

COURSES TAKEN BY STUDENTS IN THE FACULTY OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY

CHM 111 – GENERAL CHEMISTRY I (3 CREDIT UNITS)

Relationship of Chemistry to other sciences; Atoms, subatomic particles, isotopes, molecules; Avogadro's number, Mole concept, Dalton's theory; Modern concepts of atomic theory; Laws of chemical combination; Relative atomic masses; Introduction to nuclear reaction; Nuclear binding energy, fission and fusion reactions; States of matter: Gases, gas laws; General gas equation; Liquids and solids; Introduction to lattice structure; Isomorphism; Giant molecules; Introduction to the Periodic Table; Hydrogen and hydrides; Chemistry of Groups O, I, II elements; Acid-Base properties of oxides.

BOT 111: BOTANY I (DIVERSITY OF PLANTS) (2 CREDIT UNITS)

Diversity of living organisms and habitats, life form mode of nutrition, size, shape, etc. Common features of organisms. General characteristics, similarities, differences, distribution and economic importance of viruses, bacteria, fungi, lower green and vascular plants. Ecological adaptation of various plant forms, introduction to Ethnobotany and herbal medicine.

ZOO 111 –ZOOLOGY I (2 CREDIT UNITS)

Man – population, growth and Impact on the biosphere, faunal biodiversity. *Invertebrata*: Protozoa, *Coelenterata*, *Platyhelminthes*, *Annelida*, *Mollusca*, *Anthropoda*. *Vertebrata*: *Cephalocdata*, Pisces, *Amphibia*, *Reptilia*, Aves, *Mammalia*. Mammalian Anatomy: Anatomy of *Rattus rattus*.

PHY 111 – GENERAL PHYSICS I (3 CREDIT UNITS)

(a) Mechanics:

Scalars and vectors: Addition and resolution of vectors. Rectilinear motion and Newton's Law of motion; Inertial mass and gravitational mass; free fall; projectile motion; deflecting forces and circular motion; Newton's Law of gravitational satellites, escape velocity, gravitational potential, potential well; special case of circular motion; Momentum and the conservation of momentum; Work, power, energy; Units, potential energy for a gravitational field and elastic bodies, kinetic energy, conservation of energy; energy stored in a rotating body, kinetic energy in elastic and inelastic collisions.

(b) Thermal physics and properties of matter: temperature, heat, work, heat capacities second law, cannot cycle; thermodynamics ideal gas temperature scale; Thermal conductivity; radiation; black body and energy spectrum, Stefan's Law. Kinetic Model of a gas: Equation of State, concept of diffusion, mean free path, molecular speeds, Avogadro's number, behaviour of real gases. A model for a solid: Inter-particle forces in solids, liquids and gases; physical properties of solids. Crystalline Structure: close packing orderly arrangements, elastic deformation of an ordered structure; interference patterns, and crystals. Model for matter: surface energy and surface tension, plastic deformation; thermal and electrical proportions of metals.

MTH 111 MATHEMATICS I (ALGEBRA AND TRIGONOMETRY) 3 CREDIT UNITS

Elementary set theory, subsets, union, intersection, complements, Venn diagrams, real numbers, Integers, rational and irrational numbers, Mathematic induction, real sequence and series, theory

of quadratic diagram, De-moivres theorem, roots of unit. Circular measure, trigonometric functions of angles of any magnitude, addition and factor formulas

CSC 111 - INTRODUCTION TO COMPUTING I (2 CREDIT UNITS)

History of computers; functional components of computer; characteristics of computer; Understanding DOS and its file structure – file names, file specifications, copying, deleting files; Understanding the window environment; Working with dialogue boxes; The use of programme and file managers, menus and their uses, problem solving, flowcharts, algorithms, computer programming, statements, symbolic names, arrays, subscripts, expression and control statement, data representations, the decimal system, the binary system, numbers compliments, Introduction to BASIC or FORTRAN programming language, computer application.

GST 111- USE OF ENGLISH AND LIBRARY 1(2 CREDIT UNITS)

This course in Basic English Grammar is designed to give students a working knowledge of English Grammar. It is expected to assist them in construction of grammatically correct sentences which are not only mechanically accurate but also theoretically effective. Through monitored practice, the course will enable the students to develop the habit of writing simple and correct English.

GST 112- PHILOSOPHY AND LOGIC (2 CREDIT UNITS)

A brief survey of main branches of philosophy; symbolic logic: special symbols in symbolic logic, conjunction, negation, affirmation, dis-function; equivalence and conditional statement; Law of thought - The method of deduction: Using rules of inference and bi-conditionals quantification theory.

FRN 111- FUNCTIONAL FRENCH I

Introduction à la langue française pourquoi étudier le français, Salutations, nombres, jours de la semaine Mois de l'année (compter 2 X 1 etc), présentation de soi/d'autrui à l'oral, Nationalités. Profession et rencontré/présentation, prière/ la grâce,

IDS 111 – RUDIMENTS OF CHRISTIAN FAITH (2 CREDIT UNITS)

Salvation, the state of man, work of Christ, New Birth – Righteousness, justification, Adoption, person and work of the Holy spirit, Baptism of the Holy Spirit, Fruits of the Holy Spirit and water Baptism.

GST 122 – HISTORY AND PHILOSOPHY OF SCIENCE (2 CREDIT UNITS)

Man – his origin and nature, Biblical accounts of origin versus national and international Biological account; man and his cosmic environment; scientific methodology; science and technology, and the society in service of man; in politics and society; Renewable and non-renewable resources; Man and his energy resources; Environmental effects of chemicals; plastics, textiles, wastes and other materials; chemicals and radio chemical hazards; Introduction to various areas of science and technology and computer technology.

GST 123 – NIGERIAN PEOPLES AND CULTURE (2 CREDIT UNITS)

The study of Nigerian History and Culture in pre-colonial times; The Nigerian's perception of his world; Culture areas of Nigeria and their characteristics; Evolution of Nigerian as a political

unit; concepts of functional education, National Economy, Balance of Trade, Economic self reliance, Social justice, Individual and National Development; Norms and Values; Moral obligations of citizens; Environmental sanitation.

CSC 121 - INTRODUCTION TO COMPUTING II (2 CREDIT UNITS)

Introduction to Computer Studies; Introduction to BASIC or FORTRAN programming Languages; Computer application.

MTH 122 - CALCULUS (3 CREDIT UNITS)

Functions of a real variable; graphs limits and idea of continuity; The derivative, as limit and idea of continuity; The derivative as limit of slope of curve; Techniques of differentiation extreme curve sketching; Integration as an inverse of differentiation; Methods of integration; Definite integral; Application to areas, volumes.

CHM 121 –GENERAL CHEMISTRY II (3 CREDIT UNITS)

A. General Principles of Organic Chemistry

- i. Introduction: Definition of Organic Chemistry. Classification of Organic compounds. Homologous series. Functional groups.
- ii. General procedure for isolation and purification of organic compounds.
- iii. Determination of structure of organic compounds. Elemental analysis, percentage composition, empirical and molecular formula, structural formula
- iv. Isomerism. Structural isomerism and stereo-isomerism.
- v. Electronic theory in Organic Chemistry. Atomic models, quantum numbers, atomic orbital. Hybridization leading to formation of carbon, carbon single, double and triple bonds. Hydrogen bonding, electro-negativity, dipole moment polarization, bond energy, Inductive and resonance effects.

B. Non-Polar Functional Group Chemistry

- a. Alkanes: Structure and physical properties. Substitution reactions including mechanism.
- b. Alkenes: Structure and Physical properties. Reaction: addition (of H_2 , X_2 , HX , H_2O , O_3 etc): Oxidation, polymerization. Stereoisomerism – definition, geometrical and optical isomers. Conditions for optical isomerism.
- c. Alkynes: Structure. Acidity of acetylenic hydrogen. Reaction: Addition of H_2 , X_2 , HX , H_2O , etc. Test for Alkynes.
- d. Benzene. Structure and Aromaticity of Benzene. Introduction to electrophilic substitution reactions.

Polar Functional Group Chemistry

- i. Hydroxyl group – Alcohols and phenols. Classification, Acidity-comparison, important methods of preparation, Reaction with metals bases, Alkyl halide, Oxidation, Tests for alcohols and phenols, Importance.
- ii. Carbonyl group – Aldehydes and ketone structure: Physical properties, important methods of preparation. Reaction: Tollen's reagent. Fehling's solution, including

mechanisms, with ammonia, hydrazines and their derivatives, including mechanisms, Aldol condensation. Test for aldehydes and ketones. Importance.

iii. Carboxylic group: Monocarboxylic acids. Structure. Physical properties. Acidity and resonance. Important methods of preparation, from alcohols, aromatic hydrocarbons, through Grignard's reagent. Reaction with bases. Conversion to esters. Amides. Halide and anhydrides. Tests for carboxylic acid. Importance.

iv. Carboxylic acid derivatives.

Anhydride acid halides, esters and amides. Change of reactivity when OH of acid is replaced by OCOR, x OR, NR. Reaction with water, alcohols, ammonia and amines. LAIH₄ Test for esters.

V. Amino group – Amines.

Structure. Physical properties. Important methods of preparation. Reaction with: acids bases, basicity and salt formation: Alkylation, acylation: with nitrous acids. Heisenberg methods of separation. Tests for amines. Importance.

B. Miscellaneous Topics.

i. Fats and oils. Definition, importance, saponification. Soaps and detergents, Mode of cleaning action. Use in paints and vanishes.

ii Amino acids, proteins. Definition, classification, essential amino acids, special properties and reactions, isoelectric points, pKa. Importance.

iii. Carbohydrates. Definitions, classification, importance, nomenclature, structure and reactions of glucose. Mutarotation Tests.

iv. Natural production. Main classes (other than lipids. Carbohydrates and proteins); steroids, terpenoids. Alkaloids, prostaglandins, definition. Importance examples.

