Senate with degree in Clothing and Textile related disciplines. A Bachelor's degree with a minimum of Second Class Honours, Lower Division with three years relevant work experience is required.

PROGRAMME OBJECTIVES

The objective of the programme is to produce high level manpower through broad based advanced knowledge for work as professional clothing and textile experts in both private and public sectors of the economy. It is to produce competent scientists with high entrepreneurship orientation who can utilize their scientific and research orientation to create jobs in this field.

STRUCTURE OF PROGRAMME

The programme is structured to have series of courses, seminars and thesis. Students are required to select 30 credits units of course work (15 units for each semester) depending on their Clothing/Textile options during the first year. In the second year, they are expected to select 6 units of Research Project and 2 units of Seminar.

FIRST YEAR

(a) Compulsory Courses

FIRST SEMESTER

Course Code	Course Title	Units
HSM 701	Production & Selection of Textiles	3
HSM 707	History of Costume	3
HSM 709	Social, Psychological and Cultural Aspect of Clothing	2
CSC 701	Computers in Research	4
TOTAL		12

SECOND SEMESTER

COURSE CODE	COURSE TITLE	UNITS
HSM 702	Research Methodology	3
HSM 706	Problems in Textile and Clothing	3
HSM 708	Textile in Home Furnishing	2
HSM 712	Special Consumer Problems in Clothing and Design	2
HSM 714	Management of Textile Enterprises	2
TOTAL		12

(b) Elective Courses

FIRST SEMESTER

COURSE CODE	COURSE TITLE	UNITS
HSM 705	Studies in Decorative Textiles	3
HSM 703	Pattern Design and Alteration	3
TOTAL		6

SECOND SEMESTER

COURSE CODE	COURSE TITLE	UNITS
HSM 710	Advanced Textiles	3
HSM 704	Advanced Clothing	3
TOTAL		6

SECOND YEAR

Compulsory

COURSE CODE	COURSE TITLE	UNITS
HSM 716	Research Project	6
HSM 797	Seminar I	1
HSM 798	Seminar II	1
TOTAL		8

COURSE SYNOPSES

HSM 701 – Production and Selection of Textiles (3 units)

Detailed study of production, legislations, standardization, labeling and advertising related to textiles, textile product and clothing accessories.

HSM 702 – Research Methodology (3 units)

Characteristics of a research, selection and formulation of research problem and hypothesis. Inter-disciplinary approaches to the study of clothing and textiles, viz: use of historical, art historical, social and anthropological lenses. Methods of data collection, analysis and interpretation of data and tabulation analysis. Result reporting.

HSM 703 – Pattern Design and Alteration (3 units)

Principle of flat pattern designing, pattern alteration, modification of commercial patterns and principles of fitting. Course develops versatility in use of commercial patterns and given experience in designing original garments. Development of individual master pattern.

HSM 704 – Advanced Clothing (3 units)

Advanced methods of finishing garments, tailored construction in making various garments such as coats, dresses, draping, special designing etc.

HSM 705 – Studies in Decorative Textiles (3 units)

Creating and applying original designs to textile hand processes, silk screen block print and other methods of colour and pattern application.

HSM 706 – Problems in Textiles and Clothing (3 units)

Investigation and report of individual problems in the field of textiles and clothing. A comparative study of the various types of cloth, cost and durability fabrics. Comparison of selected procedures in clothing construction evaluation of suitability for use. The use of old garments in the family wardrobe and creative designing in the production of one or more costumes.

HSM 707 – History of Costume (3 units)

Study of the development of costume from ancient time to the present day. Dress of selected cultures from ancient times to the present. Historic costumes as a source of inspiration for development.

HSM 708 – Textiles in Home Furnishing (2 units)

Studies in the techniques and design of textiles for the interior, relationship of historical and contemporary fabrics and colour in application to present day uses.

HSM 709 – Social Psychological and Cultural Aspects of Clothing (2 units)

Study of relationships between clothing and human behaviour. An interdisciplinary approach to the study of dress as related to stages in the family life cycle interpreted through cultural, aesthetic, socio-psychological and economic concepts.

HSM 710 – Advanced Textiles (3 units)

The effect of the physical and chemical structures of textile fibres on their properties, manufacturing processes, use and care.

HSM 712 - Special Consumer Problems on Clothing (2 units)

Evaluation and adaptation of design to meet the need of specific groups such as the elderly, and the handicapped. Application of special techniques in drafting in drafting pattern design and construction.

HSM 714 - Management of Textile Enterprises (2 units)

Principles of business management as applied as applied to clothing accessories and household textiles. Management of small-scale home industries in the clothing and textile area.

HSM 721 – Advanced Research and Bibliographic Studies (3 units)

Advanced qualitative and scientific research at the Doctoral level; Relationships among experimental (laboratory and field), documentary (historical) and survey research. Review of various studies in Clothing and Textiles; analysis, field work, etc. Use of the library, citation, microfiche, microformetc, use of computer in conducting research; techniques of presenting research papers in seminars and conferences; preparing academic work and for various funding agencies; preparing technical papers and reviewing other academic papers.

HSM 722 – Ph.D Research Seminar (3 units)

The Candidate develops a seminar paper, preferably based on some of the data collected for the study so far. This is presented to the University community and scored.

HSM 723 – Ph.D Research Seminar 1 (3 units)

Candidates develop and present an academic seminar paper to staff and students of the College especially and to the University in general. This paper and presentation are scored.

HSM 724 – Thesis Proposal and Preparation for Final Report (6 units)

Each student prepares, develops and submits an appropriately supervised proposal and Thesis of an original work in Clothing and Textiles.

HSM 725 – Advanced Independent Study (3 units)

Students conduct an original study on specific and unique issue in Clothing and Textiles. The report is compiled and assessed by the appointed Supervisor.

HSM 727 - Research Project (6 units)

DOCTOR OF PHILOSOPHY DEGREE IN CLOTHING AND TEXTILES

OBJECTIVES

The Department of Home Science and Management offers a Doctor of Philosophy (Ph.D) degree programme in Clothing and Textiles with the aim of producing higher level manpower and promoting scholarly study and research in various aspects of Clothing and Textiles and related fields. The programme will provide in particular scholars occupying research and teaching positions in universities, research institutes, industries and government departments in which callings in fashion, clothing and textiles are demanded.

ENTRY REQUIREMENTS

An applicant for admission to the Ph.D programme in Clothing and Textiles should possess at least an M.Sc in Clothing and Textiles of the University of Agriculture, Abeokuta. Other holders of M.Sc degree from other universities will be registered for the M.Sc/Ph.D programme in the first instance. Thereafter, they would be upgraded to the full Ph.D programme after two semesters. However, they must obtain a minimum cumulative average score of 60% as requirement for conversion.

STAFF LIST

NAME	RANK	Degree/University Obtained	where	Specialization
Adetoro, S. A	Professor	B.A, M.A. (ABU) Ph.D (North Texas University)		Textile Design and Technology
Akinwumi, T. M	Reader	B.A., M.A. (ABU) Ph.D (Ibadan)		Fashion and Textile History

DEPARTMENT OF NUTRITION AND DIETETICS

PROGRAMMES AVAILABLE

The following postgraduate degree programmes are offered in the Department of Nutrition and Dietetics:

- (a) **Postgraduate Diploma in Nutrition and Dietetics**
- (b) **The two-year Master of Science (M.Sc.)**
- (c) **Doctor of Philosophy (Ph.D)**

POST GRADUATE DIPLOMA IN NUTRITION AND DIETETICS

Objectives Justification and Admission Requirements

The Diploma in Human Nutrition is designed to upgrade the skill and competence of community nutrition workers who execute government policies in the areas of foods and nutrition in public and private organisations. It will also prepare individuals with minimum deficiencies for direct admission into Master's programme to overcome such deficiencies and subsequent qualify for admission to UNAAB's Master's degree programme in Nutrition and Dietetics. Admission Requirements: To be eligible for admission to the Postgraduate Diploma Programme, candidates must be first degree holders in relevant disciplines from any recognized University. Such relevant disciplines include Home Economics Education, Nursing, food Science and Technology and other Science-

related programmes. Holders of HND (Upper Credit) and above with minimum of 4 years post-qualification experience are also eligible.

Duration: The postgraduate diploma in Human Nutrition is a two-semester programme (1 academic year).

Course Work Requirements

Each candidate must pass a total of 30 units made up of 24 units of compulsory courses and 6 units of electives.

COURSE CODE	TITLE	UNITS	C/E
NUD 701	Human Physiology	3	C
NUD 703	Principles of Food Preparation	2	C
NUD 705	Introduction to Nutrition	2	C
NUD 707	Nutritional Biochemistry	2	C
NUD 709	Research Methods in Foods & Nutrition	2	C
NUD 711	Seminar	1	C
	TOTAL	12	
ARD 601	Principles and Practice of Agricultural Ext.	3	E
FST 605	Food Microbiology I	3	E
	TOTAL	6	

Second Semester

COURSE CODE	TITLE	UNITS	C/E
NUD 702	Community Nutrition	3	C
NUD 704	Nutrition Therapy and Education Methods	2	C
NUT 706	Human Nutrition in Health	2	C
FST 610	Sensory Evaluation of Foods	2	C
NUD 712	Food Service and Management	3	E
NUD 714	Seminar	1	C
NUD 716	Computer Application in Nutrition	2	E
NUD 799	Research Project	3	C
ARD 614	Gender Matters in Development Policies	3	E

SYNOPSIS OF COURSES

NUD 701 – Human Physiology (3 units)

Water balance, body fluids constituents, exchange between fluid compartments. Acid-base balance enzymes (Carbohydrates, Proteins, Fats and Their Metabolism). Methods of Investigating Intermediary Metabolism) Muscle and Muscles contraction. Blood and other Body Fluids Circulation. Oxygen Transport, Haemoglobin, Respiration, Digestive System, Digestion and Absorption, Urine Formation and Kidney Functions, Hormones, Homeostasis Control. Physiology of Pregnancy, Human Growth and Development.

NUD 702 – Community Nutrition (2 units)

Identification of nutritional problems and resources available in the community management of nutrition services, provision of nutrition information/education to the public.

NUD 703 – Principles of Food Preparation (2 units)

Application of nutrition knowledge and basic scientific principles of meal management, selection, preparation and safety of food. Study of food groups and use of food composition table in compiling menus.

NUT 704 – Nutrition Therapy and Education Methods (2 units)

Concepts of therapeutic nutrition as applied in the treatment of human disease. Educational methods applied to nutrition and food service management, communication skills and evaluation methods.

NUT 705 – Introduction to Nutrition (2 units)

Principles of normal nutrition including study of the major nutrients, their interrelationships and their role in health.

NUD 707 – Nutritional Biochemistry (2 units)

Relationships between dietary intake and intermediary metabolism of nutrients in nutritional diseases. Toxins and detoxification in animal system.

NUD 709 – Research Methods in Foods and Nutrition (2 units)

Methods and techniques of research applicable to problems in foods and nutrition. Food consumption surveys, anthropometry.

NUD 712 – Food Service and Management (3 units)

The overall procedure involved in food service and institutionalized catering management.

