

AGRICULTURAL EDUCATION

1. PHILOSOPHY

The philosophy of NCE Agricultural Education program is tied with the national philosophy on Agriculture for self-reliance based on the provision of teachers endowed with a balanced approach between principles and practice of Agriculture for academic and vocational ends.

2. OBJECTIVES

The objectives of the program shall be:

- (i) To prepare graduates with the right attitude to, and knowledge/professional competence in vocational agriculture;
- (ii) To produce teachers who will be capable of motivating students to acquire interest in and aptitude for agriculture;
- (iii) to develop in the student-teachers the appropriate communicative skills for effective transmission of agricultural information and skills to the students in the context of their environment;
- (iv) to equip the student-teachers with adequate knowledge and ability to establish and manage a model school farm effectively;
- (v) To provide a sound background to enhance further academic and professional progression of the student-teachers.

3. ADMISSION REQUIREMENTS

I. GENERAL ADMISSION REQUIREMENTS

Students seeking for admission into NCE Agricultural Education program should possess any of the following qualifications:

- a) Senior Secondary School Certificate (SSC) or G.C.E 'O' Level/NECO with credits in 4 subjects including English Language and Mathematics, at not more than two sittings.
- b) A Grade II Teachers' certificate (TC II) with Credit or Merit in four subjects. Credit/Merit in Agricultural Science, and General Science or Integrated Science are required.
- c) For Candidates transiting from college organized Pre-NCE program, a cumulative Grade Point Average (CGPA) of 2.0 is required for absorption into direct NCE Agricultural Education program.
- d) Associate ship Certificate in Education awarded by an approved institution in Nigeria or abroad, is also acceptable as qualification.

II. ADDITIONAL ADMISSION REQUIREMENTS

- a) In addition to the General Admission Requirements, candidates seeking admission into NCE (Agricultural Education) program with SSC/NECO result must have Credits in Biology or Agricultural Science and a pass in Chemistry.
Candidates with TC II certificates must have Credit or Merit passes in General Science/Integrated Science and Agricultural Science.
- b) All candidates wishing to be considered for admission must enroll for and write the selection examination organized by an accredited body such as JAMB.
- c) In addition to the entire conditions stipulated above, candidate seeking admission into agricultural science must attend and pass selection interview.

4. FACILITIES

(i) **Classroom (Space and Equipment)**

Any institution offering NCE Agricultural Education program should provide adequate classrooms in addition to the following relevant facilities:

(ii) **Laboratory**

Two (2) standard laboratories should be adequately equipped (one for crops and soils, and the other for livestock studies)

(iii) **School Farm:**

Standard School Farm Complex shall be made up of the following: -

- Mechanical/Tools Workshop
- A Livestock Unit of selected farm animals
- Fish Pond
- Individual student plots
- Experimental plot for research
- Crop farm
- Facilities for bee keeping, snailery, or cane rat farming.

(iv) **Staff offices:**

Each Senior Staff should have a comfortably furnished office. There should also be an office for support staff (Typists, Clerks etc.) with relevant equipment e.g. computer and printer, reproduction machines, etc.

(v) **Books in the Library:**

There must be enough books to cover all the areas of the subject to the ratio of one student to ten volumes of books. Current journals in agricultural education and other relevant fields are also required in the same ratio.

(vi) **Other Facilities:**

- a) A tractor with the necessary coupling implements, e.g. plough (plow), harrow, ridger, spreader, etc.
- b) Haulage vehicle for transportation

vii) LIST OF EQUIPMENT, TOOLS AND MATERIALS

a) **Audio Visual Room***

Item	Quantity
1. Video recorder	2
2. Video player	2
3. Slide projector	2
4. Overhead projector	2
5. Film projector	2
6. Magnetic board	2
7. Public address system	2
8. Color Television Set	2
9. Cameras	5
10. Voltage stabilizer	2
11. Printing machine	1

b) **Drawing Room**

1. Drawing boards and tables	30
2. Drafting sets	10

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|------------------|----|
| 3. T-Square | 10 |
| 4. Set Square | 10 |
| 5. Protractors | 10 |
| 6. Lettering set | 10 |

c) CROP FARM

1. School Farm made up of:-
 - a. Arable farm containing tubers, cereals legumes and fibers on at least 1 hectare of land;
 - b. Horticultural garden containing nursery, ornamentals, fruits, root and leafy vegetable crops
 - c. Orchard containing assorted fruit trees;
 - d. Permanent crops plantation;
2. Processing facilities for: tubers, grains, fruits and vegetables. Storages facilities for tubers, cereals, grains, fruits, etc.

d) Animal Unit (Poultry (500) and Ruminants (20))

e) Nursery Tools	Numbers
1. Water pumping machine	5
2. Seed Sowers	5
3. Root Pruners	5
4. Plant lifters	5
5. Sprayers	5
6. Flame weeders and hedgers	5
7. Water pump	5
8. Rotary Planters	5
9. Generator	1
10. Secateurs	12
11. Planting hoes	20
12. Spade	20
13. Pick axe	10
14. Hand trowel	20
15. Wheel barrows	5
16. Watering cans	10
17. Head pans	10
18. Machets/Cutlas	20
19. Greenhouse	1
20. Water spraying machine	1
21. Water sprayers/sprinklers	20
22. Motorized sprayers	1
23. Motorized chain saw	1
24. Shears	10
25. Rolcut	10
26. Swing fog	2

*Items should be stocked in the Centre for Educational Technology.

Metrological tools and equipment (to be shared with Arts and Social Sciences)

1.	Stevenson's screen	1
2.	Thermo hydrographs	1
3.	Max. and Min. thermometers	2
4.	Rain gauge	2
5.	Measuring glasses	4
6.	Wind vane	2
7.	Anemometer	2
8.	Evaporometer	2
9.	Hygrometers	2
10.	Barometers	2

g) Survey Equipment

1.	Prismatic compass	4
2.	Ranging poles	8
3.	Chain (Gunter's & surveyors)	2
4.	Metric tape	2
5.	Planimeter	1
6.	Theodolite and staff	1
7.	Scale rules	10
8.	Set of arrows	30
9.	Field book	5
10.	Levels	4
11.	Pantograph	10
12.	Stereoscope	4

h) Farm Machinery

1.	Functional tractor	1
2.	Disc plough	1
3.	Disc harrow	1
4.	Disc ridger	1
5.	4-wheeled trailer	1
6.	Fertilizer spreader	1
7.	Mould board ridger	1
8.	Mould board plough	1
9.	Tractor pulley	1
10.	Seed drill	2
11.	Tractor mounted sprayer	1
12.	Seed cleaner	2
13.	Seed grader	2
14.	Cereal thresher	1
15.	Tractor scraps exhibiting tractor parts	1
16.	Complete tool boxes	2
17.	Incubator and Hatcher	1
18.	Egg handler	1
19.	De-beaker	1
20.	Vaccinator	1
21.	Manual maize planter	4
22.	Powered/Manual maize Sheller	2
23.	Hand oil press	1
24.	Moisture extraction unit (oven)	1
25.	Grain drier	2

26.	Weighing scales	2
27.	Inter-row weeders	2
28.	Manure spreader	1
29.	Slashers	1
30.	Mowers	1
i)	Storage Facilities	
1.	Silos	Various modifications
2.	Traditional barns	“
3.	Rhombus	“
4.	Cold room/Deep freezer	1
5.	Refrigerators	2
j)	Fishery Equipment	
1.	Hook	30
2.	Line	30
3.	Sinker	30
4.	Scoop nets	10
5.	Cast nets	10
6.	Float lead	10
7.	Gill nets	10
8.	Fishing boat	2
k)	Food Processing Equipment	
1.	Gari making machine	1
	Cassava pelleting machine	1
2.	Milling machine	1
3.	Maize Sheller	1
4.	Oil screw press	1
5.	Feed mill	1
6.	Rice huller	1
A.	Animal Equipment	
1.	Honey extractor	4
2.	Post mortem kit	4
3.	Surgical kit	4
4.	Cattle hoof trimming set	4
5.	Castrators	5
6.	Sterilizers	5
7.	Salt lick	2
8.	Identification tags	10
9.	Tattooing set	2
10.	Candler	4
11.	Hanging scale	4
12.	Chick's trays	10
13.	Canopy brooder	5
14.	Kerosene stove	5
15.	Brooding thermometers	5
16.	Livestock skeletons	10
17.	Essential water supply	
18.	e.g. ponds, dam, well, reservoir	2
19.	Bee Keeping Equipment	5

5. PERSONNEL

(i) Academic

A minimum of one (1) academic staff per discipline within the program, making sure that the staff student ratio of one to fifteen is maintained. Minimum qualification for any Lecturer shall be Masters Degree. However, First Degree not below 2nd Class Lower can be employed into training positions. In all cases, all teachers/lecturers should possess a teaching qualification not lower than NCE.

ii) Support Staff

The following combination of support staff should be employed:
Technologists - to cover crop/soil laboratory, animal science laboratory and the school farm. Technicians-one each to cover workshop, laboratories, livestock and research farms.
4 – Artisans e.g Computer
8 - Labor hands including a maximum of 2 messengers.

iii) Recruitment of External Examiners

The recruitment of at least two external examiners not below the rank of principal lecturer for the purpose of moderating examination questions and answer scripts is necessary for the proper implementation of the program.

6. MODE OF TEACHING

The mode of teaching of Agricultural Education courses should be by lectures, tutorials, field trips, excursions, practicum, laboratory work, information and communication technology and practical as deemed appropriate for each course.

7. MODE OF ASSESSMENT

Mode of assessment in agricultural education will be 60 percent examination and 40 percent continuous assessment except in practical courses where 60 percent of the marks will be earned through field practical work and 40 percent for written examination.

8. GRADUATION REQUIREMENTS

Minimum credits required for graduation:

General Education components	-	30 Credits
Teaching Practice	-	6 “
General Studies	-	18 “
Technical and Professional Agricultural components	-	64 “
Total	-	<u>118 C</u>

9. TEACHING PRACTICE: -

Every student is required to do Teaching Practice, and the credit earned recorded as Education 324.

10. *SEMINAR:

Every student is required to present a seminar in either agriculture or education, and the credit earned recorded as AGE 320

11. SUBJECT COMBINATION

Agricultural Education is a double major subject and is offered on its own not in combination with any other subject.

	YEAR ONE – FIRST SEMESTER		
COURSE CODE	COURSE TITLE*	CONTACT HOURS L—T- P	CREDITS
VTE 110	Introduction to Vocational and Technical Education	1-0-0	1C
AGE 111	Introduction to Agriculture	1-0-3	1C
AGE 112	Agricultural Biology	2-0-3	2C
AGE 113	Agricultural Mathematics	1-0-0	1C
AGE 114	Agricultural Physics	1-0-3	1C
AGE 115	Introduction to Agro-Climatology	1-0-3	1C
AGE 116	Agricultural Chemistry	1-0-3	2C
AGE 117	Practical Agriculture I	1-0-4	2C
AGE 118	Introduction to Crop production	1-0-3	1C
AGE 119	Introduction to Rural Sociology and Extension	1-0-3	1C
	TOTAL		13C
	YEAR ONE – SECOND SEMESTER		
AGE 121	Arable Crop Production	1-0-3	2C
AGE 122	Introduction to Animal Science	1-0-3	1C
AGE 123	Youth Organization in Agriculture	2-0-3	2C
AGE 124	Principles of Agricultural Economics	2-0-0	2C
AGE 125	Agricultural Methodology	2-0-0	2C
AGE 126	Introductory Soil Science	2-0-3	2C
AGE 127	Agric Finance	1-0-0	1C
	TOTAL		12C
	YEAR TWO – FIRST SEMESTER		
AGE 211	Tree Crop Production	1-0-3	2C
AGE 212	Poultry Production	1-0-3	2C
AGE 213	Introductory to Genetics	2-0-3	2C
AGE 214	Principles of Agricultural Economics	2-1-0	2C
AGE 215	Farm Power and Machinery	2-0-3	2C
AGE 216	Curriculum Development in Agriculture	1-0-3	1C
AGE 217	Fish Production	2-0-4	2C
AGE 218	Animal Nutrition	1-0-3	1C
AGE 219	Entrepreneurship in Agric Education	1-0-3	1C
	TOTAL		15C
	YEAR TWO – SECOND SEMESTER		
VTE 220	Entrepreneurship in Vocational and Technical Education	2-0-0	1C
AGE 221	Research Method in Agricultural Education	2-0-0	1C
AGE 222	Soil Fertility	1-0-3	1C
AGE 223	Principles of Crop Protection	1-0-3	1C
AGE 224	Crop Improvement	1-0-3	1C
AGE 225	Livestock Production (Ruminants / Non Ruminants)	2-0-3	2C
AGE 226	Principles of Farm Management	1-0-2	1C
AGE 227	Practical Agriculture IV/Field Trip	0-0-4	1C

AGE 228	Land Survey and Farm State Planning	1-0-2	1C
AGE 229	SIWES	2-0-4	2C
	TOTAL		12C

YEAR THREE-FIRST SEMESTER

YEAR THREE-FIRST SEMESTER		
EDU 323	Project	
EDU 311	Teaching Practice	6c

YEAR THREE – SECOND SEMESTER

YEAR THREE – SECOND SEMESTER			
AGE320	Seminar in Agricultural Education	1-0-0	1C
AGE 321	Environmental Education in Agriculture	1-0-0	1C
AGE 322	Animal Health	1-0-3	1C
AGE 323	Food products Technology	2-0-0	2C
AGE 324	Basic Agricultural Water Engineering	2-0-3	1C
AGE 325	Horticulture	1-0-2	1C
AGE 326	Agricultural Development and Policy	2-0-0	1C
AGE 327A-C	Bee keeping/Snail/Cane Rat Farming	1-0-3	2C
AGE 328	Animal Breeding	1-0-3	1C
AGE 329	Agric Marketing and cooperatives	2-0-0	1C
	TOTAL		12C

** Agricultural students are also required to offer additional courses in Education and General studies

VTE 110 INTRO.TO VOCATIONAL AND TECHNICAL EDUCATION 1C
 Definition, Scope, Philosophy and Objectives of Vocational and Technical Education. Development of vocational and technical education in Nigeria.
 The role of vocational and technical education in national development.
 Characteristics of Vocational and Technical Education.
 Funding of vocational and technical education in Nigeria. Place of vocational and technical education in the UBE Scheme.
 Vocational Associations, Organizations and organs.
 Problems and Prospects of Vocational and Technical Education in Nigeria.

AGE 111 INTRODUCTION TO AGRICULTURE 2C
 Meaning and scope of Agriculture. importance of Agriculture in the Nigerian economy. General concepts and terms used in soils; crop production, extension, economics, methodology etc. Brief history of Agricultural Development in Nigeria and the World. Types of farming, World-farming systems. Systems of land ownership. Agriculture and the natural environment with emphasis on such phenomena as desert encroachment, soil erosion, etc. Problems of Agricultural development in Nigeria. Role of Government in agricultural development in

Nigeria. Agriculture as industry utilizing science and technology. Some basic farm tools and their uses. Principles and practice of nomadic agriculture-characteristics of migrant fishermen and nomads. Forms of Agriculture Crop farming, Horticulture, livestock farming, Apiculture, Bee keeping, Fishing and Snail keeping. Employment in agriculture. Description of Forest and Forest uses.

- AGE 112 AGRICULTURAL BIOLOGY 1C**
Definition of Agricultural Biology.
Basic relationships between plants and Animals
Cell Structure and functions.
Cell division (mitosis & meiosis) as basis for continuity of life
Classification of plants and animals.
Identification of plant and animal species of Agricultural importance.
Osmosis, diffusion and plasmolysis.
Transportation and translocation in plants.
Photosynthesis: definition, factors influencing, agricultural importance and strategies for enhancing photosynthesis.
Fruits and seed dispersal.
Germinating process and conditions.
Photoperiodism and its impact on growth and development of plants.
Environment and food chains: population and ecosystem in relation to growth and development of crops.
Aquarium - definition, principles and importance.
- AGE 113 AGRICULTURAL MATHEMATICS 1C**
Units of measurements, calculation of areas and volumes. Arithmetic and geometric progressions. Simple simultaneous and quadratic equations. Elementary trigonometry and co-ordinate geometry. Graphs and their mathematical applications in agriculture e.g. plant population and yield studies.
- AGE 114 AGRICULTURAL PHYSICS 1C**
Properties of matter. A broad and elementary treatment of motion and force. Friction, machines, levers, adhesion, cohesion, viscosity, surface tension, elasticity. Energy and conservation laws. General principles of heat, light, electricity and magnetism.
- AGE 115 INTRODUCTION TO AGRO-CLIMATOLOGY 1C**
Meaning and scope of agro-climatology . General principles of agro-climatology and equipment used in study. Climatic factors (temperature, precipitation, relative humidity, wind, solar radiations, cloud cover, etc.) and how they affect agriculture production. Ecological zones of Nigeria and their effect on ecological distribution of crops, livestock and soil formation. Principles underlining weather forecasting.
- AGE 116 AGRICULTURAL CHEMISTRY 2C**
The nature of matter - elements, mixtures and compounds
Basic treatment of atomic, molecular and ionic theories
Conditions affecting chemical change such as equilibrium, catalysis, enzyme action, water and its uses, air and its uses etc.
General properties of elements in relation to the periodic table

Types of chemical bonds, octet rules. Characteristics and significant reactions of metal and non-metals. Acid bases and salts Introduction to the rules of IUPAC nomenclature of organic compounds.

- AGE 117 PRACTICAL AGRICULTURE (I) 2C**
Maintenance of individual/group farm plots.
Identification of simple farm tools, their uses, care and maintenance. Keeping of simple records and diaries. Land preparation in nursery practices. Care of plants before and after transplanting e.g. watering, weeding, mulching, etc.
- AGE 118 INTRODUCTION TO CROP PRODUCTION 1C**
Meaning of crops and aims of crop production. Measures of quantity and quality of crop produce and products. Genetic and environmental factors affecting crop production (including seed quality, seed rate, plant population, soil quality, climatic and agronomic factors, weeds, pests and diseases). Cropping seasons as they affect production. Agronomic classification of crops and uses. Methods of crop propagation. Meaning and types of pasture. Importance and methods of pasture managements
- AGE 119 INTRO. TO RURAL SOCIOLOGY AND AGRIC EXTENSION 1 C**
Definition of rural sociology. Sociology as a social. social organizations and social institutions, social action processes and their nature, Characteristic of rural organization, Values and norms Rural-urban differentials Definition and objectives of agricultural extension Duties and qualities of extension work Communication and diffusion processes in agricultures Extension administration in Nigeria Principles and philosophy of agricultural extension in Nigeria Problem of agricultural extension in Functions of agricultural extension Adoption process of a new technology in agriculture.

YEAR ONE – SECOND SEMESTER

- AGE 121 ARABLE CROP PRODUCTION 2C**
Meaning of arable crops. Botany, culture, harvesting, processing, preservation, storage, marketing and utilization of major annual crops belonging to the following :-
Cereals (maize, rice, wheat, sorghum, millet)
Tubers (yams, cassava, coco-yam and potatoes)
Fibers (Kenaf, jute, etc.)
Legumes (cowpea, groundnut, soybeans, pigeon pea and lima bean, etc.
- AGE 122 INTRODUCTION TO ANIMAL SCIENCE 1C**
Meaning and scope of animal science. Classification of livestock within the animal kingdom. Types and classification of domestic animals. Anatomy and physiology of selected farm animals. Livestock policy in the National Development Plans. Contributions of farm animals to peasant farming. Prospects and problems of livestock production in Nigeria.
- AGE 123 YOUTH ORGANIZATION IN AGRICULTURE 2C**
Definition and objectives of youth organization in agriculture. Guidelines for establishing, managing and sustaining agricultural youth organization and clubs in schools. Structure of youth organization in schools. Activities of in-school

youth organization in agriculture. Types of leadership in agricultural youth organization. Conduct of meetings in an in-school youth organization. Simulation of youth activities in schools/practical experiences should be offered in public speaking, group dynamics, organizational skills, time management, social/community involvement, leadership styles and decision making).

Parliamentary procedure and committee management. Ways of motivating youths interest in Agriculture.

Activities should include professional meetings, service to social/civic groups, school projects requiring responsible planning, organization and management.

AGE 124

PRINCIPLES OF ECONOMICS

1C

Meaning and concepts of economics. Principles of supply and demand of goods and services. Elasticity of demand and supply. Production theory and curves. Concepts of macro-economics (GDP and GNP etc.) Distribution of income, wages, profits, rents and interest. Definition of Economic Empowerment, way of Economic Empowerment, (rearing of live stock, cultivate crop saller of farm produce a skill acquisition, definition of stock exchange, important of stock exchange, example of Nigeria export produce (cocoa, palm produce, hide skill cassava crop, groundnut, pepper etc.

AGE 125

AGRICULTURAL METHODOLOGY

2C

Effective teaching defined. Characteristics and qualities of a good agricultural science teacher. Teaching methods in agriculture. Classroom, field/practical and laboratory management. Avoidance and treatment of accident on the field and the laboratory. Special problems of agriculture in schools. Experience in scheme and plans of work. Lesson plan and micro-teaching. Lesson presentation skills. Forms of closure in agricultural lessons. Forms of communications and barriers to effective communication in the classroom. Development and usage of instructional materials and media in agriculture.

Strategies for handling multi-grade classes in agriculture. Application of ICT in the teaching of agriculture

AGE 126

INTRODUCTION TO SOIL SCIENCE

2C

Definition of soil. Land and its uses, Soil components-mineral, air, organic matter and water. Types of rocks and minerals. Rock formation and weathering of rocks.

Factors influencing soil formation, classification of soil. Properties of soil (texture, structure, aeration, temperature, pH etc.). Soil profile. Principal soil groups of the world; soil orders, families etc. in Nigeria. Laboratory practical in determining soil composition, porosity, capillarity, organic matter, Cat ion Exchange Capacity etc must be carried out.

AGE 127

AGRICULTURAL FINANCE

1C

Meaning and scope of agricultural Finance. Agricultural cost. Sources of farm financing . Agricultural credit and implications. The effect of taxes and subsidy on agricultural finance. Capital formation and agricultural finance institution

YEAR TWO – FIRST SEMESTER

AGE 211	TREE CROP PRODUCTION Meaning and importance of tree crop production. Botany, culture, harvesting, processing and storage, marketing and utilization of major tropical tree crops such as: Cocoa, oil palm, cashew, coffee, kola, Shea-butter, rubber, mango, citrus, coconut, gum Arabic, neem tree and date palm. Problems and prospects of tree crop production in Nigeria. Definition of crop,	2C
AGE 212	POULTRY PRODUCTION Poultry production (meaning, scope, and purpose), Systems of poultry keeping Brooding and rearing of chicks, management of broilers and growers, management of layers and breeders. Handling, care, grading and candling. Incubators and incubation process. Feeds and feeding. Hatchery management. Record keeping in poultry.	2C
AGE 213	INTRODUCTORY GENETICS Genetics (meaning, scope and application) Genetic principles Early conceptions about heredity (Pre-Mendelian genetic theories) Mendelian Genetics Chromosomes Sex Inheritance Genetic variability and heritability Basic definition of population genetics. Basic concepts in genetic engineering, mutation and eugenics.	2C
AGE 214	PRINCIPLES OF AGRICULTURAL ECONOMICS Meaning and scope of agricultural economics. Demand and Supply for agricultural goods and services. Production functions and the law of diminishing returns in agricultural production e.g. eggs, yams and vegetables, etc. Cost analysis and their implications in agricultural production.	2C
AGE 215	FARM POWER AND MACHINERY Meaning and definition of farm power. Types and sources of farm power. Unit of measurements of force, work, energy and power. Measurement of engine power on the farm and their uses. Brief description of an internal combustion engine. Objectives of agricultural engineering. Scope of agricultural engineering. Improvement of farm mechanization. Maintenance of farm tools. Implements and machineries. Brief description and functions of tillage, cultivating, planting, fertilizing, processing and storage equipment. The tractor services and maintenance. Description and uses of PTO (Power-take-off-shaft). Uses and maintenance of the following farm implements – mould board and disc plough, harrows, ridgers inter-row cultivators, seeders, artificial fertilizer spreaders, broadcasters and spot placers. The action of each implement when in use in the field (operation) e.g. correct setting of implement.	2C
AGE 216	CURRICULUM DEVELOPMENT IN AGRICULTURE Definition of curriculum . Types of curriculum. Curriculum process and evaluation in agricultural education. Drills in curriculum design in agriculture. Critique of the curriculum for primary and secondary school agriculture.	1C

AGE 217 FISH PRODUCTION 2C
Meaning of fish and fishery. Types of fish/breeds. Importance of fish, and fish products in National economy. Methods of fish farming – open water e.g River and lakes, high sea fishing and fish ponds. fish ponds construction, stocking, management, fish breeding, harvesting, preservation and marketing of fishes. Fishing equipments, functions and maintenance, fish feeds and feeding (materials required for fish feeds).