AGR 201 - FIELD STUDY (2 CREDIT UNITS)

General practical agriculture designed to prepare students to be practically oriented in related disadvantaged areas.

AGR 211 - INTRODUCTION TO AGRICULTURE (2 CREDIT UNITS)

Definition of Agriculture, World production and Food supply, History scope, importance of Agriculture to man; Agriculture and Natural environment; characteristic features of tropical agriculture in relation to production including soil management; agriculture and the Nigerian economy; Features of Agriculture; Land use and tenure in production; distribution and utilization of agricultural products. Problems and Solutions to agricultural development in Nigeria; climatic, edaphic and social factors in relation to crop production and distribution in Nigeria; systems of crop farming; Basic principles of animal farming; Place of forestry; Fisheries and Wildlife in Agriculture; Career opportunities in Agriculture.

ANS 212 – INTRODUCTION TO AGRICULTURAL BIOCHEMISTRY (2 CREDIT UNITS)

Chemistry of different food groups: Lipids, carbohydrates, proteins and nucleic acids, minerals, nucleic acids. Vitamins and their coenzyme functions; nature, classification and functions of enzymes and hormones

CPP 213 - PRINCIPLES OF CROP PRODUCTION (2 CREDIT UNITS)

Crop production and its development; Principles, problem, and prospects of crop production; Importance of crop rotation, cultural practices, water and soil conservation, irrigation, and drainage; general types and characteristics of arthropods: An introduction to the Structure; Physiology and Classification of Arthropods particularly insects of agricultural importance, micro-organisms and other pest affecting crops; weeds and their effects on crop production; Pests, diseases and weed control, basic Mendelian genetics; principles of crop production, harvesting, processing and storage of economic crops.

SOS 214 - PRINCIPLES OF SOIL SCIENCE (2 CREDIT UNITS)

Soils, their origin and formation, physical properties of soils, Soil moisture, air and temperature, Soil classification and survey, Soil colloids, Soil reactions, Soil organic matter and soil organisms; soil and water conservation; soil texture, soil structure, surface area, and bulk and particle density; soil porosity; nutrient requirements and mineral nutrition of plants, introduction to fertilizers, soil micro-organisms and importance.

AEE 211 - PRINCIPLES OF AGRICULTURAL ECONOMICS (2 CREDIT UNITS)

The nature of economics and economic problems; scope and method; price theory and functions of the market with particular reference to agriculture; Agriculture as an economic activity, economic problems facing agriculture in Nigeria, agriculture and the rural economy, concept of opportunity cost; supply and demand and their applications to agricultural problems; production functions; cost analysis and functions; concept of elasticities; type of markets and market equilibrium analysis under perfect competition, monopoly, oligopoly etc; price theory and some applications; theory of distribution; the component of agriculture in national income; resource allocation on farms; aggregate income, expenditure, investment, interest rate, saving, employment, inflation; international trade, commodity agreements, and balance of payments; money and banking.

FWL 211 - PRINCIPLES OF FORESTRY (2 CREDIT UNITS)

Renewable and non-renewable resources, availability, distribution and potentials of renewable natural and non-renewable resources; the forest trees and wildlife with emphasis on Nigerian species; Classification, morphology and distribution of important forest trees and wildlife in Nigeria, Forest and Game Reserves in Nigeria, Silviculture, afforestation, characteristics of major timber and their uses, felling and log transportation.

ANS 211 - PRINCIPLES OF ANIMAL HEALTH & DISEASES (2 CREDIT UNITS)

Definition of diseases, Infection, Immunity, Classification, Diagnosis, Epidemiology prevention, Treatment, and control of different livestock diseases; An introduction to the structure classification and life history of nematodes, fungi, bacteria and viruses of ruminant and non-ruminant importance.

FIS 211 - INTRODUCTION TO FISHERIES RESOURCES OF AFRICA (2 CREDIT UNITS)

The important fishes and wildlife of West Africa with emphasis on Nigeria species; Classification, evolution; Morphology and basic structure of fishes; The adaptation of fish to aquatic life; life cycle of principal species of fishes and wildlife; significance of fishes and wildlife in the life of Nigerians; the fish and wildlife industries in Nigeria; Fundamental principles of fish management and production.

IDS 211 – CHRISTIAN LIFE (2 CREDIT UNITS)

Prayer, the word of God, fellowship, Evangelism, Spiritual warfare, walking in the spirit, Marriage and family, counselling, Christian work ethics (Ministerial excellence)

FRN 211 – FUNCTIONAL FRENCH III

Programme du jour, Matières, Arrêté, comment se relâcher (Revision de présentation), Au marché Identification de L'argent C'est combien ? Vêtements Couleurs. Paiement par chèque en liquide avec une carte de credit, Expression de la possession Membres de la famille et Présentation, Qui est - ce ? Lecture

IDS 221 – EVANGELISM, MISSION AND DISCIPLESHIP (2 CREDIT UNITS)

Principles of Evangelism, Evangelism methods of the Lord Jesus Christ, and the Apostle Paul, and the practical application of this methods and principles in modern times; and the place of modern mass- media evangelism; It will also teach student the what, where, how and why of Missions as well as a survey of early missionary work from early church times to the present day; and the place of Christian missions in modern times. Finally, the course is intended to inculcate into students the basic ways of turning won souls into effective Disciples of Christ capable of holding the spiritual fort against the devil, and growing into the fullness of the sons of God.

AGR 221- INTRODUCTION TO FOOD SCIENCE AND TECHNOLOGY (2 CREDIT UNITS)

Definition and scope of food science and technology, food distribution and marketing; food and its functions; food habits; food poisoning and its distribution; principles of food processing and preservation; discussion of different preservation methods; deterioration and spoilage of foods; other post harvest changes in food; contamination of food from natural resources; composition and structures of Nigerian/west African foods; factors contributing to texture, colour, aroma, and flavour of food; cost; traditional and ethnic influences of food preparation and consumption pattern.

FRN 221- FUNCTIONAL FRENCH IV (1 CREDIT UNIT)

Comment exprimer la douleur (chez le médecin / dentiste), Chercher de quoi manger (Au restaurant), Correspondance (lettre,.....), Demander l' aide, Vocab, des cours differents, De comptabilité / des science, De la diplomatie, du droit etc, Lecture Reunion de prière.

GST 222- PEACE AND CONFLICT RESOLUTION

Basic concepts in peace studies and conflict resolution; peace as a vehicle of unity and development, conflict issues, types of conflict, e.g., ethnic/religious/economic conflict. Root

causes of conflict and violence in Africa. Indigene/settler phenomenon, peace-building; Management of conflict and security. Elements of peace studies and conflict resolution, developing a culture of peace mediation and peace-keeping, alternative dispute resolution (ADR), dialogue/arbitration in conflict resolution, role of international organizations in conflict resolution, e.g. ECOWAS, African Union, United Nations, etc.

ANS 221 – ANIMAL ANATOMY & PHYSIOLOGY (2 CREDIT UNITS)

Parts of ruminant and non-ruminant animals and poultry; fundamental of cell biology; Anatomy and Physiology of the cell; cell types; anatomy and physiology of animal tissues, nervous system, skeletal system, muscle, bone, circulatory system, reproductive, digestive, special sense and other systems of farm animal; physiological functions of animals: homeostasis, nutrition and digestion, reproduction, temperature regulation, excretion and reproduction; endocrinology; the blood and circulation; lactation, milk let-down and egg production; water.

CPP 221 - CROP ANATOMY, TAXONOMY & PHYSIOLOGY (2 CREDIT UNITS)

Parts of the cell crop types; introduction to plant taxonomy; characteristics, distribution, economic importance and local examples of *leguminosae*, *germineae*, *compositae*, *dioscoreaceae*, *rutaceae*; Development of cells and tissues; use of plant keys, cell biology, cell and cell types; comparative anatomy of major plant organs; enzymes; photosynthesis and translocation; pollination, respiration and energy utilization; seed dormancy and germination, development; mineral nutrition.

ANS 222 - PRINCIPLES OF ANIMAL PRODUCTION (2 CREDITS)

Animal production and its development, The livestock industry: Problems and prospects of the livestock industry; Description of Breeds of cattle, sheep, goats, pigs, poultry, and rabbits; systems of livestock production; feeding habit of farm animals; Principles of breeding and livestock judging; general principles of management of different types of farm animals.

CPP 222 - PRINCIPLES OF CROP PROTECTION (2 CREDIT UNITS)

The major pests, insects, fungi, bacteria, viruses, nematodes, weeds and other diseases to tropical crops and stored products; An Introduction to the structure classification and life history of nematodes, fungi, bacteria and viruses of crop importance; Strategies for integrated pest control and management.

AGR 223 - INTRODUCTION TO CLIMATOLOGY AND BIOGEOGRAPHY (2 CREDIT UNITS)

The principles, aims and scope of Climatology and Biogeography; the elements and controls of climate and weather and the dynamics of the earth's atmosphere; radiation and heating of the atmospheric systems; atmospheric moisture; the dynamics of pressure and wind systems; condensation and precipitation process; seasonal variations in temperature, day-length, radiation, rainfall, and evapo-transpiration; Equipment and maintenance of standard meteorological stations. The tropical climate; relation between agriculture and climate with reference to crops, livestock, irrigations, pests and diseases.