NUD 716 – Computer Application in Nutrition (2 units)

Use of various Computer Software Programmes for nutritional assessment, inventory control; recipe database, menus, production forecasting and spreadsheet methods.

ARD 601 – Principles and Practice of Agricultural Extension (3 Units)

Objectives Teaching - Learning Process. Extension Methods for Innovation Dissemination, Training and Visit Extension Technique. Unified Agriculture Extension System (UAES). Meaning of Rural Sociology. Concept of Culture, Elements of culture. Agents of Socialization. Patterns of Relationship in Rural Setting. Principles of Community Development. Rural Development Strategies. Rural Development in Nigeria.

ARD 614 – Gender Matters in Development Policy (3 units)

Gender Inequality Issues. Gender and Poverty Levels. Measurement of Gender Empowerment Index. Measurement of Gender Development Index. Gender Empowerment and Development Indices in Nigeria. Gender Relation Policy Options in Human Development and Agrarian Programmes. Strategies for Implementing Gender – Biased Programmes.

FST 605 – Food Microbiology (3 units)

Sources and significance of micro-organisms in foods. Microbial spoilage of foods; general spoilage principles and the determining factors. Food preservation principles and techniques. Microbiology of food and beverage fermentation and related processes. Microbial food-borne infections and intoxication (including mycotoxines). Food sanitation, microbiological quality control methods and standards.

FST 610 – Sensory Evaluation of Foods – (2 units)

Quality attributes of foods, such as taste, texture, colour, smell and their characteristics. Mechanism of taste and smell perception. Selection, size and use of taste panel in sensory evaluation of food. Training of tasters. The

statistical methods used in taste panel and in quality control. Analysis of data from taste panel results. Flavour profile technique in sensory evaluation.

M. Sc. NUTRITION AND DIETETICS IN NUTRITION AND DIETETICS GRADUATION REQUIREMENTS

A total of 36 units comprising of 6 units of Research Project and 30 units of course work.

STRUCTURE OF THE PROGRAMME

FIRST SEMESTER

COURSE CODE	TITLE	UNITS	C/E
NUT 701	Assessment of Nutrition Status	3	C
NUT 703	Recommended Dietary Allowance (RDA)	3	C
NUT 705	Special Nutritional Diseases	3	E
NUT 707	Laboratory Techniques in Food and Nutrition	2	E
NUT 711	Nutritional Biochemistry	3	C
NUT 713	Comparative Nutrition	3	E
NUT 799	Research Project	6	C
CSC 701	Computers in Research	3	C
NUT 797	Seminar I	1	C

SECOND SEMESTER

COURSE CODE	TITLE	UNITS	C/E
NUT 700	Food Commodities	3	E
NUT 702	Nutrition through Life Cycle	3	E
NUT 704	Nutrition Advocacy	3	C
NUT 706	Food and Nutrition Policy	3	C
NUT 710	Nutrition Therapy	3	C
NUT 712	Nutrition Seminar	2	E
NUT 798	Seminar II	1	C
HSM 702	Experimental Techniques and Research Methodology	3	C
FST 716	Food Laws and legislation	3	E

NUT 700 – Food Commodities (3 units)

Survey of major food items with emphasis on staples of the tropics. (Cereals, Pulses, Roots and Tubers, vegetables and fruits and animal products). Their importance and general properties.

NUT 701 – Assessment of Nutritional Status (3 units)

Evaluation of assessment methodologies. Sample size determinations. Physical, Clinical, Biochemical methods of nutritional assessment.

NUT 702 – Nutrition through Life Cycle (3 units)

Desirable nutritional status of the infant, child, pre-schooler, adolescent, adult male and female. Nutrition of special groups, vulnerable groups (infant, pregnant and lactating mother, elderly and the infirm).

HSM 702 – Experimental Techniques and Research Methodology (3 units)

Problem identification and research selection. Formulation of objectives and methodology. Data Collection. Statistical Analyses: t-test, Chi square: Anova, Budgeting. Ethics in research; Report writing.

NUT 703 – Recommended Dietary Allowance (RDA) (3 units)

Determinants of RDA: methods for determining RDA for energy, protein, major minerals and vitamins. Comparison of different national and UN RDAs.

NUT 704 – Nutrition Advocacy, (3 units)

Principles Advocacy, Identification of Policy issues and Advocacy objectives. Policy Audiences and development of Appropriate Policy Messages Understanding Policy – Making Process. Building Alliances. Nutrition Information System management (NISM). Effective Message Presentation (use of PROFILES). Budgeting and Fundraising for Advocacy. Planning and Implementation of Advocacy Issues.

NUT 705 – Special Nutritional Diseases (3 units)

Nutritional and national related conditions of public health concern.

Anaemias, IDD, Vitamin A deficiencies, Obesity, Hypertension and Heart Diseases. PEM. Historical perspectives and aetiology of Protein-Energy Malnutrition. Energy deficiency, Protein deficiency. Biological and social consequences of PEM management

NUT 706 – Food and Nutrition Policy (3 units)

Food, Nutrition and economic development.

Conceptual framework for policy development, Food and Nutrition situation appraisal, Policy formulation. Implementation of food and nutrition policy, organization and coordination, monitoring and evaluation of food and nutrition policy. Review of Agricultural Policy in Nigeria.

NUT 707 – Laboratory Techniques in Food and Nutrition (2 units)

Series of experiments designed to enhance understanding of the role of nutrients in metabolism and their inter-relationship. Techniques used in the determination of proteins, fats, carbohydrates, fibre, vitamins and minerals.

NUT 710 – Nutritional Therapy (3 units)

Metabolic and physiology aberrations in certain disease conditions and principles underlying nutritional therapy. Application of nutrition to clinical problems.

NUT 711 – Nutritional Biochemistry (3 units)

Metabolism and biochemical inter-relationship of various nutrients in the body. Metabolism of nutrients in nutritional diseases. Toxins and detoxification in animal systems.

NUT 712 – Nutrition Seminar (2 units)

Reading and discussion on selected areas in human and/or animal nutrition and its application; formal class reports and term papers. (Must not be directly related to the research project).

NUT 713 – Comparative Nutrition (3 units)

Adaptation of the digestive system to feed habits in man and other animals enzymes involved in digestion and absorption. Energy needs and utilization. Most important metabolic differences among animals. Feeding patterns: vegetarians, herbivorous, carnivores, and omnivores.

NUT 721 – Research methods in Nutrition (Compulsory)

Research methods in metabolic balance studies. Methods of assaying proteins, amino acids, carbohydrates, vitamins, minerals and lipids. Introduction to the neuroscience of taste and sensory analysis theory and techniques. Practical tools to select, conduct and statistically analyze appropriate tests (3 units).

NUT 723 – Advanced Nutritional Care

The nutritional management of patients with acquired diseases including Cardiovascular disease, cancer and urological disorders. Dietary treatment of metabolic diseases. Genetic modification technology. Genetic modified foods. Ethical aspects (2 units).

NUT 725 – Art and Science of Grant Development (Compulsory)

Practical tools for identifying funding sources, making contacts and writing successful grant proposals. Discussion of various guidelines. Preparation and evaluation of research proposal (2 units).

NUT 727 – Contemporary Issues in Nutrition

Nutrition of displaced people. Nutrition and HIV Aids. New Micronutrients Copper, Zinc, Cobalt, Omega-3-fatty acids (2 units).

NUT – 729 – Agriculture, Food and Nutrition Interface

Agriculture research and malnutrition. Food and nutrition security. World trade and food production. Impact of agriculture on nutrient requirements (2 units).

NUT 799 – Research Project (6 units)

DOCTOR OF PHILOSOPHY DEGREE IN NUTRITION AND DIETETICS

Objectives

The Doctor of Philosophy (Ph.D.) degree in Nutrition and Dietetics is aimed at providing advanced knowledge and expertise in nutrition and dietetics through teaching and research, which will also develop professional nutritionists and dietician for improved quality of life.

Entry Requirements

An applicant for admission to the Ph.D. programme in Nutrition and Dietetics should possess at least

- i. M.Sc. in Nutrition and Dietetics of the University of Agriculture, Abeokuta or any other approved University.
- ii. M.Sc. in Human Nutrition from any other approved University Holders of M.Sc. in Nutrition and Dietetics or Human Nutrition must have obtained a minimum cumulative average score of 60% to qualify for registration into the Ph.D. programme.

Duration

The duration for the programme of Doctor of Philosophy (Ph.D.) shall be for six semesters after registration for full-time students and eight semesters for part time students.

Structure of Programme

The programme for the degree of Ph.D. in Nutrition and Dietetics shall consist of approved courses and research. The candidate shall be required to register for and pass a maximum of 9 units of core courses as well as write a thesis.

STAFF LIST

NAME	RANK	Degree/University where Obtained	Specialization
Olayiwola, O. O	Senior Lecturer	B.Sc., PGD Edu., M.Sc., Ph.D (Ibadan)	Human Nutrition
Clara R. B. Oguntona	Professor	B.Sc. (Rosario, Argentina), M.Sc. (London), Ph.D (Ibadan)	Human Nutrition
Adelekan, A	Professor	B.Sc (USA), M.Sc (London), Ph.D (London)	Community Health
Keshinro, O. O	Professor	M.Sc (London), Ph.D (Ibadan)	Human Nutrition
Fadupin, G. T	Senior Lecturer	B.Sc, M.Sc, Ph.D(Ibadan)	Dietetics
Afolabi, W.A.O	Senior Lecturer	B.Sc, M.Sc, Ph.D (Ibadan)	Community Nutrition
Agbon, C. A	Lecturer I	B.Sc, M.Sc, Ph.D (Nigeria)	Human Nutrition
Sanni, S. A	Lecturer I	B.Sc., M.Sc, Ph.D (UNAAB)	Food & Community Nutrition
Onabanjo, O. O	Lecturer II	B.Sc (Umudike), M.Sc, Ph.D (UNAAB)	Community Nutrition

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

POSTGRADUATE PROGRAMMES

The Department of Food Science and Technology offers advanced study and professional training leading to the Degree of Doctor of Philosophy (Ph.D). Master of Science (M.Sc.) and Postgraduate Diploma (PGD) in several areas of specialization in post-harvest technology – Food Processing and Storage Technology, Food Quality Control and Assurance, Food Engineering. The courses are designed to increase student's knowledge of fundamental aspects of their programmes in order to develop an aptitude for designing, executing and interpreting research projects to meet the need of the nation and enhance the development of the Food Processing Sector.

Research facilities are available in the department and active research activities are being conducted by members of staff and students. Opportunities for collaborative research with other Universities, at home and abroad or with research institutes are encouraged. The graduate programmes emphasize course work as well as guided research with provision for seminar presentation to the University community on research achievements, which will eventually be presented in the form of thesis. Each student's research programme is designed in consultation with a team of supervisory academic members of staff. Students are encouraged generally to specialize in a particular area of food science and technology, but depending on professional objectives, may find it desirable to pursue a programme of studies which combines subject matter from different areas of specialization or interdisciplinary research programme.