AGE 218 ANIMAL NUTRITION 1C
Meaning and scope of animal nutrition; water, carbohydrates, proteins, fats and oils - their functions within the animal body. Study of vitamins, minerals, enzymes, hormones, and coenzymes. The use of antibiotics, synthetic hormones and food additives. Feedstuff-their analysis and nutritive contents. Nutritional requirement of farm animals and their measurements. Types of ration and ration formulation.

AGE 219 ENTREPRENEURSHIP 1 C
Concepts and principles of entrepreneurship

- Economic Empowerment through Agriculture
- Identify business opportunity in agriculture.
- Feasibility study – concepts, principles and features – executive summary, business idea, location marketing plan, staffing, legal responsibilities, financial planning – costing, sales and cash flow.
- Starting up capital – types and sources, cost quantification- input / output analysis.
- Record keeping
- Sourcing information for agro business
- Practical entrepreneurial skill acquisition in agro business in agro business
- Writing of feasibility study
- Implementation of agro business ideas – areas of interest include crop production horticulture, livestock production, snail rearing, cane rat farming, bee keeping, fish farming etc.
- A written report of the various activities is needed at the end of the course

NB

Emphasis in this course on acquisition of practical skills. Students should be graded hundred percent on the basis of their performance in running agro business.

YEAR TWO – SECOND SEMESTER

VTE 220 ENTREPRENEURSHIP IN VOCATIONAL AND TECHNICAL EDUCATION (1 CREDIT)

Concept of entrepreneurship. Types of Entrepreneurs. Entrepreneurial theory-venture growth, opportunity recognition and exploitation. Types of Risks and their management. Conditions for establishing a business. Forms of business ownership. Business and Technology - issues and problems. Financing business - new and old, including innovative techniques. Business finance and funding institutions site selection and location of a business. Business environment. Management and administration of small and medium businesses. The future of business and succession issues-case study. Pilot study and feasibility report.

Elements of marketing and Market segmentation. Product development; Business and social responsibility - Government regulations/taxation. Auditing. Consumer behaviour society. Share-holders etc. Management functions. Human resource management and communications. Record keeping/book-keeping.

- AGE 221 RESEARCH METHODS IN AGRICULTURAL EDUCATION 1C**
Defination of Research methodology, Types of Agricultural research. Types of research design. Population, sample and sample procedures. Hyphothesis and Statistical Inferences. Data collection/instrumentation, collation, analysis and presentation of results. Research problems. Sources of data. Research research format. Writing research proposals and thesis in Agricultural Education.
- AGE 222 SOIL FERTILITY 1C**
Meaning of soil fertility. Chemical, physical and biological dynamics of soil minerals. Fertilizer types, rates, methods and times of application. Blending of fertilizer. General principles of soil management. Erosion and desertification problems and control. Methods of determining soil water levels. Soil nutrient losses and control. Soil nitrogen, phosphorous and potassium soil micro-organism. Soil – nitrogen balance, cation exchange capacity. Soil pH, liming and its importance, earth warms and soil fertility.
- AGE 223 PRINCIPLES OF CROP PROTECTION 1C**
Meaning, aims and scope of crop protection. Classification, identification, and importance of plant pathogens. Disease development and effects on crops. Types and major classes of pests. Useful farm insects. Basic morphology and physiology of insect pests. Identification of insect pests and their damage to crops. Principles of pests and disease control. Weeds – classification, identification and principles of control. Rodents and birds that are enemies of farmers.
- AGE 224 CROP IMPROVEMENT 1C**
Definition and objective of crop improvement. Application of Mendelian genetics to crop improvement. Genetic variability among crops. Centers of origin of major world crops. Plant breeding methods for self and cross-pollinated crops. Hybrids and synthetic development. Classes, multiplication and distribution of improved seeds.
- AGE 225 LIVESTOCK PRODUCTION (RUMINANTS / NON RUMINANTS) 2C**
Types and breeds of cattle, sheep and goats and their distribution in Nigeria. Major exotic breeds of ruminants in Nigeria. Systems of livestock rearing, breeding and feeding (ruminant management practices). Diseases parasites and their control. Problems of low production in Nigerian breeds of livestock. Potentials for increased meat and milk production. Housing and equipment. Keeping livestock records. Meaning and importance of non-ruminants in livestock production breeds and classification of non-ruminants according to uses. performance efficiency of different breeds. Rproductive behaviour and breeding methods. feeds and feeding systems. Management of young growing animals, adults and breeding animals. Housing and construction of pen. Diseases, pests, parasites, of non-ruminants and their control

AGE 226 PRINCIPLES OF FARM MANAGEMENT 1C
 Definition and scope of farm management. Role of the management functions in agricultural production. Farm inputs (land, labor, capital and entrepreneurship) relationship and management, farm records and control. Farm planning methods. Cost benefit analysis. Farm profits and financial statements, risks and uncertainties in agricultural production.

AGE 227 PRACTICAL AGRICULTURE II/FIELD TRIP 1C
 Intensive involvement in school farm. Crop management practices. (seed bed preparation, planting, thinning, fertilizer application, staking, harvesting, processing and storage, deworming, castration, dipping, etc.). Students to have individual farm plots to be graded. Students to keep farm dairy. Field trip to agricultural based establishments. Organizing and participation in agricultural shows and exhibitions

AGE 228 LAND SURVEY AND FARM STEAD PLANNING 1C
 Meaning of land survey, farm survey and farm stead planning. Farm surveying and units - of measurement and techniques. Tools and equipment used in land surveying. Simple chain survey, traverse survey and leveling. Problems of land surveying and how to overcome them. Users of surveys in agriculture. Farm layout, Housing and environmental control (factors to consider when planning a farm layout). Important features of farm structures. Methods of environmental control in livestock housing.

AGE 229 SIWES – (16 weeks) 2 C

FIRST SEMESTER NCE THREE TEACHING PRACTICE

EDU 323	PROJECT	
EDU 311	TEACHING PRACTICE	6 C

YEAR THREE – SECOND SEMESTER

AGE 320 SEMINARS IN AGRICULTURAL EDUCATION 1C
 There should be weekly seminars in agricultural Education under the guidance of a qualified academic staff. In the seminars, students should demonstrate the use of assorted means of presenting data. They should also demonstrate seminar ethics and presentation skills. Seminar assessment should take into account:

- Relevance of the topic
- Clarity of expression
- Focus on the subject matter
- Quality of recommendations
- Referencing style
- Any other relevant yardstick

- AGE 321 ENVIRONMENTAL EDUCATION IN AGRICULTURE 1C**
Meaning of environmental education in relation to Agricultural production
 Definition of forest and wildlife management. Economic importance of forest and wildlife. Nigerian vegetation and forest zones. Basic principles of agro-forestry. Identification, establishment and maintenance of major economic forest trees. By-products of forest and forest trees. Concepts of wildlife conservation. Reasons for studying wildlife management. Techniques for wild life conservation.
 The concept of ecosystem, anatomical, physiological and genetic factors influencing animal adaptation. Environmental factors and animal population dynamics. Courses and effects of environmental degradation in farms. Planting and maintenance of ornamental plants in schools. The state and the resources of the environment. Environment laws, agencies and programmes in Nigeria.
- AGE 322 ANIMAL HEALTH 1C**
 Definition of animal health and diseases. Principles of health and disease management. Different types of diseases (infectious, non-infectious, parasitic, metabolic, genetic behavioural, thermal, etc.). Causes of disease e.g. living organisms, fungi, bacteria, protozoan, viruses. Immunity and immune systems. Types of immunity. Principles of disease prevention. Methods of disease control – segregation, quarantine, disinfection and vaccination. Some diseases of livestock e.g. ones caused by bacteria, viruses, protozoa and fungi, etc. (at least one for each type of livestock and poultry). Definition of farm animal parasites, methods of control and effect of parasite on farm animal.
- AGE 323 FOOD PRODUCTS TECHNOLOGY 2C**
 Definition of animal and crop products technology. Importance of animal and crop products technology. Definition of storage. General guiding principles in storage. Types of storage. Merits and demerits. Methods of improvement of storage. Storage losses and factors. Slaughtering techniques, dressing and dressing percentages. Meat types. Methods of preservation of meat, poultry, eggs, milk and milk products e.g. smoking, salting, freezing, drying, etc. Methods of preservation of tubers, grains, fruits, vegetables etc.
- AGE 324 BASIC AGRICULTURAL WATER ENGINEERING 1C**
 Meaning and importance of water engineering in agriculture. Sources of water. Soil and water conservation. Prevention of soil erosion. Irrigation systems, installation and maintenance of irrigation. Classification of soil water table. Field investigation for drainage. Water drainage and control. Types and advantages of drainage systems. Problems associated with irrigation and drainage. Local hervestation of water for family, local and community uses.
- AGE 325 HORTICULTURE 2C**
 Definition, classification, principles and practice of horticulture. Characteristics of horticultural crops. Cultivation, harvesting, sorting, grading, storage, processing, utilization and marketing of some horticultural crops. Vegetables-Types of vegetable, growing, classification and cultivation. Leaf(Amaranths, lettuce, cabbage etc). Fruit (Tomatoes, peppers, okra etc).Roots(carrot, beets, onions, ginger etc). Fruit trees (pawpaw, pineapple, mango, citrus, guava, pear etc).Ornamental gardening. Processing of ornamental and principles of decoration.

Landscaping - Home, school and public landscaping. Principles of landscape designs, structural and plant materials. Nursery - seed trays, pre-nursery, seed treatment, transplanting, double digging, and composting. Maintenance of seedlings. Identification of wreath decoration plants. Students are required to prepare and maintain vegetable beds, seed trays and ornamental cuttings. .

AGE 326 AGRICULTURAL DEVELOPMENT & POLICY 1C
Meaning of development and growth. Characteristics of Nigerian agriculture. Theories of agricultural development. Rural development policies, strategies and models. Community development policies, strategies and models. Trends in the development of agriculture in Nigeria.

AGE 327 BEE KEEPING/FARMING 1C
Bee as a social insect. Usefulness of bees. Biology of honey bee. Life cycle of bees. Feeding and swarm control methods Queen/Stock raising. The hive, essential equipment for honey collection. Honey production and harvesting. Bee pests and diseases. Bee keeping in schools. Hive products and uses

OR

AGE 327B SNAIL FARMING 1C
Snail farming in Nigeria. Snail as mini-livestock. Classification of snails. Anatomy and physiology of snails. Establishing a snail farm. Management of snails (housing, feeding, breeding, disease and pest control). Harvesting, processing preservation and marketing of snails.

OR

AGE 327C CANE RAT FARMING 1C
Objectives of cane rat farming. Principles of site selection, feeding, housing, hygiene and disease management, marketing and processing.

AGE 328 ANIMAL BREEDING 1C
Definition, aims and objectives of animal breeding. Selection and mating systems. Parameters for selection. Types of mating. Breeding systems (inbreeding, crossbreeding, etc.). Breed significance and up-grading. Artificial insemination and its importance. Castration and caponisation. The basic definition of population genetics. Breeding for special characteristics.

AGE 329 AGRICULTURAL MARKETING AND CO-OPERATIVES 1C
Definition of marketing. Kinds of markets and market situations. Marketing institutions Market structure, conduct and performance .Price determination and factors affecting prices of agricultural commodities. Agriculture in Stock Exchange Price control. The roles of commodity associations and marketing outlets. Export promotion in Agriculture. Characteristics of agricultural production in relation to marketing, problems of agricultural marketing. Definition of co-operatives, types and principles of co-operatives. Co-operatives laws, Formation of co-operatives and roles of co-operatives in marketing agricultural products.

BUSINESS EDUCATION

1. PHILOSOPHY

The philosophy of Nigeria Certificate in Education (NCE), Business Education, is to make the Business Educators understand the concept and philosophy of the National Policy on Education as regards Business Education in national development.

2. OBJECTIVES

- (I) To produce well qualified and competent NCE graduates in business subjects who will be able to teach business subjects in our secondary schools and other related educational institutions.
- (II) To produce NCE business teachers who will be able to inculcate the vocational aspects of Business Education into the society.
- (III) To produce NCE Business Teachers who will be involved in the much desired revolution of vocational development right from the Primary and Secondary schools.
- (IV) To equip students with necessary competencies so as to qualify them for a post-NCE degree programme in Business Education.
- (V) To equip graduates with the right skills that will enable them to engage in a life of work in the office as well as for self-employment.

3. i) ENTRY LEVEL QUALIFICATIONS/PROCEDURE

- a) Increase to a minimum of 4 credits including English and Mathematics (to be achieved at a maximum of 2 sittings).
- b) All applicants to undergo a selection interview
- c) Colleges should control the numbers allocated to each programme relative to their total admission quota based on staff and facilities available

PRE-NCE

This should be restricted to the areas of need with the following

- a) Students must have a minimum of three credits including the major subject to be studied. Students must have at least a pass in English and Mathematics.
- b) All applicants to undergo selection interview
- c) All colleges must seek approval for Pre-NCE courses from NCCE prior to them being offered to students.
- d) Transition from Pre-NCE to NCE I will be dependent upon students achieving at least Grade D in the final examination for Pre-NCE.
- e) All candidates wishing to be considered for admission must enroll for and write the selection examination organized by an accredited body such as JAMB.

- f) It should be noted that some colleges may, in addition to all of the above, administer their own elimination tests and/or interviews for some courses. This is legitimate.

ii). SPECIFIC ADMISSION REQUIREMENTS

- (a) To be eligible for direct admission, a candidate **must** have three (3) credit. The business subjects in which credits, must be obtained are:-
- 1) Economics
 - 2) Principles of Accounts/Bookkeeping
 - 3) Business Methods/Introduction to Business Management/Office Practice/Secretarial Duties
 - 4) Shorthand
 - 5) Typewriting
 - 6) Commerce
- b) A “Credit’ in English Language and Mathematics.
- c) WAEC Commercial or National Secretarial Examination (NSE) or National Business and Technical Education Examination Board (NABTEB) or NECO or TC II or RSA Stage II Certificates with passes at not more than two (2) sittings in five (5) subjects as in (a) – (c) above.

4. FACILITIES

Classrooms: Space that would take thirty (30) students conveniently with sufficient room for passage within the classroom space should be made available for each lecture and seminar for each subject.

- a) **Laboratories/Studios:** At least, one (1) each of typing-pool, shorthand laboratory, model office and Information Technology room must be available.
- b). **Staff offices:** Each senior staff should be provided with a furnished office. The HOD should be provided with a computer facility. There should also be an office for support staff (typists, clerks, etc) with relevant equipment e.g. typewriters, reproduction machines, etc.
- c). **Books in the Library:** There must be enough books to cover all the areas of the subject to the ratio of one student to ten books. A Departmental Library is compulsory.
- d). **Equipment:** Equipment required for the teaching of the skills in the Business Education Programmes are as follows: -

i. Equipment and Supplies (for 30 students):

1. **Typewriters**
 - a). Manual ...30 of various makes and types
 - b). Computer Number should be in the ratio of one (1) computer to three (3) students.
2. Swivel typing chairs30
3. Drop desk, Typist desk or Convertible desk30

4.	Instructor's Table or Desk	.....1
5.	Instructor's chair	.....1
6.	Stapling machine	.....4
7.	Stapling remover	.....4
8.	Perforator	.....2
9.	Stop Watch	.....2
10.	Wall clock	.....1
11.	Demonstration stand	.....1
12.	English/shorthand dictionaries	.....1
13.	Filing Cabinet	.....2

ii. Shorthand Laboratory

1. Tape Recorders/consoles
2. Headphones
3. Air-conditioning systems
4. Lecturer's demonstration stand
5. Punching machine
6. File cabinet
7. Appropriate furniture as technology may dictate from time to time

iii. Model Office

1. Executive table with drawers and chair
2. Secretary's table with drawers and swivel chair
3. Photocopier
4. File trays – in and out
5. Manual Typewriter and a Computer
6. File cabinet
7. Adding and listing machine
8. Waste paper basket.
9. Any other latest office equipment in the market

- iv. There should be an Information and Communication Technology (ICT) laboratory.

5. PERSONNEL

i) Academic

At least one (1) academic staff per subject area with a minimum qualification of a first degree (**minimum** of a second class lower division). A minimum of nine (9) lecturers (one of whom should be a computer specialist) is required. All lecturers must be computer literate. Thus, computer literacy must be one of the **criteria** for fresh appointments.

The Lecturers/Instructors must hold a minimum teaching qualification of NCE or its equivalent.

Staff/student ratio for skilled subjects like Shorthand, Typewriting and Accounting should be 1:20 and 1:30 for other subjects e.g. Commerce and Economics.

ii) Others

- a) In Colleges of Education (Technical), there should be in the Dean's office the following:
 1. One (1) School Officer
 2. One (1) Secretary
 3. One (1) Clerical Officer
 4. One (1) Typist
 5. One (1) Cleaner/Messenger

- b). At the Departmental levels, the following staff should suffice for each department.
 1. One (1) Senior Typist or Secretary
 2. One (1) Messenger/Cleaner
 3. One (1) Technician/Typewriter Mechanic.
 4. Studio Attendant/s

However, in conventional Colleges of Education, the Dean of Schools should be provided the same staff as is the case with the Dean in technically-oriented colleges.

6. MODE OF TEACHING

The mode of teaching Business courses would be by lectures, tutorials, case studies, practicals, simulations, excursions and other appropriate methods. Practical in Shorthand and Typewriting/Word Processing are **compulsory** as stipulated and field trips

7. GRADUATION REQUIREMENTS

Duration: - 3 years (minimum) and 5 years (maximum)

To graduate with NCE Business, a student must earn a total of 103 Credit Units as follows: -

- | | | |
|-----|---|---------------------------|
| a) | Business Education Courses including SIWES..... | 64 |
| b). | Education (including project)..... | 30 Credit Units |
| c). | Teaching Practice | 6...Credit Units |
| d). | General Studies | 18...Credit Units |
| | Total | 118...Credit Units |

8. TEACHING PRACTICE

Every student is required to do Teaching Practice and the credit earned recorded in EDU 324.

9. PROJECT

Every student is required to write and submit a project either in Business Education or Education and the credit earned recorded in EDU 323.

10. SUBJECT COMBINATION

Business Education is a 'double-major' and, therefore, cannot be combined with another subject-area.

11. COURSES AND STATUS

All Courses are **COMPULSORY** and it should remain as double major because the advantages of double major outweigh the advantages to single major.

BUSINESS EDUCATION COURSE OUTLINES

YEAR ONE – FIRST SEMESTER

COURSE CODE	COURSE TITLES	CONTACT HOURS L-T-P.	CREDITS
VTE 110	Introduction to VTE	2-0-0	1C
BED 111	Principles of Accounts I	2-0-0	2C
BED 112	Business Mathematics I	1-0-0	1C
BED 113	Commerce I	2-0-0	2C
BED 114	Introduction to Economics I	2-0-0	1C
BED 115	Office Practice I	1-0-0	1C
BED 116	Shorthand Theory 1*	2-0-4	2C
BED 117	Typewriting/keyboarding 1*	2-0-4	2C
	Total		13C

* Every one (1) hour of theory Lecture should be followed by two (2) hours of practical

YEAR ONE – SECOND SEMESTER

COURSE CODE	COURSE TITLES	CONTACT HOURS L-T-P.	CREDITS
BED 121	Principles of Accounts II	2-0-0	2C
BED 122	Bus. Mathematics	1-0-0	1C
BED 123	Commerce II	2-0-0	2C
BED 124	Introduction to Economics II	2-0-0	2C
BED 125	Office Practice II	1-0-0	1C
BED 126	Shorthand II	2-0-4	2C
BED 127	Typewriting/keyboarding II	2-0-4	2C
	Total		12C

YEAR TWO – FIRST SEMESTER

COURSE CODE	COURSE TITLES	CONTACT HOURS L-T-P.	CREDITS
BED 211	Financial Accounting 1	2-0-0	2C
BED 212	Business Law *	2-0-0	2C
BED 213	Principles of Marketing	2-0-0	2C
BED 214	Introduction to Monetary Economics	2-0-0	2C
BED 215	Business Education Practicum	2-0-0	2C
BED 216	Shorthand III	2-0-4	2C
BED 217	Word Processing I	2-0-4	2C
BED 218	Computer Appreciation	1-0-1	1C
	Total		15C

* This should be taught by a Business Education Major

YEAR TWO – SECOND SEMESTER

COURSE CODE	COURSE TITLES	CONTACT HOURS L-T-P.	CREDITS
BED 220	Entrepreneurship in Bus. Education I	2-0-2	1C
BED 221	Financial Accounting II	2-0-0	2C
BED 222	Methods of Teaching Bus. Subjects	2-0-0	1C
BED 223	Elements of Labour Economics	1-0-0	1C
BED 224	Shorthand IV	2-0-4	2C
BED 225	Word Processing II	2-0-4	2C
BED 226	SIWES		2C
	Total		11C

**YEAR THREE - FIRST SEMESTER
(ACCOUNTING OPTION)**

EDU 324	TEACHING PRACTICE		6C
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**YEAR THREE - SECOND SEMESTER
(ACCOUNTING OPTION)**

COURSE CODE	COURSE TITLES	CONTACT HOURS L-T-P.	CREDITS
BEA 320	Entrepreneurship in Business Edu. II	2-0-0	1C
BEA 321	Cost and Management Accounting	2-1-0	2C
BEA 322	Public Sector Economics	2-0-0	1C
BEA 323	Principles of Management	2-0-0	1C
BEA 324	Advanced Financial Accounting	2-1-0	2C
BEA 325	Intro to International Economics	2-0-0	1C
BEA 326	Auditing	2-0-0	1C
BEA 327	Business Communication	2-0-0	2C
BEA 328	Taxation	2-0-0	1C
BEA 329	Business Statistics	2-0-0	1C
	Total		13C

YEAR THREE - FIRST SEMESTER

EDU 324	TEACHING PRACTICE		6C
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YEAR THREE- SECOND SEMESTER

OFFICE TECHNOLOGY AND MANAGEMENT EDUCATION (OPTION)

COURSE CODE	COURSE TITLES	CONTACT HOURS L-T-P.	CREDITS
BES 320	Entrepreneurship in Bus. Edu. II	2-0-2	1C
BES 321	Shorthand VI	2-0-4	2C
BES 322	Word Processing IV	3-0-6	2C
BES 323	Principles of Management	2-0-0	1C
BES 324	Office Management	2-0-0	1C
BES 325	Introduction to International Economics	2-0-0	1C
BES 326	Business Communication	2-0-2	2C
BES 327	Office Technology and Management Education	2-0-2	2C
BES 328	Information Technology/Computer Application		1C
	TOTAL		13C

N.B.

Only specialists in Business Education with professional education background *are to supervise* student teaching in Accounting, Shorthand and Typewriting.

**12. COURSE DESCRIPTION
YEAR ONE – FIRST SEMESTER**

VTE 110 INTRODUCTION TO VOCATIONAL AND TECHNICAL EDUCATION (1 CREDIT)

Definition, scope, philosophy and objectives of Vocational and Technical Education.

Funding of VTE programmes

Development of Vocational and Technical Education in Nigeria.

The role of Vocational Technical Education in National Development.

Youth Leadership Development: public speaking, time management, leadership styles, organizational skill, group dynamics, professional meetings, etc.

Characteristics of Vocational and Technical Education.

Problems and prospects of Vocational and Technical Education.

Place of VTE in UBE.

BED 111 BOOKKEEPING I (PRINCIPLES OF ACCOUNTS I) (2 CREDIT)

Evolution of Bookkeeping

Importance of Bookkeeping

Distinction between Bookkeeping and Accounts

The subsidiary books and methods of keeping them

The ledger and its classifications

Records in the ledger (i.e. principles of double entry)
Balancing of accounts and extraction of a trial balance
(including the purpose of a trial balance)
Identification and correction of errors (including suspense accounts).
The cash book (including single, double and three column entries)

Petty Cash Book

Preparation of elementary final accounts (i.e. Trading and Profit and Loss
Account and Balance Sheet).