AGR 301: FIELD STUDY II (2 CREDIT UNITS)

General Practical Agriculture

SOS 311 LAND USE, AERIAL AND GROUND SURVEY (2 CREDIT UNITS)

Basic principles of soil classification and taxonomy, field survey procedures; introductory remote sensing; Principles, Concepts and procedure for assessing potential use of land for Agricultural Purposes.

CPP 312 - ARABLE CROP PRODUCTION (2 CREDIT UNITS)

Origin, Distribution, Soil and Climate requirements of Cereals, Legumes, Root crops, Fibre crops, Vegetable and other important animal crops in Nigeria; Improved varieties, production practices, harvesting utilization, processing, and storage & economic aspects of some selected arable crops.

AEX 311 - INTRODUCTION TO AGRICULTURAL EXTENSION & RURAL SOCIOLOGY (2 CREDIT UNITS)

Agricultural Extension in the World and in Nigeria; Basic concepts and principles of Agricultural Extension and Rural Sociology; The extension agent and the rural community; Communication techniques and strategies of change; various agricultural extension teaching methods, aids and their uses.

AGR 321 - COMPUTER APPLICATION TO AGRICULTURAL PRODUCTION (2 CREDIT UNITS)

Introduction to problem solving methods and algorithmic development; applying computer to problem solving in agriculture; Data processing information management and decision making; Introduction to information technology; computer hardware; the System Unit of a Micro Computer; storage; communication; application of software; types of software; social, ethical and economic issues relating to IT; IT in information production, storage and retrieval; IT in communication, output generation and delivery; IT and automation in agriculture. Applications in agricultural production and marketing, consumption and product utilization.

SOS 312 - SOIL CHEMISTRY AND MICROBIOLOGY (2 CREDIT UNITS)

Chemical composition and general chemistry of soils; Soil fertility; Conversion units and calculations, soil reactions, survey and roles of soil microorganisms; the dynamics of N, P and S pools; Association between microbes and plants.

AEE 312 - INTRODUCTION TO FARM MANAGEMENT AND PRODUCTION ECONOMICS (2 CREDIT UNITS)

Theory and principles of agricultural production and resource use; Consumption and resource allocation in agriculture; farm assessment and planning; methods of farm; Farm budgeting and planning; budgetary control as an aid to farm management; farm resources; Farm costs and

revenue theories; Elements of time risk and uncertainty in agricultural productions; Types of farm records and their uses; basic concept of accounting as a tool for farm management; procedure for keeping and analysing records; efficiency ratios.

AGR 313 - DATA STRUCTURE AND PROCESSING (2 CREDIT UNITS)

Bits, bytes, words, linear structure and list structures arrays, tree structures, sets and relatives, Higher level language data, types and data handling faculties. Data processing, information management and decision-making.

ANS 311 - POULTRY PRODUCTION (2 CREDIT UNITS)

Characteristics of Poultry breeds; Principles of poultry production; management; nutrition and disease; problems of broilers; pullets and laying birds

ANS 312 - SWINE AND RABBIT PRODUCTION (2 CREDIT UNITS)

Management of breeding stock, growing and young animals; Housing; equipment and feeding principles; Evaluation of carcass quality Marketing.

CPP 313 – INTRODUCTION TO ENTOMOLOGY (2 CREDIT UNITS)

Crop protection principles and related, concepts; Ecological approach to pest management; Crop loss assessment methods; Pest control methods and their application; Biology and ecology of agricultural Insect pests; Methods of controlling insect pests including the use of resistant plant varieties.

AGR 322 – INTRODUCTION TO GENETICS AND BREEDING (2 CREDIT UNITS)

History of Genetics; Fundamental principles of inheritance, Mendelian genetics; linkage and crossing over, genes in population, Genetics variations and their sources, free and potential variations, Heteroses; genetic base of heterosis and in breeding; Breeding and environmental effects in breeding pure; The breeding, cross breeding of other breeding methods for animals; Selection principles, depression, natural selection and theory of evolution.

ANS 321 - RUMINANT ANIMAL PRODUCTION I (2 CREDIT UNITS)

Management of breeding stock; growing and young animal housing, equipment and feeding principles of Cattle, Sheep and Goats; Production and Management practices; Health Management of Ruminants. Processing and Marketing of Ruminant Animal Products.

ANS 323 - AGRICULTURAL BIOCHEMISTRY (2 CREDIT UNITS)

The Animal's body composition and its facts; Metabolism of carbohydrates, lipids, proteins and nucleic acid; Chemistry and mode of action of enzymes and hormones; Chemistry and analysis of selected agricultural Products; Chemical methods and Instrumentation and their application in the analysis of selected agricultural projects.

ANS 324 - INTRODUCTION TO BIOTECHNOLOGY (2 CREDIT UNITS)

Introduction, concept, definitions and main features of Biotechnology; old and new biotechnology, Scope and importance of biotech, Interdisciplinary nature of biotech, applications

and misuse of biotechnology. Recombinant DNA technology (the DNA, DNA replication and recombination; cloning strategies and transgenic technology). Plant biotechnology (plant tissue culture, cryopreservation). Environmental biotechnology (ecosystem concept, environmental pollution and its control, bioremediation, bio-pesticides and global environmental problems). Animal biotechnology (animal tissue culture, manipulation of reproduction, application of molecular genetics and bio-ethics in animal genetic engineering). Industrial and microbial biotechnology (enzyme technology, biotechnological importance of microorganisms; bio-process engineering and technology).

CCP 324 - PLANT PATHOLOGY (2 CREDIT UNITS)

Principles of plant pathology; an introduction to symptoms, spread and control of major local plant diseases caused by fungi, nematodes, bacteria and viruses.

AGR 323 - STATISTICS AND DATA PROCESSING (2 CREDIT UNITS)

Exposure to descriptive statistics, basic concepts of statistics and test of significance; field experimental designs in agriculture, randomization; Collection, collation, evaluation and analysis procedures for agricultural data; Sampling techniques, probability theory, tests of hypothesis, binomial and normal distributions; Analysis of variance, analysis of paired data, covariance analysis, and non-parametric statistical methods in agriculture.

AGT 321 - INTRODUCTION TO FARM MACHINERY (2 CREDIT UNITS)

A study of the Aims and objectives of Agricultural Mechanization; Basic mechanic and workshop tools; principles of internal combustion engine; Study of farm machinery use for different farm operations; Survey instruments.

CPP 321 - PERMANENT CROP PRODUCTION (2 CREDIT UNITS)

Origin, Distribution, Soil and Climatic Requirement of Some Important permanent crops such as Cocoa, Oil Palm, Rubber, Coffee, etc. Production, Utilization, Processing and Storage of Some permanent Crops.

AEX 321 - EXTENSION TEACHING LEARNING PROCESS & METHODS (2 CREDIT UNITS)

A study of the Nature and elements of communication process; Principles of communication; Application of communication process in extension, problem analysis concepts, methods and principles of teaching, learning and motivation

ENT 328 – ENTREPRENEURIAL PRACTICALS (2 CREDIT UNITS)

PRACTICAL COURSES

- CPP 401 Crop Production Techniques
- ANS 401 Animal Husbandry
- CPP 402 Crop Protection, Pest and Disease Control
- ANS 402 Animal Health Management
- CPP 403 Agric. products Storage and Processing

| | |
|---------|--|
| SOS 401 | Farm Design, Farm Survey and Land Use Planning |
| AGT 401 | Farm Mechanization and Workshop practices |
| AEX 401 | Extension Practices |
| AEE 401 | Farm Management, Records & Accounts |
| AGR 400 | Report Writing |
| SOS 402 | Soil Fertility, Soil and Water Management |
| AGT 402 | Agricultural Meteorology |

AEE 500 - PROJECTS (6 CREDIT UNITS)

Original research guided by a qualified member of Faculty.

AEE 511: ECONOMETRICS AND QUANTITATIVE METHODS IN AGRIC. ECONS.

(3 CREDIT UNITS)

Basic assumptions in econometrics; Simple and multiple linear regression models in agricultural economics; Functional forms and major problems of single-equation models. Special models, including distributed lag models, and dummy variable models. Simultaneous equation models with particular emphasis on identification and estimation methods. Application on econometrics to agricultural problems: estimation with bad or deficient data, multiple regression, statistical demand analysis, statistical production and cost analysis method.

AEE 512: PRODUCTION ECONOMICS. FARM MANAGEMENT AND ACCOUNTING (2 CREDIT UNITS)

Theory and principles of agricultural production with respect to resource use, resource and product/ enterprise combination; forms of production functions and their characteristics; response analysis – physical and economic relationships in agricultural production; the principles and measurement of resource productivity in traditional agriculture; farm-firm cost functions; farm-firm resource allocation using linear programming techniques; supply response analysis; data collection for production function estimation; Economic principles and farm management; farm assessment and planning, methods of farm planning; budgetary control as an aid to farm management, basic concept of accounting as a tool for farm business management; Kinds and functions of farm of accounts. procedures for record keeping and analysis; role of credit in agricultural development; financial intermediaries credit sources; interest rate and time value of money; government credit programmes for Nigerian agriculture.

AEE 513: AGRICULTURAL DEVELOPMENT (2 CREDIT UNITS)

Nature of agriculture in developing countries: Production aspects, Constraints; Appropriateness of Agricultural Economics in dealing with issues of agriculture in developing countries;

Historical developments and their role in the design and implementation of development strategies; Review of agricultural and rural development theories: Socio-economic profile of developing countries and development challenges, Why agricultural and rural development? Prime movers of agricultural and rural development, Household economic theory; Rural poverty reduction; Food security issues of vulnerability assessment, managing famine relief and recovery, measuring and forecasting food security situations; Theories, policies, problems and solutions to agricultural development in Nigeria.

