JIGAWA STATE UNIVERSITY

KAFIN HAUSA

ACADEMIC BRIEF

VOLUME II

(COURSES AND COURSES DESCRIPTIONS)

APRIL 2013

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FACULTY OF AGRICULTURE

B. AGRICULTURE

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
BOT 202	Seedless Plants	2
BOT 203	Seed Plants	2
ZOO 201	Lower Invertebrates	2
ZOO 203	Chordates	2

200 LEVEL

Course Code	Course Title	Credit Units
AEE 201	Principles of Agricultural Economics	2
AEE 202	introduction to Agricultural Extension & Rural Sociology	2
AEE 203	Introduction to Farm Management & production Econs,	3
ANI 201	Anatomy and Physiology of Farm Animals	2
ANI 202	Principles of Animal production	2
ANI 204	Introduction Agricultural Biochemistry	2
CRO 2OI	General Agriculture	3
CRO 202	Clop Anatomy, Taxonomy and physiology	2
CRO 203	Principles of Crop Production	2
FOR 201	Principles of Forestry	2
FOR 202	Introduction to Fisheries and Wildlife	2
SOI 201	Introduction to Agroclimatology	2
SOI 202	Principles of Soil Science	2
SOI 203	Introductory Agricultural Engineering	1

300 LEVEL

Course Code	Course Title	Credit Units
AEE 301	Introduction to Home Economics	2
AEE 302	Extension Teaching, Learning process and Methods	2
ANI 301	Non-Ruminant Animal production	2
ANI 302	Ruminant Animal production	2
ANI 303	Animal Genetics and Breeding	2
ANI 304	Agricultural Biochemistry	2
CRO 301	Arable Clop Production	2
CRO 302	Principles of Crop protection	2
CRO 303	Permanent Crop Production	2
CRO 304	Crop Genetics and Breeding	2
CRO 305	Statistics and Data processing	3
SOI 301	Introduction to Soil pedology and physics	2
SOI 302	Far Power and Machinery	2
SOI 303	Farm Mechanization	1
SOI 304	Soil Chemistry and Microbiology	2

400 LEVEL

Course Code	Course Title	Credit Units
Practical Year		
AEE 401	Agri-business Analysis and Management	2
AEE 402	Extension Practices	2
AEE 403	Report Writing and Presentation	3
ANI 401	Animal Husbandly Techniques	3
ANI 402	Animal Health Management	2
CRO 401	Clop Plod. Techs. (Permanent. Arable & Horticultural)	4
CRO 402	Crop Production and Pests and Disease Control	2
CRO 403	Agricultural Products Processing and Storage	2
SOI 401	Soil Fertility, Soil and Water Management	2
SOI 402	Farm Design, Farm Survey and Land Use Planning	2
SOI 403	Workshop Practices	2
SOI 404	Farm Mechanization Practices	2
SOI 405	Agricultural Meteorology	2

500 LEVEL

AGRICULTURAL ECONOMIC AND EXTENSION OPTION

Course Code	Course Title	Credit Units
AEE 501	Statistics and Research Methods	3
AEE 502	Production Economics, Farm Management & Accounting	3
AEE 503	Econometrics	2
AEE 504	Diffusion of Innovations	3
AEE 505	Administration and Programme Planning in Extension	3
AEE 506	Extension Organisation, Management and Supervision	2
AEE 507	Agric-Business Management and Finance	2
AEE 508	Agric. Project Appraisal, Management and Evaluation	2
AEE 509	Rural Community Development	2
AEE 510	Advanced Rural Sociology	2
ANI 502	Cattle. Camel, Sheep and Goat Production	2
CRO 502	Field and Plantation Clop Production	2
AEE 598	Seminar	2
AEE 599	Research Project	4

Electives

AEE 511	Economics of Livestock Production and Marketing	2
AEE 512	Agricultural Policy and Development	2
AEE 513	Technological and Social Changes in Agriculture	3
AEE 514	Principles of Co-operative Practices	3

ANIMAL SCIENCE OPTION

Course Code	Course Title	Credit Units
ANI 501	Poultry and Rabbit Production	2
ANI 502	Cattle. Camel, Sheep and Goat Production	2
ANI 503	Applied Animal Breeding	2
ANI 504	Reproduction Physiology and Artificial Insemination	2
ANI 505	Animal Experimentation and Research Techniques	2
ANI 506	Nigerian Feeds and feeding stuffs	2
ANI 507	Non-Ruminant Nutrition	2
ANI 508	Ruminant Nutrition	2
ANI 509	Animal Products and Handling	2
ANI 510	Pasture and Range Management	2

ANI 511	Animal Health and Diseases	2
AEE 507	Agri-Business Management and Finance	2
AEE 511	Economics of Livestock Production and Marketing	2
ANI 598	Seminar	2
ANI 599	Research Project	4

Electives

AEE 505	Administration and Programme Planning and Extension	3
AEE 514	Principles of Co-operative Practices	2
AEE 501	Game Production and Utilization	2

AGRONOMY AND SOIL SCIENCE OPTION

Course Code	**Course Title**	**Credit Units**
CRO 501	Vegetable and Horticultural Crop Production	2
CRO 502	Field and Plantation Crop Production	2
CRO 503	Field Experimentation	2
CRO S04	Advanced Crop Production	2
CRO 505	Seed Production Technology	2
CRO 506	Plant Breeding	2
SOI 501	Soil Survey and Land Use Planning	2
SOI 502	Soil Physics	2
SOI S03	Soil and Plant Analysis	2
SOI 504	Soil Chemistry and Microbiology	2
SOI 505	Soil Fertility and Plant Nutrition	2
SOI S06	Principles of Irrigation	2
CRO/SOI598	Seminar	2
CRO/SOI599	Research Project	4

Electives

CRO 507	Weed Science	2
CRO 508	Post-Harvest Physiology and Product Storage	2
SOI 507	Elements of Soil Water Engineering	2
ANI 510	Pasture and Range Management	2

COURSE DESCRIPTIONS

200LEVEL

AEE 201: PRINCIPLES OF AGRICULTURAL ECONOMICS: 2 CREDITS

The nature of economics and economic problems, scope and method, price theory and functions of the market with particular reference to agriculture. The concept of opportunity cost, supply and demand and their application to agricultural problems. Production functions, cost analysis and functions. Concept of elasticities. Type of markets, perfect competition, monopoly, oligopoly etc price theory and some applications. Cost and Revenue theories. Theory of distribution, the component of agriculture in National Income. Resource allocation on farms. Aggregate income, expenditure, investment" interest rate savings, employment, inflation, international trade, commodity agreements and balance of payments. Money and banking.

AEE 202: INTRODUCTION TO AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY: 2 CREDITS

The need for agricultural extension. Agricultural extension in the world and in Nigeria. Basic philosophies behind agricultural extension work. The institutional setting of agricultural extension. Basic concepts and principles of rural sociology to an understanding of rural importance of rural communities and institutions. Social stratification social processes and social changes in rural areas. Leadership in rural communities role and functions of rural leaders. Development of rural community leaders. The extension agent and rural community. Communication techniques and strategies of change. Various agricultural extension teaching methods, aids and their uses.

AEE 203: INTRODUCTION TO FARM MANAGEMENT AND PRODUCTION ECONOMICS: 3 CREDITS

Nature and scope of farm management and production economics. Decision making process. Valuation and depreciation of farm resources. Farm records, record keeping and accounting. Theory of production principles of agricultural production and resource use: factor-factor-product and product-product relationship. Consumption and resource allocation in agriculture. Farm budgeting gross and net margin analysis and farm planning.