BED 112 BASIC MATHEMATICS 1 (1 CREDIT)

Fractions, decimals, approximations
Progressions: Geometric and Arithmetic
Simultaneous equations (by graph, elimination, and Cramer's
Rule).
Algebraic expressions (fractions and graphs)

BED 113 COMMERCE 1 (2 CREDIT)

Concept of Commerce
Honesty in Business
- meaning of truthfulness
- Attributes
- factors the causes people to lie
- rewards for being truthful
- consequences of not being truthful
- meaning of fair play
- attributes of fair play
Types of occupation
- meaning
- divisions
- industrial
- commercial services
- factors which affect occupatores
Human wants and satisfaction
Concept of production
Factors of Production
- land
- labour
- capital
- entrepreneur

Functions of Commerce
Exchange of goods and services
Home trade
Concept of Home trade
Retailers and wholesalers
Organizational structure of trade
Outlet and wholesale trade
Functions of marketing boards
Principal terms of sales

Trade Classification
Specialization in Business Organisations
Types of Business Units

BED 114 INTRODUCTION TO ECONOMICS I (1 CREDIT)

Definition and scope of Economics
The historical evolution of Economics
Basic concepts of Economics
The theory of production (factors of production, through division of labour to the production possibility curves)
Comparative economic systems (primitive communalism, slave systems, feudalism, capitalism, socialism).
The theory of consumer behaviour (up to geometric and algebraic explanation of consumer equilibrium) through indifference curve analysis (no calculus is required).

BED 115 OFFICE PRACTICE I (1 CREDIT)

Introduction to Business Studies

- meaning
- important
- components
 - office practice
 - commence
 - book keeping
 - shorthand
 - keyboarding
- career opportunities

Structure of office

- meaning
- types
- small office, large office
 - Functions
 - The different offices in an organization

Office Staff

- i) Clerical Staff
 - a. meaning
 - b. functions
 - c. qualities
- ii) Confidentiality of office information

Departments in an office/organization

- 1) Various departments in an organization
 - administrative
 - purchasing
 - accounting
 - sales
 - personnel
 - planning
 - transport
- 2) Function of the various departments

Reception office

- Meaning
- Receptionist

BED 123	<p>COMMERCE II (2 CREDITS)</p> <p>Personal Finance:-</p> <p>a) meaning of personal finance</p> <p>b) source of finance for individual</p> <p>c) consumption and choice</p> <p>d) scale of preference</p> <p>e) modesty: meaning, attribute, simplicity, living within ones means, contentment etc.</p> <p>f) effects of living modestly - self control</p> <p>E- Commence</p> <p>Foreign trade</p> <p>Concept of foreign trade</p> <p>Import and export</p> <p>Terms of trade and terms of payment</p> <p>Documents used in foreign trade</p> <p>Concepts of warehousing.</p> <p>Transportation and types of transport</p> <p>Communication</p> <p>Banking – types and role in commerce</p> <p>Insurance – Meaning, purpose, principles and Terms; types and importance to economy.</p>
BED 124	<p>INTRODUCTION TO ECONOMICS II (2 CREDITS)</p> <p>Analysis of costs (with special attention to relationship between marginal and average costs).</p> <p>Derivation of various cost concepts from given production schedules.</p> <p>The revenue of the firm (special attention to interaction between marginal and average revenues).</p> <p>The structure of markets from perfect, monopolistic and oligopolistic competitions to pure competition</p> <p>Review of demand and supply analysis up to conditions of abnormality.</p> <p>Verbal and geometrical characteristics of income, price and cross elasticities.</p> <p>Calculation and interpretation of the indices of above elasticity concepts.</p>
BED 125	<p>OFFICE PRACTICE II (1 CREDIT)</p> <p>Methods of payment; imprest accounting control</p> <p>Duplicating process</p> <p>Office supplies</p> <p>Office equipment and machines in common use</p> <p>Electronic composer, hand-processing machines, etc.</p> <p>Office behaviours</p> <p>Model office arrangement and lay out</p> <p><i>*Note: Model Office must be effectively use</i></p>
BED 126	<p>SHORTHAND II (60 WPM) (2 CREDITS)</p> <p>Halving</p> <p>Downward L</p> <p>Double Consonants – PL and PR series</p> <p>Double Consonants – curves</p> <p>Additional forms</p> <p>F/V hook</p> <p>N hook</p>

BED 127	KEYBOARDING II (25 WPM)	(2 CREDITS)
	Printers' signs and abbreviations Words and figures Layout of Business letters Carbon paper Layout of memos Main and column headings Speed and accuracy development,	
BED 128	SIWES	(2 CREDITS)
	YEAR TWO – FIRST SEMESTER	
BED 211	FINANCIAL ACCOUNTING I	(2 CREDITS)
	Accounting conventions and concepts Accounts of non-profit making organisations (i.e. receipts and payments, income and expenditure accounts) Control accounts Incomplete or single entry records Bills of Exchange (Definition, uses and accounting entries).	
BED 212	BUSINESS LAW	(2 CREDITS)
	Meaning of law and sources of Nigerian Law The Law of Contract Meaning of Tort and its relevance to Business Agency The nature and legal interpretation of Sale of Goods The definition of negotiable instrument and types of negotiable instruments	
BED 213	PRINCIPLES OF MARKETING	(2 CREDITS)
	Marketing – Meaning and functions Approaches to the study of marketing Concepts of marketing Markets: <ul style="list-style-type: none"> - capital, money and commodity; - also institutions and instrument traded in each market - careers in the capital market Marketing mix E- marketing Market segmentation Market information system Channels of distribution Promotion mix to include Advertising: <ul style="list-style-type: none"> - meaning - types - functions : Advertising media	

- radio
- television
- newspaper
- handbills
- magazine
- internet
- bill boards

Advertising ethics

Consumer protection and awareness:

Consumer protection

- meaning
- need for consumer protection

Consumer awareness

- rights of consumer

Organs of consumer protection

BED 214 INTRODUCTION TO MONETARY ECONOMICS (2 CREDITS)

Barter system and the evolution of money

The nature, functions and value of money

The price level and inflation

Types, causes, effects and control of inflation (special reference to Nigeria)

Historical development and role of Central, Commercial,

Merchant, Development Banks, etc., in Nigeria

Recent developments in Nigeria's monetary institutions viz:

People's Bank of Nigeria, The Nigeria Agricultural Insurance Corporation, Community Banks in Nigeria, etc.

BED 215 BUSINESS EDUCATION PRACTICUM (2 CREDITS)

This course seeks to assist Business Education students gain a better understanding of the necessary practical skills to acquire which enable them to teach Business Education effectively in schools. The needs for this course arises from the following issues:

1. The need to be acquainted with the dawn of a new millennium which has raised in its wake a burning and thirstier desire for attainment of technological competence in the world vis-a-vis the challenges of globalization and functional/knowledge education
2. The need to provide students teachers opportunities to apply their theoretical knowledge in real work situation thereby bridging the gap between class/paper works and actual practical skills.
3. The need to expose students teachers to work ethics and the methods/techniques in handling equipment and machinery that may not be available in the schools.
4. The need to be abreast with modern business skills and new trend in technological development especially in Business.

COURSE OUTLINE

This should be 2 credits. The following outlines will be taught in the classroom:

1. Personal and Career Development skills in working setting example (attendance to duty, punctuality, integrity, dexterity skills).
2. Human Relation and Societal skills in working place
3. Information and Communication technology skills (Power of experience, method of communication, use of computer, intending in Business Education).
4. Social skills (leadership and management skills)
5. Work ethics and office code of conduct
6. Creative and problems solving skills (study of recent innovation in business and use of Analytical Ability in solving problems in Business.
7. Time and stress management in Business
8. Practical Application Skills (After the teaching of the above course outlines in the classroom, the students will go for practical field trips in relevant Business Areas/Centres where they will observe and acquire the Business practical skills. Student must write report on their experience which will be part of their assessment in the course.

BED 216	SHORTHAND III (60 WAM) Halving principles Shun hooks Compound consonants Tick and dot H Omission of consonants, intersections	(2 CREDITS)
BED 217	WORD PROCESSING I (30 WPM) Alphabetic sentence drills and remedial exercises Procedure and layout of Business, Personal and Official letters and Memos Manuscript Inset matters Roman numerals Speed and accuracy development to include passages in drug abuse, corruption, cultism, environmental pollution e.t.c.	(2 CREDITS)
BED 218	COMPUTER APPRECIATION Overview of computer hard-and soft-wares and their characteristics Historical evolution of computers The political, economic and social impact of computers Introduction to computer techniques – beginning from the flow Chart Programming Languages – BASIC (Beginners All-Purpose Symbolic Instruction Code) and COBOL (Common Business Oriented Language) only. YEAR TWO – SECOND SEMESTER	(1 CREDIT)
BED 220	ENTREPRENEURSHIP IN BUSINESS EDUCATION Concept of entrepreneurship; types of entrepreneurs Entrepreneurial theory; venture growth; opportunity recognition and exploitation Types of risks and their management; conditions for establishing a business; forms of business ownership Business and technology – issues and problems	(1 CREDIT)

Financing business – new and old, including innovative techniques
Business finance and funding institutions
Site selection and location of business; business environment
Consumer Behavior
Human resource management and communication

- BED 221 FINANCIAL ACCOUNTING II (2 CREDITS)**
Manufacturing Accounts
Partnership Accounts (formation, admission of a new partner, withdrawal or retirement of an old partner and dissolution of Partnerships)
Joint Venture
Stock Valuation
Introduction to Company Accounts
- BED 222 METHODS OF TEACHING BUSINESS SUBJECTS (1 CREDIT)**
Aims and Objectives of Business Education
Types of Lessons, Format of a Lesson, Objectives, Steps in the development of Lesson Notes.
Methods of teaching e.g micro teaching, problem solving, etc
Business curriculum and syllabus in Secondary Schools
Evaluation and Summary of a Lesson
Assignment, Problems of Business Teaching and Reporting
- BED 223 ELEMENTS OF LABOUR ECONOMICS (1 CREDIT)**
The Labour Market – Functions and Characteristics
Demands for and supply of Labour
Unemployment (with special reference to Nigeria)
Determination of Wages
Mobility of Labour.
- BED 224 SHORTHAND IV (70 WPM) (2 CREDITS)**
Doubling principles
Prefixes
Suffixes and word endings
Note taking, transcription, etc.
Essential vowels
Short forms and contractions
Advanced phraseography
Intersections
Speed and accuracy to include passages in
- drug abuse
- environment pollution
- corruption
- HIV & AIDS
- BED 225 WORD PROCESS II (35 WAM) (2 CREDITS)**
Production of display work
Three – four columnar works
Speed development
Business letters, enclosures and attention line
Stencil cutting, proof-reading and correction of errors on stencil

YEAR THREE - FIRST SEMESTER

EDU 311	Teaching Practice	6C
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YEAR THREE - SECOND SEMESTER**(ACCOUNTING OPTION)****BEA 320****ENTREPRENEURSHIP IN BUSINESS EDUCATION (1 CREDIT)**

Management and Administration of small and medium businesses
 The future of business and succession issues; case study
 Pilot study and feasibility report
 Elements of marketing and market segmentation; product development
 Business and social responsibility – Government regulations/taxation, auditing
 Consumer behaviour
 Management functions
 Human resource management and communications
 Record keeping/bookkeeping.

BEA 321**COST AND MANAGEMENT ACCOUNTING (2 CREDITS)**

Definition of Cost Accountancy and Costing
 (including Cost terms)
 Elements of Cost
 Desirability of a costing system
 Costing methods and techniques
 Materials procurement and storage (issuing and pricing methods, methods of valuation) of stock.
 Labour remuneration
 Collection and methods of absorbing overheads
 Elementary computation and uses of Break–Even–Point (BEP)
 Elementary variance analysis
 Budgeting and budgetary control
 Contract accounts.

BEA 322**PUBLIC SECTOR ECONOMICS (1 CREDIT)**

Rationale for government intervention in the economy.
 Government revenue – sources (direct and indirect taxation: loans and others)
 The budget as an instrument of economic control
 Public debt and its management in Nigeria.
 Revenue allocation in Nigeria – History, problems, principles of revenue allocation
 Elements of National income accounting – national income concepts, their measurement and measurement problems
 Elements of economic planning in Nigeria.

BEA 323	PRINCIPLES OF MANAGEMENT Definitions of management The basic principles and functions of management The basis of the structure and character of organizations The basis and dynamics of human behaviours in organizations The significance, modes and problems of communication in an organization. The dynamics and methods of management of change in institutions. Conflict Management Introduction to Personnel Management	(1 CREDIT)
BEA 324	ADVANCED FINANCIAL ACCOUNTING Accounts of Limited Liability Companies Purchase and amalgamation of Business Interpretation of accounts Departmental accounts Hire purchase. Royalty Consignment Introduction to public sector accounts	(2 CREDITS)
BEA 325	INTRODUCTION TO INTERNATIONAL ECONOMICS Theory of comparative costs as basis for international trade. The foreign exchange market – functions and characteristics The economics of exchange rates e.g. SFEM, etc Balance of payments (up to correcting a disequilibrium) Commercial policy The new international economic order: origin, achievements and problems Nigeria in the international economy The role (positive and negative) of petroleum International economic institutions: World Bank I.M.F African Development Bank Lake Chad Basin Commission	(1 CREDIT)
BEA 326	AUDITING Nature or meaning, purpose and objectives Types of audit The auditor: qualifications, professional ethics, status/independence, rights and responsibilities The process of audit: evidence and decisions. Types of audit used in conducting audits Auditing of final accounts including balance sheets Verification of assets Internal control systems Investigation of suspected fraud, etc Procedure for writing audit reports	(1 CREDIT)
BEA 327	BUSINESS COMMUNICATION (There should be emphasis on practicals) General over-view Methods of communication Principles of effective communication The impact of information technology	(1 CREDIT)

Barriers/Remedies to effective communication

Letter writing I

Guidelines for composing letters –
Audience and style
General format of a letter
Personal/Informal letter
Types of Business letters
Applications, replies to offer of appointments, queries,
writing references
Invitation to interviews, commendations, etc.
Curriculum Vitae (CV)

Letter Writing II

Advertisement
Writing on the job
Memoranda
Briefs
Minutes
Report-Writing and Meetings

BEA 328

TAXATION

(1 CREDIT)

Meaning of taxation
The basic concepts and principles of taxation
Accounting computation of income or profit for income tax purposes
Tax administration – returns, assessment, appeal, payment, claims, etc.
Business taxation – Basic period deductions allowed, disallowed, capital allowances, treatment of losses, adjustments of accounts for income tax purposes
Introduction to income tax under partnership
Introduction to company tax
Capital gains and capital transfer tax
Current trends – V.A.T.

BEA 329

BUSINESS STATISTICS

(1 CREDIT)

The nature and definition of statistics
Data collection and tabulation (frequency distribution)
Graphical representation of data
Computation of the measures of central tendency and dispersion
Introduction to probability
Statistical association
Simple linear regression.
Correlation
Elements of statistical inference
Tests of hypotheses

YEAR THREE – FIRST SEMESTER

EDU 311	Teaching Practice	6C
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YEAR THREE – SECOND SEMESTER

(OFFICE TECHNOLOGY AND MANAGEMENT EDUCATION OPTION)

BES 320 ENTREPRENEURSHIP IN BUSINESS EDUCATION (1 CREDIT)

Management and Administration of small and medium businesses
The future of business and succession issues; case study
Pilot study and feasibility report
Elements of marketing and market segmentation; product development
Business and social responsibility – Government regulations/taxation, auditing
Consumer behaviour
Management functions
Human resource management and communications
Record keeping/bookkeeping.

BES 321 SHORTHAND V (100 WPM) (2 CREDITS)

General revision/consolidation/speed development
Hooks
Circles and strokes
Loops – Stee and Ster
Vowels, diphthongs, triphones and diphones
Halving
Doubling
Compound consonants
Abbreviation devices, figures
Speed Development
General Consolidation

BES 322 WORD PROCESSING II (50 WPM) (2 CREDITS)

Legal documents
Layout of documents and job specifications
Speed development/consolidation
Advanced display work
Literary work
Itinerary
In addition, it is expedient that students be exposed to the following, given the information need of today's world of work.
Hardware and Soft ware
Operating procedures including ability to activate computer and other devices.
1. Keyboarding skills consolidation
 Inputting text, speed development/consolidation
2. Text Editing Skill acquisition
 (a) Spellings and grammar check

- (b) Adding, deleting and amending text
- (c) Mail merge
- 3. Formatting text
 - Format text, Display text and layout through:
 - (a) Tabulations
 - (b) Displays
 - (c) Reports
 - (d) Notices
 - (e) Minutes
 - (f) Legal documents
 - (g) Memo
 - (h) Literary work
 - (i) Itinerary
- 4. Printing of documents
 - Activate printer and print documents

The course outline could be remodified to look as follows: (in the light of the review done in the 1st semester).

1. Advanced Display work and Tabulations
2. Advanced Literary work
3. Advanced Key boarding skills/speed development/accuracy
4. Advanced application of graphics in textual documents

Justification

It is against the backdrop of the pressing demands: societal change in economic needs; that has necessitated the inclusion of technological advancements and their practical applications in the curriculum, hence the modification of this existing curriculum.

BES 323 PRINCIPLES OF MANAGEMENT (1 CREDIT)

Definitions of management

The basic principles and functions of management

The basis of the structure and character of organisation

The basis and dynamics of human behaviours in organisations

The significance, modes and problems of communication in an organization.

The dynamics and methods of management of change in institutions.

Conflict Management

Introduction to Personnel Management

BES 324 OFFICE MANAGEMENT (1 CREDIT)

Office organization

Office planning and layout

Management processes and functions

Filing and indexing

Record management; form designs and control

Personnel Management

Staff recruitment

Wages and salaries administration

Staff training and development

Work management and standards.

BEA 325 INTRODUCTION TO INTERNATIONAL ECONOMICS (1 CREDIT)

Theory of comparative costs as basis for international trade.
The foreign exchange market – functions and characteristics
The economics of exchange rates e.g. SFEM, etc
Balance of payments (up to correcting a disequilibrium)
Commercial policy
The new international economic order: origin, achievements and problems
Nigeria in the international economy
The role (positive and negative) of petroleum
International economic institutions:
World Bank
I.M.F
African Development Bank
Lake Chad Basin Commission

BES 326 BUSINESS COMMUNICATION (2 CREDITS)

(There should be emphasis on practicals)

General overview
Methods of communication
Principles of effective communication
The impact of information technology
Barriers/remedies to effective communication
Letter Writing I
Guidelines for composing letters –
Audience and style
General format of a letter
Types of Business letters
Applications, replies to offer of appointment, queries, writing references, invitation to interviews, commendations, etc.
Curriculum Vitae (CV)

Letter Writing II

Advertisement
Writing on the job
Memoranda
Briefs
Minutes
Report Writing and Meetings

BES 327 OFFICE TECHNOLOGY AND MANAGEMENT EDUCATION (2 CREDITS)

The secretary, training and qualifications
Personal qualities and business attributes and functions.
Receptionist duties – types of callers, screening callers, handling and receiving visitors, etc.
Handling and treatment of confidential mail, composing letters from scanty notes or oral instructions, notes of meetings, minutes of meetings.
Secretary's duties before, during and after meetings

Procedures and Terms used in meetings
Handling of telephone calls (screening of calls, receiving messages, types of calls)
Telecommunication equipment: telephone, fax, e-mail, GSM, etc
Office equipment including reprographics
Human relations – relationship with boss, colleagues (superior and subordinate staff)
Public problem-solving situation in the office

** NOTE: Student must use the model office effectively and it must form part of their continue assessment.*

BES 328

**INFORMATION TECHNOLOGY/COMPUTER APPLICATION
(1 CREDIT)**

Information Technology (IT): Concept and definition

Role of computer in Information Technology

Computer application systems with emphasis on:

1. Word Processing: concept, application areas e.g using micro-soft word, word star, etc; data processing with lotus/excel (spread sheet). Application systems desk-top publishing.
2. Electronic Data Application Systems:
Batch processing; on-line processing and real-time processing systems. Record keeping systems; decision making systems; problem solving systems; etc.
3. Electronic communication systems; Electronic mail systems; Facsimile communication systems; Internet; Local Area Networking (LAN); Global System for Mobile Communications (GSM); Computer Assisted Learning; etc.

FINE AND APPLIED ARTS

1. PHILOSOPHY

The philosophy of this programme is to provide academic and professional training for NCE Teachers in Fine and Applied Arts. It aims at developing student's aesthetic perception, artistic talents and expression as well as stimulate interest and enquires in the practical and theoretical areas, particularly as they affect the teaching of art at the primary and junior secondary school levels.

2. OBJECTIVES

The programme objectives are as follows:-

- i) training professional art teachers to fill the manpower needs of the primary and junior secondary schools;
- ii) equipping and providing the teachers with knowledge, understanding and skills in Fine and Applied Arts;
- iii) equipping students with the necessary knowledge and skills for the promotion of Nigerian and world's artistic and cultural heritage.,
- iv) developing in the would-be teachers the ability to communicate effectively through the arts; and
- v) preparing teachers to qualify for and benefit from teacher education at the university level.
- vi) Equipping NCE graduates with manipulative skills which will make them self-reliant job creators.

3. (i) GENERAL ADMISSION REQUIREMENT

- a. A senior Secondary School Certificate (SSC) or G.C.E. O Level with credit in 4 subjects including English Language, three of which must be at credit level at the same sitting or four credits at two sittings. Two of the credits must be relevant to the course the candidate wishes to offer. Credits in English and/or Mathematics may be required in some courses
- b. A grade II Teacher's Certificate (TC II) with credit or merit in three subjects, two of which must be relevant to the course the candidate wishes to offer Credit/merit in English Language and/or mathematics may be a requirement in some courses.
- c. For candidates wishing to offer courses in Vocational and Technical Education, R.S.A. or City and Guilds intermediate certificate and the Federal Craft Training Certificate with credit/merit in at least four subjects, are acceptable qualifications.
Associateship Certificate in Education awarded by an approved Institution in Nigeria or abroad, is also acceptable as qualification.
- d. All candidates wishing to be considered for admission must enroll for and write the selection examination organized by an accredited body such as **JAMB**. Successful candidates in the Pre- NCE final examinations who also take and succeed in a selection examination organized by an accredited body are qualified for admission.
It should be noted that some colleges may in addition to all of the above, administer their own elimination tests and or interviews for some courses. This is legitimate.

5 credits at 2 sittings including English and any relevant subject (Visual Arts).

- ii) **ADDITIONAL ADMISSION REQUIREMENTS**
- a. Minimum of cumulative credit in Fine Art related subjects from Technical Colleges.
 - b. One of the credits referred to in 3(i) a - d must be in Fine Art.
 - c. The successful completion of Pre- NCE programme referred to in 3(i)e must be in Fine and Applied Arts.

4. **FACILITIES**

- i) **Classrooms:**
There should be at least three classrooms for NCE one to three.

- ii) **Studios:**
The following studios should be made available:
3 studios for 2 - dimensional work.
3 studios for 3 - dimensional work
1 studio for drawing
One photographic dark room
Computer Graphics Room (well furnished with computer units, A/C/, curtains and rugs).
Art Gallery Room (Not less than 30ft x 30 ft).
An average size Art studio capable of holding up to 30 students should be about 30ft x 30ft or 900cm x 900cm. Art theories, Art Education, and Art History and Appreciation should normally take place either in regular classrooms or studios equipped with chalk boards, displays boards and pins. Some practical art activities should take place in studios and sometimes outdoors

- iii) **Staff Offices:**
Each Senior Staff should have a comfortably furnished office to himself/herself. There should also be an office for support staff (Typist, clerks) with relevant equipment e.g. Typewriters, reproduction machines, etc).

- iv) **Books in the Library:** there must be enough books to cover all the areas of the subject to the ratio of one student to ten books.

- v) **Specialised Facilities:** A computer and printer should be provided for students' practicals in computer graphics. On the alternative, provision could be made for them to get access to computers in the computer department. Others are potter's wheel, kiln, printing tables, clay dump, bulletin boards, cameras, slide projectors, opaque projectors, print making machines, etc (see appendix for details).

- vi) **Equipment:** The following are to be provided. Wash hand basins, work benches, carving tools, modeling tools, storing racks, donkeys, easles, model's throne or platforms.

5. PERSONNEL

For effective execution of Fine and Applied Arts (double major), the following personnel are minimally required.

i) Academic

- a) 1 Lecturer in Art History.
1 Lecturer in Art Education
1 Lecturer in Painting
1 Lecturer in Ceramics
1 Lecturer in Sculpture
1 Lecturer in Textiles
1 Lecturer in Graphics
1 Traditional Artist (Part - time) weavers, dyers, carvers, potters etc.
1 Photographic technician (part - time)
1 computer graphics operator.
- b) Apart from the photographer, traditional artists or local craftsmen, all lecturers must possess a minimum of first degree (B.A.) Hons. in respective areas of specialization as stated above, plus teaching qualification. Art instructors (where needed) must have a minimum of H.N.D. plus teaching qualification. The computer graphics operator must possess at least OND or equivalent in arts

ii) Supporting Staff:

- 3 studio Attendants/cleaners
- 3 store keepers (one for general store and one each in 2 and 3 dimensional studios).
- 2 models, one male and one female (Painting and sculpture)
- 2 models, one male, and one female (life drawing).
- 1 Art Technical officer (must possess O.N.D/NCE in Art); to supervise studios and galleries etc.