AEE 514: STATISTICS AND RESEARCH METHODS (2 CREDIT UNITS)

Definition, frequency distribution and measure of central tendency, measure of variability, element of probability, sampling methods, estimation of parameters, statistical decision theory, small sampling theory and test, correlation and regression analysis, analysis of variance.

AEE 515: AGRICULTURAL MARKETING & PRICING (2 CREDIT UNITS)

Marketing issues: Elements of market efficiency and market failure, Marketing functions and price formation, Understanding the marketing system: Structure of the food marketing system, A competitive market or a market dominated by oligopolies and monopolies? Marketing channels, Marketing costs and margins, Analytical techniques for measuring marketing efficiency, International commodities organizations; Domestic markets and price policy: Price policy analysis, Subsidies and food price dilemma, Subsidising marketing costs, Economic role of prices: Distributive and allocative functions of price, Equilibrating functions with the market, Approaches to the study of agricultural market organization and performance, The function approach, The commodity approach, The institutional approach, The managerial approach, Structure-conduct-performance paradigm and Government policies concerning international trade in agricultural commodities.

AEX 511: ADMINISTRATION AND PROGRAMMED PLANNING IN EXTENSION (2 CREDIT UNITS)

Concepts, theories, principles, guidelines, organization and co-operatives as applied to agricultural extension; Concept of evaluation; evaluation of approaches; Principles and concepts of programme planning in agriculture extension, the planning process; steps in planning; concept of monitoring.

AEX 512: AGRICULTURAL EXTENSION ORGANISATION AND SUPERVISION (2 CREDIT UNITS)

Concepts, theories and guidelines and principles of extension organization, management and supervision roles and responsibilities of various level of extension and other relevant staff, staff recruitment, selection placement and supervision; Plan principles of morale and motivation, implications for extension staff development and promotion, creating conducive working environment, discipline, assessment of extension work accomplishments; improving Nigeria extension services.

AEX 513: COMMUNICATION AND DIFFUSION INNOVATIONS (2 CREDIT UNITS)

Definition and elements of diffusion; process of adoption and diffusion of innovation; the innovation decision process, characteristics of innovation; adoption rates and adoption categories and diffusion curves, opinion leadership; change agents theoretical formulations on the diffusion of innovations sector related to differential rates of new agricultural technology, implication of these processes and factors for effective agricultural extension in rural areas.

CPP 514: PROCESSING & STORAGE OF AGRIC. PRODUCTS (2 CREDIT UNITS)

Storage life and harvested fruit seeds, vegetables and flowers, tropical environment in relation to maturity ripeness and senescence; Storage of crop materials; Traditional methods of vegetable processing and storage; Storage and shelf-life problems, ideal atmosphere for storing fruit seeds and vegetable products, Storage and preservation.

AEE 521: LAND ECONOMICS (2 CREDIT UNITS)

The issues and concept of resources, challenges and attributes of resource allocation and approaches to solutions, the role of economics, property right and economic efficiency, problems in resources evaluation/valuation, land use, land market, land policy and soil erosion, environmental impact assessment, economic impact, preservation of natural environment.

AEE 522: AGRICULTURAL POLICY AND BUSINESS LAW (2 CREDIT UNITS)

Historical and analytical treatment of government agricultural Policies and programmes in Nigeria and developing countries in general; theories and policies of agricultural development; the role of agriculture in the economy; interrelationship between agricultural and individual development; sectoral planning of agriculture; problems of agricultural development and planning; integrated rural development planning; Legal principles in agricultural undertakings with respect to land resources use and ownership contracts sale, and transfer and strategies.

AEE 523: AGRIC-BUSINESS FINANCE AND MANAGEMENT (2 CREDIT UNITS)

Scope, types and organization of agricultural business and management; include enterprise selection, farm growth, organizing large scale-farms, communication, control, unique marketing arrangements, legal issues and tax strategies; Principles of Agricultural Finance; Government credit policy and agencies.

AEE 524: PRINCIPLES OF CO-OPERATION AND CO-OPERATIVE PRACTICES (2 CREDIT UNITS)

History and development of co-operatives; Philosophy principles and techniques for co-operatives; Limitations and possibilities for cooperatives in Nigeria; Evaluation of Co-operatives especially farmers, marketing and purchasing cooperatives; Cooperative as a form of business, purpose and advantage of co-operative to agriculture, comparison of other business with

cooperation business; principles and operating techniques essential for successful cooperation activity; limitations and possibilities for cooperatives in Nigeria, management of cooperatives.

AEE 525: SEMINAR (2 CREDIT UNITS)

Presentation and discussion of various topics in agricultural economics

AEE 526: AGRIC PROJECT APPRAISAL MANAGEMENT EVALUATION (2 CREDIT UNITS)

Introduction to project appraisal; Tools of project analysis; Planning & agric. Development; Principles of Project Planning and Management: Planning levels, Project planning methodology, Project cycle and planning stages, Problem tree analysis, identification and selection, Logical framework approach, Priority setting methods, Strategic planning, Scenario planning. Financial & Economic Analysis of Development Projects: Identification of benefits and costs, Valuation of benefits and costs, Cash flows, Comparing benefits and costs, Economic analysis methodology, Financial analysis methodology, The concept and application of economic and social analysis. Project Appraisal Techniques: Characterisation of projects, Discounted and undiscounted measures of project worth, Benefit cost ratio, Internal or economic rates of return, Net present values, Other investment criteria, Sensitivity analysis.

AEX 521: RURAL COMMUNITY DEVELOPMENT (2 CREDIT UNITS)

Sociological economics and related policy perspectives as they relate to rural development; The theories of community, community as a unit of social change; the micro and macro approaches in social change; dimensions of innovations; approaches to the community development, community development and other development; Model of rural/agricultural development and their relevance to Nigeria situation; Problems of institutions and other infrastructural development; Case studies on community development in Nigeria and other developing countries; The future of communities in Nigeria.

AEX 522- ADVANCED RURAL SOCIOLOGY (2 CREDIT UNITS)

General sociology analysis of social structure of rural agrarian system and societies; Selected theories of social change and their potential for modernization of rural societies; Change and attitudes change, measurement or change in rural societies; Resistant and conducive forces to change in rural societies; Economics aspects of social change; group dynamics, traditional institution and their transformation, leadership pattern; Involvement of local people in directed change problems of rural societies, their causes and solutions; Special topics in rural sociology. Selected case studies

AEX 500 - PROJECTS (6 CREDIT UNITS)

Original research guided by a qualified member of Faculty.

AEX 511: ADMINISTRATION AND PROGRAMME PLANNING IN EXTENSION (2 CREDIT UNITS)

Concepts, theories, principles, guidelines, organization and co-operatives as applied to agricultural extension; Concept of evaluation; evaluation of approaches; Principles and concepts of programme planning in agriculture extension, the planning process; steps in planning; concept of monitoring.

AEX 512: AGRICULTURAL EXTENSION ORGANISATION AND SUPERVISION (2 CREDIT UNITS)

Concepts, theories and guidelines and principles of extension organization, management and supervision roles and responsibilities of various level of extension and other relevant staff, staff recruitment, selection placement and supervision; Plan principles of morale and motivation, implications for extension staff development and promotion, creating conducive working environment, discipline, assessment of extension work accomplishments; improving Nigeria extension services.

AEX 513: COMMUNICATION AND DIFFUSION INNOVATIONS (2 CREDIT UNITS)

Definition and elements of diffusion; process of adoption and diffusion of innovation; the innovation decision process, characteristics of innovation; adoption rates and adoption categories and diffusion curves, opinion leadership; change agents theoretical formulations on the diffusion of innovations sector related to differential rates of new agricultural technology, implication of these processes and factors for effective agricultural extension in rural areas.

AEX 514: RURAL YOUTH PROGRAMME

Critically appraise both rural and urban resource utilization; decision analysis tools used in project investments particularly agricultural projects; project formulation, preparation, implementation, evaluation; Principles of farm appraisal, land and other resource valuation; Problems and implications of farm resource appraisal; Presentation of case studies to illustrate basic principles.

AEX 515: RURAL COMMUNITY DEVELOPMENT (2 CREDIT UNITS)

Sociological economics and related policy perspectives as they relate to rural development; The theories of community, community as a unit of social change; the micro and macro approaches in social change; dimensions of innovations; approaches to the community development, community development and other development; Model of rural/agricultural development and their relevance to Nigeria situation; Problems of institutions and other infrastructural development; Case studies on community development in Nigeria and other developing countries; The future of communities in Nigeria.

AEX 523: TECHNOLOGICAL AND SOCIAL CHANGE IN AGRICULTURE (2 CREDIT UNITS)

Understanding technological change; basic sociological concepts; technological change and societies; Discussions and assessment of theories of social change and rural development;

cultural change: evolution, diffusion, acculturation, and analysis of contemporary cases relating to human problems resulting from cultural change including directed change.

AE 512: PRODUCTION ECONOMICS. FARM MANAGEMENT AND ACCOUNTING (2 CREDIT UNITS)

Theory and principles of agricultural production with respect to resource use, resource and product/ enterprise combination; forms of production functions and their characteristics; response analysis – physical and economic relationships in agricultural production; the principles and measurement of resource productivity in traditional agriculture; farm-firm cost functions; farm-firm resource allocation using linear programming techniques; supply response analysis; data collection for production function estimation; Economic principles and farm management; farm assessment and planning, methods of farm planning; budgetary control as an aid to farm management, basic concept of accounting as a tool for farm business management; Kinds and functions of farm of accounts. procedures for record keeping and analysis; role of credit in agricultural development; financial intermediaries credit sources; interest rate and time value of money; government credit programmes for Nigerian agriculture.

