**UNIVERSITY OF NIGERIA, NSUKKA**

**FACULTY OF VOCATIONAL AND TECHNICAL EDUCATION**

 **DEPARTMENT OF AGRICULTURAL EDUCATION**

**POSTGRADUATE DEGREE PROGRAMMES**

**(PGDTE, M.Tech, & PhD in Agricultural Education)**

 **2016**

**DEPARTMENT OF AGRICULTURAL EDUCATION**

**UNIVERSITY OF NIGERIA, NSUKKA**

**POSTGRADUATE DIPLOMA IN TECHNOLOGY EDUCATION**

**Philosophy of the Programme**

Postgraduate Diploma in Vocational Technical Education is made available to youth and adults who are already at work but are motivated to update or upgrade their present occupational skills or learn new skills and extended knowledge. Based on the strength of this philosophy, most of the people who will be admitted into the programme are already employed in teaching and technology education administration. Therefore, the Postgraduate Diploma in Technology Education will make them more effective in their respective employments.

**Objectives of the Programme**

The objectives of the programme are as follows:

1. To provide persons in teaching and administrative positions in technical and vocational institutions who do not possess any formal professional qualifications in technical education with the required body of knowledge and instructions.
2. To provide foundations for higher degrees for graduates in related fields lacking professional qualifications in technical and vocational education but desire advancement in technical and vocational education as a career.
3. To ensure effectiveness in institutions and administration in technical and vocational institutions by equipping the professionally unskilled persons with the theories, practices and philosophies of technology education.

**Scope**:

 The Postgraduate Diploma in Vocation Technical Education Programme is designed to cover foundational studies in vocational and technical basic courses in general education. The specific area of technology education covered by the programme is Agricultural Education

**Entry Requirements:**

**Agricultural Education**

Bachelor’s degree or HND in any area of agriculture passed at distinction or upper credit level.

**Employment Opportunities**

Most of the people who will be attending the courses are already employed in teaching and vocational/technical education administration. The Postgraduate Diploma in Technology Education will make them more effective in their respective employments.

**Mode of Study**:

The mode of study is by course-work and project.

**Duration of Study**:

The duration of the programme is one full academic session of two semesters in full-time study.

**Area of Specialization**

 The Department of Agricultural Education offers PGDTE Programmes leading to specialization in Agricultural Education

**POSTGRADUATE DIPLOMA IN TECHNOLOGY EDUCATION**

**AGRICULTURAL EDUCATION**

**COURSES**

**First Semester**

**Course No. Course Title Units**

VTE 0501 Foundations of Vocational Technical Education 2

VTE 0503 Vocational Guidance 2

VTE 0505 Administration of Vocational Technical Education 2

VTE 0507 Measurement & Evaluation in Technology Education 2

VTE 0509 Statistics in Technology Education 2

VTE 0511 Research Methods in Vocational Technical Education 2

EDU 0511 Educational Psychology I 2

EDU 0521 Curriculum Theory and Planning 3

AGE 0515 Environmental Education in Agriculture

 17

**Second Semester**

AGE 0516 Curriculum Development in Agricultural Education 2

AGE 0510 Methodology in Agricultural Education 2

AGE 0512 Seminar in Agricultural Education 2

AGE 0514 Management of the School Farm for Profit 2

VTE 0504 Practical Teaching in Voc and Technical Education 3

EDU 0512 Educational Psychology II 2

AGE 0590 Project 4 **17**

**PGDTE COURSE DESCRIPTIONS**

**VTE 0501** **Foundations of Technology Education**

Philosophical, sociological, historical and economic foundations - a comparative analysis. Content scope and objectives. Vocational education and national development. Professional opportunities in vocational education

 (2 units)

**VTE 0503** **Vocational Guidance**

An introductory course in the principles and practices of vocational guidance. Emphasis on problems in schools. Historical, philosophical, psychological and socio-economic foundations of the guidance movements and course in career education.

 (2 units)

**VTE 0504** **Practical Teaching in Voc and Technical Education**

Students are exposed to basic principles and procedures of practical teaching in vocational subjects including micro-teaching; participate in micro-teaching before the actual field practical teaching; actual field practical teaching of vocational subjects in post-primary institutions for a period of at least 6 weeks.