6. MODE OF TEACHING

The practical and theoretical nature of Fine and Applied Arts necessitate the use of different teaching strategies by an art teacher. The following strategies are prescribed:- Lecture, Demonstration, Tutorial and other creative methods eg. Multigrade Instruction in Art History, Art Education and practicals should be by lecture, demonstration and tutorial methods. Appropriate teaching aids, e.g. pictorial reproduction, photographs, slides, film strips, should be used where necessary. For sculpture, graphics, textiles, painting, ceramics and drawings; demonstration and other creative methods are the most effective devices for arousing and sustaining interest during the art making process. Excursions and field trips for all students in NCE III 1st semester to be fully funded by the college.

7. GRADUATION REQUIREMENTS

To graduate as a Fine and Applied Arts teacher, a candidate must earn a minimum of 130 credits. The breakdown is as follows:

Education Courses	30
General Studies Courses	18
Teaching Practice	6
Fine and Applied Arts Courses	64
SIWES	04
Total	118

8. TEACHING PRACTICE

Every student is required to do Teaching Practice and the credit is recorded in EDU 324.

9. PROJECT

Every student is required to do his project in FAA (Art History, Art Education Sculpture, Painting, Ceramics, Graphics or Textiles) and the credit recorded in EDU 323. All practical projects are to be accompanied by a written report.

COURSE TITLES AND STATUS**YEAR ONE - FIRST SEMESTER**

COURSE CODE	COURSE TITLE	CONTACT HOUR L.T.P.	CREDITS	STATUS
VTE 110	Intro. To Voc. & Tech. Educ.	1-0-0	1	C
FAA 111	Art History I	1-0-0	1	C
FAA 112	Art Education	1-0-0	1	C
FAA 113	Life and General Drawing	2-0-2	2	C
FAA 114	Basic Design	2-0-3	2	C
FAA 115	Painting	1-0-4	2	C
FAA 116	3 Dimensional Art	1-0-3	2	C
FAA 117	Computer Graphics	1-0-0	2	C
TOTAL			13	C

SECOND SEMESTER - YEAR ONE

COURSE CODE	COURSE TITLE	CONTACT HOUR L.T.P.	CREDITS	STATUS
FAA 121	Art History II	2-0-0	1	C
FAA 122	Art Education II	1-1-0	1	C
FAA 123	Life and General Drawing	1-1-3	2	C
FAA 124	Basic Design	1-0-3	2	C
FAA 125	Painting	1-0-3	2	C
FAA 126	3 Dimensional Art	1-0-3	2	C
FAA 127	Computer Graphics	1-0-3	2	C
FAA 128	Photography	1-0-2	1	C
TOTAL			13	

YEAR TWO - FIRST SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOUR L.T.P.	CREDITS	STATUS
VTE 210	Entrepreneurship in FAA I	1-0-1	1	C
FAA 211	Art History III	2-0-0	1	C
FAA 212	Art Education III	2-0-0	1	C
FAA 213	Life and General Drawing	1-0-2	2	C
FAA 214	Graphics	1-0-2	1	C
FAA 215	Painting	1-0-2	2	C
FAA 216	Sculpture	1-0-3	2	C
FAA 217	Ceramics	1-0-3	2	C
FAA 218	Textiles	1-0-2	2	C
TOTAL			14	C

YEAR TWO - SECOND SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOUR L.T.P.	CREDITS	STATUS
VTE 220	Entrepreneurship in FAA II	1-0-1	1	C
FAA 221	Art History IV	2-0-0	1	C
FAA 222	Art Education IV	2-0-1	1	C
FAA 223	Life and General Drawing	1-0-2	1	C
FAA 224	Graphics	1-0-2	1	C
FAA 225	Painting	1-0-2	1	C
FAA 226	Sculpture	1-0-3	2	C
FAA 227	Ceramics	1-0-3	2	C
FAA 228	Textiles	1-0-2	1	C
FAA 229	Photography	1-0-2	1	C
FAA 230	SIWES		2	C
TOTAL			14	

YEAR THREE - FIRST SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOUR L.T.P.	CREDITS	STATUS
EDU 323	Project			
EDU 311	Teaching Practice and Project		6	C

YEAR THREE - SECOND SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOUR L.T.P.	CREDITS	STATUS
FAA 320	Display and Exhibition Techniques	1-0-2	2	C
FAA 321	Art History	2-0-0	1	C
FAA 322	Art Education	2-0-2	1	C
FAA 323	Life and General Drawing	2-0-3	2	C
FAA 324	Advanced Graphics	2-0-3	4)B	E
FAA 325	Advanced Painting	2-0-3	4)A	E
FAA 326	Advanced Sculpture	2-0-3	4)A	E
FAA 327	Advanced Ceramics	2-0-3	4)B	E
FAA 328	Advanced Textiles	2-0-3	4)B	E
TOTAL		17-0-22	10	C & E

Total = 64 Credits

- i) From year one to the end of second semester of year two, all students must offer the same subjects; all courses are compulsory
- ii) A student should offer either FAA 315 or FAA 316 and FAA 314 or FAA 317 or FAA 318 as electives (i.e. one Fine (A) and one Applied (B) in the first semester of year three.
- iii) A student should offer either FAA 325 or FAA 326 and FAA 324 or FAA 327 or FAA 328 as electives (i.e. One Fine (A) and one Applied (B) in the second semester of year three.
- iv) If a student meets the required number of credits (56) at the professional level and fails any of the electives such a student should be allowed to graduate.

NOTE: (A) Fine Art electives
 (B) Applied Art electives
 (C) Compulsory
 (E) Elective

COURSE DESCRIPTION:

YEAR ONE - FIRST SEMESTER

VTE 110 INTRODUCTION TO VOC. AND TECH. EDUCATION (1 Credit) C

- Definition, Scope, Philosophy and objectives of vocational and Technical Education.
- Development of vocational and technical education in Nigeria.
- The role of vocational and technical education in National Development
- Characteristics of vocational and technical education.
- Problems and Prospects of Vocational and Technical Education
- Place of VTE in UBE (Universal Basic Education).

FAA 111 ART HISTORY I-INTRODUCTION (1 Credit)

- Definition of terms (e.g. Culture, tradition, custom, local art history, artifacts, relics, antiquity, craft, folk art, festivals etc.).
- Study of local traditional art and crafts and artifacts with emphasis on forms and function.

- Study of local landmarks in the environment with emphasis on significance and functions.
- Local cultural festivals with emphasis on origin, practice, purpose and artistic significance of the objects used.
- The place of art in the local and neighbouring cultures.
- A survey of Indigenous Nigeria Arts and crafts with emphasis on classification of forms, productions process, measure production centres, and functions.
- Weaving – mat, cane, cloth, raffia, basketry, bead – making, wood carving, leather work, smitting, tie dye, batik, trilik, and body adornment.

FAA 112 ART EDUCATION - INTRODUCTION (1 Credit) C

- The meaning of Art, Education and Art Education
- The origins of Art
- The general goals of Art Education (Universal)
- Art structure – Branches of Art
- Historical Development of Art Education in Nigerian Schools.
- The status, goals and forms of Art Education in Nigerian Schools.
- Concepts in Art Education
- Education Through Art
- Art in Education
- Visual Literacy
- Visual Perception
- Cultural values and Heritage

FAA 113 LIFE AND GENERAL DRAWING I (1 Credit) C

- Introduction to fundamental principles of drawing
- Composition of basic shapes and forms (e.g. Cuboids, cylinders, round objects.)
- Study of human bones and skeleton.
- Measurement of human body and relationship of human forms.
- Study of muscular forms and movements
- Study of natural and man-made objects
- Principles of perspective drawing and foreshortening.
- Shading techniques (e.g. hatching, cross hatching, rubbing, strokes, lines, pointilism, texturing etc.).
- Exercises on object drawing and life drawing.

FAA 114 BASIC DESIGN (1 Credit) C

- Introduction to basic design - concept, definition, scope.
- Elements of design: points; line, shape, texture, size, colour, tone etc.
- Principles of design: Harmony, Balance, Rhythm etc. contrast, unity, proportion etc.
- Basic shapes; organic, geometric/abstract.
- 2 dimensional and 3 dimensional design (construction)
- *Emphasis should be on theory and making of simple designs.
- Colour definition, classification and uses.
- Colour wheel: primary, secondary, and tertiary colours.
- Lettering

- FAA 115 PAINTING (2 Credits)**
- Introduction to materials, media and techniques in painting
 - Colour and composition analysis: colour combination, compositional arrangement uses of colour.
 - * Mosaic and Collage
 - Exploration of materials and techniques.

- FAA 116 THREE DIMENSIONAL ART (2 Credits)**
- Introduction to 3 dimensional Art - concept, definition and scope
 - Creative shapes and modeling (relief and round forms)
 - Paper mache, clay and paper construction, clay, wood, paper construction, metal construction (foils wires etc).
 - Materials and methods (Processing, techniques and storage)
 - * Production of beads from paper, straw, bottle covers etc.
 - *Emphasis should be on both theory and practice.

- FAA 117 COMPUTER GRAPHICS (2 Credits)**
- Introduction to computer (terms and vocabulary)
 - Computer appreciation (software and hardware)
 - Systems in computer graphics (Corel drawing etc)
 - Drawing and designing with the mouse
 - * Emphasis should be on theory. Operation and simple designs.

SECOND SEMESTER

- FAA 121 ART HISTORY II (1 Credit)**
- A Survey of Ancient Art of Nigeria:**
- Nok culture
 - Ife Art/Owo
 - Benin art
 - Igbo - ukwu art objects
 - Ibibio Art/Akwanshi monolith,
 - Kalabari art
 - Esie Art
 - Tsoede Art
 - Mbari art
 - Hausa decorative and mural works
 - Other Nigerian Traditional Arts and Crafts.

Classification (and study) of Ancient Nigeria art works based on media, style, location and form e.g.

- Terracotta - Nok, Ife, Owo, Benin
- Stone sculpture - Ife, Esie, Akwanshi
- Bronze works - Ife, Benin, Igbo - ukwu, Tseode, Tada
- Wood sculpture - (Masks and figures) Yoruba, Igbo, Oron, Ijo, Ekpu etc.

*Functions of Nigerian Traditionl Arts.

- * Reasons for presearving Nigerian Traditional Arts

- FAA 122 ART EDUCATION II - ART THEORY (1 Credit) C**
- Factors that facilitate the teaching and learning processes in visual arts: good art teacher, good art programme, favourable environment and improvisation methods.
 - Qualities and responsibilities of a good art teacher
 - Artistic development of children (ages 1 – 12 scrabbling formative, pseudo realistic, realism stages.
 - Art Education in the Nursery, Primary and Secondary Schools
 - Lesson plan
 - Methods of teaching, lecture method, demonstration method, project method, exhibition method, field trip, discussion, play away methods etc.
 - Procedure for teaching art
 - Motivation strategies (intrinsic and extrinsic) use of materials, teaching aids.
 - Class management, reward and discipline etc.
- FAA 123 LIFE AND GENERAL DRAWING II (2 Credits) C**
- Drawing from nature - plants, fruits, shells, bones, stones etc.
 - Detailed study of human forms
 - Study and application of foreshortening in human postures as it affects linear relationship of body features.
 - Study and drawing of arranged objects.
 - Drawing of posed model in different costumes and postures.
- FAA 124 BASIC DESIGN (2 Credits) C**
- Design and Colour Analysis (terms and vocabulary).
 - Combination of simple and complex shapes (black/white and colour).
 - * Tonal Gradation of Colours
 - Transparency and overlapping (Forms and colour).
 - Motif formation (nature and artificial sources).
 - Emphasis should be on design formation, appreciation and originality.
 - Lettering with a package
- FAA 125 PAINTING (2 Credits) C**
- Still life painting (water based e.g. guage and dry media e.g. pastel).
 - Study of natural and manmade objects: dead wood, stones, shells, furniture items, machines etc.
 - * Emphasis should be on chromes, tonal value, formal relationship
- FAA 126 BASIC CRAFTS (2 Credits) C**
- Basic crafts
 - Definition, scope and concepts
 - Types of crafts, methods and materials e.g. thorn sculpture, bamboo, leather work, mat weaving, calabash decoration, bead making etc.
 - Exploration of 3 dimensional art forms.
 - Making of basic forms such as circles, rectangle, triangle, oval, organic shapes etc. using various materials - clay, plasticine, hardboard, soft wood etc.
 - Exploration of Nigerian textile crafts, methods and materials e.g. rope making, weaving etc.
 - Study of Forms: natural objects, man made objects, architecture etc
 - Mobile Construction (hardboard, metal, strings)
 - * Emphasis should be on diversity of forms and materials.

- Simple poster designs
- Use of computer in producing layouts for cards, posters and other designs.

FAA 215 PAINTING (1 Credit) C

Nature study: (Water colour, Poster, Pastel)

- Colour study of fruits, flowers in vases
- Colour study of plants, roots, animals
- Emphasis should be on detailed features and colour harmony.

FAA 216 SCULPTURE (2 Credits) C

- Methods and Materials in sculpture.
- Basic sculptural forms using subtractive and additive methods.
- Modeling of simple naturalistic and abstract shapes e.g. shoes, animals and abstract forms.
- Adoption of craft ideas into sculpture e.g. basketry, macromé etc.
- Modeling of masks, parts of human body, imaginative composition (terra-cota) etc.
- * Modeling and casting. Casting media and techniques (paper, plaster, cement, fibre glass e.t.c.
- *Emphasis on terms and uses of tools, materials and techniques.

FAA 217 CERAMICS (2 Credits) C

Materials and Techniques in Ceramics.

History of ceramics and pottery.

- Physical and chemical properties of clay
- Types, preparation and storage of clay.
- Techniques of production - Kneading, wedging, pinching, coiling, slabbing throwing and mould forming (forming of objects and simple geometrical shapes).
- Drying of wares.
- * Emphasis should be on theory and practice.

FAA 218 TEXTILES (1 Credit) C

- Introduction to Textile Design.
- Textile theory and fiber types
- Meaning, history and scope of Textile Design.
- Types of decoration in fabrics, uses of textile materials.
- Basic textile pattern (Networks) indigenous and adopted.
- Exercises in using various motifs (copying and repeat patterns)
- Motif placements, in half drop, full drop, side by side, counter changes in repeat patterns in enlarge vision Motif placement with stencils.
- Needle craft: sample stitches
- Emphasis on both theory and practice.

**YEAR TWO - SECOND SEMESTER
VTE 220 ENTREPRENEURSHIP IN VTE II (1 CREDIT) C**

- Management and administration of small and medium business
- The future of business and succession issues; case study.
- Pilot study of feasibility report; elements of marketing and market segmentation, product development.
- Business and social responsibility.

- Government regulations/taxation, auditing.
- Consumer behaviour.
- Management functions.
- Human resource management and communications.
- Record keeping/book-keeping.

FAA 221 ART HISTORY IV (1 Credit) C

- A Survey of Western Art History:
- Prehistoric Art
- Mesopotamia
- Ancient Egyptian Art
- Greek and Roman Art
- Medieval art (Early Christian, Byzantine and Islamic art)
- Gothic art
- Renaissance art
- Romanesane
- Baroque and Rococo art
- Modern Art: Symbolism, Fauvism, Art Neavou, Expressionism, Cubism, Surrealism, Dadaism etc.

FAA 222 ART EDUCATION IV - ART THEORY (1 Credit) C

- Theories of Art
- Imitation theory of Art (as in representing nature)
- Expression theory of Art (innermost feelings of Artists)
- Communication theory of Art (as symbolism rewards and visual signs and language).
- Play theory of Art (child art, sub conscious etc).
- Classification of Art
- Art by form
- Art as human activity
- Art by nature
- Art by medium
- Appreciating work of Art
- Component of work of Art
- Form and medium
- Subject, matter, content and meaning
- Emphasis should be on aesthetics
- Experience and characterization
- Methods of improvisation

FAA 223 LIFE AND GENERAL DRAWING IV (1 Credit) C

- Close study of forms, shapes and textures from life, nature and manmade objects.
- Detailed study of draped forms.
- Use of different media in drawing (e.g. wash, charcoal, pen and ink, conta, ball-point pen etc) objects, sceneries landscape, seascaps etc.
- Exercises on portraiture using different media.
- * Quick sketches on posed model to form a composition

FAA 224 GRAPHICS (1 Credit) C

- Construction and production of banners.
- Package designs

- Greetings cards
- Film posters
- Calendar designs
- Co-operate identity items (letterhead, complement cards, van display, memo pads, identity cards, stickers, calendars, dairies etc.).
Gift items eg. calligraphic decoration etc.
- Advanced computer Graphics
- * Note : Use of computer is prescribed for visuals.

FAA 225 PAINTING (1 Credit) C

- Landscape Painting (water and oil based media)
 - Painting of sceneries (Land and Sea)
- Painting of scenes e.g. market, street, building etc.
 - * Emphasis should be on aerial and linear perspective
 - * Experiment with units of related colours such as polychrome analogue, complimentary and splits - Complimentary.

FAA 226 SCULPTURE (2 Credits) C

- Carving and construction, modeling and casting.
- Introduction to carving - simple forms, masks, utilitarian objects (relief and round).
- Construction of abstract, images, gates, objects using various media such as metal, straw, hardboard, foil, tin containers, packs/assemblage etc.
- * Emphasis on variety of forms and materials/techniques.

FAA 227 CERAMICS (2 Credits) C

- Modeling and casting
- Local pottery techniques and production
 - Production of pots, vases, dishes, pitchers, mugs, jugs etc.
 - Methods of decoration: relief, engraving, etc.
 - Production of sculptural ceramics (mask, abstract and natural forms).
 - Introduction to casting techniques in ceramics (casting of simple forms in two - four piece mould).
 - Introduction of throwing; basic cylinders
 - Simple glazing techniques.
 - * Emphasis on technical proficiency and creativity.

FAA 228 TEXTILES (1 Credit) C

- Introduction to weaving and Fabric production
- Introduction to simple weaving - plain/tabby, twill etc.
 - looms - horizontal and vertical (broad and Narrow).
 - Introduction to resist dyeing – plangi, tie – dye, starch resist or adire-eleko, wax resist or batik and tritik. etc.
 - Screen printing and block printing.
 - * Introduction to fashion design, illustration, needle craft basic stitches
 - * Experiment with the various production techniques using sizeable fabric.

FAA 229 PHOTOGRAPHY (1 Credit) C

- Techniques in creative photography
- Exploring possibilities of the camera, films and accessories
- Special effects in photography
- Landscape/seascape photography

- Photo journalism
- Photography for advertisement
- Close-up photography
- Night shots
- Photography as Art
- Photomontage
- Creative photography

FAA 230 SIWES (16 WEEKS) 2 C

YEAR THREE - FIRST SEMESTER

EDU 323 -	SUPERVISED PROJECT	
EDU 324 -	TEACHING PRACTICE	6 C

YEAR THREE SECOND SEMESTER

FAA 320 DISPLAY AND EXHIBITION TECHNIQUES (2Credits) C

Introduction to exhibition techniques (types, location, and purpose).

- Historical background to exhibition (galleries, museums, display halls etc.).
- Display Techniques (2 & 3 Dimensions) frame construction, framing paper works with glass, framing oil paintings, inner -lay, retouching and reclaiming, hanging, space allocation (room and wall), pedestal construction, casing, art in architecture (sculpture/mural), out-door sculpture etc.
- Stage designing and lighting - Exhibition halls, galleries, museum, theatre.
- Documentation - photographs, critiquing, production of brochures/catalogue and labeling/tags.
- Graduation Exhibition - selected works (Course work, Examination handling and others).
- * Emphasis should be on both theory and practice.

FAA 321 ART HISTORY V

(1 Credit) C

Contemporary Nigerian Art

- History of contemporary Nigerian Art.
- Academic Training and Workshop Training.
- Pioneering Efforts: Aina Onabolu, Akinola Lasekan, Ben Enweonwu, Ugbodaga-Ngu.
- Zaria Art Society: Yusuf Grillo, Bruce Onobrakpeya, Demas Nwoko , Simon Okeke, Uche Okeke, Solomon Wangboje, Jimoh Akolo, Odita etc.
- Nsukka School:El-Anatsui, Obiora Udechukwu, Chike Aniako, Ola Oloidi, Ernest Okoli, Achuwa Okorie
- Pre-Independence- Sina, Kola Osinowo, Shina Yusuf, Dele Jegede Erinmono.
- Ulli movement:
- Auchu School: Salibu Onakufe,Ladimeji Tiri, etc.

- Benin School: Aremu Timo, Iremu Gabriel, Foluso Folorunso, Fred Akpomuje, Ohioma Pogoson David Ajayi.
Yaba School: Michael Omaige
Ife School: Kunle Filani, Moyo Okediji and Akatapo Don.
- Workshop Experience and Apprenticeship
Oshogbo (Jimoh Buraimoh, Muraina Oyelami Olaniyi Twins Seven - seven), Ori -Olokun. Neo - Traditionalist - Lamidi Fakeye, Ladi Kwali and Bisi Fakeye etc.
- * New Trends in Nigerian Modern Art (Western Influences)
 - Contemporary Nigerian artists that experience Western influence in their art and practice.
 - Performing Art: Atiku Jelili
 - Installation Art: Ayo Aina, Ike Francis, Ndidi Dike
 - Conceptual Art: Bruce Onabrakpeya, Yinka Shonibare, Sokari Douglas-Camp.
A study of their academic background, inspiration, themes, media of expression and the type of works they made before breaking away into the present style they practice.

FAA 322

ART EDUCATION V

FOUR ISSUES IN ART EDUCATION

(1 Credit) C

- Understanding Art Therapy with emphasis on Art Education for the exceptional students.
- The talented and gifted students
- Physically handicapped and emotionally disturbed students
- Concepts of creativity and methods of fostering creativity in art class.
- Equipping art room for effective art teaching.
- The role of museums and art galleries in art Education
- Organizations and movements related to Art Education e.g. NGA, NCAC, NSEA, ULI, CORA, ONA, AKA SNA etc.
- Careers in Art Education.

FAA 323

LIFE AND GENERAL DRAWING

(2 Credits) C

- Landscape/seascape drawing using pen and ink and wash media.
- Scenic drawing e.g. buildings, parks, sheds, vocational settings etc.
- Posed models in action.
- Advanced figure drawing, composition, using models in different arrangements.
- Further exercises in portraiture using media other than pencil.
- Drawing of man-made objects e.g. Costumes, umbrella/raincoats, hats, baskets, household items, vocational tools and equipment etc.
- Drawing of posed model based on study of foreshortening.

FAA 324

ADVANCED GRAPHICS

(2 Credits) E

Advanced Designs

Processes of Graphic Reproduction

Designs on posters, packages, illustration, etc, to be reproduced using these methods:

- Block printing
- Screen printing

- Lino cut
- Stencil printing
- Offset lithography
- Etching.

At least a minimum of 3 neat copies of each printing process must be produced by each student within the semester.

- Posters - (products, services, film, information etc).
- Book illustration.
- Security mint designs (currency notes, stamps, cheques, money /postal orders etc).
- Package designs for various goods and products.
- Teaching aids.

FAA 325

- **ADVANCED PAINTING** **(2Credits)E**

- Advanced composition in oil.
- Painting of human figure and portraiture.
 - Imaginative composition.
 - Abstract painting.
- * Emphasis should be on technical proficiency
- Mixed media and mural painting:**
- Experimentation with various materials and techniques e.g. collage, mosaic, photo montage, mixed media (soil, saw - dust etc).
- Mural painting and design - board, wall etc.
- *Emphasis should be on exploration of media and techniques.

FAA 326

- **ADVANCED SCULPTURE** **(2 Credits) E**

- Modeling and casting
- Human figure and bust (portraiture).
- Imaginative composition (Terra cotta).
- Casting- media and techniques (plaster, fibre glass, cement, paper cast).
- *Emphasis should be laid on technical proficiency and development of styles.
- Metal Sculpture:**
- Introduction to welding.
- Assemblage - metal scraps and junks.
- Metal construction - compositional forms.
- Adoption of different techniques in carving, casting and welding using metals, scraps, scrounge, cad and carved forms and found objects.
- *Emphasis should be laid on techniques and compositional arrangement.