Students wishing to enroll, especially for programmes leading to the degree of Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.), in the department should have flare for detail, mental alertness and critical analysis of information, ability to inquire, think and communicate logically, desire to explore the unknown patiently and

persistently, and reporting absolutely honest judgment of thought and observations. All matters relating to postgraduate admission into the department, courses required to be taken, appointment or change of supervisor(s), acceptance/rejection/modification of research topics, presentation of research seminars and generation of research data within the department or outside are considered by a Postgraduate Committee in the department before recommendations are made to the College Postgraduate Board or the University Postgraduate School for further action. These measures are put in place, especially on reliability and honesty with regard to data collection and presentation in order to protect the interests of students and staff, and the University.

The Departmental Postgraduate Committee is chaired by the Head of Food Science and Technology Department, who not only maintain keen interest in the progress of all students, but also ensures that there is evidence of originality or scholarship in the students' work.

Objectives of Postgraduate Programmes

The objectives of the postgraduate programmes in the Department of Food Science and Technology are:

- (i) To produce competent food scientists and technologists who will take up challenges in the areas of research, training and developmental needs in the private sector, academia and research institutes.
- (ii) To develop high-level manpower for increasing the scope of activities in the food production and processing sectors of the nation's economy.
- (iii) To produce competent scientists with high entrepreneurship orientation who can utilize their scientific and research orientation to create jobs and exploit science and technology for national food sufficiency and development.

Rationale for Postgraduate Diploma Programmes

Postgraduate Diploma in Food Technology

Food Technology is the application of science and engineering principles to the development of knowledge in food structure and characteristics, and the technology of preservation or storage of foods. The Postgraduate Diploma Programme in Food Technology provides higher academic and professional training requirements needed for the food processing sub-sector of the Nigerian agriculture and concentrates on high level manpower development in food processing, post-harvest and storage technology, and the creation of new and improved food products toward food self sufficiency.

The programme, therefore, provides adequate training backgrounds to graduates in food science and technology and other graduates in science or engineering related disciplines who may wish to acquire postgraduate training in food processing, preservation and storage technology. Such graduates are needed in the formulation of food products, production of food ingredients, food plant and equipment designing and manufacturing, food quality control and in various industries concerned with canning of foods, frozen foods, dried foods, etc. Others who will benefit from the programme are those who are self employed, having medium to large food processing business and food scientists or technologists employed in government agencies, private sector, research institutes, etc.

Postgraduate Diploma in Refrigeration and Cold Storage Technology

The frozen food industry is an important segment of the food-processing sub-sector of the Nigerian agriculture. Marketing of frozen foods continued to expand, thereby, leading to new methods of handling various frozen food items and government legislations, development of modern equipment, improved operational practices and techniques.

The impact of frozen food technology is obvious within our immediate environment, from domestic refrigerators to deep freezers, commercial cold stores for frozen fish, meat, ice cream and lollies, etc, and industrial freezing and cold storage plants. The frozen fish and dairy industries are by far the largest operators in the frozen food chain in Nigeria and the impact on the economy could be traced to the increasing marketing operations in urban and rural communities. A large number of equipment used in the cold chain distribution of foods are located within the catchment areas of the University of Agriculture, Abeokuta (Lagos, Ibadan, etc), thus, providing an appropriate environment for the establishment of an advanced training programme in science and technology of refrigeration with special emphasis on freezing and cold storage operations. Indeed, a good number of cold storage equipments are at various locations in Abeokuta metropolis, thus, providing a unique avenue for organized industrial visits which could in fact attract future co-operation between such companies and the University on issues of common interest and research activities in frozen food technology.

The programme is intensive and structured to provide some background knowledge in food composition, processing and preservation techniques, product quality requirements, microbiological and chemical analysis of foods at first. Thereafter, emphasis shifts toward engineering principles (plant operation and maintenance, design features and construction of cold stores, freezing techniques and considerations for energy saving) and consumer expectations of frozen foods by way of nutrition concepts.

At each level of study, attempts are made to relate the behavior of foods under changing environmental and processing conditions to thermo-physical and biochemical effects, which must be accounted for at the stages of equipment design, plant construction and economic operation. It is also expected that candidates who enrol on this programme would acquire knowledge in the entire frozen food operation and develop skills to solve relevant problems of such industries.

Therefore, the course is an advanced training in refrigeration science and technology for graduates in Agriculture, Engineering, Food Science and Technology, Nutrition, Food Process Engineering, Biochemistry, Microbiology and other science or engineering related disciplines.

Postgraduate Specialization

The following programmes are available:

- (a) One year Postgraduate Diploma (PGD) in
 - (i) Food Technology; and
 - (ii) Refrigeration and Cold Storage Technology

- (b) Two years Master of Science (M.Sc.) Degree in
 - (i) Food Processing and Storage Technology;
 - (ii) Food Quality Control and Assurance;
 - (iii) Food Microbiology and Biotechnology; and
 - (iv) Food Process Engineering
 - (v) Brewing Technology.

- (c) Two years or more for the Doctor of Philosophy (Ph.D.) degree in
 - (i) All areas listed under (a) and (b) above
 - (ii) Specific areas in Food Chemistry or Biochemistry, Rheology, Process Optimization, Energy Conservation, Product Development, Food Packaging Technology, Foods and Nutrition, Mathematical Modeling of Food Operations, etc.

POSTGRADUATE COURSE LISTS

Courses for Postgraduate Diploma in Food Technology

General and Compulsory Courses

FIRST SEMESTER

Course code	Course Title	Units
FTD 701	Seminar, Experimental Design and Report Writing	2
FTD 799	Research Project	6
	TOTAL	8
FTD 703	Fundamentals of Food Processing	3
FTD 705	Food Microbiology I	3
FTD 707	Principles of Human Nutrition I	2
FTD 709	Food Engineering Operations I	2
FTDD 711	Food Chemistry and Biochemistry	13
	TOTAL	13A

SECOND SEMESTER

Course code	Course Title	Units
FTD 702	Food Hygiene, Legislation & Quality Control	2
FTD 704	Rheology and Fluid Flow	2
FTD 706	Food Analysis and Instrumental Techniques	2
FTD 708	Food Microbiology II	2
FTD 710	Sensory Evaluation of Foods	2
FTD 712	Food Engineering Operations II	2
	TOTAL	12

(C) Elective Courses* (Minimum of 2 Units/Semester)

FIRST SEMESTER

Course code	Course Title	Units
FTD 713	Food Packaging Techniques	2
FTD 715	Heat Transfer in Food Processing	2
FTD 717	Food Products Development	2
FTD 719	Food and Energy Conservation	2
	TOTAL	8

SECOND SEMESTER

Course code	Course Title	Units
FTD 714	Principles of Human Nutrition II	2
FTD 716	Fermentation Technology	2
FTD 718	Food Process Plant Design	2
FTD 720	Food Machinery and Pilot Work	3
ARD 618	Statistics for Social Sciences	3
	TOTAL	12

*Students should confirm from the Head of Department if certain elective courses are available during a semester

Courses for Postgraduate Diploma in Refrigeration and Cold Storage Technology

(A) General and Compulsory Courses

Course code	Course Title	Units
FTD 701	Seminar, Experimental Design and Report Writing	2
FTD 799	Research Project	6
	TOTAL	8

(B) Core/Compulsory Courses

FIRST SEMESTER

Course code	Course Title	Units
FTD 731	Applied Engineering Thermodynamics	3
FTD 733	Principles of Refrigeration	2
FTD 705	Food Microbiology I	3
FTD 709	Food Engineering Operations I	2
FTD 711	Food Chemistry and Biochemistry	3
	TOTAL	13

(C) Elective Courses* (Minimum of 2 Units/Semester)

FIRST SEMESTER

Course code	Course Title	Units
FTD 703	Fundamentals of Food Processing	3
FTD 713	Food Packaging Techniques	2
FTD 715	Heat Transfer in Food Processing	2
FTD 719	Food and Energy Conservation	2
FTD 737	Principles of Human Nutrition I	2
	TOTAL	11

SECOND SEMESTER

Course code	Course Title	Units
FTD 702	Food Hygiene, Legislation & Quality Control	3
FTD 704	Rheology and Fluid Flow	2
FTD 710	Sensory Evaluation of Foods	2
FTD 718	Food Process Plant Design	2
FDE 742	Solar Energy Utilization Fundamentals of Agric. Economics and Farm Management	3
ARD 618	Statistics for Social Sciences	3
	TOTAL	17

- Students should confirm from the Head of Department if certain elective courses are available during a semester.

Courses for M.Sc. and Ph.D. Programmes

1. Candidates General and Compulsory Courses for M.Sc. or Ph.D.

Course code	Course Title	Units
CSC 701	Use of Computer in Research	3
FST 706	Research Methods	3
FST 702	Seminar on Recent Developments in Food Technology	2
FST 797	Thesis Seminar I	1
FST 798	Thesis Seminar II	1
FST 701	M. Sc. Research Project/Dissertation	6
FST 799	Ph. D Research Project/Dissetation	6
	TOTAL	16

**2. M.Sc. Food Processing and Storage Technology.
Departmental Core Courses – Compulsory**

FIRST SEMESTER

Course code	Course Title	Units
FST 703	Advanced Food Technology	3
FST 707	Advanced Food Quality Control and Plant Sanitation	3
FST 709	Special Topics in Food Microbiology	3
FST 715	Food Plant Design and Machinery	3
	TOTAL	12

SECOND SEMESTER

Course code	Course Title	Units
NUT 706	Food and Nutrition Policy	2
FST 710	Selected Topics in Food Chemistry and Biochemistry	3
FST 716	Food Laws and Legislation	2
FST 732	Food Freezing and Cold Storage	3
	TOTAL	10

(b) Elective Courses*

FIRST SEMESTER (6 UNITS)

Course code	Course Title	Units
NUT 703	Recommended Dietary Allowance (RDA)	3
FST 705	Dairy Products Technology	3
FST 711	Advanced Meat and Fish Processing Technology	3
FST 713	Oils and Fats Technology	3
FST 719	Developments in Root Crops and Pulses Tech.	3
FST 731	Automatic Control Devices	2
	TOTAL	17

SECOND SEMESTER (6 UNITS)

Course code	Course Title	Units
FST 704	Special Topics in Cereal Technology	3
FST 710	Selected Topics in Food Chemistry and Biochemistry	3
FST 714	Advanced Food Process Engineering	3
FST 718	Food Products Development	3
FST 720	Food Packaging and Transportation	2
FST 730	Advanced Food rheology	2
	TOTAL	16

**Students should confirm from the Head of Department if certain elective courses are available during a semester.*

3. M.Sc. Brewing Technology
 (a) Departmental Core Courses - Compulsory

FIRST SEMESTER

Course code	Course Title	Units
FST 709	Special Topics in Food Microbiology	3
FST 715	Food Plant Design and Machinery	3
FST 727	Wine and Beer Production	3
FST 709	Advanced Bacteriology	3
	TOTAL	12

SECOND SEMESTER

Course code	Course Title	Units
FST 704	Special Topics in Cereal Technology	3
FST 716	Food Laws and Legislation	2
FST 718	Food Product Development	3
FST 729	Advances in Alcoholic Beverage Production	3
	TOTAL	11

- (b) Elective Courses*

FIRST SEMESTER (6 UNITS)