ANI 201: ANATOMY AND PHYSIOLOGY OF FARM ANIMALS:2 CREDITS

Part of beef and dairy cattle, camel, sheep, goats rabbits and poultry. Fundamentals 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 senses and other systems of farm animals. Physiological functions of animals – homostatis, nutrition and digestion, respiration. Temperature regulation excretion and reproduction. Endocrinology The blood and circulation. Lactation, milk let down and e.g. production. Water balance.

ANI 202: PRINCIPLES OF ANIMAL PRODUCTION: 2 CREDITS

Animal production and its development. Livestock industry – problems and prospects. Description of the breeds of cattle, camel, sheep, goats, poultry and rabbits. Systems of livestock production. Feeding habit of farm animals, Principles of breeding and livestock judging. General principles of management of the different types of farm animals.

ANI 203: PRINCIPLES OF FOOD SCIENCE AND TECHNOLOGY: 2 CREDITS

Definition and scope of food science and technology. Food distribution and marketing. Food and functions. Food habits. Food poisoning and its prevention. Principles of food processing and preservation. Discussion of different preservation methods. Deterioration and spoilage of food, other post-harvest change in food. Contamination of foods from natural sources, Composition and structures of Nigeria/West African food, factors contributing to texture, color, aroma and flavor of food. Cost: traditional and ethnic influence of food preparation and consumption pattern.

ANI 204: INTRODUCTORY AGRICULTURAL BIOCHEMISTRY: 2 CREDITS

Chemistry of carbohydrates, lipids, proteins and nucleic acids. Vitamins and their co-enzyme functions. Minerals. The nature, classification and function of enzymes and hormones.

CRO 201: ENERAL AGRICULTURE: 3 CREDITS

The definition of agriculture. World population and food supply. History, scope and importance of agriculture to man. Agriculture and Natural environment. Characteristics features of tropical agriculture and how they affect production. Land use and tenure. Trends in the production, distribution and utilization of agricultural products. Measures of improving Nigerian agriculture. Climate, edaphic and social factors in relation to crop production and distribution in Nigeria. Systems of crop farming. Types distribution and significance of farm animals; basic principles of animal farming. Place of forestry. Fish farming and wildlife in agriculture.

CRO 202: CROP ANATOMY, TAXONOMY AND PHYSIOLOGY:2 CREDITS

Parts of the crop cell types and their functions. Introduction to plant taxonomy. Characteristics, distribution, economic importance and local examples from the families of Gramineae.Leguminosae.Compositae.Dioscoreaceaae.Rutaceae.Solanaceae.Alkaliaceae.Malcaceae.Convolvulaceae.etc. Development of cells and tissues, use of plant keys. Cell biology, cell and cell types. Comparative anatomy of major plant organs. Nitrogen metabolism and fixation. Plant growth hormones, enzymes: photosynthesis and translocation: pollination, respiration and energy utilization. Seed dormancy and germination, growth and development. Mineral nutrition.

CRO 203: PRINCIPLES OF CROP PRODUCTION: 2 CREDITS

Crop production and its development. The principles, problems and prospects of crop production. Distribution of crops with special reference to Nigeria. Agronomic classification of crops. Importance of crop rotation, cultural practices, water and soil conservation, irrigation and drainage. General types and characteristics of arthropods. nematodes. micro-organisms and other pests 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.

FOR 201: PRINCIPLES OF FORESTRY: 2 CREDITS

Renewable natural resources, availability, distribution and potential. Introductory ecology and natural ecosystems. Classification, ecology, morphology and silviculture of important savanna tree species.

FOR 202: INTRODUCTION TO FISHERIES AND WILDLIFE: 2 CREDITS

The important fishes and wildlife of West Africa emphasis in 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. Fish and wildlife management and production.

300 LEVEL

AEE 301: INTRODUCTION TO HOME ECONONIICS: 2 CREDITS

Philosophy, scope, objectives and historical development of Home Economics. Examination of basic human needs with respect to food, clothing, shelter and health: programme approaches in Home Economic which will help meet those needs. Preparation for careers in a variety, of occupations. Role of women in agriculture.

AEE 302: EXTENSION TEACHING, LEARNING PROCESS AND METHODS: 2 CREDITS

Nature and elements of communication process. Principles of analyzing communication problems in extension. The meaning of the concepts of teaching, learning and motivation. Steps and principles of teaching and learning. Extension teaching methods. Preparation and use of teaching materials and aids.

ANI 301: NON-RUMINANT ANIMAL PRODUCTION: 2 CREDITS

Management of breeding stock, growing and young animals. Housing, equipment and feeding principles of poultry and rabbits. Production and management practices. Livestock economics. Health management of stock. Processing and marketing of poultry and rabbits.

ANI302: RUMINANT ANIMAL PRODUCTION: 2 CREDITS

Management of breeding stock, growing young animals. Housing, equipment and feeding principles of cattle, camel, sheep and goats. Production and management practices. Health management of ruminant animals products.

ANI 303: ANIMAL GENETICS AND BREEDING: 2 CREDITS

History of genetics. Chromosomes structure, number and variations. Gene and Genotype. Genetic code. Meadelism: fundamental principles of inheritance, quantitative and qualitative characters and their inheritance. Different types of gene actions, values and means repeatability. heritability. etc. Animal variation and selection principles. Breeding and environmental effects. In-breeding, cross bleeding and other breeding methods.

ANI 304: AGRICULTURAL BIOCHEIIISTRY: 2 CREDITS

Metabolism of carbohydrates, lipids, proteins and nucleic acid. Chemistry and made of action of enzymes and hormones. Chemistry and analysis of selected agricultural products.

CRO 301: ARABLE CROP PRODUCTION: 2 CREDITS

Origin, distribution, soil and climatic requirements of cereals, legumes, fiber crops, root crops, vegetables and other important annual crops in Nigeria. Improved varieties. Production practices, harvesting, utilization, processing, storage and economic aspects of selected arable crops.

CRO 302: PRINCIPLES OF CROP PRODUCTION: 2 CREDITS

The major pests and pathogens: insects, fungi, bacteria. Viruses, nematodes and weeds. Diseases of tropical crops and stored products. Study of insect pests of major local crops, their significance and principles of control. Study of the effects of diseases causes by viruses, bacteria, fungi and nematodes and the disease control effect of weeds on crop and livestock and the principles and methods of weed control. Bried outline, shortcomings and advantages of different pest assessment and pest control methods. Strategies of integrated pest control and pest management.

CRO 303: PERMANENT CROP PRODUCTIO: 2 CREDITS

Origin, distribution, soil and climatic requirements of some important crops such as cocoa, oil palm, rubber, coffee, coconut, mango, sugar-cane, bananas, plantains, citrus, kola, cashew etc. production practices, improvement, harvesting, utilization, processing, storage and economic aspects of some selected permanent and perennial clops.

CRO 304: CROP GENETICS AND BREEDING: 2 CREDITS

Mendelian genetics. Introduction to population and quantitative genetics. Objectives and general principles of crop breeding including their application to self and cross-pollination and vegetatively propagated crops. General and special methods of selection in breeders and out-breeders; incompatibility; male sterility. Heterosis in crop breeding. Mutation breeding. Breeding methods for crop improvement. Development multiplication and distribution of improved varieties.

CRO 305: STATISTICS AND DATA PROCESSING: 3 CREDITS

Basic concepts of statistics, frequency distribution, measures of location, measures of variation, probability distribution, normal and binomial distribution. Histograms, means, mode and median, sampling, data collection, data processing techniques, statistical inference., tests of significance, F-Test, t-Tests, Chi-square analysis of variance, analysis of co-variance, correlation and regression analysis. Goodness of fit, Research objectives,

research design, field experimentation collection and processing of data.