FAA 327

- **ADVANCED CERAMICS** **(2 Credits)E**

- Throwing, Firing and Glazing:
- Throwing of utensils and vases - cups, plates saucers, pots etc.
- Nature of glass and glazes glaze preparation.
- Glaze application, firing, glass wares.
- Introduction to Kiln construction.
- Introduction to local firing and glazing techniques.
- * Emphasis should be on throwing technique and technical proficiency.

Pottery, Mosaic, and Decorative Bricks

- Creative ceramics e.g. ceramic pottery, sculptural ceramics
- Mosaic design and decoration - scenes and motifs.
- Production of decorative bricks and tiles.

- Creative ceramics - exploration of forms and materials.
- *Emphasis on creativity and technical proficiency.

FAA 328 ADVANCED TEXTILES (2 Credits) E

- Introduction to Fashion Design:
 - Fashion illustration.
 - Basic dress cutting and sewing.
 - Designing for specific purposes e.g. dress wear, furnishing, fabrics and wrappers, interior decoration.
 - Emblems and badges.
- *Emphasis on creativity and technical skills.

Printing Techniques:

- Block printing, screen printing and other resist printing.
- Introduction to Industrial printing (excursion).
- Experiment with other techniques of decoration.

FINE AND APPLIED ARTS

LIST OF EQUIPMENT AND MATERIALS.

S/No.	Description of items	Quantity
1	Printing/etching machines	1
2	Lino	50
3	Lino cutting sets	3
4	Rollers	3
5	Etching plates	5
6	Sculpture Acid	1 gallon
7	Printing inks	Different colours
8	Graphic enlarger	1
9	Sets of Radiography	2
10	Sets of Calligraphic pens	2
11	Sets of Drawing pens	2
12	Rolls of Cartridge papers	5
13	Rolls of Embossed papers (Different colour)	2
14	Poster Colour (Different Colours)	10
15	Sable Brushes Points 1,2,3,4,5,6,7,8,9,10 etc)	10
16	Letrasets (Different Faces)	10
17	Letratones (Different Textures)	10
18	Air Brush	
19	Atomizer spraying gun	
20	Screen printing inks (Different colours)	
21	Screens, squeegees and frames	
22	White Cloths for sample printing	
23	Computers, scanner, printers and digital photographic equipment	
24	Single reflex camera and tripod stands	
25	Photographic enlarger	
26	Developer Chemicals	
27	Fixative Chemicals	
28	Photo developing bowls.	
29	Photo - printing papers	
30	Photographic drying machine	
31	Photographic films (for black and white)	
32	Black and red khaki cloths	
33	Photo - developing tank	
34	French Curve	

35	Standard workbenches
36	Bench vices (medium and large)
37	Radial drilling machine with accessories
38	Pillar drilling machine with accessories
39	Assorted drills
40	Surface grinder with accessories
41	Power Hacksaw
42	Sanding machine
43	Sledge hammer
44	Punches
45	Leg vice
46	Electric soldering iron (15/45 watts)
47	Pipe cutter
48	Spraying machines with guns
49	Arch welding machine
50	Hand sanders
51	Storing cabinets
52	Racks
53	Tracing tables.
54	Screen Printing table
55	Throne
56	Easels
57	Porter's wheel (Electric)
58	Porter's wheel (Kick)
59	Cabinet Folio
60	Slides (assorted)
61	Hand looms
62	Vertical looms (Upright)
63	Horizontal loom
64	Wood or Gas kiln
65	Steel Rules (300mm)
66	Flat files of assorted grades
67	Round files of assorted grades
68	Meal scrapers
69	Hand hacksaw frames
70	Hacksaw blades
71	Chisels (assorted sizes)
72	Fire extinguishers
73	First Aid box
74	Goggles
75	Measuring tables
76	Head pans
77	Curving gouges (various sizes)
78	Modeling tools (spatulas)
79	Cement modeling knives (metal)
80	Painting knives
81	Drawing boards
81	Glaze and oxide

HOME ECONOMICS (HEC)

1. PHILOSOPHY

The Philosophy of Home Economics Education borders on the improvement of the quality of life of the individual and family, by equipping them with relevant knowledge, attitude and skills for productive and effective life.

It focuses on effective development and utilization resources for meeting goals. It identifies and classifies the roles, aspirations and abilities of each family member as well as determines strategies towards achieving them. It equips individuals for entrepreneurship.

Home Economics is a field of knowledge which draws information and skills from core subject areas of the art, sciences, humanities and other related subjects; through awareness programmes, workshops, seminars, conference, formal teaching and research.

2. OBJECTIVES

The objectives of the programme are to:

- i) Train Home Economics teachers with a sound basis for professional growth and personal development in Home Economics Education who will:
 - a) Exhibit thorough knowledge of job skills and career opportunities in Home Economics.
 - b) Equip students with entrepreneur skills for self employment and self reliance.
 - c) Demonstrate positive human relationship and ability to work with people from diverse socio-cultural background.
- ii) Prepare teachers to qualify them for a post NCE degree programme in Home Economics.

ADMISSION REQUIRMENTS

i) General Admission Requirements

- a) A minimum of Four (4) credits including English and Mathematics (to be achieved at a maximum of 2 sittings) and the other 3 in any of the related areas like Food and Nutrition, Home Management Clothing and Textiles, Chemistry, Physics, Biology, Agriculture, Health Education and Integrated Science.
- b) All applicants to undergo a selection interview.
- c) For candidates wishing to offer courses in Vocational and Technical Education, NABTEB with RSA or City and Guilds Intermediates Certificate coupled with the Federal Craft Training Certificate, credit/merit in at least four subjects, and acceptable as qualifications.
- d) Associateship Certificate in Education awarded by an approved institution in Nigeria or abroad, is also acceptable as qualification.

- e) All candidates wishing to be considered for admission must enroll for and write the selection examination organized by an accredited body such as JAMB.
- f) Successful candidates in the Pre-NCE final examinations who also take and succeed in a selection examination organized by an accredited body and qualified for admission
- g) It should be noted that some colleges may in addition to all of the above administer their own elimination tests and or interviews for some course. This is legitimate. Colleges should also control the number allocated to each programme relative to their total admission quote based on staff and facilities available.

PRE-NCE

This should be restricted to the areas of need with the following conditions:

- a) Students must have a minimum of three (3) credits including the major subject to be studied. Students must have at least a pass in English and Mathematics.
- b) All applicants to undergo a selection interview.
- c) Colleges must seek approval for Pre-NCE courses from NCCE prior to them being offered to students.
- d) Transition from Pre-NCE to NCE I will be dependent upon students achieving at least Grade D in the final examination for Pre-NCE.

ii) Additional Admission Requirements

Qualification

A Senior Secondary School Certificate passes (SSC) or General Certificate of Education Ordinary Level passes in at least five (5) of the following subjects: -

Clothing and Textiles, Food and Nutrition, Home Management, Biology, Physics, Chemistry, Textiles and Fine and Applied Arts, Integrated Science, Economics, Agricultural Science, English, Mathematics, Health Science, Physical and Health Education.

- Candidate must have at least three (3) credits at a sitting, or four (4) credits at two sittings in any of the listed subjects.
- Passes in English and Mathematics are compulsory
- A minimum of a pass or C. grade through Pre-NCE Home Economics programmes.
- A Grade II Teachers Certificate (TCII) with credit passes in three (3) of the subject listed above.
- Certificate in catering, technology and textile designs. Candidates must have gone through Post Primary Education level with a pass in English and credit in two of the subjects mentioned earlier.

4. FACILITIES

Space and Classroom

The Home Economics Department should be planned to serve the anticipated number of students. Theoretical classes should range from 30 – 35 students while practicals range from 15 – 20 student. A space of one square metre per student is recommended.

i. Classroom Requirements

At least 4 large all-purpose classrooms for theory in all areas.

ii. Laboratories

- a). 2-3 large food and nutrition, clothing and textiles laboratories for all levels, NCE I, II and III with equipment and storage facilities.
- b). Laundry laboratory, well equipped with water, heater, washing machines, dry cleaning machines, etc.
- c). Three large connected rooms for child development laboratory with well – equipped instructional materials, storage space, toilets, mini kitchen and one-way glass partition for observation.
- d). Three-bed room house for Home Management Practicum.

iii. Staff Office:

Each Senior Staff should have a comfortably furnished office to himself. There should also be an office for support staff typists and clerks etc. with relevant equipment, e.g. typewriters, reproduction machines computer/printing machine etc.

iv. Books in the Library:

There must be enough books to cover all the areas of the subject to the ratio of one student to ten books, in addition there should be current journals in Home Economics and other related areas.

v. Child Development Centre

- a). Laboratory equipment with seats suitable for pre-primary children.
 - Toys and pictorial books and wall pictures
 - Beds with sheets
 - Mats for playing purposes
 - Outdoor play ground with facilities
 - Tricycles and other game facilities to develop muscles
 - TV/ Video Sets/Nursery Cassettes.

EQUIPMENT NEEDED FOR HOME MANAGEMENT

1. A standard Home Management flat should have the following furnishings;
 - Beds 6
 - Dressing Mirrors 3
 - Chest of drawers 6
 - Bedside cabinets 6
 - Dressing stools 3
 - Upholstery chairs 1 double and 4 single
 - Side stools 6
 - Centre table 1
 - Book case 1
 - Wall – to – wall carpet

- or rug placed in the centre of the living room
- Dining table 1
- Dining chairs 6 – 8
- Side Boards 1
- Refrigerator 1
- Working table 1
- Cooker 1
- A set of trays 2
- A cabinet with shelves 1
- TV/Video Sets/ CD
- Computer
- Overhead Tank
- Washing Machine
- Fridge/Freezer

Note: A four (4) bedroom flat is needed

2). Equipments needed for general cleaning are:

- Brushes – different types and sizes
- Brooms – long and short
- Buckets – Aluminum and plastic
- Mops and mop buckets
- Dust bins and pans
- Big basins
- Watering cans or rubber hose
- Clothing for dusting and mopping
- Vacuum cleaner or carpet sweeper.

3). Cleaning Agents

- Waxes and polishes
- Detergents
- Soaps
- Bleaches
- Scouring powders and solutions
- Chemicals for stain removers
- Starch

4). First aid box and its content are as follows:

- Cotton wool
- Iodine
- Scissors of different sizes
- Analgesic
- Razor blades
- Bandages and plasters
- (5 lint) triangular bandages
- Menthylated spirit
- Salt.
- Gentian Violet

vii. RECOMMENDED EQUIPMENT FOR FOODS & NUTRITION LABORATORY

1) Cooking Equipment

- Tripod stand
- Charcoal Stoves
- Kerosene Stove
- Gas range
- Electric range
- Weighing Scales
- Saltant weighing scales
- Dish washer
- Deep fat fryer
- Food thermometer
- Sealing machine

2) Others

- Clay pots (large and small)
- Large plastic basin for water storage
- Kerosene/gas refrigerator
- Electric refrigerator
- Electric freezer
- Sinks
- Built – in cabinets or cupboards
- Wall cabinets
- Dustbins
- Brooms – short and long
- Mops and mop buckets
- A store with a wall built shelves for storage of some large or small equipments.
- Serving tables and chairs/stool.
- Micro-wave oven

3) Utensils

- Aluminum pots – different sizes
- Aluminum pans – different sizes
- Double boilers
- Pressure cookers
- Baking trays of various sizes
- Serving trays
- Portable electric appliances i.e. blenders, mixers toasters, yam pounder etc
- Grinding stones
- Pestle and Mortar
- Frying pans
- Mixing bowls
- Serving dishes and casserole dishes
- Serving plates
- Egg whisk and beater
- Sieves
- Basins (enamel, metals or plastics)
- Teaspoons

- Dessertspoons
- Frying spoons
- Serving spoons
- Table forks
- Serving spoons
- Table forks
- Frying forks
- Desserts forks
- Paring knives and spoons
- Colanders (metals or plastic)
- Palette knives
- Icing sets
- Bread knives.
- Spatulas
- Wooden spoons
- Rolling pins
- Calabashes
- Pastry and chopping boards
- Roasting pan
- Tea Pot
- Manual grinder
- Tray (plastic, enamel)
- Kitchen cloth, oven cloth, dishcloth, glass cloth oven gloves.
- Drinking glasses
- Steamers
- Electric water purifiers
- Micro-wave oven

viii. Equipment Materials for clothing and textiles

- Hand, treadle and electric sewing machines.
- Cutting tables
- Chairs of appropriate height
- Ironing boards
- Dry and steam irons
- French curves and rulers
- Tape measure
- Variety of notions e.g. sewing and embroidery thread, zips, buttons, laces, braids, ribbon, appliqués pieces
- Fabrics for specific sample specimen
- Variety of scissors: cutting, trimming, embroidery, paper and buttonhole
- Fitting room with full length mirrors
- Brown paper, cardboard sheets, markers, cellotapes and masking tapes etc.
- Microscopes
- Dyes, chemicals and reagents
- Open drums or basin for dyes
- Textiles looms and weaving threads
- Embroidery equipments: one metre ruler, carpenter's square, 18" rulers, 12" ruler, 6" ruler.
- Drawing books
- Crayons

- Water paints
- Candle waxes
- Embroidery machine
- Knitting machine
- Over-locking machine

General equipment

- Seam ripper
- Thimble
- Sewing needles
- Pin-cushion
- Pins
- Tracing wheel and paper
- Stiletto
- Pinking sheers
- Crochet hooks
- Knitting pins
- Tatting pins
- Rug hole
- Hem maker
- Gummed paper
- Dummies or (manikins)

5. PERSONNEL

i). Academic Staff

A minimum of eight (8) academic staff to cover all the five areas and two (2) instructors.

Minimum qualification for lecturers shall be master degree. However, first-degree second-class lower holders can be employed into training position. All teacher/lecturers should hold a minimum teacher qualification of NCE or equivalent.

ii). Support Staff

- i). One department Secretary and one typist/clerical officer
- ii). Four laboratory/technical/attendants
- iii). Two cleaners/messengers

6. MODE OF TEACHING

- a) Practical work in well-equipped laboratory is essential in all Home Economic subject areas for proper development of necessary skills.
- b) For both theoretical and practical lesson, variety of methods will be used, e.g.
 - Demonstration by lecturers
 - Group/panel discussion, other small or large group activities by students
 - Team teaching
 - Individual projects
 - Resource persons should be brought to class occasionally.
 - Video recording of students microteaching to allow self view and assessment after the exercise.

- Field trips and community/home experiences are compulsory.
- Laboratory work is necessary to expose the NCE graduates to the places of work.
- Home Management Residency is required for Home Management theory to be put into practice in a controlled environment and the work supervised by the lecturers.

7(a) GRADUATION REQUIREMENTS

- | | | |
|---|---|--------------------|
| - | General Education component | 30 Credits |
| - | Teaching Practice | 6 “ |
| - | General Studies | 18 Credits |
| | Home Economics components including practical and 16 weeks of SIWES | 64 “ |
| | Total Minimum Credit for Graduation | 118 Credits |

7(b) COURSE COMPONENTS

- i). Foods and Nutrition
- ii). Clothing and Textiles
- iii). Home Management
- iv). Family and Child Development
- v). Home Economics Education.
- vi). Sex Education
- vii). Information Communication Technology (ICT)
- viii). Entrepreneurship Education
- ix). Population Education

7(c) REQUIRED COURSES FROM APPLIED, NATURAL AND BEHAVIOURAL SCIENCES.

- Biology
- Chemistry
- Physics
- Mathematics
- Computer
- Sociology
- Fine and Applied Arts
- Applied Arts
- Agricultural Sciences

These are courses drawn from supporting disciplines to facilitate the study of Home Economics.

8. TEACHING PRACTICE

Every student is required to do Teaching Practice and the Credit earned recorded in EDU 324.

9. PROJECT.

Every student is required to write and submit a project in any Home Economic Education related areas, and the Credit earned recorded in EDU 323.

10. SUBJECT COMBINATION

Home Economics is a Double Major subject and should not be offered in combination with any other subject.

11. COURSES AND STATUS FIRST SEMESTER

COURSE CODE	COURSE TITLE	CONTACT LTP	CREDIT HOURS
VTE 110	Introduction to Vocational and Technical Edu.	1-0-0	1C
HEC 111	Introduction to Home Economics	1-0-0	1C
HEC 112	Introduction to textile Science	2-0-2	2C
HEC 113	Introduction to clothing	1-0-3	2C
HEC 114	Orientation to foods laboratory equipment/tools	2-0-2	2C
HEC 115	Introduction to Home Management	2-0-0	2C
HEC 116	Introduction to Biology	1-0-2	1C
HEC 117	Introduction to mathematics	1-0-0	1C
	Total		12

SECOND SEMESTER			
HEC 121	Pattern drafting and development	2-0-2	2C
HEC 122	Principles and practice of meal preparation	2-0-2	2C
HEC 123	Beverage and drinks, condiment and flavouring	2-0-2	2C
HEC 124	Housing designs and management	2-0-2	2C
HEC 125	Introduction Nutrition	1-0-0	1C
HEC 126	Introduction to Chemistry	1-0-2	1C
HEC 127	Introduction to Economics	1-0-0	1C
HEC 128	Introduction to Physics	1-0-2	1C
	Total		12

YEAR TWO FIRST SEMESTER			
HEC 211	Clothing construction and alteration	1-0-3	2C
HEC 212	Clothing selection and maintenance	1-0-3	2C
HEC 213	The family: Marriage and Family Relationship	2-0-0	1C
HEC 214	Fundamental Nutrition	1-0-3	2C
HEC 215	Personal and Community Health	2-0-0	1C
HEC 216	Meal Management and Service	2-0-3	2C
HEC 217	Hotel and Tourism Education	1-0-3	1C
HEC 218	Pregnancy and Child Development	2-0-0	2C
	Total		13

YEAR TWO SECOND SEMESTER			
VTE 220	Entrepreneurship in Vocational and Technical Education I	1-0-1	1C
HEC 221	Textile Design	1-0-3	2C
HEC 222	Consumer Education	2-0-0	1C
HEC 223	Organisation and Evaluation of Home Economics Curriculum	1-0-0	1C
HEC 224	Principles of Nutrition I	2-0-0	2C
HEC 225	Home Management II	2-0-0	1C
HEC 226	Child Development and Care	1-0-0	1C
HEC 227	Methods of Teaching Home Economics	2-0-0	1C
HEC 228	Research Method in Home Economics	1-0-0	1C
HEC 229	SIWES		2C
	Total		13

YEAR THREE FIRST SEMESTER			
	Teaching Practice		6

YEAR THREE SECOND SEMESTER			
HEC 320	Entrepreneurship in Home Economics Education	2-0-0	2C
HEC 321	Advanced Clothing Design and Construction	2-0-3	2C
HEC 322	Food Preservation	1-0-3	1C
HEC 323	Principles of Nutrition II	2-0-0	2C
HEC 324	Home Management Residence Practicum	0-0-8	2C
HEC 325	Seminar in Home Economics	1-0-0	1C
HEC 326	Child Development Practicum	1-0-0	2C
HEC 327	Applied Nutrition	1-0-3	2C
	Total		14

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COURSE DESCRIPTION

YEAR ONE – FIRST SEMESTER

VTE 110 INTRODUCTION TO VOCATIONAL AND TECHNICAL EDUCATION (1 Credit)

- Definition, scope, philosophy and objectives of vocational and Technical Education.
- Development of vocational and Technical Education in Nigeria.
- The role of vocational and technical education
- Characteristics of vocational and technical education.
- Problems and prospects of vocational and technical education.

- HEC 111 INTRODUCTION TO HOME ECONOMICS EDUCATION (1 Credit)**
- Definition and concepts in Home Economics
 - Philosophy and objectives of Home Economics Education
 - Education and its, relationship to Home Economics
 - History of Home Economics in Nigeria
 - Careers in Home Economics
 - Contributions of Nigerian Home Economists
 - The Roles of the Home Economics Teacher
 - The qualities of the Home Economics Teacher
 - Teacher/student Relationship
 - Relationship of the Home Economics teachers to the Community where the students come from.
 - Relationship of the Home Economics teacher to other College staff.
 - Population change, manpower development and self reliance.
 - Emerging societal issues related to HEC e.g. HIV/AIDS, Drug abuse, human trafficking, environmental degradation, gender issue, women in prison
- HEC 112 INTRODUCTION TO TEXTILES SCIENCE (2 Credits)**
- Definition of Textile Concepts
 - Physical and chemical properties of each of the fibres
 - Identification of fibres by physical, chemical and microscopic tests
 - Basic fabric construction techniques e.g. weaving, knitting, crocheting etc.
 - Construction of fabric woven and non-woven; use of the loom
 - Fabric decoration methods e.g. dyeing, batik, printing
 - Uses of Fabrics
 - Classification and properties of fibres
 - Finishes of fibres and fabrics
 - Yarns and yarn types
 - Chemical, physical and microscopic analysis of different textiles
 - Selection, utilization and care of tools, equipment and other materials for textile production.
 - Field trip to textile industries
 - Making of textile album
- HEC 113 INTRODUCTION TO CLOTHING (2 Credits)**
- Definition of terms e.g. garments, clothing, dress, costumes etc
 - Theories of clothing
 - Social, cultural, economic and psychological aspects of clothing
 - History of Nigerians costumes
 - Selection and care of clothing tools and equipment
 - Basic and decorative stitches on apron, oven mitt (gloves), place mats etc.
 - Effect of social change in fashion trends
 - Good grooming
 - Clothes for different occasions
 - Sewing tools and equipment
 - Use of sewing machines (manipulating, threading etc.)
 - Making albums of sewing techniques such as stitches, seams finishes, edge finishes and other techniques such as, disposal of fullness for clothing construction.

**HEC 114 ORIENTATION TO FOOD LABORATORY, EQUIPMENT & TOOLS
(2 Credits)**

- Attributes of a standard food laboratory
- Kitchen Geometry - Planning and sketching a standard kitchen.
- Major equipment e.g. cookers, refrigerators, freezers etc.
- Utensils/Traditional equipment,
- Demonstration of the use of utensils/equipment
- Kitchen hygiene
- Safety in the kitchen
- Weights and measure
- Preparation for practicals.

HEC 115 INTRODUCTION TO HOME MANAGEMENT (2 Credits)

- Definition of concepts – management, home management, resources, goals, values and standards
- Principles of home management, planning, implementing, controlling, evaluating and decision making in family living to attain goals.
- Resources: Human and non-Human
Principles of selection and utilization of family resources
- Sanitation and Hygiene
- Care of the family house
- Sanitary conditions, drainage, sewage systems and effective disposal of waste; e.g. household waste.
- Household chemicals and their uses.
- Home preparation of abrasives
- Removal of stain from surface and household articles
- Control and eradication of household pests
- Practicals: student should prepare homemade (local) abrasives
- Make an abrasive box which will have all the abrasives well-labelled and bottled.

HEC 116 INTRODUCTION TO BIOLOGY (1 Credit)

The Science of Life

- Characteristics of living and non-living things
- Distinction between plants and animals

The Cell as the basic unit of life

- Simple study of different structure found in cells
- Formation of new cells-mitosis and meiosis

Tissues and organs - sensory organs (structure, function and care.

Unicellular Organisms - simple plants & animals/their characteristic features e.g. Amoeba, Euglena, bacteria, fungi, yeast etc)

Multicellular Animals – Human Body Human physiology and study of different systems e.g. Alimentary canals, Digestive system, Respiratory system, Endocrine system etc. The role of enzymes and hormones should be highlighted.

Control of micro-organisms

Micro-biology of domestic water and sewage (Basic concepts)

Pollution: Types, causes, effects, prevention and control.

HEC 117 INTRODUCTORY MATHEMATICS (1 Credit)

Units of measurements, calculations of areas and volumes

- Definitions of Basic concepts
- Relationship of Maths to Home Economics
- Inter – conversion of units
- Simple simultaneous and quadratic equation
- Arithmetic and geometry progressions
- Elementary trigonometry and co-ordinate geometry
- Graphs
- Ratio of proportion including applied problems.

YEAR ONE SECOND SEMESTER

HEC 121 PATTERN DRAFTING AND DEVELOPMENT (2 Credits)

- Definition of paper pattern drafting concepts
- Tools and Equipment for Pattern Drafting
- Measurement of Body Parts
- How to Measure Body Parts
- Principles involved in taking accurate body measurements
- Flat pattern development through drafting method
- Development of pattern through modeling on a stand
- Developing patterns using draping methods
- Understanding pattern markings and layout
- Development of basic patterns for adult and children's clothing
- Developing patterns using draping methods
- Manipulation of darts.
- Making of album of different patterns constructed

HEC 122 PRINCIPLES OF FOOD PREPARATION (2 Credits)

- The concept of food, food classes etc.
- Fundamentals of meal planning and application of scientific principles of meal preparation e.g. cooking vegetables etc.
- Methods and principles of cooking, including:
 - a) Boiling: eggs yams, rice etc.
 - b) Frying :
 - dry frying e.g. bacon
 - Shallow frying e.g. plantain
 - Deep-frying e.g. yam balls, akara,(bean cake) puff puff
 - c) Baking: cakes, bread, pastry sausage
 - d) Roasting: chicken meat.
 - e) Steaming: Moin-moin
 - f) Broiling: plantain, meat kebab (meat on stick) bacon
 - g) Braising e.g. egg, potatoes etc.
- Project: - recipe album,
- Scientific principles of food preparation e.g. effect of heat on food nutrients.
- Project – recipe album.