Course code	Course Title	Units
FST 703	Advanced Food Technology	3
FST 711	Advanced Meat and Fish Processing Technology	3
FST 717	Special Topics in Sensory Analysis	3
FST 721	Topics in Raw Material Sourcing	2
FST 723	Selected Topics in Food Processing	2
FST 731	Automatic Control Devices	2
	TOTAL	11

SECOND SEMESTER (6 UNITS)

Course code	Course Title	Units
FST 732	Food Freezing and Cold Storage	3
FST 730	Advanced Food rheology	2
FST 714	Advanced Food Process Engineering	3
FST 718	Food Product Development	3
FST 720	Food Packing and Transportation	2
MCB 708	Advanced Microbial Physiology and Biochemistry	3
	TOTAL	16

**Students should confirm from the Head of Department if certain elective courses are available during a semester.*

4. M.Sc. Food Quality Control and Assurance

(a) Departmental Core Courses – Compulsory

FIRST SEMESTER

Course code	Course Title	Units
FST 703	Advanced Food Technology	3
FST 707	Advanced Food Quality Control and Plant Sanitation	3
FST 709	Special Topics in Food Microbiology	3
FST 7171	Special Topics in Sensory Analysis	3
	TOTAL	13

SECOND SEMESTER

Course code	Course Title	Units
PDQ 704	Statistical Quality Control	3
PDQ 710	Operation Research I	3
FST 716	Food Laws and Legislation	2
FST 724	Food Chemical Toxicology	2
	TOTAL	10

(b) Elective Courses*

FIRST SEMESTER (6 UNITS)

Course code	Course Title	Units
FST 721	Topics in Raw Material Sourcing	2
FST 725	Food Irradiation Technology	2
FST 733	Automatic Control Devices	2
NUT 701	Assessment of Nutritional Status	3
NUT 711	Nutritional Biochemistry	3
	TOTAL	12

SECOND SEMESTER (6 UNITS)

Course code	Course Title	Units
FST 732	Food Freezing and Cold Storage	3
FST 708	Food and Nutrition Policy	2
FST 710	Selected Topics in Food Chemistry and Biochemistry	3
FST 720	Food Packaging and Transportation	2
FST 722	Food Business Management and Planning	2
MCB 708	Advanced Microbial Physiology and Biochemistry	3
FST 730	Advanced Food Rheology	3
	TOTAL	18

* Students should confirm from the Head of Department if certain elective courses are available during a semester.

5. M.Sc. Food Microbiology and Biotechnology

(a) Departmental Core Courses – Compulsory

FIRST SEMESTER

Course code	Course Title	Units
FST 709	Special Topics in Food Microbiology	3
MCB 709	Advanced Bacteriology	3
NUT 711	Advanced Food Quality Control and Plant Sanitation	3
	TOTAL	12

SECOND SEMESTER

Course code	Course Title	Units
FST 712	Special Topics in Food Biotechnology	3
MCB 708	Advanced Microbial Physiology and Biochemistry	3
NUT 706	Food and Nutrition Policy	3
FST 716	Food Laws and Legislation	2
	TOTAL	11

2(b). Elective Courses*

FIRST SEMESTER (3 UNITS)

Course code	Course Title	Units
FST 703	Advanced Food Technology	
FST 705	Dairy Products technology	
FST 713	Oils and Fats Technology	
FST 721	Topics in Raw Material Sourcing	
FST 723	Selected Topics in Food Processing	
FST 725	Food Irradiation Technology	
FST 733	Automatic Control Devices	
	TOTAL	11

SECOND SEMESTER (3 UNITS)

Course code	Course Title	Units
FST 732	Food Freezing and Cold Storage	3
FST 704	Special Topics in Cereal Technology	3
FST 710	Selected Topics in Food Chemistry and Biochemistry	3
FST 714	Advanced Food Process Engineering	3
FST 718	Food Product Development	3
FST 730	Advanced Food rheology	2
	TOTAL	14

**Students should confirm from the Head of Department if certain elective courses are available during a semesters.*

6. M.Sc. Food Engineering
(a) Departmental Core Courses - Compulsory

FIRST SEMESTER

Course code	Course Title	Units
FST 703	Advanced Food Technology	3
FST 707	Advanced Food Quality Control and Plant Sanitation	3
FST 709	Special Topics in Food Microbiology	3
FST 715	Food Plant Design and Machinery	3
	TOTAL	12

SECOND SEMESTER

Course code	Course Title	Units
FST 710	Selected Topics in Food Chemistry and Biochemistry	3
FST 714	Advanced Food Process Engineering	3
FST 726	Advanced Heat and Mass Transfer	3
FST 728	Energy Sources, Utilization and Conservation	2
	TOTAL	11

FIRST SEMESTER (6 UNITS)

Course code	Course Title	Units
FST 713	Oils and Fats Technology	3
FST 721	Topics in Raw Material Sourcing	2
FST 723	Selected Topics in Food Processing	2
FST 725	Food Irradiation Technology	2
FST 733	Automatic Control Devices	2
NUT 707	Laboratory Techniques in Food and Nutrition	2
	TOTAL	12

SECOND SEMESTER (6 UNITS)

Course code	Course Title	Units
FST 732	Food Freezing and Cold Storage	3
FST 716	Food Laws and Legislation	2
FST 720	Food Packaging and Transportation	2
FST 722	Food Business Management and Planning	2
FST 724	Food Chemical Toxicology	2
FST 730	Advanced Food Rheology	2
	TOTAL	13

**Students should confirm from the Head of Department if certain elective courses are available during a semesters.*

SYNOPSIS FOR POSTGRADUATE COURSES

Postgraduate Diploma (PGD) Course Synopses

FTD 701: Seminar, Experimental Design and Report Writing - 2 Credit Units

Presentation and discussion of research problems, writing of experimental designs, innovations and scientific reports.

FTD 702: Food Hygiene, Legislation and Quality Control - 2 Credit Units

Principles of Quality Control, sequences and organisation of quality control laboratory. Statistical quality control-types of errors and decision making; control charts for variables and attributes-construction and users; sampling plan. Need for standards and legislation on raw and processed foods. The Codex Alimentarics. The Nigerian Food Standards and legislation – problems, formulation, control/monitoring. Food labeling – its value and limitations. Principles of plant sanitation and personal hygiene.

FTD 703: Fundamentals of Food Processing - 3 Credit Units

Processing of cereals and legumes flour and bakery products. Manufacture of oil or fat based products. Fish, meat and poultry processing. Manufacture of dairy products. Production of sugar. Products from tuber and roots. Principles and application of canning of foods. Types of faults in cans.

FTD 704: Food Rheology and Fluid Flow - 2 Credit Units

The application of rheological principles in the study of food texture. Viscoelasticity. The strength of food materials and types of texture measuring devices. Elastic solid and textural characteristics of fluids and semi – fluid foods. Frictional losses in pipes and fittings. Thixotropy.

FTD 705: Food Microbiology I - 3 Credit Units

Sources and significance of microorganisms in foods. Microbial spoilage of foods; general spoilage principles and the determining factors. Food preservation principles and techniques. Microbiology of food and beverage fermentation and related processes. Microbial food – borne infections and intoxications (including mycotoxicoses). Food sanitation, microbiological quality control methods and standards.

FTD 706: Food Analysis and Instrumental Techniques - 3 Credit Units

Analysis of lipids, proteins, carbohydrates, toxicants minerals, vitamins and food additives. The principles and application of gas/liquid chromatography, high performance liquid chromatography, column chromatography (including gel permeation and ion exchange chromatography), electrophoresis, polarimetry, spectrophotometry (visible, ultraviolet, infrared) and fluorimetry in food analysis.

FTD 707: Principles of Human Nutrition I - 2 Credit Units

Metabolism of carbohydrates, proteins lipids, vitamins, calorimetry and determination of energy requirements. Protein calories malnutrition. Nutrition and infection, nutrition and mental retardation. Food balance and recommended dietary.

FTD 708: Food Microbiology II - 2 Credit Units

Sampling and preparatory treatment of food samples. Enumeration techniques for bacterial, yeasts and moulds. Detection and enumeration of food spoilage and food poisoning microorganisms. Microbiological examination of drinking water and drinks.

FTD 709: Food Engineering Operations I - 2 Credit Units

Heat transfer theory, mechanisms, and application in food processing. Thermophysical properties of food materials. Basic concepts of flow of fluid foods. Methods of calculating lethal rates, heat penetration value. Newtonian and Non-Newtonian fluids heat transfer.

FTD 710: Sensory Evaluation of Foods - 2 Credit Units

Quality attributes of foods, such as taste, texture, colour, smell and their characteristics. Mechanism of taste and smell perception. Selection, size and use of taste panel in sensory evaluation of food. Training of tasters. The statistical methods used in taste panel and in quality control. Analysis of data from taste panel results. Flavour profile technique in sensory evaluation.

FTD 711: Food Chemistry and Biochemistry - 3 Credit Units

Structural, chemical and physical characteristics of proteins, carbohydrates, lipids and vitamins. Food enzymes and their roles in food systems. Enzymatic and non-enzymatic browning reactions. Rancidity in fats and oils. Food pigments. Postmortem changes in animal. Toxicants in foods and their degradation in the body.

FTD 712: Food Engineering Operations II - 2 Credit Units

Kinetics of biological reactions. Elements of mass transfer and its application. Contact equilibrium separation process including absorption, crystallization. Distillation, extraction and washing. Psychrometrics. Methods of food freezing and methods of predicting freezing time. Graphical methods of unsteady state cooling and heating of foods. Calculation of refrigeration load requirements. Sedimentation methods.

FTD 713: Food Packaging Techniques - 2 Credit Units

The need for food packaging. Types and characteristics of packaging materials. Testing for structural quality and performance. Packaging requirements for fresh and processed foods intended for local and foreign markets. Technical and cost-benefit considerations for packaging materials. Disposal for packaging materials.

FTD 714: Principles of Human Nutrition II - 2 Credit Units

Experimental nutrition and animal diets. Nutritional status and assessment. Nutrition in times of disaster and emergency feeding. Nutrient fortification and enrichment programmes. Toxicology of common food contaminants. Bioassay and its significance. Eietary survey data, calculation and interpretation.

FTD 715: Heat Transfer in Food Processing - 2 Credit Units

Use of heat exchangers in food processing and theory of heat transfer with respect to liquid films and sprays. Dehydration theory and use of equipment. Pool and bulk boiling of liquid foods. Some engineering and empirical correlating equations. Use of dimensional analysis and limitations. Determination of correlation coefficients and estimation of errors associated with predicted values.

FTD 716: Fermentation Technology - 2 Credit Units

Definition of fermentation and types of fermentation processes. Fermentation kinetics and control. Fermentors and scale-up. Recovery of fermentation products. Enzyme reactors. Industrially important moulds and their use in fermentation. Waste-water treatment by fermentation methods. Novel type of food fermentation. Fermentation products-cell mass, acids, alcohols, enzymes. Microbial cultivation in fermentors.

FTD 717: Food Products Development - 2 Credit Units

Importance of new product development: idea generation, development stage, taste – panel stage, consumer sampling stage, shelf-life studies, packaging production, and market testing stages, finally commercialization. Nutritional considerations in some selected foods that have just been developed.