AE 513: AGRICULTURAL DEVELOPMENT (2 CREDIT UNITS)

Nature of agriculture in developing countries: Production aspects, Constraints; Appropriateness of Agricultural Economics in dealing with issues of agriculture in developing countries; Historical developments and their role in the design and implementation of development strategies; Review of agricultural and rural development theories: Socio-economic profile of developing countries and development challenges, Why agricultural and rural development? Prime movers of agricultural and rural development, Household economic theory; Rural poverty reduction; Food security issues of vulnerability assessment, managing famine relief and recovery, measuring and forecasting food security situations; Theories, policies, problems and solutions to agricultural development in Nigeria

AE 514: STATISTICS AND RESEARCH METHODS (2 CREDIT UNITS)

Definition, frequency distribution and measure of central tendency, measure of variability, element of probability, sampling methods, estimation of parameters, statistical decision theory, small sampling theory and test, correlation and regression analysis, analysis of variance

AEX 521: ADVANCED RURAL SOCIOLOGY (2 CREDIT UNITS)

General sociology analysis of social structure of rural agrarian system and societies; Selected theories of social change and their potential for modernization of rural societies; Change and attitudes change, measurement or change in rural societies; Resistant and conducive forces to change in rural societies; Economics aspects of social change; group dynamics, traditional institution and their transformation, leadership pattern; Involvement of local people in directed change problems of rural societies, their causes and solutions; Special topics in rural sociology. Selected case studies

AEX 523 - SEMINAR (2 CREDIT UNITS)

Presentation and discussion of various topics in extension and rural sociology

AEE 522: AGRICULTURAL POLICY AND BUSINESS LAW (2 CREDIT UNITS)

Historical and analytical treatment of government agricultural Policies and programmes in Nigeria and developing countries in general; theories and policies of agricultural development; the role of agriculture in the economy; interrelationship between agricultural and individual development; sectoral planning of agriculture; problems of agricultural development and planning; integrated rural development planning; Legal principles in agricultural undertakings with respect to land resources use and ownership contracts sale, and transfer and strategies.

AEE 523: AGRIC-BUSINESS FINANCE AND MANAGEMENT (2 CREDIT UNITS)

Scope, types and organization of agricultural business and management; include enterprise selection, farm growth, organizing large scale-farms, communication, control, unique marketing arrangements, legal issues and tax strategies; Principles of Agricultural Finance; Government credit policy and agencies.

AEE 524: PRINCIPLES OF CO-OPERATION AND CO-OPERATIVE PRACTICES (2 CREDIT UNITS)

History and development of co-operatives; Philosophy principles and techniques for co-operatives; Limitations and possibilities for cooperatives in Nigeria; Evaluation of Co-operatives especially farmers, marketing and purchasing cooperatives; Cooperative as a form of business, purpose and advantage of co-operative to agriculture, comparison of other business with cooperation business; principles and operating techniques essential for successful cooperation activity; limitations and possibilities for cooperatives in Nigeria, management of cooperatives.

AEE 526: AGRIC PROJECT APPRAISAL MANAGEMENT EVALUATION (2 CREDIT UNITS)

Introduction to project appraisal; Tools of project analysis; Planning & agric. Development; Principles of Project Planning and Management: Planning levels, Project planning methodology, Project cycle and planning stages, Problem tree analysis, identification and selection, Logical framework approach, Priority setting methods, Strategic planning, Scenario planning. Financial & Economic Analysis of Development Projects: Identification of benefits and costs, Valuation of benefits and costs, Cash flows, Comparing benefits and costs, Economic analysis methodology, Financial analysis methodology, The concept and application of economic and social analysis. Project Appraisal Techniques: Characterisation of projects, Discounted and undiscounted measures of project worth, Benefit cost ratio, Internal or economic rates of return, Net present values, Other investment criteria, Sensitivity analysis.

CPP 500: PROJECT (6 CREDIT UNITS)

Each student is expected to choose and execute a special project under a supervisor.

CPP 511: PLANT BREEDING (2 CREDIT UNITS)

Principles of plant breeding. Breeding systems (in-breeding, out-breeding etc.) Breeding methods and procedures in self & cross-pollinated crops. Role of plant breeding in pests & diseases control in crops.

CPP 512: FIELD EXPERIMENTATION (2 CREDIT UNITS)

Principles of field experimentation in crops. Methodology experimental bailout field survey normal distribution and sampling measurement and data collection, statistical analysis, and interpretation of results.

CPP 513: IRRIGATION AGRONOMY (2 CREDIT UNITS)

Soil-water-plant atmosphere relations, water balance and methods of assisting water requirements of crops. Water uses efficiency and water economy. Crop rotation and crop sequence under irrigated conditions.

CPP 514: PASTURE & FORAGE MANAGEMENT (2 CREDIT UNITS)

Principles of grassland husbandry, botany, identification and propagation of indigenous and introduced pasture of forage plants in Nigeria. Factors affecting the nutritive value of forage and forage intake. Dry season feeds, pastures & rangeland research methods.

CPP 515: POST HARVEST PHYSIOLOGY & PRODUCT STORAGE (2 CREDIT UNITS)

Storage of harvested Agricultural Crops, tropical environment in relation to maturity, ripeness and senescence. Physical and chemical indices of quality on fruits, seeds, vegetable flowers and other crop products. Shelf-life problems. Design and operation of equipment for storage and preservation.

CPP 516: SEED PRODUCTION AND CERTIFICATION (2 CREDIT UNITS)

Elements of seed improvement (e.g. components of seed quality, pathway of seed improvement, seed processing. Treatment, packaging, storage etc.) Seed production technology; Seed certification; Seed marketing and distribution; Components of an effective seed industry.

CPP 517: HORTICULTURAL CROP PRODUCTION (2 CREDIT UNITS)

Ecological distribution of fruits and Vegetables in Nigeria; Principles underlying basic horticultural practices; Horticultural machines and equipment; Cultivation; Management and Storage of vegetable tropical fruits.

CPP 521: PHYSIOLOGY OF CROP GROWTH AND CROP YIELD (2 CREDIT UNITS)

Inorganic components of plants; the media of plant nutrition, metabolism of nutrient elements; the physiology of stomata; Water Street and troughs; Plant hormones; photo respiration, C 3 and C 4 pathways; Crasulean acid metabolism; Nitrogen metabolism, secondary metabolism in plants & their products. Chemical ecology.

CPP 522: WEED SCIENCE (2 CREDIT UNITS)

Characteristics, Classification and Biology of weeds; Losses due to Weeds, Weed control methods and problems associated with them; Classification, chemistry, selectivity, herbicides,

and environmental interaction, safety factors in the use of herbicides. Basics for herbicidal selectivity; application equipment and techniques; Practical methods of controlling weeds.

CPP 523: SEMINAR (2 CREDIT UNITS)

Presentation of discussion of various topics in Agronomy; the student is expected to prepare and participate in all seminars and present seminar

SOS 521 - SOIL FERTILITY AND CROP NUTRITION (2 CREDIT UNITS)

Fertility in tropical soils. Soil organic matter. The soil as a plant nutrient medium. Fertilizer and their management. Role of legumes in the soil; effects of tropical climate on soil fertility; economics of fertilizer use; review of fertilizer use; fertilizer and lime; calculation, handling and storage of fertilizer.

SOS 522 -SOIL & PLANT ANALYSIS (2 CREDIT UNITS)

Soil and plant sampling and sample preparation. Theories and procedures for chemical analysis for soil and plant materials; instrumentation for soil and plant analysis (flame photometer, calorimeter, pH-meter, spectrophotometer, amino-acid analysis; student seminar presentation.

SOS 500 -PROJECT (6 CREDIT UNITS)

Each student in soil science option class is expected to choose and execute a special project under a supervisor.

SOS 511 - SOIL MICROBIOLOGY (2 CREDIT UNITS)

Micro-organisms occurring in soils, microbial transformations of N P S Fe, and other minerals; soil micro-organisms in relation to soil fertility; Isolation of the Organisms concerned, Biochemical activities of microbial population and formation properties of soil organic matter. Transformation of hydrocarbon and pesticides. Ecological interactions.

SOS 512 - SOIL TAXONOMY AND SURVEY (2 CREDIT UNITS)

Basic principles of soil classification. The concepts of soil and the major systems of soil classification in Nigeria, numerical taxonomy of soils, Aerial photo interpretation and soil survey methods. Progressive soil survey reporting and field exercises; soil mapping as land potential assessment; the use and misuse of lands in the tropics.

SOS 513 - SOIL MANAGEMENT AND CONSERVATION (2 CREDIT UNITS)

Soil conservation methods, farm planning for soil conservation and; soil conservation policies, reclamation of mine-soils, Management of saline-sodic soils. Drainage methods and reduction of soil pollution, Soil management for efficient crop yield, Erosion hazards and methods of control; soil management and maintenance of soil fertility.

SOS 514 - ANALYTICAL TECHNIQUES IN SOIL SCIENCE (2 CREDIT UNITS)

Soil sampling and sample preparation. Precision bias, accurate and operational variation in analytical techniques. Instruments and their operational principles. Particle-size analysis, soil carbon and organic matter, Nitrogen and moisture equivalent determination. Analysis of micro and macro nutrients. Interpretation of data; role of drainage on soil characteristics in land management; effects of bush burning and fallow on soil fertility maintenance.