HEC 123 BEVERAGES AND DRINKS, CONDIMENTS FLAVOURING, (HERBS) AND SPICES (2 Credits)

- Definition of terms (Beverages, and types nourishing, stimulating refreshing drinks, juice, difference between juices and drinks condiments, flavourings, spices etc)
- Making of fruit and soft drink
- Choice and preparation of tea, coffee, cocoa
- Nigerian beverages, e.g. cocoa drink, plantain drink, kunun zaki etc.
- Types of spice, herbs, flavoring
- Principles underlying the use of spices and flavourings.
- Use of local and foreign herbs and spices in meal preparation
- Presentation and Serving of drinks.
- Projects: - an album or a chart showing spices.
- Field trip to beverage and spice making industries

HEC 124 HOUSING DESIGN AND MANAGEMENT (2 Credits)

- Making simple house plans e.g. 3 bedroom, 2 bedroom etc.
- The concept of House and its uses.
- Meaning and principles of housing design, types and location
- Factors affecting the choice of housing design
- Social, religion, culture, climate, economic, family size and type of materials used in housing construction.
- Principles of organization of space for individual and family activities in personal and rented houses.
- Household crafts
- Interior decoration and production of household decorative items
- Practicals on (project) on decorative pieces for a home

HEC 125 INTRODUCTION TO NUTRITION (1 Credit)

- Definition of Nutrition concept e.g. Nutrient, food nutrition, balance diet, health, malnutrition, under nutrition, over nutrition, deficiency, calories etc.
- Nutrition and health – Global and national organisations dealing with nutrition and their impact on health of individual e.g. FAO, WHO, UNICEF, NAFDAC etc.
- Functions, sources, classification, chemical composition and uses of carbohydrate, protein, fats, vitamin, minerals and water.
- Functions of foods and daily requirements
- Dietary diseases e.g. Pellagra, rickets, etc.
- Healthy Feeding Habits

HEC 126 INTRODUCTION TO CHEMISTRY (1 Credit)

- Nature of matter, elements, mixture and compounds
- Basic treatment of atomic, molecular and ionic theories
- True and colloidal solutions, suspension and emulsion
- Solubility – its advantages and disadvantages
- Physical and Chemical properties of water
- Chemical changes – types occurring in inorganic processes.
- Condition affecting chemical change i.e. equilibrium.
- Catalyst, enzymes action etc.
- Characteristics and significance of metals and non-metals acids, bases and salts

- Basic organic chemistry.
- Relationship of Home Economics to Chemistry

- HEC 127 INTRODUCTION TO ECONOMICS (1 Credit)**
- Introduction to Economics theory: definitions, opportunity cost, scarcity etc.
 - Relationship of Home Economics to Economics
 - Principles of demand and supply of goods and services.
 - Elasticity of demand
 - Production theory and curves
 - Distribution of income, wages, profits, rents and interest, price equilibrium
 - Population impact on demand and supply e.g. family needs.

- HEC 128 INTRODUCTORY PHYSICS (1 Credit)**
- Relationship of Home Economics to Physics
 - A Broad and Elementary treatment of motion, momentum and force
 - Properties of matter
 - Energy and the conversion laws
 - General principles of heat
 - Light, electricity and magnetism
 - Safety of motion and gravity
 - Safety devices

YEAR TWO – FIRST SEMESTER

- HEC 211 CLOTHING CONSTRUCTION AND ALTERATION (2 Credits)**
- Adaptation of basic patterns to develop fashion styles.
 - Alteration of paper patterns to fit body shapes
 - Use of commercial patterns
 - Practicing pattern layout and cutting
 - Free-handing cutting techniques: principles, advantages and disadvantages.
 - Sewing techniques and processes on fastenings, openings, and manipulation of darts.
 - Figure types
 - Development of styles through draping techniques
 - Preparation for cutting and sewing
 - Disposal of fullness
 - Unit methods of construction
 - Construction and modeling of personal apparel and making a baby's dress (boys and girls).

- HEC 212 CLOTHING SELECTION AND MAINTENANCE (2 Credits)**
- Principles of wardrobe planning and clothing selection
 - Family size and clothing needs
 - Factors affecting family clothing choice
 - Methods of meeting family clothing needs
 - Consumer education related to clothing and textiles
 - Laundry agents, processes in home laundry, commercial dry-cleaning and stain removal.

- Renovation and remodeling of clothes
- Repair and maintenance of household articles e.g. bedsheets, curtains, upholstery etc.
- Care of different fabrics
- Field trip to relevant industry e.g. laundry and dry cleaning outfits

HEC 213 THE FAMILY: MARRIAGE AND FAMILY RELATIONSHIP (1 Credit)

Definitions: Family, polygamy, polyandry, polygyny, extended family, single family, Friendship

- Preparation for marriage - mate selection, courtship, engagement etc.
- Types of marriages, marriage ceremony etc.
- Marriage and marital problems
- Roles of family members
- Problems in family relationship.
- Family life cycle and their demands on the family.
- Conflict and conflict resolution strategies
- Family relationships and communication
- Humanity and Religion
- Human Rights and Violation

HEC 214 FUNDAMENTAL NUTRITION (2 Credits)

- Food groups and Food Classes – Description, uses, nutrient composition etc.
 - (i) Staple foods – cereals and cereal products, roots and tubers
 - (ii) Legumes, nuts and seeds
 - (iii) Fruits and vegetables
 - (vi) Meat, Poultry and fish
 - (v) Egg and Egg products
 - (vi) Milk and milk products
 - (vii) Fats and oils
- Sea foods
- Self-dietary analysis and energy expenditure for 3 consecutive days
- Modification of diets
- Practicals on food nutrients

HEC 215 PERSONAL AND COMMUNITY HEALTH (1Credit)

- Definition of Health, factors leading to good health: Good grooming, adequate nutrition, sleep, rest exercise, posture and fatigue
- The Human Body
- Maintaining family health: Safety in the home. preventive measures and adaptation of habits to break the cycles of diseases.
- Health management: Home nursing and simple first aid principles. Identifying practices that lead to ill health in the home.
- Health problems: alcoholism, drug abuse, smoking etc.
- Study of communicable diseases through the air, food, water and contact disease such as HIV/AIDS, and other STDs.
- Reproductive health issues e.g. VVF
- Harmful traditional practices e.g. FGM.
- Students should produce a First-Aid Box with the items

- HEC 216 MEAL MANAGEMENT AND SERVICE (2 Credits)**
- Meal planning and management
 - Methods of purchasing food in quantity
 - Use of left over foods (Rechauffe) and convenience
 - The art of entertainment
 - Introduction to flour mixtures: Batters and doughs, pastry and biscuits, cakes, breads, chin-chin, sandwiches and other snacks
 - Meal service
 - Table appointments and table laying
 - Table manners and hostessing
 - Styles of table service: buffet, cocktail etc
 - Organisation, preparation and serving of various dishes for special occasions e.g. birthdays, end of year get together etc. (appetizers, main meal, deserts).
 - Commercial food preparation e.g. food for sale in restaurants, hotels, and bukateria.
 - Meal Preparation: family meal, special groups (pregnant and lactating mother, children, aged, sedentary)
 - Snack: sandwiches, chin-chin etc.

- HEC 217 HOTEL AND TOURISM EDUCATION (1 Credit)**
- An overview of Hotel and Tourism concepts
 - Relationship of Home Economics and Hotel and Tourism Education
 - Types and classification of Hotels and Tourist centres
 - Processes and procedures in the management of Hotels and Tourist centres.
 - House Keeping Processes
 - Emerging issues in Fast Food outlets
 - Advance production and services of beverages and drinks:
 - i) Alcoholic drinks
 - ii) Non-alcoholic drinks
 - Advance production continental dishes
 - Problems facing Hotel and Tourism in Nigeria
 - Possible solutions to Hotel and Tourism Problems in Nigeria.

- HEC 218 PREGNANCY AND CHILD DEVELOPMENT (2 Credits)**
- Definition of terms i.e. Ovulation, uterus, placenta, zygote embryo etc
 - Pregnancy, Ante natal care – Diet and hygiene in pregnancy
 - Common discomforts and treatment during pregnancy
 - Serious abnormal signs during pregnancy
 - Growth and development of the fetus
 - Preparation for the coming baby
 - Birth of the baby, convalescences from childbirth
 - Fitting baby into the family
 - Growth and development of baby i.e. 0 – 3 months, 3 – 6 months, 6 – 9 months and 9 months to 1 years.
 - Common problems of infancy
 - Inoculation, Vaccination (prevention of illness), hygiene, feeding,
 - Clothing the infant (Baby's layette)
 - Family Planning (child spacing)
 - Consequences of excessive reproduction and health.
 - Sexuality Education

- Resist Printing
 - Different pleating techniques
 - Different tying techniques
 - Knotting
 - Tritik
 - Batik
 - Marbling
 - Stencil
 - Block
 - Brushing
- Piece dyeing
- Discharge printing
- Photochromatic printing etc.
- Maintenance of dyed materials
- Making of fabric designs using different techniques with natural and commercial dyes.
- Making of album depicting various techniques
- Educational visits to textile factories and local dyeing areas

HEC 222

CONSUMER EDUCATION

(1 Credit)

- Concept of consumer education, issues in consumption of goods and services.
- Consumer rights and responsibilities
- Principles of consumer education
- The consumer and the market, consumer agent services e.g. drycleaners, hair dressing services, market surveying and shopping opportunities.
- Consumer goods and services e.g. food, clothing, housing, stock and shares, ICT, banking and utilities
- Population issues in demand and supply (quality and quantity).
- Consumer information sources
- Advertisement and the consumer, the role of mass media
- Ways (principles) of getting the best value of money spent, buying methods e.g. planned buying, impulse habit comparative buying, higher purchase bulk purchase, buying foods in season etc.
- Comparison between commercial and homemade foods in relation to cost, taste, time and nutritional value.
- Consumer issues relating to various areas of Home Economics.
- Government agencies and regulation
- Consumer protection agencies and their roles e.g. NAFDAC, SON, FDA
- Commenting programmes – Cooperative Societies
- Rural population and market economics.

HEC 223

ORGANIZATION AND EVALUATION OF HOME ECONOMICS CURRICULUM

(1 Credit)

- Concept of curriculum
- Curriculum theories
- Sources of curriculum
- Approaches and procedures used in designing Home Economics programmes:
 - Identification of objectives
 - Selection of learning experiences
 - Selection of content
 - Organization of learning experiences and content

- Evaluation
- Components of Home Economics programmes

- HEC 224 PRINCIPLES OF NUTRITION I (2 Credits)**
- Digestion, absorption and metabolism of foods nutrients
 - Fundamental principles of normal nutrition and their application in the selection of adequate diets for individuals and families at different cost levels.
 - Uses of recommended dietary allowances in assessing daily diet.
 - Self dietary analysis and energy expenditure for 3 consecutive days.
 - Energy needs of people at different age groups e.g. pregnant mothers and the elderly.
 - Modification of diets to suit requirements.
- HEC 225 HOME MANAGEMENT II (1 Credit)**
- The concept of resources
 - Classification of resources: Human and non-human
 - Factors influencing the use of family resources and Family Needs
 - Management of:
 - Time
 - Energy (work simplification techniques)
 - Money
 - Facilities
 - Factors contributing to effective money management
 - Budgeting
 - Planning for financial security
 - Creation of wealth – investment (savings, stocks shares)
- HEC 226 CHILD DEVELOPMENT AND CARE (1 credit)**
- Theories of child development: physical, emotional, mental and social development.
 - Types and stages of development – physical, emotional, mental and social.
 - Factors that influence development e.g. heredity, environment
 - Toys and play materials appropriate in child development
 - Techniques in teaching nursery school children and child care
 - Parenting skills (children with special needs)
 - Working with parents and handicapped children
 - Signs of Puberty, Hygiene and Puberty Adolescence
- HEC 227 METHODS OF TEACHING HOME ECONOMICS (1 Credit)**
- An overview of teaching
 - Review of curriculum in relation to instruction
 - Planning – objectives, unit plan, lesson plan etc.
 - Implementing instruction – teaching methods and techniques, instructional material, classroom management, lab. management
 - Teacher and student characteristics
 - Evaluation of instruction – Evaluating the different domains (cognitive, effective and psychomotor) preparation of evaluation instruments data collection etc.

- Teaching as a profession – Roles of TRC
- Micro-teaching

HEC 228 RESEARCH METHODOLOGY IN HOME ECONOMICS (1 Credit)

- An overview of Research Methodology – meaning, importance, types etc.
- Types of Research in Home Economics e.g. such as experimental, behavioural etc.
- Steps in research process:
 - a) Identification of research problems
 - b) Development of research proposal e.g. background, statement of problem, objectives etc.
 - c) Literature Review
 - d) Development of instrument and data collection
 - e) Data Analysis
 - f) Research Report Writing
- Writing research reports and proposal
- Referencing formats
- Descriptive and inferential statistics (APA) style)

HEC 229 SIWES (STUDENT INDUSTRIAL ATTACHMENT) (2Credit)

Student should go for industrial attachment to any canteen/food, clothing industries or nursery schools etc. The industrial attachment is for a period of four months during the long vacation, at the end of second semester of the first year. The students should be supervised by the staff of the department.

YEAR THREE – FIRST SEMESTER

EDU 323	PROJECT	
EDU 311	Teaching Practice	6C

YEAR THREE – SECOND SEMESTER

HEC 320 ENTREPRENEURSHIP IN HOME ECONOMICS EDUCATION (3 CREDITS)

- a) Identification of a business outfit**
 - Conducting Pilot study and feasibility study and writing report.
 - Use of Cosmetics and Deodorants
 - Cosmetic production e.g. body cream, hair cream, rob, deodorant, pomade etc. hair plaiting and dressing. Project: Students should experiment on how to enhance each of the product.
 - Writing a business proposal.
 - Home Consumables:
- b) Foods – Establishing restaurant/snacks and drinks shops**
 - Processing of food like yam flour, beans flour etc.
 - Running of guest house of the college.
 - Production of confectionaries e.g. bread, snacks etc.
 - Production of drinks e.g. Orange, pineapple, Zobo, Kunu, etc.

- Preparing Nutritional/diet foods for different health conditions

c) Clothing and Textile

- Household Crafts e.g. crocheting, knitting, matting, weaving, basket/flower wave making, bread work, leather work, etc.
- Fitted bed-sheet, throw puffs, omitted items (bed spread), appliqué (head and arm rests, patch work etc. Tie dye.
- Making household item through knitting with machine, crocheting etc.
- Batik and printing works, hat making
- Bead work, leather work etc.
- Sewing uniform for students in the college Nursery/Primary school.
- Tailoring/sewing of clothes, for the family
- Fabric design: e.g. Baltic, tie-dye, printing

d) Child Development – Establishing Nursery School/Daycare Centres

- Making of toys (soft toys and others)
- Establishment and management of daycare/Nursery school
- Establishing children store
- Establishing of Toyshop

e) Home Management – Interior Decoration (Hall decoration, office decoration, decoration of funeral parlours etc).

- Event organization
- Flower arrangement
- Gardening
- Production
- Horticulture
- Venue decorator
- Interior decorator
- Gardening
- Animal farming (Poultry, Goat/Sheep/Cow caring
- Hoculture etc.
- Running a guest house e.g. college guests house.

Note: Students should be given projects on any of these items. They should go on field trip and resource persons may be invited.

HEC 321 ADVANCED CLOTHING CONSTRUCTION (2 CREDITS)

- Advanced techniques in clothing design based on elements of design and figure types.
- Advanced techniques in construction: Different collars, sleeves, cuffs, lining, interfacing patch work etc.
- Disposal of fullness – smocking, gathering, shirring etc.
- Construction of garments with difficult fabrics
- Construction of special garments – wedding gowns, children’s (boys and girls party wear, clothing for the vulnerable groups e.g. clothes in pregnancy, toddlers, physically disabled
- Construction of one way designed fabrics, checks and lines
- Construction of embroidered garments.
- Machine embroidery and appliqué work
- Beading, use of sequins etc.

- HEC 322 FOOD PRESERVATION (1 Credit)**
- Food microbiology
 - Food spoilage
 - Food poisoning
 - Food Preservation and conservation to ensure adequate security
 - Role of government in control and food production e.g. NAFDA, SON.
 - Students class project: Production and presentation of local foods ie. marmalade, yoghurt, etc.
 - Role of Home Economics in Food and Nutrition Policy
 - Food security
- HEC 323 PRINCIPLES OF NUTRITION II (2 Credit)**
- Study of nutritional needs of different groups:
Infants, Children, Adolescents, Adults with special needs e.g. vegetarians, pregnant and lactating mothers, Elderly, Invalids and convalescents and nutritional diseases i.e. diabetics, ulcer, hypertension etc.
 - Methods of Nutritional status assessment such as:
 - Dietary analysis
 - Physical/Anthropometric assessment
 - Biochemical test.
- HEC 324 HOME MANAGEMENT RESIDENCE PRACTICUM (2 Credits)**
- Practical experience in management process as a:
- (i) Orientation to Home Management residence experience
 - (ii) Roles and responsibilities of students:
 - Meal Manager
 - House keeper
 - Assistance to (a) and (b)
 - Group leaders
 - (iii) Human relationship skills
 - (iv) Home Nursing practices
 - (v) Simple household repairs and hygiene
 - (vi) Safety practices in the home
 - (vii) Entertainment in the home
 - (viii) The family and care of the family house

Course Requirement

1. Each student should have an opportunity of holding each of the posts during his/her stay in the home management residence.
2. The meal manager and assistant are responsible for menu planning, meal preparation and service. The meals should be nutritionally adequate and cost effective.
3. The housekeeper and assistant are responsible for the general administration of the home. She sees to safety, cleanliness of both the inside and surroundings of the home, hygiene and orderliness in the home.
4. Students should be supervised by the lecturer in charge and scored on the ability to carry out their responsibilities.

5. Students should exhibit the skills acquired in other areas of Home Economics by producing crafts for the home management residence.
6. Students should establish home garden
7. Each group of students should organize a party formal and informal where students exhibit their skill in entertainment at the end of stay in the house.
8. Minimum period of two (2) weeks duration is recommended per group for the practicum.
9. Written report on home management experience by each student.
10. Examination and grading

-	40% for CA for Residence Practicum
-	60% for Final Exam

- HEC 325 SEMINAR IN HOME ECONOMICS (1Credit)**
- Weekly seminar of selected topics based on students interest and teacher guidance using suggested topics from all areas of Home Economics,
 - Orientation of students to presentation formation
 - Students are to select topics from any areas of Home Economics for approval.
 - Topics selected are to be amended and or approved by the teacher in charge.
 - Students are to present their written report work orally and be assessed based on the under listed criteria:
 1. Appearance
 2. Mode of presentation
 - i) Audibility
 - ii) Conformity to set down procedure of report writing e.g. background, statement of the problem, objective/purpose etc. as may be indicated by the teacher.
 3. Comportment
 4. Conclusion

- HEC 326 CHILD DEVELOPMENT PRACTICUM (2 Credits)**
- Introduction to nursery school setting
 - Experience in nursery school.
 - Develop a check-list for observation
 - Observe the play, facilities and instructional materials on the children's development in the following areas:
 - Intellectual
 - Social
 - Moral
 - Physical
 - Emotional
- A written report on the experience (A whole semester)

Note:
 The department should have a one-way observatory for observation in the nursery school established by the department but funded by the institution

- HEC 327** - **APPLIED NUTRITION** (2Credits)
- Study of foods and food habits of people of different groups
 - Knowledge of different customs, traditions and ceremonies to appreciate the historical background of some traditional Nigerian dishes.
 - Disorder of malnutrition – protein – calorie - malnutrition
Deficiency diseases as:
 - a) Nutritional anaemia
 - b) Obesity
 - c) Rickets and osteomalacia
 - d) Keratomalacia
 - Keratomalacia and xerophthamia discussion should include description, prevention and dietary treatment.
 - Quantitative and qualitative analysis of food requirement of subject of these disorders.
 - Nutritional education/communication.
 - The Role of Nutrition in infection such as HIV, TB, Measles

Note:

Each year the department should carry out an exhibition during which items produced by the department will be exhibited. This could also include a fashion parade of the things made. (Tickets could be sold to invitees and this will generate funds for the department).

TECHNICAL EDUCATION

1. PHILOSOPHY

The philosophy of this program, NCE (Technical) is to provide technical teachers with the intellectual and professional background adequate for teaching technical subjects and to make them adaptable to any changing situation in technological development not only in the country but also in the world at large.

2. OBJECTIVES

The objectives of the program shall be:

- To produce qualified Technical Teachers and Practitioners of technology capable of teaching Basic Technology in the Junior Secondary Schools.
- To produce Technical NCE Teachers who will be able to inculcate Scientific and Technological attitudes and values into the Society.
- To produce qualified Technical Teachers motivated to start the so much desired revolution of Technological development right from the Nigerian Schools.
- To prepare Technical Teachers so as to qualify them for a POST – NCE degree program in Technical Education.

3. i) GENERAL ADMISSION REQUIREMENTS

- a) A Senior Secondary School Certificate SSC or G.C.E 'O' Level with credit passes in 4 subjects including English Language, and Mathematics in the same sitting or four Credits at two sittings. Two of the credits must be relevant to the course the candidate wishes to study. Credit in English and /or Mathematics may be required.
- b) A Grade II Teacher's Certificate (TCII) with credit or merit in three subjects, two of which must be relevant to the course the candidate wishes to offer. Credit/merit in English Language and/or Mathematics may be a requirement.
- c1) For candidates wishing to offer courses in Vocational and Technical Education, NABTEC, NBC, NTC (with at least 4 credits which must include Mathematics, English and 2 other relevant subjects) R.S.A or City and Guilds Intermediate Certificate with credit/merit in at least four subjects, are acceptable qualifications.
- d) Associate-ship Certificate in Education awarded by an approved institution in Nigeria or abroad, is also an acceptable qualification.
- e) Successful candidates in the Pre-NCE final examination who also take and succeed in a selection examination organized by an accredited body would also be qualified for admission.
- f) All candidates wishing to be considered for admission must enroll for and write the selection examination organized by an accredited body such as JAMB.

- h) It should be noted that some colleges may in addition to all of the above administer their own elimination tests and/or interviews for some courses. This is legitimate.

RELEVANT SUBJECTS FOR TECHNICAL EDUCATION

ii) **SPECIFIC/COURSE ADMISSION REQUIREMENTS**

In addition to the general admission requirements, candidates wishing to offer Technical Education must have credits at SSCE/NECO/NABTEC level in two relevant subjects required for Technical Education include the following: Mathematics, Physics, Chemistry, Technical Drawing, Applied Electricity, Basic Electronics, Auto Mechanics, Woodwork, Metalwork and Building Construction.

OR

- C2 WAEC Technical Certificate or equivalent in Technical Trades plus Federal Craft Certificate (FCC) with at least credits in four academic subjects including: Mathematics, Science, English Language and Social Studies.

4. **FACILITIES (Space & Equipment)**

An Institution offering NCE (Technical) Programme should provide unit workshops in each given area of specialization and equip them in accordance with the required list of equipment. In addition, the institution should provide Technical drawing Studio, separate integrated Workshop equipped with Standard Basic Technology equipment similar to that which is supplied to the Secondary Schools.

5. **STAFF OFFICES**

Each Senior Staff should have a comfortably furnished office. There should also be an office for support staff (Typist, Clerks) with relevant equipment e.g. Typewriters/Computers and Reproduction Machines etc. and for Deans and H.O.Ds should have a supporting staff

6 **LIBRARY**

There must be enough books, and modern electronics materials in the Library to cover all the areas of the subjects to the ratio of one student to ten books.

7. **PERSONNEL**

The minimum teaching and technical support staff for a class of 15 students for each major area of specialization should include:

- 1 Lecturer
- 1 Instructor
- 1 Workshop Attendant/Workshop Assistant.
- 1 Store – keeper
- 1 Cleaner

There should be a minimum of 8 Lecturers, Comprising, 1 specialist per discipline and 3 others.