 (2 units)

**VTE 0505** **Administration of Vocational Technical Education**

Study of the philosophical, historical, social and psychological foundations underlying the organization, administration, supervision and teaching of vocational and technical education. Examination of existing patterns in Nigeria.

 (2 units)

**VTE 0507** **Measurement and Evaluation in Voc and Technical Education**

Theories and approaches to evaluation in technology education. Importance and objectives. Norm reference and criterion referenced, effective domain and psychomotor domain. Essay tests, objective tests and performance tests, test validity and reliability, test administration and evaluation. Product and process evaluation in technology education, skills evaluation in technology education.

 (2 units)

**VTE 0509** **Statistics in Technology Education**

Introduction to statistical concepts, vocabulary and symbols. Principles and applications of sampling and inference frequently used in reporting empirical research in vocational and technical education.

 (2 units)

**AGE 0510** **Methodology in Agricultural Education**

Application of the principles of curriculum and course construction. Attention to specialized methods of teaching, measurement and supervision techniques appropriate to agricultural education. Development of lesson plan, Planning of teaching in laboratories and instructional materials,

 (2 units)

**VTE 0511** **Research Methods in Voc Technical Education**

Techniques of empirical study including designing various types of study; methods of data collection; data analysis, simple ways of testing hypotheses and methods of writing research proposal and research reports.

(2 units)

**AGE 0512** **Seminar in Agricultural Education**

A consideration, identification and examination of some of the major issues presently facing Nigerian educational authorities regarding the role and nature of various technical vocational education and training under formal and non-formal settings. Instructional problems of teachers and students’ problems in choosing careers in vocational and technical subjects will be considered.

 (2 units)

**AGE 0514** **Management of the School Farm for Profit**

Emphasis will be placed on the importance of the school farm; difference between a school farm and a commercial and/or traditional farm; agricultural activities on the social farm. Practical activities in designing, locating/plotting and establishing school farms. The experience students and teachers could transfer from the school farm to improve agricultural outputs of the community will be discussed. Maintenance operation in the school farm will be of great focus.

**AGE 0515** **Environmental Education in Agriculture** 2 units

Meaning of ecology and ecosystem from agro-ecological perspective. Agro-ecological problems/Degradation – causes, consequences and remedies. Environmental resources conservation and management approaches. Farm – level application of soil conservation technologies in schools. Farmstead planning and farm sanitation, Establishment and maintenance of ornamentals and lawns in schools.

**AGE 0516** **Curriculum Development in Agricultural Education**

Major components of curriculum in vocational education. Sources and factors in curriculum planning in vocational education. Historical trends in curriculum revision and innovation in technology education in Nigeria; steps in curriculum development. Curriculum evaluation – roles procedure, stages and evaluation of instruments in technology education. A review of syllabuses of secondary school vocational subjects related to course of study.

 (2 units)

**DEPARTMENT OF AGRICULTURAL EDUCATION**

**M.Tech/PhD DEGREE PROGRAMMES**

**Philosophy**

 The M.Tech. and PhD Programmes of the Department of Agricultural Education are intended to prepare professionally qualified individuals who can assume leadership positions in government, secondary schools, colleges of education, polytechnics, Uuniversities, agricultural industry and commerce. The Federal Government of Nigeria has, since the introduction of the National Policy on Education (NPE), placed emphasis on vocational and technical education. This emphasis has led to the establishment of College of Education (Technical) in various parts of the country and the introduction of programmes of technical and vocational education in several polytechnics and Universities in Nigeria. All such programmes require well-trained lecturers with postgraduate qualifications in vocational and technical education.

**Objectives**

 The postgraduate programmes of the Department of Agricultural Education are intended to:

1. equip students with professional competencies that will enable them serve in leadership positions in secondary schools, government, colleges of education, colleges of agriculture, polytechnics, universities and agricultural related enterprises;

2. increase the technical knowledge and skills of students so that they can keep abreast of technological development in agricultural education; and

3. develop research skills in students and teach them to apply such skills in the solution of problems in vocational agriculture and other technical education areas.

**Scope:**

The M.Tech. and Ph.D Programmes of the Department of Agricultural Education are designed to offer courses in Agricultural Education.