SOS 515 - SOIL CHEMISTRY (2 CREDIT UNITS)

Introduction to Crystal Chemistry of Silicate Clays. Common Clay Minerals in the Soils, their Origin and Occurrence. Mineral Composition. Acidity, Alkalinity, Salinity and Soil Reaction. Chemistry of Nutrient and Fixation. Water Logged Soils, Organic Matter; physico-chemical properties of soil; CEC; effects of chemical fertilizer on soil properties

SOS 516: FIELD EXPERIMENTATION

Principles of field experimentation in soil sciences; research methodology; experimental layout; field survey; normal distribution and sampling; measurements and data analysis.

SOS 521 - SOIL FERTILITY AND CROP NUTRITION (2 CREDIT UNITS)

Fertility in tropical soils. Soil organic matter. The soil as a plant nutrient medium. Fertilizer and their management. Role of legumes in the soil; effects of tropical climate on soil fertility; economics of fertilizer use; review of fertilizer use; fertilizer and lime; calculation, handling and storage of fertilizer.

SOS 522 -SOIL & PLANT ANALYSIS (2 CREDIT UNITS)

Soil and plant sampling and sample preparation. Theories and procedures for chemical analysis for soil and plant materials; instrumentation for soil and plant analysis (flame photometer, calorimeter, pH-meter, spectrophotometer, amino-acid analysis; student seminar presentation.

SOS 523 - SEMINAR (2 CREDIT UNITS)

Presentation and Discussion of Various topics in Soil Science. The student is expected to prepare and participate in all seminars and present a seminar.

SOS 524 - SOIL PHYSICS (2 CREDIT UNITS)

Soil structure texture and the surface area of soil particles. Soil water; Flow of water in saturated and unsaturated soils. Pineville's and Darcy's laws. Moisture characteristics, Curves, hysteresis, field water cycle, gas transportation in soils, heat transportation in soils; physical properties of soil plant atmosphere continuum.

ANS 500 - PROJECTS (6 CREDIT UNITS)

Each student is expected to choose and execute a special project under a supervisor.

ANS 511 - RUMINANT ANIMAL PRODUCTION II (2 CREDIT UNITS)

World distribution and types of goat and sheep breeds' production and lactation in goat and sheep. Management routines of goat and sheep.

ANS 512 - APPLIED ANIMAL BREEDING (2 CREDIT UNITS)

Determination of genetic parameters, improvement of farm animals by the application of genetic principles, foundation stock in livestock production. Breeding and selection of beef, dairy cattle and poultry. Statistical tools for studying inheritance genetic variation, heritability and repeatability.

ANS 513 - REPRODUCTIVE PHYSIOLOGY AND ARTIFICIAL INSEMINATION (2 CREDIT UNITS)

The reproductive systems in male and female animals; fertility and sterility of farm animals. Role of artificial insemination in livestock production, insemination techniques.

ANS 514 - PRINCIPLES OF FEED MANUFACTURING (2 CREDIT UNITS)

Influence of processing on acceptability of feeds. The Structure of the feed industry. Regulation governing the manufacture and distribution of livestock feeds. Feed formulation. Storage and quality control of feedstuffs and feeds.

ANS 515 - ANIMAL EXPERIMENTATION AND RESEARCH TECHNIQUES (2 CREDIT UNITS)

Techniques and procedures in animal experimentation. Basic statistical designs in animal science, research problems.

ANS 516 - PASTURE AND RANGE MANAGEMENT (2 CREDIT UNITS)

Adaptation and botany of indigenous and introduced pastures and forage plants. Range management-grazing systems, forage conservation, dry season feed.

ANS 517 - SEMINAR (2 CREDIT UNITS)

Presentation and discussion of various topics in animal science, the students are also expected to prepare and participate in all seminars and present a seminar.

FIS 514 - FISH NUTRITION (2 CREDIT UNITS)

Principles of fish nutrition, nutrient in fish foods. Nutrient requirement of different classes of fish, feed computation & formulation methods. The fish feed industry, pelleting, habits of fish and practical consideration in fish feeding.

ANS 521 - MONOGASTRIC NUTRITION (2 CREDIT UNITS)

Principles of mono gastric Nutrition, elements of human nutrition; Water in relation to nutrition, Feed evaluation, Feed manufacture on large scale, the feed industry.

ANS 522 - RUMINANT NUTRITION (2 CREDIT UNITS)

Microbiology of rumen, physiology of rumen action, metabolic processes and pathways System of energy evaluation, Water as relation to nutrition and water metabolism feed additives, proximate analysis, ration formation, nutritional disorders.

ANS 523 - ANIMAL PRODUCTS AND HANDLING (2 CREDIT UNITS)

Preparation of slaughtering evisceration and dressing percentages, Processing and care of hides, skin and wool, Milk hygiene, Egg quality and grading, Poultry, milk by-products. Marketing and distribution of animal products.

ANS 524 - ANIMAL HEALTH AND DISEASES (2 CREDIT UNITS)

The economic impact of diseases on livestock, Environmental factors in relation to major livestock diseases, Infection and immunity, The classification, diagnosis, epidemiology, prevention, treatment and control of different livestock diseases, Noticeable diseases, Animal handling and Drug administration, Vaccination programmes.

ANS 525 - LIVESTOCK ECONOMICS (2 CREDIT UNITS)

The place of livestock in the Nigerian economy, Agricultural production function, Capital Investment and Depreciation, Livestock feed economics, Input and return relationship in livestock production.

ANS 526 - GAME PRODUCTION AND UTILIZATION (2 CREDIT UNITS)

Game production, Harvesting Strategies and problems of game cropping; “Bush meat” processing methods, Game ranching and domestication, growth, behaviour and reproduction of animals in captivity; Design of paddock, animal houses and cages. Husbandry techniques and health care in captivity.

FIS 525 - FISH PROCESSING TECHNOLOGY (2 CREDIT UNITS)

Post harvest Spoilage, Principles and Methods of preservation, packaging, storage, product evaluation and quality control, Estimation of Nutrients in Fish. Traditional versus modern preservation Techniques.

HHM 211: INTRODUCTION TO CATERING (2 CREDIT UNITS)

History of Catering in Nigeria. Types of Catering institutions: Welfare, hospital, school meal services; residential establishments, industry, transport catering, services, contract and outside catering, licensed house (Pub) Catering. Catering terms, Career opportunities; Restaurant industry and organization, hotel industry and organization; club organization and operation; meetings Industry, Cruise Industry, Casino hotels, management and Leadership Ethics.

THM 212: FOOD AND SOCIETY (2 Units)

Food habits, their formation and change, ethnic cultural influences, introduction to ethnic cookery, religious influences European, Mediterranean, Middle, Eastern, American, Mexican

and South American, Caribbean, Indian, Pakistani, Bangladesh, Chinese, Japanese, South East Asian and African Cookery.

HHM 212: HOTEL ACCOUNTING AND BOOK KEEPING (2 CREDIT UNITS)

Accounting concepts, Nature and purpose of book keeping, gross departmental net profit, asset Sales Book-Keeping, cost-profit-volume relationship Budgetary Control, Pricing-time period, pricing formula, pricing of accommodation, food and beverage accounting records, accounting transactions, final accounts, capitals, development of management accounting concepts, mechanization, legal aspects.

THM 213: INTRODUCTION TO TOURISM (2 CREDIT UNITS)

Historical development, key factors and events in the development of tourism. Significance of tourism, structure and organization, growth of tourism, demand for tourism, tourism in Nigeria. Significance for management, planning and development, Travelling, procedure for booking and ticking routing, and scheduled individual and group travel, linking carriers, financial consideration in owning travelling agency, provision of information services owning a travel agency.

***HMT213: PRINCIPLES OF FOOD PURCHASING (2 CREDIT UNITS)**

Sources of supply and purchasing information raw materials, prepared and point prepared product purchasing methods and organization, tendering, contract buying, nominated suppliers, cooperative buying groups food quality, standards, sizes, weights, labelling requirements and specifications, purchasing methods, and organization for liquors, arrangement with brewer, wine suppliers, nominated suppliers, contractors, cooperative buying groups, cash and carry. Legal standards for licences.

THM 214: FINANCIAL ACCOUNTING IN THE HOSPITAL INDUSTRY 1 (2 CREDIT UNITS)

Basic introduction to accounting steps in the accounting cycle. Preparation, reading and analysis of financial statements. Processing of accounting information. Accounting for expenses, fixed assets, inventory, depreciation equities, sales and payroll. Accounting process from recording through posting, adjusting entries, closing entries. Fund statements; partnership accounting, cost management accounting. Cost accumulation; costing methods Decision making, cost volume profit analysis. Pricing, Principles of budget control. Product costing, costing concepts.

THM 222: FOOD PRODUCTION: THEORY AND PRACTICE (2 CREDIT UNITS)

Menu planning, balance of cost, balance of selling price, nutritional requirements, production and service requirements, stockholding and stock turnover considerations. Men as marketing tool, menu writing language, grammar, technical terms, descriptions, layout structure, suitability to type of operation. Centralized, cooked-freeze, dispersed production, convenience food operations, traditional organizations.

THM 223: FOOD SERVICE (CREDIT UNITS)

Principles and techniques of food services, service methods and organization. Modern, traditional and commercial, industrial and welfare service systems, vending and disposables, dispensing, control of material flow and handling, recipe construction, balance, item substitution, establishing and measuring standards, applied quantity and cost control production methods and organization.

HHM 222: PERSONAL MANAGEMENT (2 CREDIT UNITS)

Nature and challenge of personnel management, organization of the personnel unit, planning and controlling fair employment practices, organization and job design, human resources planning, management, individual and organizational development, performance, appraisal and management by objectives, career development, compensation types, motivation, organizational behaviour modification, status of labour union, collective bargaining, management of conflicts, communication and counselling. Turnover, layoffs, outplacement, personnel research and change.