FTD 718: Food Process Plant Design - 2 Credit Units

Plant layout in some food industries. Economics of process design and optimization techniques. Optimum design of food processing plants and accessories.

FTD 719: Food and Energy Conservation - 2 Credit Units

Evaluation of wastes from raw food materials. Control of food wastage. Available energy sources. Combustion chemistry with or without excess air. Measurement of calorific value of solid, liquid and gaseous fuels. Energy generation, utilization and conservation in food processing industries.

FTD 720: Food Machinery and Pilot Work - 2 Credit Units

Design features and functions of equipment used in the food industry e.g. equipment for cleaning, sorting, grading, size reduction, mixing, homogenization, filtration, centrifugation etc. Types of electric motors. Conventional milling processes. Baking. Fruit juice extraction and production of soft drinks. Preparation of tomato puree. Manufacture of malt drinks, larger beer stout drinks. Conventional and unconventional methods of vegetable oil extraction. Demonstration of can seaming techniques. Smoking techniques of some food commodities. Industrial visits to food industries to complement the pilot work and to serve as a means of highlighting the problems of food plant location, lay-out design and plant sanitation.

ARD 618: Statistics for Social Sciences - 3 Credit Units

Distinction between descriptive and inferential statistics steps in hypothesis testing measures of central tendency (Mean, Mode, Median). Measures of dispersion (Variance, Standard Deviation etc). Measures of Association. (Correlation coefficient, Kendall's coefficient of concordance). Dependent and independent variables. Hypothesis testing taking cognizance of one sample, two samples, dependent and non dependent cases. Chi-square Analysis, Wilcoxon's test, t-test, analysis of variance, regression analysis.

FDE 731: Applied Engineering Thermodynamics – 3 Credit Units

First and second laws of thermodynamics, basic concepts, corollaries – validity and limitations of the laws of thermodynamics. Work, pressure, steady-flow and non-flow energy equations. Polytropic and hyperbolic processes. Steam generation, utilization, steam dryness fractions and steam properties. Thermodynamic reversibility, Carnot cycle and efficiency, entropy/enthalpy diagrams and superheat. Use of turbines and air compressors. Combustion, fuels and calorific values. Psychrometric properties of air and mixtures. Thermodynamic properties of refrigerants. Newly developed refrigerants against Ozone depletion.

FDE 732: Refrigeration and Air Conditioning Systems - 2 Credit Units

Applications of refrigeration and Air Conditioning principles in food preservation. Description of refrigeration system components – compressors, condensers, evaporators, heat exchangers and liquid flow controls. Two

stage compression systems with intercooling phases. Use of secondary refrigerants in commercial and industrial refrigeration and air conditioning plants. Ice making plants, refrigeration, for dairy, meat and fish storage. Application, selection and properties of insulating materials. Construction of cold store walls, floors and interior and exterior finishings. Elimination of frost heave.

FDE 733: Principles of Refrigeration - 2 Credit Units

General principles of food preservation using low temperature. Influence of freezing on thermo physical changes occurring during freezing and frozen storage of foods, and methods of control – mechanical damage, recrystallization, freezer burn, oxidation, changes in colloidal substances.

Pre-freezing and freezing processes. Specific applications – meat, fish, milk and ice-cream desserts, fruits and vegetables and cooked products; brewery, bottling, confectionery and fermentation controls.

Transport systems – marine, rail, refrigerated trucks and vehicles and, aircraft system.

Lloyd's rules and safety regulations – protective clothings for plant operators, first aid, alarm systems etc.

FDE 734: Refrigeration Processes and Cold Storage - 3 Credit Units

Analysis of heat pump and refrigeration cycles. Vapour compression and absorption type refrigeration systems. Air cycle systems.

Physics of food freezing, freezing time calculations and predictions. Operational considerations for freezing equipment and techniques. Calculation of refrigeration load requirements.

Thawing processes and equipment. Recommended storage conditions for short and long term preservation of a wide range of perishable foodstuffs.

FDE 736: Refrigeration Electronics and Control Devices - 2 Credit Units

Forms of signals and their applications in process controls. Desirability of open and closed/feed back control systems. Electric motors, control switches and regulation of system parameters. Use of photo cells, wiring diagrams and method of automatic controls. Relays and motor starters.

FDE 738: Nutritional Evaluation of Frozen Foods - 2 Credit Units

Treatment involving the consequences of low temperature on the nutritional value of frozen foods. Enzymatic and microbiological changes due to frozen storage. The significance of drip on water – and fat-soluble vitamins and any other side effect of uncontrolled freezing and cold storage practices – freezer burn, desiccation, decay, etc

FDE 740: Equipment Maintenance and Servicing - 3 Credit Units

Routine maintenance of refrigeration and cold storage equipment. Use of log/record book. Trouble shooting and rectification on compressors, condensers and electrical control components. Instructions for economic and safety operations of equipment.

Problems associated with unbalanced voltage, short cycling on high and low pressure controls. Problems associated with incorrect design, selection or installation of equipment. Operational problems associated with moisture or air in the refrigeration systems. Methods of charging liquid or gas into the system.

FDE 742: Solar Energy Utilization - 2 Credit Units

Principles of thermal radiation and use of collector plates. Description of typical applications and future challenges for the refrigeration and air condition industries.

FTD 799: Research Project - 6 Credit Units

An approved research project.

Course Synopses for Master of Science and Doctor of Philosophy Degree

FST 797: Thesis Seminar I - 1 Unit

This is essentially a pre-data seminar on the research focus of the student's project covering the title, objectives and scope of the work, review of relevant literature, experimental design and methodology.

FST 798: Thesis Seminar II - 1 Unit

This is a follow-up seminar/post-data or bench work findings. It should cover detailed analysis and interpretation of research results, discussion of findings in view of previous reports and new ideas emanating from the study, conclusion and recommendations for future work.

FST 701 & FST 799 Research Projects

M.Sc. (6 Units)

Ph.D. (6 Units)

FST 702: Seminar on Recent Development in Food Technology – 2 Units

Students will be expected to carry out a survey of available literature and information on developments in an areas of current interest in the field of food science and technology. The area of the review should not be directly related to the student's research project. An oral presentation of the review will be presented at an organized Departmental Seminar. The review, (typed and bound records) should be submitted to the Department and should be comprehensive, containing historical developments and current perspective of the topic as well as offer possible suggestions on areas of future research needs.

FST 703: Advanced Food Technology - 3 Units

General principles of size reduction of solids and equipment for slicing, dicing shredding and pulping. Separation operations including centrifugation, filtration, extraction and crystallization. Mixing of liquids, pastes and powders. Principles of emulsification, preparation of foods for processing. Drying of foods using heated air, hot surface s and freeze drying. Principles and equipment for freezing. Heat processing of foods including canning, pasteurization and UHT treatments. Physical and chemical changes occurring during the various food processing operations.

FST 704: Special Topics in Cereal Technology -3 Units

Structure and chemistry of different cereal grains – maize, rice, sorghum, millet, barley, wheat. Milling of cereals. Cereal nutrition. Physico-chemical changes during processing. Quality evaluations fo cereal flours. Fermentation of some cereal grains. Chemistry and technology of baking. Rheology of dough. Effecti of h eat and cooking characteristics of cereal flours. Developments in the extrusion technology of cereals and ready-to-eat breakfast cereal products. Developments in the processing and utilization of maize, rice, sorghum and millet.

FST 705: Dairy Products Technology - 3 Units

Milk as food:- principle components of milk, milk chemistry. Milk production's- dairy animals (their breeding and husbandry), feeding and management, diseases and infections, milk production and handling on the farms, factors affecting milk yield and milk composition. Preservation of liquid milk.

Processing of milk and manufacture of milk products including evaporated milk, powdered milk, yogurt, 'nono', 'warankasi', ice-cream their processing operations, nutrition and microbiology. Plant cleaning and sterilization in dairy processing. Laboratory tests in milk and milk products. Quality parameters – chemistry of dye-reduction, non-enzymic browning lactose – chemistry and behavior in milk products. Taxonomy and characteristics of micro-organisms associated with milk. Starter cultures in milk processing. Microbiological examination of dairy products. Products development and dairy technology.

FST 706: Research Methods - 3 Units

Project planning and experimental design. Data management and interpretation. Application of statistical analysis in the evaluation of research results. Preparation and presentation of scientific reports.

FST 707: Advanced Food Quality Control and Plant Sanitation – 3 Units

Principles of quality assurance – quality attribute of food and methods of evaluation. Effects of raw material quality and the various types of food processing on yield and quality of product. Sanitation in the food industry.

FST 709: Special Topics in Food Microbiology - 3 Units

Characteristics and ecology of micro-organisms of importance in food borne disease – Methods and techniques for isolation and identification, factors affecting their growth and survival in relation to food processing and preservation. Food sampling. Specialized fermentations including alcoholic, lactic fermentations, etc. Microbiological criteria for foods, quality assurance, hygiene including appropriate aspects of process plant sanitation.

FST 710: Selected Topics in Food Chemistry and Biochemistry - 3 Units

Developments in food flavours and analysis. Developments in food protein research. New sources of proteins and their use. Non-Enzymic browning in foods – chemistry, causes and control. Lactose – chemistry and nutritional implications. Food lipids and surfactants in foods.

FST 711: Advanced Meat and Fish Processing Technology -3 Units

Development in meat, egg and fish processing technology. Automation of processing and quality control aspects. New products and by-products. Meat and fish storage and stability. Legislation relating to meat and fish products.

FST 712: Special Topics in Food Biotechnology - 3 Units

Fermented foods – starter cultures, genetics and biochemical aspects. Enzyme production: applications of enzymes in food processing. The production of organic and amino acid. Microbial protein production. Diagnostics and rapid methods in the food industry ; [biosensors. Hygiene and safety. Novel biotechnological applications and processes in the food industry, including developments in recombinant DNA technology and protein engineering.

FST 713: Oils and Fats Technology - 3 Units

Recent developments in lipids research. Quality considerations in Oils and Fats processing. Effects of various processing on oils and fats.

FST 714: Advanced Food Process Engineering – 3 Units

The flow of fluids under different conditions. Fluid motions and flow of fluids in pipelines. Fittings and pumps. Pneumatic and hydraulic conveying. Transfer of heat by conduction, radiation and convection, and in condensation and boiling. Applications of 1st and 2nd laws of thermodynamics. Steam generation, compression and turbines. Refrigerants, their thermodynamic properties and refrigeration cycle of operation. Food freezing and cold storage. Basic theory of process control. Control systems for pressure, temperature, flow and level. Materials of construction for food plant.

FST 715: Food Plant Design and Machinery - 3 Units

Materials of construction for food processing equipment. Design and utilization of food machinery including canning, drying, heat exchange, size reduction, mixing and packaging equipment, evaporation, freezing and cold storage plants.

FST 716: Food Laws and Legislation -2 Units

Food law, its philosophy and development. Food standards, codes of practice and statutory regulations. Food export and regulations. Legislations on food additives. Toxic substances in food. Detoxification of food and avoidance of contamination. Legislation on pesticide application to food raw materials and products.