**ENTRY REQUIREMENTS**

1. **Master of Technology Education (M.Tech)**

 The following categories of candidates may be admitted on application

1. Graduates of the University of Nigeria, Nsukka or of other approved universities who have obtained at least a second-class honours degree or its equivalent in Agricultural Education
2. Graduates of related disciplines different areas of Agriculture, who have obtained a second class honour degree or its equivalent, and who have in addition a Post-Graduate Diploma in Technical Education (PGDTE), passed at credit level and above.
3. Holders of the Higher National Diploma in different fields of agriculture who have in addition obtained a Post- Graduate Diploma in Technical Education at credit level or above.
4. Other Graduates of the University of Nigeria, or of other recognized universities whose detailed academic records are considered satisfactory by the Senate of the University of Nigeria.

2. **Doctor of Philosophy (PhD)**

Candidates who possess a Masters or Higher degree in Agricultural Education from the University of Nigeria or other approved universities may be admitted into the Doctor of Philosophy Programme provided that they obtained a minimum GPA of 3.50 on a 5-point scale or 3.00 on a 4-point scale and that a satisfactory research work formed part of the Master’s degree.

Candidates who hold other qualifications may be admitted into the Doctor of Philosophy programme if their detailed academic records are satisfactory to the Senate of the University.

**MODE OF STUDY**

1. The Master of Technology Education degree will be undertaken through course work and research project, where course work predominates research and constitutes not less than two-thirds of the total credit load.

2. **Doctor of Philosophy:** The Doctor of Philosophy degree will be undertaken through course work and doctoral research thesis.

**DURATION OF PROGRAMME AND RESIDENTIAL REQUIREMENTS**

The maximum and minimum duration of Postgraduate Programme shall be:

(a) **Master’s Programme**

 **Full-time:** The minimum duration = Three Semesters

 The maximum duration = Five Semesters

 **Part-time:** The minimum duration = Six Semesters

 The maximum duration = Eight Semesters

(b) **Ph.D Programme**

 **Full-time:** The minimum duration = Six Semesters

 The maximum duration = Ten Semesters

 **Part-time:** The minimum duration = Eight Semesters

 The maximum duration = Twelve Semester

**EMPLOYMENT OPPORTUNITIES**

 Students who successfully complete the postgraduate degree programmes of the Department of Agricultural Education may be employed in the following positions:

(a) Secondary school principals, vice-principals and teachers of vocational and technical agricultural subjects.

(b) Administrators and managers of training programmes in industries.

(c) Lecturers in N.C.E programmes in Vocational and Technical Education in Colleges of Education, Colleges of Agriculture and Polytechnics.

(d) Lecturers in degree programmes in Vocational and Technical Education Programmes in Universities.

**AREAS OF SPECIALIZATION**

 The Department of Agricultural Education offers M.Tech. Programmes in

Agricultural Education with three generic options:

**A. TECHNOLOGY EDUCATION IN PRODUCTION AGRICULTURE**

**B. AGRO-BUSINESS EDUCATION**

**C. SOIL EDUCATION**

**DEPARTMENT OF AGRICULTURAL EDUCATION**

**COURSES**

**M.TECH. PROGRAMME**

**First Semester**

**Course No. Course Title Units**

VTE 501 Theories and Administration of Voc & Technical Education 3

VTE 503 Research Methods in Voc. & Technical Education 3

VTE 505 Curriculum Development in Voc & Technical Education 3

VTE 507 ICT in Vocational Technical Education 3

AGE 515 Agricultural Resources Management Education 2

PGC 601 Research Methodology and Application of ICT in Research 3

 **17**

**Second Semester**

**Course No. Course Title Units**

AGE 510 Work Experience Designs in Agriculture 2

AGE 512 Agricultural Training Facilities/resources Management 2

Options 6

  **10**

**Options: (See below)**

Four units of courses must be chosen from options A, B or C according

 to the following areas of specialization:

**A. TECHNOLOGY EDUCATION IN PRODUCTION AGRICULTURE**

AGE 522 Voc Agric Programmes in Crops and Livestock Production 3

AEX 622 Diffusion of Innovations 3

**B. AGRO-BUSINESS EDUCATION**

AGE 532 Business Development plans for Agric ventures in Schools 3

AEC 632 Marketing Management for Agribusiness Firms 3

**C. SOIL EDUCATION**

AGE 542 Training in Tropical Soils Utilization and Improvement 3

SSC 662 Advanced Soil Fertility 3

**Third Semester**

**Course No Course Title Units**

AGE 511 Seminar in Agricultural Education 3

AGE 590 Project 6

 **9**

**Grand Total of Course Units = 36**

**Ph.D PROGRAMME**

**First Semester**

**Course Code Course Title Units**

VTE 601 Emerging Issues and Innovations in Voc and Tech Education 3

VTE 603 Enterprise Development in Voc and Technical Education 3

VTE 605 Proposal and Grant Writing in Technology Education 3

PGC 701 Synopsis and Grant Writing 3

 12

**2nd Semester**

AGE 612 Doctoral Seminar in Technology Education 4

AGE 614 Advanced Curriculum Studies in Agricultural Education 3

 07

**3rd Semester**

AGE 611 Advanced Agricultural Research and Training Models 2

AGE 613 Ergonomic principles and skills development in Agriculture 2

AGE 615 Green Technology and Skills Development in Agriculture 2

 6

**4th Semester**

**OPTIONS** (See below)

Six units of course must be chosen from options A, B or C according to the

following areas of specialization:

 **A. TECHNOLOGY EDUCATION IN PRODUCTION AGRICULTURE**

AGE 622 Entrepreneurship Education in Agricultural Production 3 AGE 624 Innovations in Micro livestock Production in Schools 3

 **B. AGRO-BUSINESS EDUCATION**

AGE 632 Advanced Agribusiness Management Education 3

AGE 634 Business Development Plans for Youths in Agric. 3

 **C. SOIL EDUCATION**

AGE 642 Soil Fertility and Conservation Education 3

AGE 644 Environmental Crisis and Climate Change Education 3

**5th and 6th Semesters 6**

AGE 690 Thesis 10

**Grand TOTAL 41**

**COURSE DESCRIPTIONS**

**M.TECH. AND PH.D PROGRAMMES**

**VTE 501 Theories and Administration of Technology Education**

Vocational and Technology Education theories, and processes that have shaped vocational/technology education. Evaluation of the basic theoretical concepts, self-concept, personality concepts, environmental and self-realization concepts relating to Vocational/technology Education. The concept of policy, institutions in educational policy formulation; policy analysis tools; issues in Nigerian Educational Policy and Vocational/Technical Education. Principles and approaches in Vocational/technology education administration and supervision. Administration and supervision of secondary and tertiary vocational education institutions.

 (4 units)

**VTE 502 Occupational Guidance**

Techniques, procedures and instrument for providing occupational guidance for school leavers. Review of occupational areas, placement follow-up activities, classification and description of jobs and industries and current issues, problems and trends in education, society and the world of work.

 (2 units)

**VTE 503 Research Methods in Technology Education**

Methodologies and procedures in Vocational/Technical Education research; problems formulation - use of problem tree and solution tree analysis; research objectives, questions and hypothesis; research designs, methods of data collection, development of instrument for data collection, thesis proposal and reporting. Statistical techniques applicable to research in Vocational/Technical Education; Descriptive techniques and inferential statistics such as t-test, analysis of variance (ANOVA), analysis of covariance (ANCOVA), regression analysis etc. Non-parametric statistical techniques.

 (3 units)

**VTE 504 Evaluation in Vocational/Technical Educational**

Theories and approaches to evaluation in Vocational Education. Current methodology in evaluation, such as criterion-referencing, cost benefit analysis, cost effectiveness, Programme Evaluation and Review Techniques (PERT)

 (2 units)

**VTE 505 Curriculum Development in Vocational Education**

Selection and organization of instructional materials for technology education courses, study of current curriculum practices, concepts and trend in the field of technology education. Curriculum designs in different occupational fields of technology education. Principles underlying curriculum research, development, and improvement. (2 units)

**VTE 506 Fundamentals of Vocational Enterprise Development**

Developing business centres, functions of business development centres. Vision, mission, scope, activity areas, partnerships and collaboration of BDCs.