HHM 223: ACCOMMODATION MANAGEMENT (2 CREDIT UNITS))

Types of accommodation, cost and control of material, labour, over heads, total and unit cost of cleaning, prices, types of tariffs, calculation, charges based on breakdown/cost basis of cost plus profit basis, Gross and net profit control techniques, performance analysis-sales/expenditure statements, internal and external audit, daily and periodic summaries of function e.g. guests./room/bed of performance relating to different sectors of the industry using standards and comparisons.

HHM 224: RESTAURANT OPERATIONAL MANAGEMENT (2 CREDIT UNITS)

Restaurant organization, staff uniforms, preparation and duties. Restaurant presentation and equipment. Procedure for service of a meal, social skill, Types of service, technical skills, services area, beverages. The men, menu, menu knowledge, covers for different occasions, control systems, meal service-breakfast, lunch, dinner, afternoon teas, banqueting, guardian service, licensing law.

HMT 311: INSTITUTIONAL EQUIPMENT MANAGEMENT (2 CREDIT UNITS)

Definitions, designs and classification of institutional equipment; requirement and specifications of installation and operating large equipment; methods of evaluation of equipment performance; use and routine care of equipment and special maintenance practices of equipment and environment.

THM 311: COST CONTROL (2 CREDIT UNITS)

Cost as a management function in hotel and tourism industry; Factors affecting food cost control, by – menus, types, of series, purchasing methods; storage room control, pricing methods, portion standardization etc; labour cost control bar and restaurant control, records for control, financial reports, operational control, store keeping.

HHM 311: MANAGING HOUSEKEEPING OPERATIONS (2 CREDIT UNITS)

Housekeeping organization. Housekeeping staff. Relationship with other departments. Head housekeeping his duties, recruitment of staff. Duty rosters for commercial hotel housekeeping, seasonal hotels, motel etc. Duties and responsibilities of other housekeeping staff – Assistant housekeeper, chamber maids, staff maids, cleaners, clock room attendant, house porters, valets.

Sitting and large rooms, linen, beds and beddings, keys, safety and fire precautions, health, Hygiene and first aid. Storage containers, towels – different sizes/types kitchen rubbers, oven cloths, dusters, death of a guest, control of rodents and pest, bed bugs, clothes moth and their control.

HHM 312: FOOD AND BEVERAGE OPERATIONS (2 CREDIT UNITS)

Management and evaluation of food and beverage systems. Developing marketing strategy, merchandizing concept, menu concept and planning operations for profitable operations. Pertinent legislation. Simulated commercial operations will be used to develop management skills and evaluate operating systems within a realistic scenario.

THM 312: INTERMEDIATE TOURISM (2 CREDIT UNITS)

Role of tourism within the broader context of leisure. Developing an appreciation of theoretical perspectives. Concepts and techniques used in the study of tourism. Factors which determine demand for tourism and identification of those which are of particular importance in the Nigerian context. Analysis of significance of tourism to Nigerian economy and ways in which the net contribution can be maximized. Assessment of measures taken by government worldwide to balance the growth of tourism with the necessity for adequate conservation.

HHM 316: CATERING HYGIENE AND SAFETY (2 CREDIT UNITS)

Definition, purpose and importance of Hygiene of Personal hygiene of food handlers, personal cleanliness, General Health and fitness, kitchen design and equipment, kitchen hygiene, food poisoning, reservoirs of infection and ways of spread, vehicles of infection e.g. dairy products, meat, storage sterilization and disinfection, cleaning methods, control, control of infestation e.g. rats, legislation relating to Nigeria Law on hygiene, health, safety and welfare, markets, stalls and delivery vehicles, health education.

HHM 314: MAINTENANCE MANAGEMENT (2 CREDIT UNITS)

Introduction to maintenance and engineering principles required in today's lodging and food service operations. Technical information needed to establish effective preventive maintenance programmes, role and function of maintenance department, effect of travel trends on maintenance, responsibilities of the chief engineer, basic electricity concepts and electrification of building, electric devices and appliances, swimming pools, elimination of pollution.

HHM 313: FRONT OFFICE/RECEPTION MANAGEMENT (2 Units)

Reception terms – reception and receptionist. Functions and staff of reception. Personal qualities and qualification of receptionist, duties. Reservations – advance, reservation diary, description and use. Guidance notes on advance reservation. Communication and counselling, social skills, selling and marketing techniques, legal aspects. Ancillary services checking in, checking out and night clerk.

HHM 315: LIQUOR STUDIES (2 CREDIT UNITS)

Storage and control of liquors, beers, cider and mineral waters, introduction to wines – definition, terms, wine making, French Wines, - Bardux, Burgurdy, Champagnes, German Wines, Italian Wines, Wines of other countries – Spain, Portugal, Hungary etc, fortified wines,

vermouths and aperitifs – definitions and types, Brandies, Whisky-Scotch and other, gin, blended, compounded and mixed drinks, cordials, liquors, cocktails.

HMT 316: FINANCIAL ACCOUNTING IN THE HOSPITALITY INDUSTRY 11 (2 CREDIT UNITS)

The accounting process. Role of book keepers and accountants in collection of financial information. The three legal forms of business organization – proprietorships, partnerships, and corporations. Major accounting categories that appear on the statement of income, equity statements and balance sheets, advantages of uniform system of accounts for specific segments of the hospitality industry. Major classification of accounts (assets, liabilities, equity, revenue and expenses) and specific account fund in each classification record keeping in perpetual and periodic inventory systems; application of debits and credits; nature of contra accounts, purposes and characteristics of special journals, how they are designed and used in accounting system. Understand the month-end and year-end accounting processes for hospitality companies.

HHM 321: HOTEL AND CATERING LAW (2 CREDIT UNITS)

Basic concepts of law – common, civil, criminal cases. Introduction to company law, partnership law, sole trading. Introduction to employment law, employers' liability, common law provisions. Relevant provision of ECOWAS, Contract basis of employment, the contract and its incidence at common law and by statute, remunerations – salary controls, and negotiation, the payment of salaries health, safety and welfare, conditions and at work.

THM 322: BAR ORGANIZATION AND MANAGEMENT (2 CREDIT UNITS)

Characteristics and properties of minerals, beers, wines, spirits and liquors, general characteristics of liquors, origins, growers, shippers, distributors, new varieties and development, classification, grading, breakdown of various types. Properties, varieties, new varieties, legislation regarding classification and grading. Quality classification, handling liquor, equipment requirements combination drinks (aperitifs, long cooled drink, stimulation drinks etc), service techniques, (modern, rending, dispensing, disposables, traditional service etc), Glasses, decanters, serving features. Hygiene cleanliness of premises and equipment; legal aspects, drink occasions, merchandizing.

HHM 323: FOOD PREPARATION MANAGEMENT (2 CREDIT UNITS)

Purposes of cooking food, use of heat, effect of various methods of heat application on physical nutritional and aesthetic aspects of foods, solutions and colloids; enzymatic and microbiological aspects of food preparation, measuring techniques, leavening; flour mixes; modern and traditional equipment and procedures in relation to time, energy and monetary expenditures and health preparation.

THM 411: QUALITY FOOD PRODUCTION AND SERVICE (4 CREDIT UNITS)

Development of food service institution, meal planning food standards and service, food selection and storage, food products and their preparations.

THM 412: ORGANIZATION AND ADMINISTRATION OF HOTELS AND TOURISM CENTRES (2 CREDIT UNITS)

Factors and responsibilities of management. Art and Science of hospitality management. Three types of skills required of managers and need for management development in hospitality industry. Four types of on-the-job management instructions. 4 steps in the planning process. Criteria for good objectives, organization chart. Method of communication, their importance and functions. Responsibilities of personnel department. Maslow's hierarchy of needs and other motivational theories. Record keeping responsibilities. Accounting and benefits of uniform systems of accounts. Five basic financial statements. Daily operation reports and preparation of annual budget.

THM 413: PLANNING AND DEVELOPMENT OF HOTEL AND TOURISM ATTRACTION (2 CREDIT UNITS)

Special consideration for planning and development. The process of planning. Planning the facilities – floor layout of the different areas. Major recreational facilities and activities; personnel organizations and human relations.

HHM 411: CATERING EQUIPMENT AND SYSTEMS (2 CREDIT UNITS)

Catering Equipment, combined systems, vending machine-technical reliability and aesthetic acceptability, types of vending machines and their safety, hygiene for vending systems catering, convenience food catering.

HHM 412: HOTEL FURNISHING AND MANAGEMENT (2 CREDIT UNITS)

Factors affecting the type, number and quality of furnishing. Use of roller or venetian blinds. Window curtains, glass curtains, draperies and furniture. Choice of liners for different areas of hospitality industry.

HHM 413: CATERING TECHNOLOGY (2 CREDIT UNITS)

Kitchen planning, catering services – gas, electricity, comparison of fuels, energy conservation standards of hygiene, coo-chill system, cook-freeze system, sous-vide, centralized production, computer in catering, hotel Management Software.

STUDENTS' WORK EXPERIENCE SCHEME (SIWES)

Students will spend a total of one year in reputable hotels; tourism centres to as part of their practical experience. The student will be exposed to all sections of the hotel and tourism industry.

THM 511: TOURISM TRANSPORTATION (2 CREDIT UNITS)

Tourism transportation within the overall frame work of the passenger transportation industry. Examination of the physical, economic, pricing and regulatory components followed by selected industry analysis of major modes in tourism transportation using the systems approach. Local and national legislation, international treaties and organizations, current policy issues and future trends with reference to Nigerian tourism industry.