8. a) **Lecturers**

The Minimum qualification for a lecturer shall be:

- i) B.Ed/B.Sc. in Industrial, Vocational and Technical Education with at least a Second Class Lower

- ii) B.Sc. Engineering Technology with at least a second class lower plus an evidence of teaching qualification such as PGDE; PGDTE; NCE.

b) Instructors/Technologists

- i) HND with at least a lower credit pass plus teaching qualification such as TTC, PGDE or PGDTE; NCE.
- ii) FTC or ANTC or C & G final with teaching qualification

9. MODE OF TEACHING

The mode of teaching of Technical Education subjects would be by lectures, tutorials, laboratory work/practical as deemed appropriate for each course.

10. GRADUATION REQUIREMENTS

Education	=	30 hrs
General Studies	=	18 “
Teaching Practices	=	6 “
Technical Education	=	<u>64 “</u>
Total	=	<u>118</u>

TOTAL CREDITS FOR GRADUATION SHALL INCLUDE:

Education	=	30 hrs
General Studies	=	18 “
Teaching Practices	=	6 “
Technical Education	=	<u>64 “</u>
Total	=	<u>118</u>

10. TEACHING PRACTICE

Every student is required to do teaching practice and the credit is recorded under Educ. 324 (6 credits)

Supervised student Teaching Practice at a Junior Secondary School level should be arranged by the institution at convenient intervals. The student teacher should teach Introductory Technology.

11. PROJECT IN EDUCATION

Every student is required to write a project in Technical Education or Education and the credit is recorded under Education 323 (2 Credits)

12. SUBJECT COMBINATIONS

All students admitted into the NCE (Technical) Programme would offer all the courses listed in the first and second year. Student will choose an area of specialization in the third year selected from the following.

- a) Automobile Technology.
- b) Building Technology.
- c) Electrical/Electronics Technology.
- d) Metalwork Technology.
- e) Woodwork Technology.

13. **STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)**
 A student is required to go for an industrial attachment in a relevant Engineering firm for work experience. Such attachment should be arranged during the long vacation towards the end of the second year for a duration of 16 weeks.

The objectives of the Student Industrial Work Experience Scheme (SIWES) are:

1. To introduce the student to the Industry.
2. To expose the students to the operation and use of industrial machinery.
3. To acquaint the student with the management structures of industrial organization and
4. To develop good work habit

14. **COURSE OUTLINE**

100L FIRST SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L-T-P	CREDITS
VTE 110	Introduction to Voc./Tech. Education	1-0-0	1C
TED 111	Introduction to Metalwork	1-0-2	1C
TED 112	Introduction to Woodwork	1-0-2	1C
TED 113	Introduction to Electricity/Electronics	1-0-3	2C
TED 114	Introduction to Building Construction	1-0-3	2C
TED 115	Introduction to Automobile Technology	1-0-3	2C
TED 116	Fundamentals of Technical Drawing	1-0-2	1C
TED 117	Applied Mechanics.	1-0-2	2C
MTH118	Algebra	2-0-0	1C
	TOTAL:		13C

100L SECOND SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
TED 121	Sheet metal (work) fabrication and welding	1-0-3	2C
TED 122	Wood Technology	1-0-3	2C
TED 123	Magnetism and Electro Magnetism	1-0-3	2C
TED 124	Building Science/Material Technology	1-0-2	1C
TED 125	Auto Mechanics I (Transmission System)	1-0-2	1C
TED 126	Descriptive Geometry/Pictorial Drawing	1-0-2	1C
TED 127	Fluids	1-0-2	1C
MTH 128	Calculus	1-0-0	1C
PHY 123	Mechanics and Properties of matter	2-0-0	2C
	TOTAL		13 C

200L FIRST SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
TED 211	Foundry and Forging	1-0-3	2C
TED 212	Machine wood working 1 woodworking	1-0-3	2C
TED 213	Construction Methods 1	1-0-2	1C
TED 214	Auto Braking, Suspension and Steering Systems.	1-0-3	2C
TED 215	Graphics	1-0-3	2C
TED 216	Heat Engines	1-0-2	1C
TED 217	Auto Electrical System, repairs and computer	1-0-3	2C
PHY 111	Introduction to Physical Chemistry	2-0-0	2C
	TOTAL:		14C

200L SECOND SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
VTE 220	Entrepreneurship in VTE I	2-0-0	1C
TED 221	Machine shop practice I	1-0-3	2C
TED 222	Woodwork Design, Construction and Finishing	1-0-2	2C
TED 223	Electrical and Electronic Devices	1-0-3	2C
TED 224	Elementary Structural Design	1-0-3	2C
TED 225	Automobile Engine	1-0-2	1C
TED 226	Electrical/Electronics Drawing	1-0-2	1C
TED 227	Special Methodology	1-0-0	1C
TED 228	SIWES		2 C
	TOTAL:		14C

NOTE: - All courses at 200 level are compulsory

300L FIRST SEMESTER

EDU 323	Project	
EDU 311	Teaching Practice	6C

AUTOMOBILE TECHNOLOGY 300L SECOND SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L-T-P	CREDITS
VTE 320	Entrepreneurship in Vocational and Technical Education II	1-0-3	2C
TEA 321	Auto Workshop Practice II	1-0-3	2C
TEA 322	Auto Mechanics II (Fueling and Air Condition System)	1-0-3	1C
*TEA 323	Practical Project	1-0-6	2C
TEM 324	Mechanical Engineering Drawing	1-0-2	1C

TEA 325	Maintenance and Repairs of Mechanical Equipment.	1-0-2	1C
TEA 326	School Workshop Management	2-0-0	1C
TEA 327	Vehicle driving	0-0-1	1C
TEB 328	Building Drawing	1-0-3	2C
	TOTAL:		13C

**BUILDING TECHNOLOGY
300L FIRST SEMESTER**

TEACHING PRACTICE	6C
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**BUILDING TECHNOLOGY
300L - SECOND SEMESTER**

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
VTE 320	Entrepreneurship in Vocational and Technical Education II	1-0-0	1C
TEB 321	Land Surveying	1-0-2	1C
TEB 322	Construction Methods II	1-0-2	2C
TEB 323	Practical Project	1-0-6	2C
TEB 324	Building Drawing	1-0-2	2C
TEB 325	Building Maintenance/Repairs	0-0-2	1C
TEB 326	School Workshop Management	2-0-0	1C
TEB 327	Construction Management	2-0-0	2C
TEM 328	Mechanical Drawing	1-0-2	2C
	TOTAL:		12C

**ELECTRICAL/ELECTRONICS TECHNOLOGY
300L FIRST SEMESTER**

Teaching Practice	6C
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**ELECTRICAL/ELECTRONICS TECHNOLOGY
300L SECOND SEMESTER**

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
VTE 320	Entrepreneurship in Vocational and Technical Education II	1-0-0	1C
TEE 321	Electrical Machines and Power	1-0-2	1C
TEE 322	Telecommunications	1-0-2	2C
TEE 323	Electrical Circuits and Electrical Measuring Instruments	1-0-2	1C
TEM 324	Practical Project	1-0-6	2C
TEE 325	Mechanical Engineering Drawing	1-0-3	2C
TEE 326	Maintenance and Repairs of Electrical Equipment.	1-0-2	1C
TEE 327	School Workshop Management	2-0-0	1C
TEE 328	Digital Electronics	2-0-0	2C
TEB 324	Building Drawing	1-0-3	2C
	TOTAL:		15C

METALWORK TECHNOLOGY – 300L FIRST SEMESTER

Teaching Practice	6C
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METALWORK TECHNOLOGY- 300L SECOND SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
VTE 320	Entrepreneurship in Vocational and Technical Education II	1-0-0	1C
TEM 321	Machine Shop Practices II	1 0 3	2C
TEM 322	Advanced Fabrication & Welding	1 0 3	2C
TEM 323	Practical project		2C
TEM 324	Mechanical Drawing	1 0 3	2C
TEM 325	Maintenance and Repair of Mechanical Tools and Equipment	1 0 6	1C
TEM 326	School Workshop Management	2 0 0	1C
TEB 324	Building Drawing	1 0 3	2C
	TOTAL:		13C

EDU 311	Teaching Practice	6C
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WOODWORK TECHNOLOGY- 300L SECOND SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
VTE 320	Entrepreneurship in Vocational and Technical Education II	2-0-0	1C
TEW 321	Design, Rehabilitation of woodwork items and upholstery	1 0 3	2C
TEW 322	Machine Woodworking II	1 0 3	2C
TEW 323	Practical project	1 0 6	2C
TEB 324	Building Drawing	1 0 3	2C
TEW 325	Maintenance and Repair of Woodwork Equipment and items	0 0 3	1C
TEW 326	School Workshop Management	2 0 0	1C
TEM 324	Mechanical Engineering Drawing	1 0 3	2C
	TOTAL:		13C

NOTE:

In the third year, a student may specialize in one of the following areas depending on his/her previous performance/interest provided he/she makes an average grade of 'C' (minimum) in all the courses in the chosen area of specialization.

1.
 - i) Automobile Technology
 - ii) Building Technology
 - iii) Electrical Electronics Technology
 - iv) Metalwork Technology
 - v) Woodwork Technology

2. **FOR THE THIRD YEAR COURSES**, codes are used for the various areas of specialization as indicated below
 - j) TEA – Automobile Technology
 - k) TEB – Building Technology
 - l) TEE – Electrical/Electronic Technology
 - m) TEM – Metalwork Technology
 - n) TEW – Woodwork Technology

NOTE: C = Compulsory
E = Elective

COURSE DESCRIPTION

100L – FIRST SEMESTER

VTE 110 INTRODUCTION TO VOC. AND TECH. EDUCATION (1 Credit)

- Definition, scope, philosophy and objectives of Vocational and Technical/Technology Education
- Characteristics of Vocational and Technical /Technology Education
- Development of Vocational Technical/Technology Education in Nigeria
- The Role of Vocational and Technical/Technology Education in National Development
- Vocational and Technical/Technology Education Organisation, Clubs, Agencies etc.
- The place of V.T.E. in Universal Basic Education (UBE) Vocational and Technical/Technology Organisations, Club Agencies etc.
- Problems and prospects of Vocational and Technical/Technology Education
- **Career Prospects and Opportunities in Technology**
- Technology related careers : Mechanical, Electrical, Civil, Building, Production, Automobile, Computer and Chemical Engineering etc.
- Employment prospects.

TED 111 INTRODUCTION TO METALWORK (1 Credit)

- Occupations in the Metal Industry
- General Workshop safety rules and regulations
- Metals – their properties and uses
- Production of Iron and Steel
- Ferrous and non-ferrous metals, plain carbon steels
- Basic hand tools:-
- Measuring and marking out tools

- Cutting and striking tools
- Holding devices, drilling, screw, rivets and their applications.
- Limits and fits
- Production of simple engineering components
- Finishing of metal products
- Production of simple engineering components e.g. key holder, spanners, bolt and nuts.
- **First Aids and Materials**
- First Aid Box and Materials
- Application of Simple First Aid

TED 112 INTRODUCTION TO WOODWORK (1Credits)

- Workshop Environment and Personnel
- Workshop Safety Rules and Regulations
- Classification of hand tools and uses
- Tree growth
- Conversion and seasoning of timber.
- Hand tools and their classifications
- Preparation of stock using hand tools
- Types and construction of woodwork joints
- Career in wood work industry

TED 113 INTRODUCTION TO ELECTRIC/ELECTRONICS (2Credits)

Objectives: At the end of this course the students should be able to:

- Observe safety
- State the sources of electricity
- Explain electrical components and tools
- Carry out simple electrical wiring.
- Introduction to Electrical safety and basic tools
- Structure of matter
- Electromotive Force (EMF) and potential difference (P.D) Sources
- Electrolysis (i.e. effect of Electrical Current in liquid)
- Application of Electrical measuring instruments
- Resistors (Types, colour coding resistivity/resistance due to change in temperature, resistance calculation using $R = \rho L / A$)
- Capacitors (Structure, Types, calculation of Energy stored in a capacitor, capacitance definition and unit)
- Ohm's law
- Capacitors in series and parallel
- Resistors in series and parallel
- Electrical power and Energy (differences, power dissipated in electrical circuits or local conversion of Energy)
- Simple domestic Electrical Installations (including series/parallel wiring and two way switching control).
- The IEE wiring regulations applicable to simple installation and power distribution.
- Electrostatics and Electronics devices
- Career in Electrical/Electronics industry

TED 114 INTRODUCTION TO BUILDING CONSTRUCTION (2 Credits)

Specific Objectives:

- Identify common forms and general designs, features of various types of buildings
- Enumerate variety of trades, professions and interest normally involved in the construction of building
- List uses of common building tools and equipment
- State safety regulations governing the construction of building in Nigeria
- Identify building components and their functions (e.g. types of foundations, walls, floors and roofs)
- List functions and types of windows and doors (including iron monger)
- Have ideas about career in building industries.
- Common forms and general design features of various types
- Variety of trades, professions and interest normally involved in the construction of building.
- Uses of common building tools and equipment
- Safety regulations in the building industry
- Standard and Regulations governing the construction of building in Nigeria
- Building components and their functions (e.g. types of foundations, walls, floors and roofs).
- Functions and types of windows and doors (including iron mongery).
- Career in Building Industries

TED 115 INTRODUCTION TO AUTOMOBILE TECHNOLOGY (2 Credits)

Specific Objectives:

- Identify the components of a vehicle
- Identify different types of engine
- State the principles of S.I., C.I. engines and gas turbine
- List the different career in Auto Industry
- Auto body and Chassis: purpose, types and functions of frame and construction of various vehicle layouts.
- Engine: different types and parts of engines and their functions
- The working Principle of Compression Ignition (CI) engine
- The Principle of operation of Wankel and rotary engine
- Advantages and disadvantages of Wankel and Rotary engines
- The working principle of spark Ignition Engine
- The principle of operation of the gas turbine engine
- The advantages and disadvantages of the gas turbine engine over conventional engine.
- Career in Automobile industries

TED 116 FUNDAMENTALS OF TECHNICAL DRAWING (1 Credits)

- Graphics Languages.
- Drawing equipment/instruments, materials and setting out.
- Lettering
- Geometrical Constructions eg. Ellipse, Loci. polygons, angles, triangles, reduction and enlargements
- Introduction to Orthographic/Pictorial Drawing.
- Dimensioning.
- Construction and use of plane and diagonal scales and scale drawing
- Career in Drawing industries

TED 117 APPLIED MECHANICS (2Credits)

- Friction
- Vectors
- Dynamics
- Units and types of energy/power
- Flywheel
- Machines, Gears systems and machine calculations
- Air Flow**
- Speed and pressure relationship in airflow
- Variation of air pressure and air speed with application to lift and drag windmills.

MTH 118 ALGEBRA FOR TECHNICAL EDUCATION (1 Credit)

- The theory of indices
- The theory of Logarithms
- Partial Fractions
- Theory of quadratic equations
- Complex numbers
- Algebra and complex numbers
- Argand and complex numbers
- Binary operations

100L SECOND SEMESTER

TED 121 SHEETMETAL, FABRICATION AND WELDING (2 Credits)

- Properties and uses of sheet metal (including treatment and gauge classification).
- Sheet metal work tools and Equipment
- Simple pattern development and production
- Simple sheet metal joints (e.g. seam etc.)
- Introduction to gas and arc welding
- Soft soldering, brazing and bronze welding
- Fabrication processes (i) and (ii)

TED 122 WOOD TECHNOLOGY (2 Credits)

Specific objectives:

Students should be able to:

- Identify defects and diseases in timber
- list various properties of timber
- Enumerate various Nigerian and West African timbers
- Define and list various types of manufactured Boards
- Apply simple wood work technology design principles
- Identify different ornamental wood working e.g. wood carving
- Enumerate different fasteners and fittings
- Identify different types of wood adhesives
- Apply design principles in the construction of wood work joints
- Defects and diseases in timber
- Properties of timber
- Nigerian and West African timbers
- Manufactured Boards
- Design Principles
- Ornamental wood working eg. Wood carving
- Fasteners and fittings
- Adhesives
- Design Principles and Construction

TED 123 MAGNETISM AND ELECTROMAGNETISM (2 Credits)

Objectives

At the end of this course, the students should be able to:

- Define concept of magnetism and electromagnetism
- Explain the application of electromagnetism i.e. motors, generators.
- Magnetism
- Electromagnetism
- Electromagnetic induction
- Temporary and permanent magnet
- Characteristics of magnetic lines of force
- Relationship between magnetic field strength and magnetic flux density
- Laws of electro-magnetic induction, Faraday's laws, Lenz's law, Fleming's right and left hand rule
- Force on a current – carrying conductor in a magnetic field
- Practical applications of electromagnetic induction, electric bell, relay, moving coil meters, transformers, generators and motors/energy conclusion
- Magnetic flux and magnetic circuits
- Permanent and relative permeability
- Magnetic curves and BH curves
- Resistance and magnetic circuits

TED 124 BUILDING SCIENCE AND MATERIALS TECHNOLOGY (1 Credit)

Specific Objectives:

Students should be able to:

- List various classification, properties and uses of rocks, stones and soils in the building industry
- Enumerate properties and uses of clay soil classification in the building industry
- State properties, constituents, production and uses of concrete (including slump, compacting factor tests, cube test, silt and organic impurities test)
- Identify materials used in building industry such as: wood, metals, ceramics, plastics rubber and glass
- List types/properties and application of mortar for plastering and rendering
- State different types/properties/uses of bituminous materials, putties and mastics
- Enumerate the different types, properties and application of painting in the building industry
- Summarise the production of cement, types and its uses in the building industry
- State method of determination and control of light, sound and thermal properties in building enclosures.
-
- Classification, properties and uses of rocks, stones and soils in the building industry.
- Properties and uses of clay soil classification in the building industry.
- Properties, constituents, production and uses of concrete (including slump, compacting factor tests, cube test, silt and organic impurities test).
- Identification of materials: woods, metals, ceramics, plastics rubber and glass.

- Types/properties and application of mortar for plastering and rendering.
- Types/properties/uses of bituminous materials, putties and mastics
- Types, properties and application of paints in the building industry
- Production of cement, types and its uses in the building industry
- Methods of determination and control of light, sound and thermal properties in building enclosures

TED 125 AUTO MECHANICS I (TRANSMISSION SYSTEM) (1Credit)

Specific Objectives:

- State the operation of clutch assembly transmission system
- Identify the components of the final device
- Carry out repairs on the stated component
- The practical function of the clutch assembly and its principle of operation
- The principle of operation and the mechanism of the transmission system as they relate to the gearbox, e.g. manual gearbox, semi automatic gearbox.
- The operation of the final drive, removal and replacement of rear axle assembly
- Automatic gearbox
- Principles of overdrive
- Universal joints types and operations

TED 126 DESCRIPTIVE GEOMETRY/PICTORIAL DRAWING (1Credit)

Specific Objectives:

- State the operation of clutch assembly transmission system
- Identify the components of the final drive
- Carry out repairs on the stated components
- Fundamentals of descriptive geometry
- Surface development
- Intersection of solids
- Pictorial drawing (Rendering, Oblique, Isometric)
- Orthographic projection

TED 127 FLUIDS MECHANICS (1 Credit)

- Surface tension, cohesion and adhesion
- Pressure (definition and types)
- Pressure in fluids
- Buoyancy and flotation
- Speed & Pressure (Inter-relationship in fluid motion)
- Types of flow
- Application of fluid mechanics principles
- Friction

MTH 128 CALCULUS (1 Credit)

- Differentiation from the first principles and the derivation formula $d/dx (ax^2) = 2ax$ i.e. $y = ax^2$ for the differential coefficient.
- Gradients and function
- The differential coefficient as a gradient of a function of point
- Differentiation of product and quotient
- The chain rule and the functions of a function
- Integration as a reverse process of differentiation

- Application of Integration in determining areas and volumes of solids revolution and solution of other problems.
- PHY 123 MECHANIC AND PROPERTIES OF MATTER (2 CREDITS)**
- Quantities, Units and Dimensions
 - Fundamental and Derived Quantities (Mass, Length, Time, Current, Temperature, Luminous Intensity and amount of substance).
 - Fundamental and Derived Units
 - Dimensions – Dimensional equations and their uses
 - Vectors
 - Scalar and Vector Quantities
 - Vector components
 - Addition and subtraction of Vectors
 - Composition and Resolution of Vectors
 - Vectors and Scalar products
- Motion**
- Displacement, Velocity and Acceleration
 - One, Two – dimensional motions
 - Relative Velocity
 - Projectiles
- Newton’s Law of Motion**
- Force and Inertia, Friction
- Momentum**
- Definition
 - Newton’s Second Law; $F = ma$
 - Law of Conservation of linear momentum
 - Collision
- Energy Work and Power**
- Concepts of Energy/Work and Power
 - Conservation of Energy
- Statics**
- Equilibrium of forces – Moments, Couples
 - Statics Equilibrium – Stable, unstable and Neutral
 - Triangle and Polygon of Forces
 - Centre of Gravity (CG) and centers of Mass
- Elasticity**
- Modulus of Elasticity
 - Young’s shear and Bulk module
 - Poisson’s ratio
- 200L FIRST SEMESTER**
- TED 211 FOUNDRY & FORGING WORK (2Credits)**
- Safety and operational rules in foundry
 - Types of metal casting processes
 - Foundry tools, devices and furnaces
 - Pattern and core making
 - Sand mould making and casting
 - Melting and casting operations
 - Knocking and finishing operations

- Principles of steering operations
- duplication.

Entrepreneurial theory; Venture growth, opportunity recognition and exploitation.

Types of risks and their management; conditions for establishing a business: forms of business ownership

Business and Technology – issues and problems.

Financing business – new and old, including innovation techniques

Business finance and funding institutions; site selection and location of a business; business environment.

TED 221 MACHINE SHOP PRACTICE I (2Credits)

- Safety precautions in machine shop
- Drilling machines – types and operations
- Power saws – types and operations.
- The features and working principles of centre lathe
- Turning between centres
- Heat treatment
- Drill and lathe tool sharpening
- Taper Turning
- Screw cutting on the centre lathe
- Turning of circular and eccentric components
- Cutting fluids – coolants and lubricants
- Components production.

TED 222 WOODWORK DESIGN, CONSTRUCTION AND FINISHING (2Credits)

Specific Objectives:

Students should be able to:

- List types of construction e.g. carcass, stool and framed construction
- State the purpose and types of finishing
- Enumerate the need for safety precautions in finishing
- State the process of preparation of surface for finishing
- Demonstrate creative and decorative designs (carving, wall paneling, doors, architectures, skirting boards, inlaying marquetry, parquetry etc).
- Types of construction e.g. carcass, stool and framed construction.
- Purpose and types of finishing
- Safety precautions in finishing
- Preparation of surfaces for finishing.
- Creative and decorative designs (carving, wall paneling, doors, architraves, skirting boards, inlaying marquetry, parquetry e.t.c.)

TED 223 ELECTRONIC AND ELECTRONIC DEVICES (2 Credits)

Objectives:

At the end of the course the students should be able to:

- Define and explain the concept of thermionic emission process and vacuum tubes
- Explain various semiconductor devices and their applications
- Explain the concept of ICT
- Semi-conductor devices
- Thermionic Emission Process (Bipolar, transistors, FET, Thyristor, Semi-conductor diodes).
- Logic gates and circuits
- Electronic transistors and amplifiers
- Oscillation and Oscillators
- Introduction to computer and computer devices

Information and Communication Technology (ICT)

- Analogue and digital Communication system
- Meaning and nature of ICT process
- Schematic diagram of GSM transmission system
- Meaning of internet and its process
- Internet equipment and transmission process
- Merits and demerits of the internet

TED 224 ELEMENTARY STRUCTURAL DESIGN (2 Credits)

Specific Objectives:

Students should be able to:

- State the theory of structure
- State considerations in the choice of building materials
- Determine the differences between stress and strain
- Solve problems relating to shear free and bending memoments.
- Theory of Structures
- Choice of building materials
- Stress - strain
- Shear force and bending moments

TED 225 AUTOMOBILE ENGINE (1 Credit)

Specific Objectives:

- Identify different components in an engine
- State the difference between C.I & S.I engines
- State the function of lubrication system and identify components of indicator system
- State the function and major components of coding system
- Carry out repairs on engine Inst. System and cooling system
- Engine: sketch and explain engine components and types
- The Internal Combustion processes in the SI and CI engines
- Explain differences in construction and materials used for both spark ignition (SI) and compression Ignition (CI) engines.
- Lubrication systems:
- Oil Filters, oil pressure gauge and pressure relief value
- Methods used in supplying oil to the engine working parts.
- Cooling system:
- Explain construction, type and working principles of components parts of water-cooled engine e.g. radiator pressure caps, water pump etc.