(3 units)

**VTE 507 ICT in Vocational/Technical Education**

Computer Literacy. Principles and general application of Information Communication Technology in Vocational Education Programmes. ICT as curriculum content, instructional delivery tools, evaluation/assessment tools etc.. Internet Services and use of e-learning concepts. Instructional methods and materials for ICT application.

 (3 units)

**VTE 509 Seminar in Vocational Education**

Study and analysis of social economic and technological trends in vocational education, and current development in technology education. Minor research papers are to be presented. (3 units)

**AGE 510 Work Experience Programmes Designs in Agriculture**

Work experience/activity-based learning theories. Planning, execution and evaluation of work experience programmes in agricultural occupations. Analysis of emerging and sustainable crops, livestock and other agricultural production technologies; related non- farm occupations for work experience programmes in agriculture. Designing specific occupational/work experience programme in for schools and colleges.

 (2 units)

**AGE 511 Seminar in Agricultural Education**

Study and analysis of social economic and technological trends in agriculture, land development and agricultural education. Minor research papers are to be presented.

 (3 units)

**AGE 512 Agricultural Training Facilities/resources Management**

Categorizing facility/resources required for agricultural teaching and learning at all levels of education system. Problems associated with resource wastages and techniques in determining agricultural training resources/ facility needs and sourcing for schools and colleges; evaluations and assessing facilities and resources, planning for new construction, utilizing specialized personnel, and related financial matters. (2 units)

**AGE 514 Voc. Agricultural Programmes in Crops and Livestock Production**

Commercial school and college farm production programmes. Application of sustainable crops and livestock production technologies for improving small holder farm productivity in Nigeria. Designing crops and livestock training programmes. Farmer education and productivity. Strategies for assisting farmers in adopting green technologies for increasing production. (3 units)

**AGE 515 Agricultural Resources Management Education**

Land, forest, wildlife and water resources and their sustainable management. Resources exploitation-related environment crises. Environmental education and environmental improvement principles and practices. Case studies of agricultural resources management options among diverse local users.

 (2 units)

**AGE 516 Business Development plans for Agric ventures in Schools**

Concept, models/types and scope of business plan development in agriculture. Agricultural ventures in schools and colleges business plans could be developed on.

Management concept and models. Economic principles of agricultural production, management in agri-business, financial analysis and statements in agri-business farm management advising. Agricultural project cycle - planning, implementation and evaluation. Practical procedures for developing business plans and possible try-out methods.

 (3 units)

**AGE 518 Training in Tropical Soils Utilization and Improvement**

Soil degradation concept, forms, manifestations/effects/consequences Tropical soils characteristics and types. Soil requirements of major-tropical crops. Soil Associated with the Tropical Forest Biomes. Forest Soil and Hydrological Cycle. Management of Problem Soils **-** management of Dry sands, Wetland Management, Strip Mine Spoils, Nutrient-depleted sites, Other Problems. Diagnosis and Correction of Nutrient Deficiencies.Soil fertility management for sustainable agricultural productivity in small-holder agriculture. Practical Steps in mounting soil conservation education programmes in schools.(3 units)

**PGC 601 Research Methodology and Application of ICT in Research**

 **(Masters Degree Course)**

In-dept research work aimed at acquiring full knowledge and presentation in scholarly writing of the concepts, issues, trends in the definition and development of the study area from African and Western perspectives. Major steps in research: Selection of problem, Literature review, Design, Data collection, analysis and interpretation, conclusions. Study of various research designs, Historical, Case studies, surveys, descriptive, cross sectional experimental, etc. Analysis, surveys and synthesis of conceptual and philosophical foundations of different disciplines. Identification of research problems and development of research data and the format for presenting research results (from designing the table of contents to referencing, bibliography and appendix). Data analysis and result presentation in different disciplines using appropriate analytical tools. Methods of project/dissertation writing. Application of appropriate advanced ICT tools relevant in every discipline for data gathering, analysis and result presentation. Essentials of spreadsheets, Internet technology, and Internet search engines. All registered Masters Degree students must attend a solution based interactive workshop to be organised by the School of Postgraduate Studies for a practical demonstration and application of the knowledge acquired from the course, conducted by selected experts.