FST 717: Special Topics in Sensory Analysis - 3 Units

Recent developments on taste, odour and flavour. Nature of acceptability and its specification. Sensory and chemical analysis, and associate instrumentation method. Automation in sensory analysis.

FST 718: Food Products Development - 3 Units

Product development concept: basic considerations for new products development – strategies and methods. Feasibility report preparation. Market survey and consumer survey. Food acceptability.

FST 719: Developments in Root Crops and Pulses Technology – 3 Units

Development in the processing of cassava, yam, cocoyam, potato and some African leguminous crops. Effects of processing on the nutritional quality of product. Product fortification and product packaging.

FST 720: Food Packaging and Transportation – 2 Units

Developments in food packaging, characteristics of packaging materials including plastic polymers, thermoplastic polymers. Paper and paper-based packaging metal packaging materials, glass packaging materials, etc. methods of testing for structural quality and performance of packaging materials. Deterioration reactions in food. Food preservation and processing techniques.

Packaging of different food materials – cereal and snack foods, beverages. Flesh foods, dairy foods, etc.,. Safety and legislative aspect of packaging.

FST 721: Topics in Raw Material Sourcing - 2 Units

Raw material source – implications in food processing. Raw material needs of different sectors of the food industry. Developments in local sourcing of raw materials in Nigeria's food industry. Raw materials alternatives.

FST 722: Food Business Management and Planning – 2 Units

The purpose and scope of management; development of management thinking and practice – Management peculiarities of food industries. Marketing concept and marketing mix. Food business law. Basic accounting for food industry managers. Preparation of feasibility studies for food – based industries.

FST 723: Selected Topics in Food Processing – 2 Units

Developments in the processing of the following food materials- species and condiments, confectionery products, food beverages. Quality aspects of the final products.

FST 724: Food Chemical Toxicology - 2 Units

Analysis of major groups of commonly encountered food contaminants (pesticide, residue, fertilizers, etc). Interaction of these contaminants with certain physiological set-up of animals and other toxicants of environmental interest.

FST 725: Food Irradiation Technology -2 Units

Characteristics of ionizing radiation. Interaction of radiation with matter. Radiation chemistry of food. Dosimetry of food irradiation. Operation and safety of commercial and research food irradiation facilities. Radiation effects on micro-organisms, insects and parasites. Irradiation decontamination of fruits and vegetables, roots and tubers, fish, spices, condiments and export crops. Economic feasibility, and consumer acceptability of irradiated food. Regulatory aspects of food irradiation. Trends in the world trade of irradiated foods.

FST 726: Advanced Heat and Mass Transfer - 3 Units

Basic concepts in heat, mass and momentums transfer. Steady and unsteady/transient heat conduction, use of Gurney and Lurie graphs for solution of unsteady state heat transfer. Boiling heat transfer; use of heat exchangers in the food industry and different types commonly used.

Principles of dehydration and different types of dryers. Evaporators applicable to food processing operations.

FST 727: Wine and Beer Production - 3 Units

Selection and desirable characteristics of raw materials used for wine and beer production. Detailed analysis of unit operations applicable to the production of beer, wine, etc. The roles played by microorganisms during fermentation for different types of beer, and wines. Post fermentation treatments processing and packaging. Biochemistry of malting and mashing.

FST 728: Energy Sources, Utilization and Conservation -2 Units

An overview of energy sources and future expectations. Energy management, energy audit and conservation. Detailed study of energy uses with respect to the unit operations involved in the processing of cereals, dairy products, oils and fats, meat and fish, roots and tuber crops, etc.

FST 729: Advances in Alcoholic Beverages Production -2 Units

An overview of recent development in the production of alcoholic beverages in the country. Use of selected starters, grains, fruits, etc for certain alcoholic beverages – fortified wines, spirits, liquors. The production of vinegar. Microbial hazards in breweries and method of eliminating them.

FST 730: Advanced Food Rheology -2 Units

Flow of liquid and semi-liquid foods. Application of rheological models to flow of foods. Frictional losses in pipes and fittings. On-line flow parameters and measurements- ice cream, concentrated solutions, gums, etc. Pumps sizing and selection.

FST 731: Automatic Control Devices -2 Units

An overview of process controls used in the food industry and future projections to overcome some inherent problems. Response of process controls to different types of signals. Open and feedback control systems, process dynamics and signals.

FST 732: Food Freezing and Cold Storage -3 Units

Principles of refrigeration systems. Refrigerants, chemical symbols and properties. Significance of low temperature in food preservation. Determination of Economic Insulation Thickness and requirements of insulating materials. Principles of cold storage construction, storage conditions for different foodstuffs and calculation of heat load.

Analysis of refrigeration components and operation. Calculation of freezing time and thawing operations. Effect of cold storage on food quality.

NUT 706: Food and Nutrition Policy - 3 Units

Food, Nutrition and Economic development. Conceptual framework for policy development. Food and Nutritional situation appraisal. Policy formulation and implementation. Organization and coordination, monitoring and evaluation of food and nutrition policy. Review of Agricultural Policy in Nigeria.

STAFF LIST

Academic

NAME	RANK	QUALIFICATION	AREA OF EXPERTISE
Idowu, M.A.	Senior Lecturer	B.Sc./M.Sc. (Ife), Ph.D (LAUTECH)	*Food Chemistry and Analysis *Cereal Technology (Baking) *Food Product Development *Food Processing and Packaging
Awonorin, S.O.	Professor	M.Sc. Ph.D (Leeds)	*Design of Food Machinery *Heat and Mass Transfer *Refrigeration and Air Conditioning *Cold Storage Technology *Process Dynamics & Control *Energy Conservation.
Oyewole, O.B.	Professor	B.Sc. (Ife) M.Sc, Ph.D. (Ibadan)	*Food Microbiology and Biotechnology
Sylvia V. A. Uzochukwu	Professor	B.Sc. M.Sc.; Ph.D. (Nigeria)	*Food Microbiology and Biotechnology
F.O. Henshaw	Reader, Ag. HOD, FST.	B.Sc. (Ife), M.Sc. (Strathclyde) Ph.D. (Ibadan)	*Food Processing and utilization *Processing and Utilization of Bean/Cowpea *Functionality of Food Systems *Sensory Analysis
Sanni, L.O.	Reader	B.Sc.,(UNAAB) M.Sc Ph.D. (Ibadan)	*Food Process Engineering *Process Dynamics & Control *Quality Assurance
Atanda, O.O	Senior Lecturer	B.Sc.,(Ilorin), M.Sc (Benin) Ph.D (UNAAB)	*Food Microbiology/Food Safety
Babajide, J.M.	Senior Lecturer	B.Sc. M.Sc. (UNAAB) Ph.D (UNAAB)	*Food Processing and Preservation *Food Product Development
Shittu, T. A	Lecturer I	B.Sc., M.Sc. D, Ph.D (UNAAB)	Food Processing/Storage
Sobukola, O. P	Lecturer II	B. Sc. M. Sc., Ph. D (UNAAB)	Food Processing/Storage
Adebowale, A. A	Lecturer II	B.Sc. M.Sc., Ph. D (UNAAB)	Food Processing and Storage/ Good Rheology

DEPARTMENT OF COMMUNICATION AND GENERAL STUDIES

POSTGRADUATE PROGRAMMES

1.0 Preamble

The University Senate vide Senate Meeting of February 18, 1999 approved the establishment of a Centre for General Studies (CGS). The CGS was expected to have taken-off since the 2001/2002 session. However, the lack of implementation was believed to have been as a result of limitations to the scope of academic and research activities, and staff carrying capacities of a centre.

At the meeting of April 2006, the Senate approved (in principle) that the Department be converted to an Institute as the present staff of the General Studies Department are gradually moving up on the academic ladder and are, therefore, restricted by the present arrangement specifically with limitations on research and postgraduate work. However, at the November 2006 meeting, Senate again reconsidered the proposal to convert the Department to an Institute and approved that the Department be changed to the Department of Communication and General Studies and be allowed to run its postgraduate diploma and Master's programmes in Communication.

2.0 Objectives and Justification

Specifically, the Department of Communication and General Studies shall be responsible for offering the current courses in General Studies which are generally unrelated to the courses characterizing each degree programme. In addition, the Department shall offer a diploma programme and an academic programme at the postgraduate level:

- i. Postgraduate Diploma in Communication Studies
- ii. Masters in Communication Development

3 PROGRAMMES

3.1 Postgraduate Diploma in Communication Studies

3.1.1 Objectives

This is an intensive course of study designed to meet the growing demands for specialists in communication, peace and conflict management. The fundamental philosophy underlying the programme is the training of graduates from a wide range of disciplines and background to the highest academic standards in the communication and peace and conflict management issues. The programme is designed for graduates hoping to have distinguished careers in the communication and peace and conflict management fields. It will also provide higher academic and professional training requirements for graduates in Agriculture, Engineering, Natural Sciences, Applied Sciences, Veterinary Medicine, Arts, Social Sciences, Education and other related disciplines who may want to acquire postgraduate training in Communication, Culture and Peace and Conflict Studies.

Others who will benefit from the programme are those who are employed in government agencies, private sector, public services, NGOs, etc., in the area of communication and peace and conflict.

3.1.2 Justification

The Postgraduate Diploma in Communication Studies is intended for Students who wish to upgrade their professional and academic standing in cross-cultural communication, the media, and public and private administration. The course is particularly suitable for researchers, consultants, specialists, mass communication practitioners, trainers, administrators and developers in the unceasingly popular areas of communication, citizenship, leadership, culture, and conflict and peace resolution.

3.1.3 Admission

Candidates for admission should normally possess an honours degree in any discipline from the University of Agriculture, Abeokuta or any other recognized university. HND holders with upper credit will be admitted with one year post youth service experience, while those with lower credit would be admitted with two years post youth service experience.

3.1.4 Duration

The duration of the postgraduate diploma course is two semesters for full time and four semesters for part-time.

3.1.5 Graduation Requirement

The postgraduate diploma degree is awarded to students who successfully complete at least twenty-eight units including the compulsory courses as well as submit an acceptable project.

3.1.6 Course Structure

Course Title	Units
Compulsory	26
Electives	6
Total	32

FIRST SEMESTER

Compulsory Courses

Course Code	Course Title	Units
PCS 601	Use of English	2
PCS 603	Basic Mass Communication Theory	2
PCS 605	Sociology of Development	2
PCS 617	Ethnics	2
PCS 619	Advertising	2
		10

Elective

PCS 607	Public Relations	2
PCS 609	Conflict and Dispute Settlement	2
ARD 611	Introductory Rural Sociology	2
ARD 613	Social Theories and Social Change	3
ARD 615	Principles of Human Development	3
		12

SECOND SEMESTER

Compulsory Courses

Course Code	Course Title	Units
PCS 602	Developmental Writing Skills	2
ARD 616	Research Methods & Measurement Techniques	3
ARD 618	Statistics for Social Sciences	3
PCS 610	Seminar	2
PCS 612	Practicum	3
PCS 614	Project	3
		16

Elective

PCS 608	Development Oral Communication Skills	2
ARD 614	Gender Matters in Development Policy	3
		5

3.1.7 Course Synopsis

PCS 601 Use of English (2 units)

Basic course in written and spoken English. Brief review of the grammar and principles of English speech. Practice in spoken English.