400 LEVEL

AEE 401 -403 PRACTICALYEAR

Courses- Details to be worked out by Department.

ANI401 - 403: PRACTICAL YEAR

Courses details to be worked out by Department.

CRO 401 -403: PRACTICAL YEAR

Practical Year Courses - Details to be worked out by Department.

500LEVEL

AEE 501: STATISTICS AND RESEARCH METHODS: 3 CREDITS

Defining research problem, developing hypothesis and objectives. Principles of research design, questionnaire preparation and collection of data, measurement and data collection. Statistical theory, different statistical methods for handling data.Preparation ofresearch findings in narrative, tabular and graphic forms.

AEE 502: PRODUCTION ECONOMIC,FARM MANAGEMENT AND ACCOUNTING: 3 CREDITS

Theory and principles of agricultural production with respect to resource use, resource allocation, resource and product/enterprise combination: forms production functions and their characteristics: response analysis: measurement or resource productivity. The decision making process. Depreciation techniques, asset fixity.

AEE 503: ECONOMETRICS: 2 CREDITS

Econometric theory in production: simple regression, violation of basic assumption: estimation with bad or deficient data: multiple regression: statistical demand analysis, statistical-production and cost analysis. Methods and application of econometrics to agricultural problems.

AEE 504: DIFFUSION OF INNOVATIONS: 3 CREDITS

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

AEE 505: ADMINISTRATION AND PROGRA\{ME PLANNING IN EXTENSION: 3 CREDITS

Concepts, theories, principles and guidelines of administration, organization, supervision as applied toextension. Administrative function and responsibility in agricultural extension: staff recruitment, selection, placement and supervision. Budget development and fiscal control.Importance of programme planning inagricultural extension need, educative objective, learning experience, clientele participation, plan of work and calendar of work.The role of good public relations, good leadership and cooperation for an extension worker.Association and cooperative. Concept of evaluation applied to agricultural extension programme.

AEE 506: EXTENSION ORGANISATION. MANAGEMENT AND SUPERVISION: 2 CREDITS

Concepts, theories, guidelines and principles of extension organization, management and supervision, roles and responsibilities of various levels of extension and other relevant staff. Staff recruitment, selection, placement and

supervision. Principles of morale and motivation: implications for extension staff development and promotion: creating conducive working environment: discipline. Assessment of extension work accomplishments. Improving Nigerian extension services.

AEE 507: AGRI-BISINESS MANAGEMENT AND FINANCE: 2 CREDITS

The scope of agricultural business and management, types of agricultural business management and organisations: enterprise selection: production planning: public policies affecting agricultural business, farm growth: organisation of large-scale farms: legal organisation and tax strategies. Economics of agricultural processing; marketing management: principles of agriculture finance: principles of farm credit; capital needs of agricultural industries: sources of loan funds and collateral security for loans: credit agencies and government credit policy and approaches to efficient credit management. Farm accounting: inventory, balance sheet, cash book analysis.

AEE 508: AGRICULTLIRAL PROJECT APPRISAL MANAGEMENT AND EVALUATION: 2 CREDITS

Introduction to project appraisal. Theory; procedure and data requirements for appraisal and evaluation of agricultural of agricultural projects and programme: project identification: tools of project analysis. The arithmetic of project appraisal. cost-benefit analysis: rate of return calculations. Cash flow procedures. Farm and other resource valuation, Cost studies and practical problems of project evaluation in developing countries.

AEE 509: RURAL COMMUNITY DEVELOPMENT: 2 CREDITS

Sociological, economic and related policy perspectives as they relate to rural development. Theories of community: community as a unit of social charge: the micro and macro-approaches to social change: dimensions of innovations: approaches to community development: community development and other developments. Model of rural agricultural development and their relevance to Nigerian situation. Problems of institutions and infrastructural community. Case studies on community development in Nigeria and other development countries. The future of communities in Nigeria.

AEE 5I0: ADVANCED RURAL SOCIOLOGY: 2 CREDITS

General sociology theory, analysis of social structure rural agrarian system and societies. Selected theories of social change and their potential for modernization of rural societies: resistant and conducive forces to change in rural societies. Economic aspects of social change: group dynamics; traditional institution and their transformation, leadership patterns. Involvement of local people in directed change. Problems of rural societies, their causes and solutions. Special topics in rural sociology. Selected case studies.

AEE 511: ECONOMICS OF LIVESTOCK PRODUCTION AND MARKETING: 2 CREDITS

The place of livestock in the Nigerian economy. Consumer and consumption patterns of livestock product. Micro and Macro-economics in animal production. Agricultural production functions including data collection and analysis. Marketing theory in relation to livestock production. Application of economic theory and qualitative analysis. Capital investment and depreciation of capital. The economics of egg, meat and milk production. Livestock feed economics. input/return relationship in livestock production.

AEE 512: AGRICULTURAL POLICY AND DEVELOPMENT: 2 CREDITS

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, inter-relationship between agricultural and individual development, sectoral planning of agriculture. Problems of agricultural development and planning. Integrated rural development planning.

AEE 5I3: TECHNOLOGICAL AND SOCIAL CHANGE IN AGRICULTURE: 2 CREDITS

Understanding technological change: basic sociological concepts: technological change and societies: general principles in introducing technological change: technological change in Nigerian agricultural development, agricultural extension: ethnical consideration in introducing technological change: agricultural engineers and public extension system.

AEE 514: PRINCIPLES OF CO-OPERATIVE PRACTICES: 2 CREDITS

Evaluation of co-operative-especially farmer, marketing and purchasing co-operative. Co-operative as a form of business; purpose and advantage of co-operative to agriculture comparison of other business with co-operative business; principles and operating techniques essential for successful co-operation activity. Limitation and possibilities for co-operatives in Nigeria management of co-operative.

AEE 598:SEMINAR: 2 CREDITS

Two seminars on assigned topics

AEE 599: RESEARCH PROJECT: 4 CREDITS

ANI 501: POULTRY AND RABBIT PRODUCTION: 2 CREDITS

Buildings and equipment; incubation and hatchery management of poultry eggs. The application of the principles of feeding, housing, care disease control, breeding and management as basis for successful production of chickens, turkeys, geese, ducks, guinea fowls and rabbits. Marketing of poultry, and poultry products. Processing and marketing of rabbit products.

AN1 502: CATTLE, CAMEL, SHEEP AND GOAT PRODUCTION: 2 CREDITS

The beet and dairy industry. Feeding and management of cattle, came, sheep and goats. Housing and equipment. Calf-rearing, growing and finishing operations. Milk production, handling and processing. Animal judging, herd recording, castration and dehorning. Production and lactation in sheep and goats. Marketing milk, beef, goat and sheep products.

ANI 503: APPLIED ANIMAL BREEDING: 2 CREDITS

Determination of genetic parameters; improvement of farm animals by the application of genetic principles; breeding system, selection methods; sex determination; foundation stock in livestock production. Breeding and selection of beef and dairy cattle; record of performance tests, progeny test, breeding and selection of poultry; random sampling egg production test; improvement of sheep and goats; gene mutation and lethal genes. Statistical tools for studying inheritance, genetic variance and convenience; heritability and repeatability.

ANI 504: REPRODUCTIVE PHYSIOLOGY AND ARTIFICIAL INSEMINATION: 2 CREDITS

The reproductive system in male and female animals. Physiology of sperm and ovum; endocrinology; reproduction; egg production; genetic physiology; pregnancy and fetal development; fertility and sterility of farm animals. Role of artificial insemination (AI) in livestock production. Management of male donors; semen collection, evaluation, preservation and storage; artificial insemination techniques.