**AEX 622 Diffusion of Innovations**

The concepts of innovation adoption process. Sources of information factors affecting diffusion and adoption of innovation. Opinion leaders and flow of ideas. The role of change agents and the consequences of innovations. Recent research on diffusion and adoption. (3 unit)

**AEC 632 Marketing Management for Agribusiness Firms**

A study of marketing decision making in agribusiness. Analysis, planning, control and evaluation of marketing opportunities. The marketing mix and demand creation; marketing in the internet; consumer and industrial markets. The SWOT analysis, market research; case study. (3 unit)

**SSC 662 Advanced Soil Fertility**

Soil condition affecting availability of plant nutrients. Method of determining soil fertility and insufficiency of plant nutrients in soil. Fertilizers and micro-nutrient crop response curves. Soil testing and interpretation of soil test results. Nutrient movement-caution exchange theory, mass flow, and diffusion. On uptake and translocation on roots, line weaver-burke plot (3 units)

**AGE 590 Research Project**

Supervised independent investigation of topics in the areas of Vocational Agriculture,. A project is required. (6 units)

**VTE 601 Doctoral Seminar in Technology** Education

Analyses, discussions and presentation of pertinent issues in Technology teacher education with general emphases on vocational education and particular references to the various specializations in Agricultural Education; Business Education; Computer Education; Home Economics Education and Industrial Technical Education.

(4 units)

**VTE 602 Enterprise Developments in Technology Education**

Productivity theories and entrepreneurial developments with emphasis on the management of enterprises and the development and marketing of products. Application of vocational skills in enterprise development and production of consumer products. Feasibility study and development of business plans. Crafting vision and mission statements. Logical and legal frameworks for business enterprise. Management structures and operations in business management. Students and community engagements in business enterprises. Monitoring and evaluation of business enterprises. (3 units)

**VTE 603 Advanced Curriculum Studies in Technology Education**

Identification and examination of curriculum problems and issues in various areas of Technology education. Application of various curriculum principles and framework. Development of curricular for various technology areas. Curriculum innovations and practical application in curriculum improvement. Candidates will be expected to deliver one seminar in this course. (3 units)

**VTE 604 Proposal and Grant Writing in Technology Education**

Procedures in writing research proposals. Writing styles, chapter, citation, organization, referencing, etc. Concept and types of grants. Grant writing techniques grants in technology education. Sources of grants in TVET. Challenges and prospects in writing grant proposals. (3 units)

**VTE 605 Emerging Issues in Technology Education**

Identification of emerging issues and challenges that have implications for technology Education – National and Global; Greening TVET concept, green jobs and green skills in technology education. Climate change and environmental preservation- implications for technology education. Problem solving skills and innovations Today’s national and international emphasis on funding and financing of vocational education for increased productivity. Students are expected to deliver one seminar paper in this course.

 (3 units)

 **VTE 606 Career Development in Vocational Education**

 Planning cooperative education and internship programmes. Career planning guide, internship and full time positions. Career fairs , professional ethics. Writing resumes – functional, chronological, internship, electronic. Power verbs for resume writing. Letters and interviews – informational, behavioural. Frequently asked questions (FAQs) by employers and employees. Transferable skills. (3 units)

**VTE 607 Human Resource Management in Vocational Education**

Course will focus on identification of available human resources in vocational education; their utilization for efficient vocational programmes implementation and management. Organization of workshops, seminars, conferences on current human resource development issues in vocational education (3 units)

**VTE 608 Public Speaking and Advocacy in Technology.**

Speaking and listening techniques, speech preparation- organizing and outlining. Speech presentation, varieties of public speaking in vocational education. Advocacy models, techniques and media. Key vocational issues requiring advocacy and public speaking. (3 units)

**VTE 609 Analysis of Apprenticeship systems and Skills Development**

 Apprenticeship concept, types/models in formal and informal TVET systems. Issues and challenges in apprenticeship systems and skills development. Designing apprenticeship programmes in different occupational areas. (3 units)

**AGE 611 Advanced Agricultural Research and Training Models**

Typology of Agricultural research. Agricultural Education research models. Agricultural research, Extension and Education & training linkage mechanisms. Role of Agricultural Education in national innovation system. Agricultural Training Models. Action Research Model. Designing farm research programme for schools. Designing agricultural training programme for specified beneficiaries. (2 units)