PCS 602 Developmental Writing Skills (2 units)

Fundamental elements of punctuations. Americanism in English language, Colloquialism. Basic or General Reporting. Specialized Writing and Reporting, Basic News Writing, News Agencies.

PCS 603 Basic Mass Communication Theories (2 units)

The contemporary theories of Mass Communication - Individual Differences Theory, Social Categories Theory, Social Relations Theory, The Cultural Norms Theory, Theories of Media Violence, Catharsis Theory, Observation Learning Theory, Reconfirms Theory, Cultivation Theory.

PCS 605 Sociology of Development (2 units)

The Course provides an integrated overview, based on some background knowledge of the history and cultures of the people of Nigeria, including their place within the context of social and economic development. Students will be exposed to some theories of development – economic, sociological and psychological. Discussions will be placed within the larger context of changing social values and occupational differentiation.

PCS 607 Public Relations (2 units)

What is Public Relations? Evolution of PR: The Nigeria. Experience. Corporate Public Relations. The Public Relations Process, Public Opinion, Propaganda, Persuasive Communication Techniques. Public Relations as Management Function. Corporate Publicity. Public Relations Periodicals. Production of House Organs. Ethics of Public Relation.

PCS 608 Developmental Oral Communication Skills (2 units)

Oral language as a form of communication. Relevant theoretical instructions are followed by practical exercises designed to improve the mechanics of oral communication.

PCS 609 Conflict and Dispute Settlement (2 units)

Theories of Conflicts. Machinery for dispute settlement – mediation, reconciliation, arbitration and industrial courts.

PCS 617 Ethnics (2 units)

Historical and contemporary theories of ethics. Intensive study of specialized topics in ethics e.g. the place of reason in ethics, ethical intuitionism, utilitarianism, the ethics of Aristotle, the ethics of medicine, and moral problems. Enforcement of professional ethics. The meeting point between Ethics and Journalism.

PCS 619 Advertising (2 units)

The origin of Advertising. Economics and Social Role of Advertising. Public attitudes in Advertising. Marketing Evolution. The Basic principles of marketing. Relevance of market concept to Advertising. Product life cycle. Marketing segmentation and evaluation. Reaching Target Segment. Organisation of Advertising. Control and Regulation of Advertising.

ARD 611 Introductory Rural Sociology (2 units)

Meaning of Rural Sociology. Concept of Rurality. Differences between rural and urban societies. Culture, Agents of Socialisation, Social Groups, Governance in Rural Communities, Social Stratification. Settlement Patterns in Rural Areas. Types of Migration. Contemporary Rural Societies in developing and developed countries.

ARD 613 Social Theories and Social Change (3 units)

Theories of Development, Social Development Theories. Types of Social Changes and Social Responses. Rural Development Approaches Indicators of Socio-economic Development. The Concept of Sustain-ability (ecological and economic dimensions, people related/social dimension).

ARD 614 Gender Matters in Development Policy (3 units)

Gender Inequality Issues. Gender and Poverty Levels. Measurement of Gender Empowerment Index. Measurement of Gender Development Index. Gender Empowerment and Development Indices in Nigeria. Gender-Related Policy Options in Human Development and Agrarian Programmes. Strategies for Implementing Gender-biased Programmes.

ARD 615 Principles of Human Development (3 units)

Facets of Human Development Gender Perspective in Human Development (Nigeria, Africa, and Global Status). Measurement of Human Development Index (HDI). Poverty as a human development problem; Perspectives of Poverty. Human Poverty and Income Poverty. Measurement of Human Poverty Index (HPI). Poverty Alleviation Policies. The Status of Human Development in Nigeria. Strategies for Enhancing Human Development Index (World Regional Models inclusive.)

ARD 616 Research Methods & Measurement Techniques (3 units)

Steps in Social Science Research. Defining Research Problem and its Guidelines. Developing Specific Objectives and Hypotheses Writing. Categories of Research Design. Concept of Variables. Sampling Techniques. Method of Data Collection. Roles of Related Literature in Research. Analysis and Interpretation of Data. Measurement and Evaluation. Levels of Measurement. Validity and Reliability. Types of Rating Scale. Test Construction and Item Analysis. Measurement of Socio-economic Status. Measurement of Innovation Adoption. Techniques of Attitude Scale Construction. Likert Method of Scaling. Conversion of Descriptive Ratings to Standard Scores.

ARD 618 Statistics for Social Sciences (3 units)

Distinction between Descriptive and Inferential Statistics. Steps in Hypothesis Testing. Measures of Central Tendency (Mean, Mode, and Median). Measures of Dispersion (Variance, Standard Deviation etc.). Measures of Association. (Correlation, Coefficient, Kendall's Coefficient of Concordance). Dependent and Independent Variables. Hypothesis Testing taking cognizance of one sample, two samples, dependent and non dependent cases. Chi-square. Analysis, Wilcoxon's Test, t-test, Analysis of Variance, Regression Analysis.

PCS 610 Seminar (3 units)

A seminar paper to be presented by each student on a topic approved by the Institute.

PCS 612 Practicum (2 units)

Opportunities in putting research theories into visitation to media houses or relevant organizations. Students should experience visitations to media houses or relevant organizations on a three months attachment.

PCS 614 Project (3 units)

A project report to be written by the student on any topic approved by the Institute. The topic should be an outcome of the student's practicum experience.

3.2 M. A. in Communication Development

3.2.1 Objectives

The main purpose of the Masters degree in Communication Development is to provide theoretical framework and practical training in communication skills needed in a variety of settings – interpersonal, group, organisational, cross-cultural, mass communication and instructional. It offers a sequence of courses that provide the student with a firm and sufficient academic foundation while also ensuring opportunities for skills development and the acquisition of practical experience in the various areas of communication.

3.2.2 Justification

The Master in Communication Development will provide adequate training backgrounds to graduates in communication, arts social sciences, natural sciences, and applied sciences who may wish to acquire postgraduate training in communication development. The programme provides academic and professional training opportunity for graduates from a wide range of disciplines and backgrounds.

3.2.3 Admission

In addition to the general requirements established by the Postgraduate School, candidates for admission to the degree shall be graduates of the University of Agriculture or any other recognised University by the Senate, with degree in the Sciences, Applied Sciences, Arts, Social Sciences and Education. In addition, possession of relevant professional qualifications and/or experience will be an advantage.

3.2.4 Graduation Requirements

Candidates for this degree programme must satisfy the following conditions:

- (i) Successful completion of prescribed course work of at least 30 units and a Research Project of 6 Units.
- (ii) Successful completion of an approved dissertation of 6 units and satisfaction of the examiners on the execution and outcome of the research project.
- (iii) Any other condition as may be prescribed by Senate of the University for the award of a Master's degree.

3.2.5 Duration

The programme may be run on full-time or part-time basis. For full-time registration, the minimum duration shall normally be four semesters and maximum of eight semesters. For part-time registration, the minimum duration shall be eight semesters and maximum of twelve semesters, from the date of registration.

3.2.6 Course Structure

University Course	(4 units)
Compulsory Courses	(13 units)
Electives	(8 units)
Seminar	(2 units)
Practicum	(3 units)
Masters Dissertation	(6 units)
TOTAL	(36 units)

3.2.7 First Semester

University Course

Course Code	Course Title	Units
CSC 701	Use of Computer in Research	4
		4

Compulsory Courses

Course Code	Course Title	Units
COM 701	Research Strategies and Methods	2
COM 709	Essentials of Scholarly Writing	2
COM 711	Discourse Analysis	2
		6

Electives

Course Code	Course Title	Units
COM 703	Studies in Listening Comprehension	2
COM 705	Studies in Reading Comprehension	2
COM 707	Studies in Oral Communication	2
COM 713	Writing Language Teaching Materials	2
ARD 703	Measurement and Scaling Techniques	3
ARD 705	Rural Sociology	3
ARD 707	Social Statistics and Computer Science I&II	3
ARD 717	Statistical Theory and Analysis	3
COM 715	Sociology of Communication	2
COM 717	Intercultural Communication	2
COM 719	History and Philosophy of Communication	2
COM 723	Culture and Society	2
COM 725	The Role of Communication in Conflict and Negotiation	2
		32

3.2.8 Second Semester

Compulsory Courses

Course Code	Course Title	Units
COM 702	Philosophy, Language and Communication	2
COM 712	Communication Law and Regulation	2
ARD 708	Mass Communication Theories and Practice	3
		7

Electives

Course Code	Course Title	Units
COM 704	Public Relations	2
COM 706	Organizational Communication	2
COM 708	Interpersonal Communication	2
COM 710	Leadership Communication	2
COM 714	Creative Writing	2
COM 716	Multiculturalism, Gender and Media	2
COM 718	Studies in Situational Public Speaking	2
COM 720	Gender and Genre	2
COM 722	Gender and Writing	2
COM 724	Business Communication	2
COM 726	Political Communication	2
COM 728	Arguments and Critical Thinking	2
COM 730	Ethics	2
COM 732	Social Conflict and Social Change	2
COM 734	Advertisement	2
COM 736	Language and Communication in Peace and Conflict Resolution	2
		32

3.2.9 Third and Fourth Semesters

Course Code	Course Title	Units
COM 727	Seminar I	1
COM 738	Seminar II	1
COM 729	Practicum in the Area of Specialization	3
COM 740	Masters Dissertation	6
		11

3.2.10 Course Synopsis

COM 701 Research Strategies and Methods (2 units)

This course provides a solid foundation for students to understand the process of fact-finding as well as knowledge creation. Students are provided with an in-depth understanding of data analysis and collection methods (qualitative and quantitative) commonly used by communications researchers as well as ways of synthesizing and analyzing scholarly literature.

COM 702 Philosophy, Language and Communication (2 units)

The nature of language and human communication. The role of language in the development of knowledge. The character of concepts and their role in the organisation of human experience. The problem of the objectivity of meaning and the possibility of inter-cultural translation of ideas.

COM 703 Studies in Listening Comprehension (2 units)

A detailed critical survey of theories and research findings that shed light on listening and reading as language comprehension skills, and implications of these for developmental language arts programmes.

COM 704 Public Relations (2 units)

Provides an overview of the evolution of public relations along with its various definitions. Develops the skills necessary for orchestrating a conversation between an organization and its various publics. Various writing exercises will emphasize the importance of information gathering and message shaping with a particular emphasis on developing expertise in media relations and employee communication. Looks at Public Relations education and training in Nigeria.

COM 705 Studies in Reading Comprehension (2 units)

The course summarises and analyses in greater depth the elements of efficient reading, taking particular cognisance of faster reading rapid reading, intensive/study reading and pleasure reading. It will also look briefly into the areas of reading deficiency diagnosis and remediation, reading research and the teaching of reading

COM 706 Organizational Communication (2 units)

An overview of the major theoretical perspectives and concepts that enhance our understanding of organizational communication processes. Readings and case studies will address such topics as communication networks, superior-subordinate relations, organizational culture, socialization experiences, and work-family tensions. The use of "audits" as a method for assessing the effectiveness of communication processes will be reviewed and students will be given the opportunity to develop basic auditing skills in the areas of survey writing and interviewing.