ANI 505: ANIMAL EXPERIMENTATION AND RESEARCH: 2 CREDITS

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

ANI 506: NIGERIAN FEEDS AND FEEDING STUFFS: 2 CREDITS

Classification of fees, feeding stuffs and feed supplements, chemistry and nutritive values of succulent feeding stuff. Concentrate feeds, cereals, legumes and oil seeds. Chemistry and nutritive values of some Nigerian grasses and legume species. Storage and quality control of feeding stuffs and feeds.

ANI 507: NON-RUMINANT NUTRITION: 2 CREDITS

Principles of monogastric nutrition. Elements of human nutrition. Dietary allowance, food requirements for the various-classes of animals. Feed additives. Watch in relation to nutrition. Water metabolic computation and ration formulation. Feed evaluation. Feed mixing and feed manufacture on large scale. Feed industry.

ANI 508: RUMINANT NUTRITION: 2 CREDITS

Microbiology of rumen; physiology of rumen action. Metabolic processes and pathways; non-protein nitrogen utilization. Determination of digestion coefficients, balance trials; system for energy evaluation, scheme for protein values. Water in relation to nutrition and water metabolism; requirements and their inter-relationship in nutrition. Feed additives, proximate analysis, ration formulation, nutritional disorders.

ANI 509: ANIMAL PRODUCTS AND HANDLING: 2 CREDITS

Preparation for slaughtering, evisceration and dressing percentages; care of carcass and its cuts; processing and care of hides, skin and wool; processing and storage of meat; milk processing and microbiology; and poultry products. Milk hygiene. Effects of cooking on meat and milk flavor. Post-harvest physiology of animal products; egg quality and grading, chemistry and nutritive value of meat and eggs, poultry products; milk by-products-butter, cheese and whey; preparation and storage of beef products. Food additives; flavor and aroma. Marketing and distribution of animal products.

ANI 510: PASTURE AND RANGE MANAGEMENT: 2 CREDITS

Adaptation and botany of indigenous and introduced pastures and forage plants. Characteristics of grasses legumes and shrubs. Establishment, production and seed production of pasture plants; utilization and maintenance of permanent and temporary pastures. Range management. Grazing systems. Forage conservation, dry season feeds.

ANI 511: ANIMAL HEALTH AND DISEASES: 2 CREDITS

The economic impact of diseases on livestock. Environmental factors in relation to major livestock disease. Infection and immunity. Helminthes and protozoan parasites of livestock and poultry. Bacterial, fungal and viral infections of domestic livestock; the classification, diagnosis, epidemiology, prevention, treatment and control of different livestock disease. Notifiable disease. Principles of immunity and disease resistance and their practical application. Animal handling and drug administration, vaccination programmes.

ANI 598: SEMINAR: 2 CREDITS

Two seminars on assigned topics.

ANI 599: RESEARCH PROJECT: 4 CREDITS

CRO 501: VEGETABLE AND HORTICULTURAL CROP PRODUCTION: 2 CREDITS

History, definition, classification and importance of vegetable crops, Ecological of vegetable and fruits in Nigeria, Varieties and adaptation of exotic vegetable and fruits to the Nigerian Environment. Types and system of vegetable and fruit production. Production practices, methods of plant propagation, nursery system, disease and pests of vegetable and fruit crops, Horticultural machines and equipment, principles of producing, planting and maintaining ornamental trees, shrubs, perennials and fruits in the nursery, home and parts.

CRO 502: FIELD AND PLANTATION CROP PRODUCTION: 2 CREDITS

Soil and climatic requirements; growth requirement, weed control and water use, improved varieties, production practices, disease and pest, harvesting, handling, processing, storage, marketing and utilization of field and plantation crops, growth requirements of cereals, roots, tubers, sugar crops, etc. management and field production of field crops. Fertilization, water use and weed control.

CRO 503: FIELD EXPERIMENTATION: 2 CREDITS

Principles of field experimentation in crops and soil sciences, Research methodology; experimental layout, field survey; normal distribution and sampling; measurements and results.

CRO 504: ADVANCED CROP PROTECTION: CREDITS

Quarantine regulation and phytosanitary measures, fundamentals of plant resistance to disease, principles and methods of disease control and management; principles, techniques and equipment for applying crop protection chemicals in the control for field and storage pests, disease and weeds. Equipment maintenance and repair, storage of pesticides.

CRO 505: SEED PRODUCTION TECHNOLOGY: 2 CREDITS

Structure and nature of seed, functions of parts of seed, seed viability, vigor, dormancy deterioration. Methods of breaking seed dormancy, production, processing, drying, treatment, packaging, storage and distribution of improved seed, seed certification, procedures for field inspections, seed legislation and control, seed testing procedures, seed programmes in Nigeria, seed marketing.

CRO 506: PLANT BREEDING: 2 CREDITS

Significance of reproductive system in cultivated plants; sexual reproduction, techniques and principles of crop germ plasma bank, role of plant breeding in pest and disease control in crops; selection methods in breeding programmes, maintenance of breeding stock; multiplication and distribution of improved crop varieties.

CRO 507: WEED SCIENCE: 2 CREDITS

Characteristics, classification and biology of weeds, due to weeds, weed control methods and problem associated with them, classification, chemistry, selectivity, formulation, and environmental interaction. Safety factors in the use of herbicides, basis for herbicidal selectivity. Application, equipment and techniques, practical methods of controlling weeds in Nigeria.

CRO 508: POST-HARVEST PHYSIOLOGY AND PRODUCT STORAGE: 2 CREDITS

Storage life and harvested fruits, seeds, vegetables and flowers, tropical environment in relation to maturity, ripeness and senescence. Physical and chemical indices of quality in fruits, seeds, vegetables, flowers and other crop products. Storage of crop materials, traditional methods of vegetable processing and storage. Fundamentals and principles of crop storage and principles of crop storage and transportation. Storage and shell life problems, ideal atmosphere for storing fruits, seeds, vegetables, flower and other crop products. Controlled environment for transit and long term storage, protective treatment, design and operation of equipment for storage and preservation

CRO 598: SEMINAR: 2 CREDITS

Two seminars on assigned topics.

CRO 599; RESEARCH PROJECT: 4 CREDITS

FOR 501: GAME PRODUCTION AND UTILIZATION: 2 CREDITS

Game production; harvesting strategies and problems of game cropping. ‘’bush meat’’ processing methods, traditional uses of game and game products. Hunting techniques, game ranching and domestication. Growth behavior and reproduction of animals in capacity; habit and food preference. Design of paddocks, animal houses and cages, husbandry techniques and health care in capacity.