**AGE 612 Entrepreneurship Education in Agricultural Production** Concepts of Entrepreneurship Education and Agricultural Productivity. Objectives of Entrepreneurship Studies in Agricultural production. Management of Agricultural Enterprises for profit maximization. Prospects and challenges of Entrepreneurship Development in Agricultural (Production) Education. Development of Entrepreneurship Competencies for successful Agricultural business. Entrepreneurship in crop production. Entrepreneurship in livestock production. (3 units)

**AGE 613 Ergonomic principles and skills development in Agriculture** Concept of ergonomics. Hazards in agricultural work environment. Ergonomic principles and farm safety measures. Application of ergonomic principles for skills development in crop and livestock production. Ergonomics and supervision of students out-door agricultural activities. (2 units)

**AGE 614 Advanced Agribusiness Management Education**

Analysis of Different Management concepts in agribusiness e.g.The six “M” Management Concept.Industrial Engineering Approach.Organizational Theory.POD CC Concept, etc.Primary Agricultural Production, Processing and Marketing Management.Business Development.Project Maximization Principles.Budgeting and

Financing. Financial Statements. Sourcing and Application of Production Technologies and Marketing Information.Production and Marketing Efficiency, Indicators/Measures.Business Communication in Agro-industry.Skills in Business Communication.Strategies in Designing Business Communication.Problems of Agribusiness Management in the Developing Countries of Africa.

 (3 units)

**AGE 615 Green Technology and Skills Development in Agriculture**

Concepts of greening TVET, green technologies, green jobs and green skills. High carbon and low carbon economies - concepts. Transition from high carbon economy to low carbon economy. Green technologies for promoting agricultural production system. Modalities for utilizing green technologies and developing green skills in agriculture.

 (2 Unit )

**AGE 616 Soil Fertility and Conservation Education**

Soil typology and classification. Topographical and vegetation influences on soil quality. Fertile and Non-fertile soil conditions. Soil Nutrients movement theory and Utilization by Plants. Nutrient loss in the soil and hunger signs in plants. Soil Conservation principles and practices. Soil Conservation education models – awareness, interest, decision making, adoption and satisfaction. Developing soil conservation training programmes. Experimental Studies in Soil Fertility and Conservation. (3 units )

**AGE Business Development Plans for Youths in Agric.**

Concept and models of business development plans. Challenges of youth engagements in agriculture. Analysis of agricultural business ventures that interests the youth. Practical steps in developing a business plan of named venture for specified category of youth and possible try-out mechanism.

 (3 units)

**AGE 618 Innovations in Micro livestock Production in Schools**

Micro livestock concept in school agriculture. Rationale/justification for undertaking the production of mini livestock in schools. Innovative approaches and practical techniques involved in the production of Giant cane rat/grass cutter, Quill birds, Snails, Bees, etc. Students are expected to deliver one seminar paper in this course. (3 units)

**AGE 619 Environmental Crisis and Climate Change Education**

Global, national and local environmental issues in agriculture. Causes, consequences and remedial actions related to environmental problems. Trends in global and local climate change and mitigation measures. Effects of climate change in agricultural production in Nigeria, Designing climate change farmers’ learning programme – for climate change adaptation and mitigation. (3 units)

**PGC 701: Synopsis and Grant Writing**

Identification of types and nature of grant and grant writing; mining of grants application calls on the internet. Determining appropriate strategy for each grant application. Study of various grant application structures and contents and writing of concept notes, detailed project description, budgeting and budget defence. Study of sample grant writings in various forms and writing of mock research and other grants. Identification of University of Nigeria synopsis structure and requirements, (Introduction, Methodology and Results). Determining the contents of each sub-unit of the synopsis. Steps in writing synopsis from the Dissertation/Thesis document. Structural and language issues. Common errors in synopsis writing and strategies for avoiding them. The roles of the student and the supervisor in the production of a synopsis. Writing of mock synopsis. All registered Ph.D students must attend a solution-based interactive workshop to be organised by the School of Postgraduate Studies for a practical demonstration and application of the knowledge acquired from the course, conducted by selected experts.