COM 707 Studies in Oral Communication (2 units)

Studies of current theories in oral communication and techniques for its development. The implications of these for Nigeria's multi-lingual situation will be explored.

COM 708 Interpersonal Communication (2 units)

This course will introduce students to basic patterns of human communication in order that they may develop a better understanding of the interpersonal communication process. Through exploration of theories of communication, perception, self-perception, language, and nonverbal interaction, students will develop their theoretical and practical understanding of how interpersonal relationships are achieved through communication in a variety of settings, including family, friendship, romantic, workplace, and intercultural encounters.

COM 709 Essentials of Scholarly Writing (2 units)

A study of the bibliographic, stylistic and other literary devices appropriate to the writing of scholarly materials such as book reports and reviews, articles for certain learned journals, dissertations and doctoral theses, A review of selected research reports and publications with a view to identifying elements of scholarly writing.

COM 710 Leadership Communication (2 units)

This course examines both the theoretical and applied dimensions of leadership, focusing on the communicative aspects of leaders and leadership. Course content covers managing group members and tasks, models of leadership, situational dynamics of leadership, charismatic versus emergent leadership, team theory, trait versus situation orientations toward leadership, leadership ethics, cultural differences in leadership style and identification, and leadership in different contexts (e.g., educational, corporate, NGO, governmental, media, etc.).

COM 711 Discourse Analysis (2 units)

This course covers aspects of how spoken and written discourse is organised, how it varies, and how it may be described and analysed. There is a strong focus on issues of culture and communication and on the critical interpretation of texts.

COM 712 Communication Law and Regulation (2 units)

Investigation of the legal context in which mass-mediated communication is embedded. Attention is given to libel, access, privacy, corporate and commercial speech and obscenity as defined by courts and regulatory agencies.

COM 713 Writing Language Teaching Materials (2 units)

A discussion of various principles, such as readability, propriety, utility and teachability as they relate to the writing of language teaching materials for use at various school levels, followed by a critical review of selected language teaching books, in the light of these principles.

COM 714 Creative Writing (2 units)

This is an intensive practical course in the skills and techniques appropriate to various literary genres. Individual write-ups will be presented in three successive drafts in writing poetry, drama or prose fiction.

COM 715 Sociology of Communication (2units)

This course is on the way in which sociological units such as groups and societies in their various forms and how their various patterns of interaction affect communication. The nature and variety of symbolic structures in societies with focus on linguistic categories and belief systems. Their roles in ordering cognition, interaction and resource management.

COM 716 Multiculturalism, Gender and Media (2 units)

Students gain interdisciplinary study in culture and communication by reading, discussing, and writing about audiences, co-cultures and feminist popular culture.

COM 717 Intercultural Communication (2 units)

The aim of this course is to provide an overview of the major issues in the area of Intercultural Communication with particular reference to developments in the last 20 years. In today's global world, it is necessary to communicate successfully across cultural boundaries of languages, styles and values. This course will address these questions, using the students' cultural background as the basis for contrastive analysis in terms of language difference, pragmatics, social semiotics and visual communication.

COM 718 Studies in Situational Public Speaking (2 units)

A critical survey of Western and African rhetorical theories and practices in a variety of situations such as crisis management, conflict resolution, politics, religion and governance.

COM 719 History and Philosophy of Communication (2 units)

Study of modern history and philosophical foundations of the study of human communication, with attention to contributions of both humanistic and social science traditions, and with consideration of contemporary controversies concerning theory and research.

COM 720 Gender and Genre (2 units)

When writers choose one mode of discourse (and not another), they shape what can be included and what must be excluded. Before a word has been put on a page or an image on a screen, they have simultaneously created a bounded space for readers and opened a site of experimentation. Students in "Gender and Genre" will explore some implications of genre choices, with special attention given to the gender questions those choices raise. Further, it will look at how both implications and questions change over time.

COM 721 Philosophy, Language and Communication (2 units)

The nature of language and human communication. The role of language in the development of knowledge. The character of concepts and their role in the organisation of human experience. The problem of the objectivity of meaning and the possibility of inter-cultural translation of ideas.

COM 722 Gender and Writing (2 units)

This course will explore the connections between theories of gendered identity and ways of writing. In order to examine the effects of a gendered identity on the production of text, it will examine what the assumptions, gender theory, makes about identity production. In particular, it will look at theories of gendered identity from many different schools of thought - essentialism, psychoanalysis, developmental psychology, cognitive psychology, poststructuralism, neo-Marxism, and cultural studies - and the resulting writing research which emerges from each theory.

COM 723 Culture and Society (2 units)

Culture, its meaning and significance. Cultural attributes and their dynamics: Ecology, Language, social, political and belief systems. Cultural development with special reference to human's recent cultural history. West Africa as a case study.

COM 724 Business Communication (2 units)

A study of various types of verbal and non-verbal messages in business setting, with an examination of the accompanying communication problems. Also consumer behaviour and practices will be analysed.

COM 725 The Role of Communication in Conflict and Negotiation (2 units)

This course examines the role of communication in managing conflict in various relationships: interpersonal, inter-organizational, and international. Special emphasis is given to how the application of communication processes like negotiation can influence outcomes. Current cases are studied to reveal how organizational leaders incorporate ethical decisions and strategic communication in conflict and change management.

COM 726 Political Communication (2 units)

Analysis and criticism of political discourse using theories and methods from the discipline of speech communication.

COM 728 Arguments and Critical Thinking (2 units)

Meaning and Definition. Types of discourse. The nature of arguments. Validity; techniques for evaluating of arguments. The distinction between inductive and deductive inferences. Illustrative arguments taken from typical texts in history, law reports, newspapers, etc. will be examined.

COM 730 Ethics (2 units)

A discussion of the nature of moral judgements. Problems concerning conflicts between moral judgements. Examination of some important ethical notions, e.g. moral objectivity, authority, punishment, freedom and moral responsibility. Philosophical discussion of issues in contemporary life, e.g. abortion, euthanasia, artificial insemination, suicide, capital punishment, war, nuclear weapons, polygamy, monogamy, etc.

COM 732 Social Conflict and Social Change (2 units)

Strategies for producing, and consequences of change. Topics could include effects of change on the individual, the collection and use of data as strategies for the production of change; socio-technical intervention strategies (e.g. Ajaokuta, etc) conflict as a change strategy.

COM 734 Advertisement (2 units)

This course examines theories of advertisement and reviews advertisement's role in society. Students will gain increased familiarity with advertisement concepts, theories, methods and research findings; increased ability to apply theories and research generalizations to cases; increased ability to compare and evaluate approaches; increased sensitivity to problems of ethics in advertisement.

COM 736 Language and Communication in Peace and Conflict Resolution (2 units)

Language in the thinking processes and thought expression; uses and abuses of language as a means of communication in different socio-linguistic contexts; the Sapir-Whorfian hypothesis of the influence of language on the perception of reality; linguistic dimensions of ethnicity and features of power play between majority and minority language speakers; issues in identity, security and insecurity; language in legal arbitration and the administration of justice and conflicts within case studies of ethno linguistic conflicts and resolutions of language planning frameworks as in the former Soviet Union, India, South Africa, Switzerland etc.

ARD 703 Measurement and Scaling Techniques (3 units)

Meaning and scales of measurement. Factors influencing the choice of appropriate parametric tests. Principles of test construction-statistical concepts, item analysis, and types and measurements of reliability and validity. Techniques for attitude scale, construction methods of paired comparison, equal-appearing intervals, successive intervals, summated ratings, and scale-gram analysis.

ARD 705 Rural Sociology (3 units)

General Sociology Theory, Analysis of Rural Social Systems; Relation of the Individual to his Social Environment, Group Dynamics, Leadership Patterns; Social Change and Community Organisation; Special Topics in Rural Sociology.

ARD 707 Social Statistics and Computer Science I&II (3 units)

The courses aim at intimating students with advanced concepts and principles of statistical methods and their subsequent application in solving social science issues. The format of course will be in the shape of quizzes, assignments and group work, all of which count in the final course grading.

ARD 708 Mass Communication Theories and Practice (3 units)

This course examines a variety of communication theories, how they are constructed, tested and revised. Several theories are examined and critiqued (e.g., systems, discourse analysis) with reference to their theoretical traditions (e.g., hypo-deductive, phenomenological), and their respective orientations (e.g., epistemological, axiological). Connections between theory and research methods are explored, as well as the need for consistencies across theoretical and methodological approaches.

ARD 717 Statistical Theory and Analysis (3 units)

Sets and Probability, Random Variables and Probability Distributions, Mathematical Expectations, Sampling Theory, Estimation Theory, Tests Hypotheses and Significance, Regression and Correlation, and Analysis of Variance.

COM 727 Seminar (1 unit)

This is an oral presentation of the project proposal and literature review on the project topic before the investigation class critique.

COM 738 Seminar (1 unit)

This is an oral presentation of the research investigation and findings after the completion of the project.

COM 729 Practicum in the Area of Specialization (3 units)

Students would be attached to different communication outfits for practical experience in area of specialisation for three months. Students would be expected to receive sufficient practical training under strict professional conditions and supervision. Detailed report of the students' activities and experiences during this period would be submitted by the students.

COM 740 Masters Dissertation (6 units)

A project report of not more than 15,000 words (excluding appendices) written by the student on any topic approved by the Institute.

Name	Rank	Qualification	Research Interest
B. I. Akeredolu-Ale	Reader	B.A., PGD Journalism (NIJ), M.TSEL/TEFL (B'ham), Ph.D (Ibadan)	Language and Communication
Shopeju, J. O	Reader	B.Sc, M.Sc, Ph.D(Iowa City)	Sociology
H. A. Bodunde	Senior Lecturer	B.Ed (Benin), M.Ed, Ph.D (ABU)	Language and Communication
B. S. Sotiloye	Senior Lecturer	B.A., M.A, Ph. D (Ilorin)	Language and Communication
C. A. Onifade	Lecturer I	B.A, M.Ed. (Ibadan), Ph.D (ABU)	Social Studies, Peace & Conflict & Gender Issues
M.S.C. Okolo-Nwakaeme	Lecturer II	B.A, M.A (Calabar) PGD PR (NIJ) Ph. D (Ibadan)	Philosophy and Literature
Omotayo, A. M	Professor	B.Sc, M.Sc(Virginia State) Ph.D(ABU)	Agric. Ext/Rural Soc. & Prod. Systems
Akinwunmi, T. M	Reader	B.A., M.A (ABU), Ph.D (Ibadan)	Culture & Clothing
G. O. Sokoya	Reader	B.Sc, M.Ed, Ph.D(Natal)	Gender, Health and Mgt. Ssues
Ladebo, J. O	Senior Lecturer	B.Sc., M.sc, Ph.D(Ibadan)	Agric. Ext. Mgt. & Org.
Adebayo, K	Lecturer I	Dip. Agric (Ife), Ph.D (UNAAB)	Development Communication
Awotunde, J. M	Lecturer I	M.Sc, Ph.D (Phillipinoes)	Rural Sociology
Fakoya, E. O	Lectuer I	B.Sc (Nigeria), M.Sc, Ph.D (Ibadan)	Agric. Ext. & Rural Sociology