B. FISHERIES

COURSE OUTLINE

300 LEVEL

Course code	Course Title	Credit Units
FHS 301	Fish Biology	2
FHS 302	Ichthyology	2
FHS 303	Limnology	2
FHS 304	Fish Ecology	2
FHS 305	Aquaculture	2
FHS 306	Aquatic Flora and Fauna or Hydrobiology	2
FHS 307	Fish Farming Techniques and Hatchery Management	2
FHS 308	Fish Nutrition	2
FHS 309	Fish Gear Technology	2
FHS 310	Fish Parasites and Diseases	2
FHS 311	Elementary Seamanship and Navigation	2
FHS 312	Oceanography	2
FHS 313	Fish Pond Construction and Management	2
FHS 314	Fish Adaptation and Physiology	2

400 LEVEL

Course Code	Course Title	Credit Units
FSH 401	Fish Gear use, Design Production & Maintenance	3
FSH 402	Fish Processing, Preservation And Marketing	3
FSH 403	Fish prod., Mgt. techniques &Accounting Practice	4
FSH 404	Pond Construction and Management	3
FSH 405	Fish Hatchery Mgt., Fingerling And Fry Production	3
FSH 406	Oceanography Techniques	3
FSH 407	Aquatic Environmental Survey	2
FSH 408	Fish Nutrition and Fish Food Technology	3
FSH 409	Fisheries (aquaculture) Engineering	3
FSH 410	Report Writing	3

500 LEVEL

Course code	Course title	Credit units
FSH 501	Fish Production And Management	2
FSH 502	Production of Other Marine Products	2
FSH 503	Ornamental Fisheries and Aquaria Design	2
FSH 504	Fish Population Dynamics	2
FSH 505	Fish Farming Engineering	2
FSH 598	Seminar	2
FSH 506	Fishery Technology, Processing and Storage	2
FSH 507	Advanced Fish Nutrition	2
FSH 508	Fishery Economics	2
FSH 509	Water Quality Management and Pollution Control	2
FSH 510	Farm Management and Fishery Business Management	2
FSH 511	Fisheries Policy and Legislation	2
FSH 599	Project	4

COURSE DESCRIPTIONS

300 LEVEL

FSH 201: INTRODUCTION TO FISHERIES AND WILDLIFE

The importance of fishes and wildlife of West African emphasis on Nigeria species. Classification evolution, morphology and basic structure of fishes. The adaptation of fish life cycle of principal species of fishes and wildlife significance of fishes and wildlife in the life of Nigerians. Fish and wildlife management and production.

FSH 301: FISH BIOLOGY

The gross internal and external anatomy of a type bony and typical cartilaginous fish. The different types of anatomical systems and basic functions of each system of organs in fish. Embryology and life history of a fish with special reference to commercially important fish e.g. tilapia, claries, catfish and mullet.

FSH 302: ICHTHYOLOGY (SYSTEMATIC OF FISH)

Principles of systematic, taxonomy and detailed study of principal commercial species in Nigeria fish; inland estuarine and ocean, water invertebrates and reptiles. Identification of species using keys and monographs. Important world species sardine, tuna, anchornveta etc. biological attributes of fish populations, phylogenetic relationships.

FSH 303: LIMNOLOGY

Physical and Chemical properties of both inland and sea water hydrology and water cycle, properties of natural and man-made lakes. Thermal properties and stratification.

FSH 304: FISH ECOLOGY

Ecology of fish with special reference to distribution and natural history and application of this knowledge of fisheries management and obtaining maximum returns from fishery resource. Characteristic of the aquatic environment. Organic production in aquatic in fauna and flora-alga blooms and eutrophication; plankton and benthos, biomass assessment. Food and feeding habit of fish, food and habitat selection, population, nitch concept. Food chains, reproductive behavior of and life cycle of some selected species.

FSH 305: AQUACULTURE

Aims and types of aquaculture, History, present organization and status of aquaculture in Nigeria. Principles of agriculture liming and pond, food supply growth rate and food conversion; selection of culture species, introduction of exotic species and their implications. Water requirement, stocking, feeding and harvesting practices. Fish farm design. Economic consideration of aquaculture.

FSH 306: AQUATIC FLORA AND FAUNA

Study and identification of the characteristic flora and fauna of importance in fresh water and coastal swamps of the tropics. The ecology utilization and management of aquatic flora and fauna. Control of aquatic weeds in pond chemicals. Mechanic and biological.

FSH 307: FISH FARMING TECHNIQUES AND HATCHERY MANAGEMENT

Artisanal and commercial fishing methods and importance in fishing boats, boats, trawlers and gears hooks, traps and nets different types of fish culture techniques, monoculture, polyculture, selected breeding, intensive and extensive culture in inland and brackish water, in rice field, in floating cage and rafts. Gear selectivity; electro fishing, spawning methods; artificial fertilization; incubation rearing, harvesting and transportation of fry and finger lings, selection and care of breeders; larvae and finger lings, control of weeds, parasite and disease in the hatchery, control of physiochemical properties of water.

FSH 308: FISH NUTRITION

Principles of fish nutrition, chemistry and Nutritive value of pond nutrient requirements of fish, Nutrient sources and practical and practical considerations in fish feeding

FSH 309:

Study of types of gear and fishing craft. Properties of the material used in the construction of fishes 'gears construction of hooks, traps and net. Assessment of efficiency of fishing gear.

FSH 310: FISH PARASITES AND DISEASES

Identification, morphology, taxonomy, life history of fish parasitic. The ecological effects of parasites and disease of fish. Epidemiology of parasite population in water body, common bacterial, fungal and viral fish diseases and their control. Other enemies of fish, international restriction binding the transportation of fish across country boundaries. Fish ponds and public health.

FSH 311: ELEMENTARY SEAMANSHIP AND NAVIGATION

Important sea terminology; parts of a boats, strength of wind and state of sea. Cost lights and light of vessels. Measures for distance. Depth, speed launching and boarding of small boats. Life saving and fire fighting equipments and methods. Swimming.

FSH 312: OCEANOGRAPHY

Study of the temperature and chemistry of sea water, Biological activities and their distribution, salinity and chlorinity, currents, tides, wave sound and radiation in the sea, conductivity diffusion, viscosity and dynamics of sea water. Distribution and behavior of plankton. Brackish water condition and fauna, interrelationship of and physiological adaptation and marine organisms.

FSH 313: FISH POND CONSTRUCTION AND MANAGEMENT

Principles of fish pond construction, Preparation of ponds for stocking, management of flora and water quality, maintenance of ponds, harvesting from ponds.

FSH 314: FISH ADAPTATION AND PHYSIOLOGY

The different shape and adaptive designs in fish in relation to the aquatic environment. Natural environmental adaptation of fish, migration, and reproduction, feeding habits, salinity, temperature and life cycles modified environmental of fish to pressure, light, electricity field and noise.

500 LEVEL

FSH 501: FISH PRODUCTION AND MANAGEMENT

Practical aspects of handling and care of fish, Breeding of fish, production of fingerlings and fries; management of breeders growers and other types of fish and marine products; building and equipment needed in a fish farm; procurement of feed and system of feeding. Harvesting and marketing, Appraisal of management structure and effectiveness of fisheries management policies, preparation of management plan for fisheries project

FSH 502: PRODUCTION OF OTHER MARINE PRODUCTS

Ecology, life histories of crustacea and aquatic mollusks, culture of shrimps, oysters; crabs crayfish, lobster, cockles, periwinkles, marine gastropods. Frogs, edible sea weeds and fresh water plants. Deep sea and shore farming of some products, processing and preservation of marine products

FSH 503: ORNAMENTAL FISHERIES AND AQUARIA DESIGN

Ornamental fish breeding, management and nutrition, design and maintenance of various aquaria.

FSH 504: FISH POPULATION DYNAMICS

Fishing effort and per unit effort, population estimation, age and growth; natality and mortality computation of yields from given recruitment. Stock assessment

FSH 505: FISH FARMING ENGINEERING

General surveying, site selection; fresh water and brackish water pond construction, design and construction of dykes, sluice gates, drainage facilities, design of inland fish farms, pumping stations and fish hatcheries.

FSH 506: FISHERY TECHNOLOGY, PROCESSING AND STORAGE

Post harvest spoilage; principles and method, packaging, storages, product evaluation and quality control estimation of nutrients in fish, tradition versus modern preservation techniques

FSH 507: ADVANCED FISH NUTRITION

Advanced principles of fish nutrition; requirements for energy, protein, vitamins and minerals and non-nutrient components; feed computation and formulation methods; the fish feed industry; feed palliating; fish fed habits; feed evaluation; practical consideration in fish feed. Feed formulation, feed mixing and manufacture of feed on commercial scale.