TED 226 ELECTRICAL/ELECTRONICS DRAWING (1 Credit)

Objectives

- At the end of the course students should be able to:
- Identify various electrical/electronics symbols and drawings
- Interpret and convert circuit diagram to block diagrams and vice-visa
- Draw wiring diagrams for domestic building and school workshop
- Assembly drawings of Electrical/Electronic equipment to BS/N50 engineering practice requirement
- Sectional drawings of electrical equipment e.g. motor single phase Transformer
- Electrical Electronic diagrams – common use: Single line, Schematic, Block diagram connection (wiring) and interconnection diagram
- Conversion of CCT diagram to block diagram and vice-visa
- Wiring diagram for domestic building and School Workshop

- Electrical/Electronic symbols
- Electrical/Electronics diagram to include schematic point to point, base line diagram, high way diagram.
- Single line, schematic, block diagram connection (wiring) and interconnection diagram.
- Simple electronic circuit and logic diagram e.g. basic power supply, single stage amplifier, culprits oscillators etc.
- Blue print reading

TED 227 SPECIAL METHODOLOGY (1 Credit)

- Problems of Technical Education Teachers in developing Countries
- Special approaches to the teaching of Technical Education subjects
- Lesson planning and presentation
- Teaching Aids & (Use of Improvisation)
- Assessment and evaluation techniques, systems observation process evaluation and product/work sample ratings.

TED 228 SIWES (2 Credits)

A student is expected to go for an industrial attachment in any Engineering firm for work experience. The attachment is normally during the long vacation at the end of the second year for a duration of 16 weeks. Supervision of the students should be by the participating departments.

- 1) To acquaint the student with the industrial sector
- 2) To expose the student to heavy machineries
- 3) To make the student understand the management of work

300L FIRST SEMESTER

EDU 311	Teaching Practice	6C
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**AUTOMOBILE TECHNOLOGY- 300L
SECOND SEMESTER**

VTE 320 ENTREPRENEURSHIP IN VTE II (2 Credits)

- Management and administration of small and medium businesses
- The future of business and succession issues; case study
- Pilot Study and feasibility report
- Elements of marketing and market segmentation; product development
- Business and Social responsibility
- Government regulations/taxation, auditing
- Consumer behaviour
- Share holders etc.
- Management functions
- Human Resources Management and Communications
- Record keeping/Book-keeping.

- TEA 321 AUTO WORKSHOP PRACTICE I (2 Credits)**
Specific Objectives:
- Identify and use the precision machines/equipment in the auto workshop
 - Carry out simple repairs and services in auto workshop
 - Determine the engine's conditions after over-hauling
 - Precision measurements of Engine components e.g. Dial indicator, vernier caliper, micrometer
 - Engine servicing and repairs.
 - Engine re-conditioning and testing
 - Use of cylinder boring and honing machines, gas analyser, dwell meter, vacuum gauge stroboscopic timing light etc.
 - Valve re-facing and re-grinding
 - Injector testing and repairs
 - Carburetor repairs
- TEA 322 AUTO FUELING AND AIR CONDITIONING SYSTEMS (1 Credit)**
Specific Objectives:
- List the types of fuels
 - State the properties of fuels
 - State the functions of the components in the fuel system
 - State the operational principles of Auto A/C System
 - Carry out simple tests and repair on Auto A/C System
 - Properties and safety precautions of fuels
 - Fuel Filtration and types of fuels
 - Fuel system layouts and major components
 - Working principles of fuel pumps and repairs
 - Working principles of petrol injection
 - Working principles of carburetors used on various engines
 - Automobile air conditioner and repairs
- TEA 323 PRACTICAL PROJECT (2 Credits)**
- Each student should carry out a major practical project in Automobile Technology, backed by a written report.
- TEM 324 MECHANICAL ENGINEERING DRAWING (1 Credit)**
- Standard conventions for keys, studs, screws, bolts, nuts, etc
 - Pictorial and orthographic sketches of machine parts and labeling
 - Cams and Gears
 - Assembly drawing of machines and machine components
 - Assembly drawings from exploded view of components and vice versa
- TEA 325 MAINTENANCE AND REPAIRS OF MECHANICAL EQUIPMENT (1 Credit)**
- Types of maintenance
 - Strategies for Maintenance
 - Maintenance pumps: eg. Valves, tools, mechanical pump (centrifugal and plugs typed electrical pumps).
 - Maintenance of valves
 - Maintenance of tools
- TEA 326 SCHOOL WORKSHOP MANAGEMENT (1 Credit)**
- Comprehensive, general and unit workshops
 - Material control

- Maintenance and records
- Equipment and Supplies
- School workshop design (units and integrated)
- Safety and safety equipment workshop/laboratory personnel and their responsibilities

TEA 327 VEHICLE DRIVING (1 Credit)

- Driving techniques
- Qualities of a good Driver
- Road Signs
- Traffic Control and Institutional Bodies (VIO, Road Safety Commission, Police Force, Highway Patrol etc).
- Traffic Regulations
- Road Accidents: Causes and Prevention

TEB 328 BUILDING DRAWING (2 Credits)

See TEB 324 in Building Technology

300L 1ST SEMESTER

EDU 311	Teaching Practice	6C
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BUILDING TECHNOLOGY - 300L SECOND SEMESTER

VTE 320 ENTREPRENEURSHIP IN VTE II (1 Credit)

- Management and administration of small and medium businesses
- The future of business and succession issues; case study
- Pilot Study and feasibility report
- Elements of marketing and market segmentation; product development
- Business and Social responsibility
- Government regulations/taxation, auditing
- Consumer behaviour
- Share holders etc.
- Management functions
- Human Resources Management and Communications
- Record keeping/Book-keeping.

TEB 321 LAND SURVEYING (1 Credit)

Specific Objectives:

Students should be able to:

- List different branches of land surveying (chain leveling traversing etc)
- Explain simple chain surveying
- Explain what simple leveling means
- State what simple traversing means
- Compute relevant areas and volume
- Make sketches showing contours of land
- Identify steps involve in setting out.
- Branches of land surveying (chain leveling traversing etc)
- Simple chain surveying

- Simple leveling
- Simple traversing
- Computations of areas and volumes
- Contouring
- Setting out

TEB 322 CONSTRUCTION METHODS II (1 Credit)

Specific Objectives:

Students should be able to:

- Demonstrate knowledge of principles and methods of carrying out substructure construction for simple building project
- State various types and uses of scaffold and lifting equipment
- Identify sequence of installation of basic services (domestic power supply and water supply)
- Enumerate external works involving drainage, septic tank, inspection chamber, manhole, boundary walls and footpath
- State the essence and methods of landscaping.
- Principles and methods of carrying out substructure construction for simple building project.
- Use various types of scaffold and lifting equipment
- Methods of Installation of basic services (domestic power supply and water supply)
- External works involving drainage, septic tank, inspection chamber, manhole, boundary walls and footpath construction.
- Landscaping

TEB 323 PRACTICAL PROJECT (2 Credits)

Specific Objective:

Students should be able to demonstrate capacity to design and produce a practical project with a relevant technical report.

- Each student should carry out a major practical project in Building Technology, backed by a written report.

TEB 324 BUILDING DRAWING (2 Credits)

Specific Objectives:

Students should be able to:

- State basic responsibilities in design process
- Enumerate standard practices in building design
- List and state uses of drafting materials and equipment
- List basic principles and design
- Produce preliminary sketches and design of a simple building
- Make working drawings (to include standard symbols for plumbing) up to 1 storey building
- Produce relevant electrical service plan of a building
- Prepare schedules
- Produce blue printing
- Demonstrate basic knowledge of computer aided drafting (CAD)
- Basic responsibilities in Design process
- Standard practices
- Drafting materials and equipment
- Basic principles and design
- Preliminary sketch and design

- Working drawing (to include standard symbols for plumbing) up to 1 storey building
- Electrical service plan
- Preparation of schedules
- Production of blue printing.
- Introduction to Computer Aided Drafting (CAD)

TEB 325 BUILDING MAINTENANCE/REPAIRS (1Credit)

Specific Objectives:

Students should be able to:-

- Demonstrate the ability to maintain building tools and equipments
- List the routine checks that may be made on roof and ceiling of a building and state how each of the identified problems may be remedied
- Identify maintenance work on floors and walls including minor repairs
- State the different types of underpinning for repairs work in foundation
- Maintenance of building tools and equipments
- Maintenance work on roof and ceiling (including routine checking)
- Maintenance work on floors and walls including minor repairs
- Underpinning (for repairs work in foundation)

TEB 326 SCHOOL WORKSHOP MANAGEMENT (1 Credit)

Specific Objectives:

Students should be able to:-

- Demonstrate awareness of comprehensive, general and unit workshop designs
- State different methods of material control in workshop
- Enumerate the essence of maintenance and record in a workshop
- List various equipment and supplies in building workshop
- Identify different methods of school workshop design (units and integrated)
- State the essence of safety and safety equipment in the workshop
- List the different types of workshop/laboratory personnel and their responsibilities.
- See TEM 326 under Automobile or Metalwork Technology.

TEB 327 CONSTRUCTION MANAGEMENT (2 Credits)

Specific Objectives:

Students should be able to:-

- State what building contracts are
- Identify different tendering technologies
- Demonstrate the capacity to produce building quantities and specifications
- State methods of site organization and management
- Building contracts
- Tendering
- Building quantities and specifications
- Site organization and management.

TEM 328 MECHANICAL ENGINEERING DRAWING (2Credits)

Specific Objectives:

Students should be able to:-

- Demonstrate the use of standard conventions for keys, studs, screw, bolts, nuts, etc.
- Produce pictorial and orthographic sketches of machine parts involving labeling of cams, gears, etc.
- Make assembly drawing of given machine components
- Produce assembly drawing from exploded views of machine components and vice visa.
- See TEM 324 under Metalwork Technology

300L FIRST SEMESTER

EDU 311	Teaching Practice	6C
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300L SECOND SEMESTER

ELECTRICAL/ELECTRONICS TECHNOLOGY

VTE 320 ENTREPRENEURSHIP IN VTE II (1 Credit)

- Management and administration of small and medium businesses
- The future of business and succession issues; case study
 - Pilot Study and feasibility report
 - Elements of marketing and market segmentation; product development
 - Business and Social responsibility
 - Government regulations/taxation, auditing
 - Consumer behaviour
 - Share holders etc.
 - Management functions
 - Human Resources Management and Communications
 - Record keeping/Book-keeping.

TEE 321 ELECTRICAL MACHINES AND POWER (1 Credit)

Specific Objectives:

At the end of the course, the students should be able to:

- Explain types of power generation, transmission and distribution and their components
- Explain techniques of protective devices and testing
- Explain operation of various electrical machines.
- Power generation, transmission and distribution, transmission lines, Tariffs, power factor and correction
- Sub-station installment and maintenance
- Protection devices
- Power supply and stabilization systems
- Machines (AC and DC) including Transformers
- Testing
- Wiring systems (industrial)
- Illumination

TEE 322 - TELECOMMUNICATIONS (1 Credits)

Specific Objectives:

At the end of the course, the students should be able to:

- Explain various components of Telecommunication System
- Explain Radio and TV Receivers and Transmittance and their components.
- Antenna – types, operation, application
- Telephones – types, operation, application
- Microphones – types, operation, application
- AM/FM Radio Transmitters and Receivers
- Principles of Modulation (AM/FM) and Phase Modulations)
- Radio Waves (RW) and propagation
- Television Receivers and Transmitters
- Satellite Communication

TEE 323 ELECTRICAL CIRCUITS AND ELECTRICAL MEASURING INSTRUMENTS (1Credit)

- Electrical measuring/Testing Instruments e.g. Oscilloscope, analogue, Digital meters, wattmeter and meggar
- AC and DC circuits
- AC quantities and power in AC circuits
- Resonance and Resonant frequency only
- Circuit theory (Kirchoff's law, Thevene's theorem, Norton's theorem, J-notation).

TEE 324 PRACTICAL PROJECT (2 Credits)

- Each student should carry out a major practical project in Electrical Technology backed by a written report in any of the following major areas of Electrical and Electronic Technology.
 - i) Electronic and Communication
 - ii) Electrical power
 - iii) Electrical machine

TEM 325 MECHANICAL ENGINEERING DRAWING (2 Credits)

- Standard conventions for keys, studs, screws, bolts, nuts etc
- Pictorial and orthographic sketches of machine parts and labeling
- Cams and Gears
- Assembly drawing of machines and machine components
- Assembly drawings from exploded views of components and vice versa

TEE 326 MAINTENANCE AND REPAIR OF ELECTRICAL AND ELECTRONIC EQUIPMENT (1Credit)

Specific Objectives:

At the end of the course, the students should be able to:-

- Mention and explain types of Maintenance and Repair Techniques of Electrical/Electronics Equipment.
- Safety rules and regulations
- Types of electrical maintenance
- Servicing and maintenance of Electrical and Electronics and Installation
- Advantages & disadvantages of maintenance
- Maintenance and repair of Computer Hardwares

- TEE 327 SCHOOL WORKSHOP MANAGEMENT (1Credit)**
 - See TEA 323 in Automobile technology.
- TEE 328 DIGITAL ELECTRONIC (2 Credits)**
Specific Objectives:
 At the end of the course the students should be able to:-
- Explain Basic Computer parts, types and other devices
 - Explain computer hardware configuration and techniques of computer aided designs.
 - Number system
 - Logic gates
 - Computer parts and types
 - Flip-flop
 - Counters
 - Decoders and Encoders
 - Microprocessors
 - Computer aided design
 - Computer Hardware Configuration
 - Introduction to computer and computer devices
- TEE 329 BUILDING DRAWING (2Credits)**
 - See TEB 324 under Building Technology

300L FIRST SEMESTER

EDU 311	Teaching Practice	6C
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METAL WORK TECHNOLOGY – 300L FIRST SEMESTER

- VTE 320 ENTREPRENEURSHIP IN VTE II (1 Credit)**
- Management and administration of small and medium businesses;
 - The future of business and succession issues; case study
 - Pilot Study and feasibility report
 - Elements of marketing and market segmentation; product development
 - Business and Social responsibility
 - Government regulations/taxation, auditing
 - Consumer behaviour
 - Shareholders etc.
 - Management functions
 - Human Resources Management and Communications
 - Record keeping/Book-keeping.
- TEM 321 MACHINE SHOP PRACTICE II (2 Credits)**
Specific Objectives:
- To expose the students to advanced machine shop process
 - Precision measurement and Inspections (tools application) e.g. (venier, calipers, micrometre screw gauge etc.
 - Advanced Lathework
 - (a) Taper turning, screw cutting

- (b) Eccentric turning etc.
- Types of lathes and their applications
- Shaping machine and shaping operations
- Grinding machine and grinding operations
- Introduction to computer assisted machining
- Mechanic programming procedure

Numerical Control

- TEM 322 ADVANCED FABRICATION AND WELDING (2 Credits)**
- **Specific Objectives:**
 - To expose the students to advanced fabrication and welding processes
 - Complex pattern development and production
 - Layout and production of components
 - Preparing cutting lists of pattern pieces
 - Design and production of simple engineering components
 - Finishing processes of fabricated projects e.g. Electroplating, Galvanizing, Painting, etc.
- TEM 323 PRACTICAL PROJECT (2 Credits)**
- Each Students should carry out a major practical project on applied mechanical/metal Technology backed by a written report.
- TEM 324 MECHANICAL ENGINEERING DRAWING (2Credits)**
- Standard conventions for keys, studs screw, bolts, nuts etc.
 - Pictorial and orthographic sketches of machines parts and labeling cams and gears.
 - Assembly drawing of machine and components
 - Assembly drawing from exploded view of component and vice versa
- TEM 325 MAINTENANCE AND REPAIR OF MECHANICAL TOOLS AND EQUIPMENT (1 Credit)**
- **Specific Objectives:**
 - To train the students on simple workshop maintenance skills
 - Types of maintenance
 - Cleaning and lubrication of lathe, milling machine etc.
 - Lubrication of Hand tools and Storage
 - Maintenance processes
 - Types of maintenance and policies
 - Over-hauling and repair of grinding machines, sheetmetal equipment etc.
- TEM 326 SCHOOL WORKSHOP MANAGEMENT (1Credit)**
- Comprehensive, general and unit workshop
 - Material control
 - Maintenance and records
 - Equipment and supplies
 - School Workshop design (units/ integrated)
 - Safety and safety equipments in the workshop
 - Workshop/Laboratory personnel and their responsibilities

TEM 327 BUILDING DRAWING
See TEB 324 in Building Technology

(2Credits)

(2 Credits)

300L FIRST SEMESTER

EDU 323	Project	
EDU 311	Teaching Practice	6C

300L SECOND SEMESTER - WOODWORK TECHNOLOGY

VTE 320 ENTREPRENEURSHIP IN VTE II (1 Credit)

- Management and administration of small and medium businesses
- The future of business and succession issues; case study
- Pilot Study and feasibility report
- Elements of marketing and market segmentation; product development
- Business and Social responsibility
- Government regulations/taxation, auditing
- Consumer behaviour
- Share holders etc.
- Management functions
- Human Resources Management and Communications
- Record keeping/Book-keeping.

TEW 321 DESIGN REHABILITATION OF WOODWORK ITEMS AND UPHOLSTERY (2 CREDITS)

- Complex designs and costing
- Upholstery tools and equipment
- Upholstery materials
- Principles and construction of upholstery items
- Re-conditioning of woodwork items
- Principles of Wood bending and construction

TEW 322 MACHINE WOODWORKING II (2 Credits)

- Portable power tools and their operations, e.g. portable power saws, planer, jig saw, sander, blower, sprayer, router etc.
- Advance woodworking machines operations
- Mass production of various items by using woodworking machines.

TEW 323 PRACTICAL PROJECT (2Credits)

- Each student should design a supervised practical project of contemporary and classical type embodying frame, carcass constructions and other woodworking techniques involving the use of wood and other material. The project should be backed by a written report.

TEB 324	BUILDING DRAWING See TEB 324 in Building Technology	(2Credits)
TEW 325	MAINTENANCE AND REPAIRS OF WOOD WORK EQUIPMENTS AND ITEMS - Cleaning of woodworking machine parts - Greasing/overhauling of woodwork machines - Replacement of machine spare parts - Removal and replacement of wood fittings - Reconditioning of woodwork tools - Sharpening and setting machine cutters - Brazing, folding and fixing of Band saw blades	(1 Credit)
TEW 326	SCHOOL WORKSHOP MANAGEMENT - See TEM 323 under Automobile/Metalwork Technology	(1Credit)
TEM 324	MECHANICAL ENGINEERING DRAWING - See TEM 324 under Metalwork Technology	(2Credits)

LIST OF TOOLS AND EQUIPMENT

- A) METALWORK TECHNOLOGY**
1. Standard work benches with vices
 2. Lathe machine
 3. Pillar/Table Drilling machine
 4. Grinding machine
 5. Forge
 6. Welding machines – Arc and Gas
 7. Bench shear
 8. Files (assorted)
 9. Try square
 10. Micrometer screw gauge
 11. Vernier calipers
 12. Spring dividers
 13. Hammers (assorted)
 14. Anvil
 15. Scribers
 16. Stakes (assorted)
 17. Taps and Dies
 18. Wing dividers
 19. Odd leg calipers
 20. Steel rule
 21. Snips
 22. Drills
 23. Hacksaw frames and Blades
 24. Buffing Discs
 25. Oil cans
 26. Folding and Bending machines
 27. Shaping machine
 28. Milling machine
 29. Foundry and Forging tools
 30. Vernier protractor

B) WOODWORK TECHNOLOGY

1. Work Benches with vices
2. Circular saw bench
3. Surface Planer
4. Panel Planer
5. Band saw
6. Cross cut sawing machine
7. Wood lathe with accessories
8. Compressor and spraying unit
9. Metal jack planes
10. Metal smoothing planes
11. Block plane
12. Rebate plane
13. Grooving/Plough plane
14. Compass plane
15. Saws (assorted)
16. Chisels (assorted)
17. Hammers (assorted)
18. Bits (assorted)
19. Clamps (assorted)
20. Power hand tools
21. Mallets
22. Ratchet brace
23. Coping saws
24. Drilling machine
25. Ruler (meter rule)
26. Rasps
27. Spoke shaves
28. Screw drivers

C) ELECTRICAL/ELECTRONICS TECHNOLOGY

1. Work benches
2. Wiring boards
3. Meters (assorted)
4. Drilling machines (Portable)
5. Cold Chisels
6. Power hand drills
7. Soldering iron-electric
8. Universal pipe bending machine
9. Drill bit set
10. Files (assorted)
11. Hammers (assorted)
12. Steel rules (assorted)
13. Screw drivers (assorted)
14. Pliers (assorted)
15. Capacitors (assorted)
16. Resistors (assorted)
17. Lighting (assorted)
18. Hydrometers
19. Batteries (assorted)
20. Magnets (assorted)
21. Relays

22. Switches (assorted)
23. Tubes (assorted)
24. Thermostats
25. Conduit pipes
26. Joint junction boxes
27. Socket Outlets
28. Plugs (assorted)
29. Digital meters
30. Analogue meters
31. Oscilloscopes
32. Function generators
33. Television receivers
34. Radio receivers
35. Variable power supply
36. Inductors (assorted)
37. Lead Sucker
38. Side cutters

D) BUILDING TECHNOLOGY

1. Block moulding machine (manual)
2. Trowels (assorted)
3. Spirit levels
4. Building squares
5. Cold Chisels
6. Club Hammers
7. Cutting Chisels
8. Lines
9. Hawks
10. Head pans
11. Spades/Shovels
12. Tape measure 5m – 100m (steel and fibre types)
13. Hacksaws
14. Pipe Wrenches (assorted)
15. Plumbers vice
16. Painting rollers)
17. Hand sprayer
18. Wheelbarrow
19. Weighing scales
20. Concrete mixers
21. Poker/Table vibrators
22. Theodolite
23. Automatic level
24. Levelling staff/Ranging poles
25. Plan printing machine.

E). AUTOMOBILE TECHNOLOGY

1. Dead vehicle
2. Diesel/Petrol Engines
3. Spanner (assorted)
4. Hammers (assorted)
5. Grease guns
6. Oil cans

7. Screw drivers – Flat
8. Screw drivers – Star
9. Pliers (assorted)
10. Files (assorted)
11. Allen keys (assorted)
12. Wheel balancing machine
13. Wheel alignment set
14. Air Compressor
15. Battery charger
16. Grinding machine
17. Drilling machine (Table and Portable)
18. Wire Brush
19. Hydrometer
20. Torque wrenches
21. Jack stand
22. Vernier caliper
23. Vernier protractor
24. Micrometer screw gauge
25. Timing light
26. Compression tester.
27. Live vehicle

F). TECHNICAL DRAWING

1. Drawing Tables/Boards
2. Set squares $30^{\circ}/60^{\circ} \times 45^{\circ}$
3. Tee Squares
4. Sets of Drawing Instruments
5. Plain Scale rule
6. Chalk board
7. Chalk board Set squares
8. Chalk board Protractor
9. Chalk board Ruler – 1m
10. Chalk board Compass
11. Overhead projector
12. Computer Aided Drafting/Design
13. French curve

SIWES ASSESSMENT FORM

NAME.....
 DEPARTMENT.....
 CLASS.....
 PLACE OF ATTACHMENT.....
 ADM. NO.
 YEAR OF ATTACHMENT.....

ASSESSMENT

DESCRIPTION	MARK OBTAINABLE	MARKS OBTAINED												
Log Book	50%													
Supervisor's Assessment	20%													
Industrial based supervisor's comment	5%													
Oral interview with student	5%													
Written technical Report by student	10%													
*Defence of Technical Report	10%													
Total: -	100%													
<p>*Breakdown of Defence of Technical Report</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Main Assignment</td> <td style="width: 20%; text-align: right;">3%</td> <td style="width: 20%;"></td> </tr> <tr> <td>Presentation</td> <td style="text-align: right;">1%</td> <td></td> </tr> <tr> <td>Ability to Solving problems on site</td> <td style="text-align: right;">3%</td> <td></td> </tr> <tr> <td>Relevance of Experience</td> <td style="text-align: right;">3%</td> <td></td> </tr> </table>			Main Assignment	3%		Presentation	1%		Ability to Solving problems on site	3%		Relevance of Experience	3%	
Main Assignment	3%													
Presentation	1%													
Ability to Solving problems on site	3%													
Relevance of Experience	3%													

FINAL GRADE

Other Remark:.....

NAME OF SUPERVISOR.....

SIGNATURE.....

- NB:** To be completed in Triplicate,
 - Original goes to the School Exam officer
 - Duplicate goes to the SIWES Coordinator
 - Triplicate goes to the College supervisor