THM 512: TOURISM PLANNING AND ENVIRONMENT (2 CREDIT UNITS)

Planning and progress in the last decade. Environmental awareness and environmental impact of tourism in an area. Tourism planning process and levels of tourism resources. Evaluating scenarios where a symbolic relationship can be forged between planning tourism and conservation.

THM 513: TOURISM ECONOMICS (2 CREDIT UNITS)

Concepts and relationships that result in creation of wealth by the tourism industry. Major economic phenomenon associated with tourism industry in developed and developing countries. Economic contributions and importance of tourism industry in Nigeria.

THM 514: TRAVEL RETAIL OPERATIONS (2 CREDIT UNITS)

Accessing information essential for competent operations in a travel agency. Operation of computer reservation systems and technological development in retail travel industry. Travel terminology, costing, documentations, ancillary services, tourism destination studies. Special office systems.

THM 515: TOURISM MARKETING MANAGEMENT (2 CREDIT UNITS)

Relevant marketing concepts, need for systematic approach to the marketing function in hospitality and tourism service. Analysis of distinct problems.

THM 517: TOURISM PLANNING AND DEVELOPMENT (2 CREDIT UNITS)

Tourism planning and planning process, its responsible tourism development in relation to time, market demand and specified objectives. Impact of tourism development and consequences of emplaned development.

THM 518: TRAVEL PRODUCT MANAGEMENT (2 CREDIT UNITS)

Growth of tour package market and the design, development and management of the travel product through the stages of research, planning negotiating and pricing, marketing and operations.

HHM 511: HOTEL BOOKKEEPING AND RECEPTION (3 CREDIT UNITS)

Nature and purpose of Hotel Book-keeping, Day-to-day routine book keeping, sales, purchases, cash accounts, use of double entry, sales book-keeping. Normal accounts, purchases and purchases return journal. Purchases and trading ledgers. Suppliers' statements.

HHM 512: ADVANCED FOOD PRODUCTION AND MANAGEMENT (3 CREDIT UNITS)

Menu making, pricing, cost control. Production methods, production systems, service systems. Management of different menus table note, a la certe etc.

HHM 513: RESTAURANT OPERATIONAL MANAGEMENT (3 CREDIT UNITS)

Restaurant organization, staff uniforms, preparation and duties. Restaurant presentation and equipment. Procedure for services of meal, social skills, types of services, technical skills, service area, beverages. The menu, menu knowledge, covers for different occasions, control systems, meal service-breakfast, lunch, dinner, afternoon teas, banqueting, gueaidon service, licensing laws.

HHM 514: HOTEL MARKETING AND SALES (3 CREDIT UNITS)

Introduction to hospitality marketing and sales, scope, elements and organization of hospitality marketing and sales. Theoretical concepts of marketing, marketing functions, cost, efficiency analysis. Marketing research and improvement techniques. The four “PS” of marketing. Marketing and sales plan, personal sales, telephone sales, internal marketing and sales, restaurant and lounge sales; catering and meeting rooms sales; marketing to business travellers; marketing to leisure travellers; marketing to travel agents, marketing to special segments.

HHM 515: HOSPITALITY FACILITY PLANNING AND DESIGN (2 CREDIT UNITS)

Design and maintenance of buildings, furniture foetives and equipment in hospitality industry. Factors affecting selection and location of food service, laundry, water and surface parking systems. Inputs needed for operational efficiency, cost control through extending equipment and building life and reducing utility expenses. Innovative and environmentally friendly options for solid waste reduction and disposal. Using modern technology to streamline operational procedures, Renovation.

THM 522: HUMAN RESOURCE MANAGEMENT (2 CREDIT UNITS)

Employment Laws and applications. Job analysis and job design. Planning and recruiting; selection; orientation and socialization; training and development. Evaluating employee performance; compensation administration; incentives and benefits administration. Groups and conflict in hospitality industry. Labour unions. Negotiations and collective bargaining; Health, safety and employee assistance programmes. Turnover, discipline and exists; social responsibility and ethics. Communication. Groups processes with emphasis on diagnosing and developing human management potential of individuals.

THM 523: MANAGEMENT ACCOUNTING AND FINANCIAL CONTROL (2 CREDIT UNITS)

Analysis of hospitality products and markets, preparation of marketing plan, evaluation of media strategies, principles and practice of promotions and public relations in hospitality industries. Problems on marketing issues and marketing management.

THM 524: BUSINESS DECISION MAKING (2 CREDIT UNITS)

Decision making models; Quantitative techniques used to aid decision making in business. Marginal analysis. Decision making under risk and uncertainty.

THM 528: TRAVEL RETAIL OPERATION (2 CREDIT UNITS)

Principles of agency management and establishment. Various business functions of marketing; commercial management, information systems, organizational management, accreditations, legal aspects and consumer protection including major trends in travel distribution system (CRS)

domestically and internationally. Functional differences between retail, wholesale, and ground operations.

THM 525: STRATEGIC PLANNING IN HOSPITALITY INDUSTRY (2 CREDIT UNITS)

Using business and management concepts to conceptualize holistic view of hospitality operations; evaluating statistical and financial reports as a basis for decision making; applying elements of strategic management process in hospitality organizations. Integrating knowledge of the principles of marketing management and hotel operations and applying these to selection of strategies needed in the formation of a market plan to achieve organizational objectives.

THM 526: MARKETING AND BUSINESS DEVELOPMENT (2 CREDIT UNITS)

Principles of marketing, marketing concepts, buyer behaviour, market research, market segmentation, marketing mix variable, sales promotion, communication techniques to evoke response from users and potential users. Pricing. Distribution and promotion. Implementing, organizing and controlling marketing programmes. Business analysis for marketing. Financial analysis for marketing decisions. Strategies for marketing.

THM 527: SECURITY AND LOSS PREVENTION MANAGEMENT (2 CREDIT UNITS)

Safety and security. Security and hospitality industry. Security equipment; security procedures covering guest concerns. Department Responsibilities in Guest and asset protection; Protection of funds. Emergency management. Safety in lodging property. Insurance in the hospitality industry. Different types of insurance. Problems of insurance in hospitality industry.

***HMT 526: FINISHES IN INTERIOR (2 CREDIT UNITS)**

Physical, chemical and aesthetic properties of finishes and used on walls, floors, ceilings, furniture and cabinet. Application and maintenance of finishes and surface coverings. Care of finishing equipment and safe handling of finishing chemicals.

THM 521: ADVANCED FOOD SERVICE (2 CREDIT UNITS)

Organization of the restaurant brigade – Manager, or matre d’hotel, head waiter etc, factors governing size of restaurant brigade, personal qualities required of restaurant staff, ancillary department, services of various menus – a la carte and table d’hotel services, service routine, breakfast, floor and room services. Table laying for Table d’hotel and a la carte menu, staff luncheon, afternoon routine, buffets, these evening routines, floral decorations, Types of service – silver service, plates service, cafeteria or self-service, light refreshment service, full service. Beverages-brewing of different types of teas, coffee making. Restaurant control system, barquets and other arrangements, buffet dinners, balls, wedding and outdoor catering. Bar and cellar organization.

HHM 521: LEGISLATION AND THE CATERER (2 CREDIT UNITS)

Legislation, Environmental health officer and legislation, accident, accident prevention, First aid, fire precaution, personal, kitchen, food hygiene, food hygiene regulations, legal aspects.

THM 501: SEMINAR IN CATERING MANAGEMENT AND TOURISM (1 CREDIT UNITS)

Each student will present an oral report based on library research on current problems and development in the hotel/catering management and tourism industry.

HHM 500: PROJECT IN HOTEL MANAGEMENT (2 CREDIT UNITS)

Each student will work under supervision on a project which provides them with the opportunity to put into practice all the knowledge accumulated in hotel management and tourism. Project will aim at advancing hotel and tourism industry in Nigeria. A student may opt to concentrate on catering and hotel management or tourism. The work will be embodied in a thesis and is a prerequisite for graduation.

HRT 501: MICRO-PROPAGATION OF AGRICULTURAL CROPS (2 CREDIT UNITS)

Physiological basis of plant culture at cellular level. Identification of suitable plants and plant part for tissue culture. Environmental control in tissue culture, influence of pathogens on cultured propagules. Recent advances in Biotechnology. Role of tissue culture in Plant Breeding and induction of mutants. Role of tissue culture in horticultural crop production and rapid multiplication of clonal materials.

HRT 502: PARK DESIGN AND MANAGEMENT (2 CREDIT UNITS)

Architectural design, principles and concepts for various types of parks. Functional designs, e.g. parks for family relaxation, parks for holidaying, concepts of national parks, picnic parks.

HRT 503: FLORICULTURE (2 CREDIT UNITS)

Identification of tropical and ornamental plants, culture of trees, shrubs and flowers. Shade trees, ground covers, annual flowers, perennial shrubs and hedge plants, bedding and foundation plants, lawn grasses, nursery management, palms as ornamental plants, rock gardens, aquatic plants, Rose, ferns and orchids.

Practicals: Field work – to identify various species of trees, shrubs, hedge plants. Propagation, stem cuttings and seeds, etc. Potting media, flower show. Flower arrangement.

HRT 504: LANDSCAPE DESIGN (2 CREDIT UNITS)

Design principles, design practice, basic styles, preparing the plan design, landscape construction hard landscaping and soft landscaping. Contouring and levels. Maintenance and management of established landscape. Landscape contracts and contractual agreements.

Practicals: Drawing and design production, design concepts. Field work contour development. Topographic map production. How to prepare contract documents.