FSH 508: FISH ECONOMICS

Major economic constraints in fishery development; free access fishery, sustainable yield curve and total revenue curve, bionomic equilibrium, factor rents, welfare economic theory and its relevance for fisheries, externalities in fisheries, capital investment and depreciation of equipment; consumer and consumption patterns, fishery resources and right of ownership.

FSH 509: WATER QUALITY MANAGEMENT AND POLLUTION CONTROL

Physical composition of water bodies; water chemistry and nutrient cycles; sampling methods; management of selected marine, brackish and fresh waters, chemical, mechanical and biological methods for maintaining and improving water quality; biological, ecological characteristics of polluted waters; effect of pollution on fish plankton, benthic macro invertebrates, algae and water quality.

FSH 510: FARM MANAGEMENT AND FISHERY BUSINESS MANAGEMENT

Fish farm planning and organization; farm budgeting, farm growth, problems of organizing and managing fish farms under commercial and peasant systems. The scope of fishery business and management, types of business management,; type of credit extended to fish farming; sources of units and loans, marketing arrangement, fish farm record and accounting; financial management.

FSH 511: FISHERIES POLICY AND LEGISLATION

Fisheries institution, conservation strategies, fisheries policy and laws of Nigeria.

FSH 598: SEMINAR

Each student will be required to give a seminar in the final year and participate in all departmental seminars.

FSH 599: PROJECT

Each student is required to choose and execute a special project under a supervisor. Duration of the project is two semesters.

B. SC. HOME ECONOMICS

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
ENG 111	Use of English 1	3
BIO 101	Basic Biology 1	4
MTH 101	Mathematics I	3
CHS 101	General Chemistry I	4
ANT 100	Man and Society	3
FST 130	Intro. To Home Science & Mgt.	2
AEX 111	General intro. To General Agric.	3
ENG 112	Use of English II	3
BIO 102	Basic Biology II	3
FST 131	Food Consumer Studies	2
HIS 100	African History	3
MGT 112	Elements of Management	3
PHI 100	Intro. To Philosophy	3
CMS 112	Intro. To Computer Science	3

200 LEVEL

Course code	Course title	Credit units
AEC 211	Principle of Agric Economics	3
ACC 111	Intro. To Financial Accounting I	3
FST 240	Home Technology	4
FST 231	Agricultural Food Products	3
AEC 111	Elements of Economics	3
FST 241	Intro. To Textile & Clothing	3
PHI 210	History of Science & Tech.	3
ANS 230	Prin. Of Animal Production	3
FST 221	Prin. of Food Science & Tech.	3
FST 201	Basic Microbiology	3
EDF 212	Development Psychology	3
FST 220	Food Preparation I	3
FST 242	Clothing Construction	2
GST 222	Peace Studies & Conflict Resolution	2
FST 210	Intro. to Agric. Biochemistry	3

300 LEVEL

Course code	Course title	Credit units
FST 301	Food Microbiology & Hygiene	4
BRD 412	Prinpl. of Household Res. Management	2
FST 323	Food Preparation II	3
FST 343	Introduction. to Design, Patterns Drafting & Alt	3
AEX 312	Intro. to Agric. Ext. & Rural Sociology	3
FST 302	Personal Family & Comm. Health 3	
STA 101	Introductory Statistics	3
URP 312	Housing I	3
FST 334	Home Furnishing & Management 3	
FST 344	Advanced Pattern Design & Altr.	3
FST 324	Food Serv. Systems & Admin.	3
FST 322	Food Product Dev. & Marketing	3
FST 315	Food Chemistry I	3
FST 350	Principles of Nutrition	3

400 LEVEL

FOOD AND HOME SCIENCE OPTION

Course code	Course title	Credit units
FST 450	Community Nutrition.	3
FST 425	Advanced Food Preparation I	3
FST 445	Advanced Clothing Construction	3
FST 438	House-keeping/ Home Management	3
FST 436	Advanced Household Recourse Mgt.	3
FST 402	Food Microbio. & Hygiene II	3
FST 570	Technical Writing and Presentation	1
FST 435	Food Preservation & Processing	2
FST 411	Nutritional Biochemistry	3
FST 437	Interior Decoration & Design	3
FST 428	Advanced Food Preparation II	3
FST 561	Food Standards and Quality Control	3
FST 470	Seminar in Home Sci. & Management	1
FST 480	Final Year Project in Home Sci. & Mgt.	4

FOODS AND NUTRTITION OPTION

Course code	Course title	Credit units
FST 450	Community Nutrition	3
3FST 425	Advanced Food Preparation I	3
FST 410	Food Biochemistry	3
FST 451	Advanced Human Nutrition	3
FST 402	Food Microbiology & Hygiene II	4
FST 536	Meat/fish Technology	3
FST 570	Technical Writing & Presentation	1
FST 435	Food Preservation & Processing	2
FST 411	Nutritional Biochemistry	3
FST 428	Advanced Food Preparation II	3
FST 551	Human Nutrition & Toxicology	4
FST 561	Food Standards & Quality Control	3
FST 470	Seminar in Home Sci. & Management	1
FST 480	Project in Home Sci. & Mgt. Final Year	4

NUTRITION AND DIETETICS OPTION

Course code	Course title	Credit units
FST 450	Community Nutrition	3
FST 425	Advanced Food Preparation I	3
FST 410	Food Biochemistry	3
FST 451	Advanced Human Nutrition	3
FST 402	Food Microbiology & Hygiene II	4
FST 452	Clinical Nutrition & Dirt Therapy	3
FST 510	Technical Writing & Presentation	1
FST 435	Food Preservation & Processing	2
FST 411	Nutrition Biochemistry	3
FST 428	Advanced Food Preparation II	3
FST 453	Clinical Nutrition & Dirt Therapy II	3
FST 561	Food Standards & Quality Control	3
FST 470	Seminar in Home Sci. & Management	1
FST 480	Final Year Project in Home Sci. & Mgt.	4

HOTEL AND CATERING MANAGEMENT OPTION

Course code	Course title	Credit units
FST 425	Advanced Food Preparation I	3
FST 427	Food & Beverage Service I	3
FST 463	Food And Beverage Management I	3
FST 461	Accommodation Operation	2
FST 426	Bar operation & Liquor Studies	2
FST 462	Accommodation Management	2
FST 570	Technical Writing & Presentation	1
FST 402	Food Microbiology & Hygiene II	4
FST 428	Advance Food Presentation II	3
FST 429	Food & Beverage Service II	3
FST 464	Food and Beverage Management II	3
FST 465	Accommodation Planning & Maintenance 2	
FST 466	Hotel Administration/Service	2
FST 467	Hotel and Catering Regulations	2
FST 470	Seminar in Home Sci. & Mgt.	2
FST 480	Final Year Project in Home Sci. & Mgt.	4

COURSE DESCRIPTIONS

100 LEVEL

PHI 100: INTRODUCTION TO PHILOSOPHY

Processes of mate selection, preparation for marriage; adjustment and interaction in marriage laws and customs affecting marriage in different cultures with special emphasis on Nigeria; marriage and family institutions, responsibilities in varying family system and meeting challenges/crimes in family relationships caused by social changes. 3 units, semester 11

FST 130: INTRODUCTION TO HOME SCIENCE AND MANAGEMENT

Philosophy, scope objective and historical development of home science and management career opportunities and contribution of home science and management to general and professional management of the home, hotels, hospital dietetic departments and other institutional establishments. Basic human needs with respect to food. Clothing, shelter and health. 2 units, semester I

FST 131: FOOD CONSUMER STUDIES

Overview of consumer awareness of food safety with emphasis on snacks and street foods. Factors affecting consumer's choice of food products sensory quality price nutrition value etc. creating awareness of the rights and responsibilities of consumers in the market place. Consumer protection and government policies. Economic forces affecting individuals and families as consumers of food and other services. Developing aids and techniques for making intelligent choices of foods and other goods and services. Political, social, economic and legal implications of consumer decisions and actions, 2 units, semester 11

200 LEVEL

FST 241: INTRODUCTION TO TEXTILES AND CLOTHING

Physical and chemical characteristics of various types of fibres (natural and synthetic); fabrics and finishes in use, selection, uses and care for home use and for apparel, study of clothing needs based on physical, aesthetic, economics, cultural and social psychological factors; basic clothing construction methods, equipment, measurement. Per-requisite FST 130, 3 Units, semester 1

FST 240: HOME TECHNOLOGY

Introduction to design features and practical applications of food services and other home equipment, e.g. ovens, fryers, steamers and pressure cookers, refrigerators/freezers, food mixers, dish washers etc. operating and maintenance of common food machinery and other mechanical and electrical equipment. 3 units, semester 1

FST 231: AGRICULTURAL FOOD PRODUCTS

Different types of foods and agricultural products, their structures and composition. Vegetables, fruits, cereal, palm-wine, roots and tubers sugar, care, oil palm meat, milk, cheese, butter, sausage, ham, fish, mango and other juices. The processing and storage of these food products, techniques and problems of developing, fabricating and merchandising, ingredient regulation, taste panels, market tasting, market research and patents; making of human food from local foodstuff. Pre-requisite AEX 111, 3 Units, semester 1

FST 220: FOOD PREPARATION I

Scope of catering operations; inter-personal skills in home and catering; purchase, handling uses, and maintenance of basic kitchen tools and equipment; health and safety in catering operations; fuels and their uses; food purchasing methods and procedures, classification, sources, characteristics and properties of food commodities. Pre-requisite FST 231, BIO 102, 3 Units, semester II

FST 242: CLOTHING CONSTRUCTION

Fitting techniques and construction method as applied to sewing, woven and knitted fabric, wardrobe planning, fabric selection and construction of garments for personal and family use. Pre-requisite FST 130, 3 Units, Semester II

300 LEVEL

FST 322: FOOD PRODUCT DEVELOPMENT AND MARKETING

A study of the sequence of events involved in the development and marketing of new food products, especially on the physic-chemical principles of food fabrication and the economics of new product development, nutritional consideration in selected fabricated foods. Branding and packing of food products including beverages. Pre-requisite FST 131, 3 Units, semester II

FST 343: INTRODUCTION TO DESIGN, PATTERN, DRAFTING AND ALTERATION

Introduction to basic principles of design to apparel and drawing: techniques used in development, alteration and styling of pattern, drafting and pattern design. Pre-requisite FST 242, 3 Units, semester II

FST 302: PERSONAL, FAMILY AND COMMUNITY HEALTH

Concept of health; recognizing and coping with problems. Level of prevention, environmental sanitation. Disease spread by water, food and air; common health problems in Nigeria communities. Disease that can be prevented by immunization, governmental and voluntary agencies efforts in solving health problems. Accidents in and outside the home: family adjustments to health crises and community organization in health. Pre-requisite FST 201 3 units, semester I

FST 323: FOOD PREPARATION II

Principles of cookery-scientific principles of handling and cooking of food measuring techniques, leaving agents, flour mixture, modern and traditional equipment procedures in relation to food expenditures. Preparation and uses of soups, sauces, gravies, salads, snacks, breakfast dishes, sweet. Pre-requisite FST 220, 3 units, semester I

FST 333: PRINCIPLES OF HOUSEHOLD RESOURCE MANAGEMENT

Theories and concept of using individual, family and community resources; identification of existing resources; farm house and business management and their interfaces; model for use of existing resources, resources productivity;identification of potential resources organizing access to finance, maintenance culture in environmental and resource development. Pre-requisite BUS 112, 2Units, semester I

FST 334: HOME FURNISHING AND HOME MANAGEMENT

Study of the historical development of furniture; function selection and use of furnishings, practical interior, furnishing techniques. Decoration, refurnishing and restoration furniture and soft furnishings, construction of window treatment and practical application in analysis and evaluation in term of money and time management, work implication at different family life-cycle stages and socio-economic levels. Pre-requisite SFT 240, 3 units, semester II

FST 344: ADVANCED PATTERN DESIGN AND ALTERATION

Principles of pattern design by drafting in Muslim and fashion fabric; advanced principles of pattern drafting development and alteration. Advanced fitting techniques. Pre-requisite FST 242, 3 units, semester II

FST 324: FOOD SERVICE SYSTEM AND ADMINISTRATION

Technical operations and management of food services; primary functions, menu planning and evaluations, forecasting, food and labour cost control, schools, catering establishments (small and large) and hospitals, food distribution systems, quality food production principles, budgeting, purchasing, convenience and sanitation. Supervision and management of personnel. Pre-requisite FST 220, 3 Units, semester II

FST 301: FOOD MICROBIOLOGY AND HYGIENE I

Types of microorganisms in food and beverages; their roles and significance; incidence and types of microorganisms in food such as dairy products, meat, fish, sea foods, fruits and vegetables, canned foods, factors affecting growth and survival of microorganisms in foods. Indices of food sanitary quality microbiological examination of preferred foods and beverages. Pre-requisite FST 201, 3 Units, Semester I

400 LEVEL

FST 425: ADVANCED FOOD PREPARATION I

Harder work garnishing, cooking, stuffing for fish, meat and poultry use of potatoes and vegetables; cake making; preparation of eggs, grain dishes, pastries, puddings, sandwiches, beverages, savories and non-alcoholic drinks. Pre-requisite FST 323, 3 Units, Semester I

FST 428: ADVANCED FOOD PREPARATION II

Recipe development and testing; principles of food quality, evaluation and development of standard taste, flavor, principle of recipe formulation and presentation. Acceptability, trails, selection of participants, analysis of results. Planning and preparation of special groups and occasion developmental research and controlled experiments with food. Pre-requisite FST 323, 3 Units semester II

FST 402: FOOD MICROBIOLOGY AND HYGIENE

Contamination of food and beverages from plants, soil, air, water, sewage, animals, food spoilage, types of spoilage, spoilage of specific foods; food poisoning and infection and their preventions; personal hygiene of the food handler, spread of infection through foods environmental hygiene and regulation of food premises, control of infestation, sterilization and disinfections in hotels. Sewage and waste treatment and disposal. Pre-requisite FST 301, 3 Units semester I

FST 450: HUMAN AND COMMUNITY NUTRITION

Principles of energy balance in man; dietary intake and nutritional requirements in pregnancy and lactation; of infants and children; adolescent and adults. Nutrition as it affects learning and mental development. Biochemistry and physiology of malnutrition and starvation; factors in the community influencing nutritional static-economical and socio-cultural methods of assessment and implementing community nutrition programs and education. Impact formula and weaning foods principles of oral rehydration therapy (ORT); feeding the pre-school child. Nutritional component of primary health care. Pre-requisite FST 350, 3 Units semester I

FST: 437 ADVANCED CLOTHING CONSTRUCTIONS

Theories and application of advanced techniques in garment construction using diverse fabrics; construction of couture garment; principles of construction men's wears. Pre-requisite FST 424, 3 Units, semester I

FST 438: HOUSE KEEPING/HOME MANAGEMENT

Definition and goals of home management; basic principles of management; personal and societal values; goals and standard and how they affect management of both human and non-human resources in the home. Decision making process, and management applied to house-keeping. As part of application of management principles and process, a period of 4 – 6 weeks, in a management house is required. During this period, students are expected to analyze and evaluate management techniques at different family life cycle stages and socio-economic levels. Pre-requisite FST 334, 3 Units, Semester I

FST 436: ADVANCED HOUSEHOLD RESOURCE MANAGEMENT

Identifying and analyzing problems of resource management at individual, family community and national levels, social political and economic policies affecting resource management. Pre-requisite FST 333, 3 Units, Semester I

FST 435: FOOD PRESERVATION AND PROCESSING

Raw materials and their significance in food preservation, in food deterioration, fundamentals of heat and cold in preservation, chemical and biological principles of food preservation, processing of cereals, legumes and oil seeds, meat, fish, poultry, technology of dairy products processing, food additives, food beverage manufacturing, food by products utilizing; the choice of appropriate food preservation and processing equipment. Pre-requisite FST 332, FST 330, 3 Units, Semester II

FST 437: INTERIOR DECORATION AND DESIGN

Application of design principles to interior decoration and management of living space. Analysis, organization and development of multi-functional spaces within living environment, exploration of interior living environment; contemporary and traditional residential areas in an ecological, behavior and cultural context. Pre-requisite FST 334, 3 Units, Semester II

FST 452: ADVANCED HUMAN NUTRITION

Nutritional requirements and allowances foe human, nutritional assessments and composition of foods, effects of processing on the nutritive value of foods. Role of storage methods on nutritive value of foods, principles and problems of biological evaluation of protein. Pre-requisite FST 350, 3 Units, Semester I

FST 410: FOOD BIOCEMISTRY

Protein systems in foods, sugars in food technology, peptic food substances, plant gum and their uses in foods, non-enzymic browning, role of lipids in foods; lipid oxidation and autoxidation in food systems, carotenoids in food systems, terpenses, essential oils and chemistry of food phenolic compounds; respiration, chlorophyll and photosynthesis, biochemical activity of micro-organisms in foods. Pre-requisite FST 315, 3 Units, Semester I

FST 453: CLINICAL NUTRITION AND DIET THERAPHY I

Areas of dietetics. Diseases of the liver, gall bladder, pan crease, urinary track and their dietary management, metabolic diseases (obesity, gout, diabetes mellitus hyper lipidamia and celiac) their medical and dietary management; principles of psychotherapy, Dietician/Nutritionist in health care system. Pre-requisite FST 350, 4 Units, Semester I

FST 454: CLINICAL NUTRITION AND DIET THERAPHY II

Inborn errors of metabolism; cardiovascular disease and dietary management. Allergic reactions and traumatic conditions and dietary management. Disease of the nervous system e.g. neuritis, ply neuritis, epilepsy, multiple scloresis) and dietary management, Masco-skeletal diseases i.e. Arthritis, esteomalacia, osteoporosis etc. and their management. Pre-requisite FST 453, 4 Units, Semester II

FST 411: NUTRITIONAL BIOCHEMISTRY

Food, definition, types of nutrients/sources. Alcoholic, beverages, condiments, analysis of foods for nutrients, H2O, Ash protein, carbohydrates, fats, energy, value of food, estimation of energy expedition of animal, BMR etc. cooking and effects of method on nutritive value and different types of food; digestion of food, Bile-circulation, functions gall stones, bile pigments, biochemistry of digestion of foods-carbohydrates, protein, mineral' elements, vitamins and water, structure, function sources, characteristics. Recommended intake, hormonal control consequences of World Food Problem. Pre-requisite FST 350, 3 Units, Semester II

FST 466: HOTEL ADMINISTRATION/SERVICE

Development of the hotel industry. Organizational structure of hotels. Guest needs and desires, human and industrial relations in the hospitality industry. Effective communication, management of hotel property, reception, advance bookings. Pre-requisite FST 334, 2 Units, Semester II

FST 463: FOOD AND BEVERAGE MANAGEMENT I

Advanced bar operation in high-class hotels; provision and production of alcoholic beverages; spirit and beer control. Testing of alcoholic strength of bar; wines and spirits. Room and floor service techniques (e.g. stocking of floor service, pantries, receiving order, preparation and carrying trays etc.) planning and organization for special functions – table planning, restaurant layout and formal order of receiving guests, allocating stations. Pre-requisiteFST324, 3 Units, Semester II

FST 464: FOOD AND BEVERAGE MANAGEMENT II

Equipment involved in advanced food and beverage service management; skinned involved in advanced food and beverage services (e.g. carving and jointing meat, poultry and games, portioning skinning and filleting of round and flat design); techniques in advanced beverage service in a high class hotel purchase of foods and beverages utilization of local food commodities. Pre-requisite FST 324, 3 Units, Semester II

FST 465: ACCOMMODATION PLANNING AND MAINTENANCE

Factors affecting location of hotel properties, land acquisition processes, land use degree as it affects hotel building, concept of hotel property design – designing of kitchen restaurant etc.[planning procedures, interpretation of drawings, specifications and contract documents; building materials fitting and décor, plant and equipment maintenance. Pre-requisite FST 334, 3 U Units, Semester II

FST 467: HOTEL AND CATERING REGULATIONS

Regulations governing consumption and sale of foods in public places. Food hygiene regulations. Regulations relating to guests in residence. Liquor licensing. Regulations relating to the use of additives in foods – coloring matter, preservatives, sweeteners etc. role of food regulating bodies – NAFDAC, SON, WAHB. 2 Units, Semester II

FST 461: ACCOMMODATION OPERATION

Development and classification of hotels, organization of house-keeping department and relationship with other departments. Cleaning agent and equipment, pests and their control, house-keeping store, necessity of a safe environment. Front office, reception techniques, selling techniques, record for guest registration, standard system for hotel billing, control office linen room, importance of soft furnishing, floor and floor coverings, electricity supply and lightening system in a hotel, means of communication, importance of telephone, obligation of the hotel proprietor, fire precautions and security measures, simple first aid procedures, banking procedures and simple calculations at the front office e.g 10% service charge, tax percentages, sales tax etc. pre-requisite FST 334, 2Units, Semester I

FST 426: BAR OPERATION AND LIQUOR STUDIES

Scope of bar operation and wine service, health and safety aspects of bar operation; product knowledge and selling techniques; laws relating to the sale of alcoholic beverages, characteristic of alcoholic beverages including wine, spirits, fortified wines, liquors, characteristics of the types of brew, larger and stouts, making of cocktails, mixed drinks etc. ranges of non-alcoholic beverages, quality and control standards of alcoholic and non-alcoholic beverages, quality and control standards of alcoholic and non-alcoholic beverages. 2 Units, Semester I

FST 462: ACCOMMODATION MANAGEMENT

Interior décor for various grades of hotels procedures for advanced reservations in hotels reservations systems, application of computer to the front office, organizational and staffing structure of a hotel, compilation of budgets and keeping of cost records, importance of maintenance, provision of accommodation for various categories of clients, application of work study to accommodation services, choice of fuel for use in a hotel.

FST 427: FOOD AND BEVERAGE SERVICE I

Organizational structure of the restaurant, maintenance of counter and restaurant, working practices and procedures, waiting as a career, actions of the food service area preparation and clearing of tables, procedures of serving a guest, social skills. Pre-requisite FST 324, 3 Units semester 1

FST 429: FOOD AND BEVERAGE SERVICE 11

Standard and traditional food service system, control system in food service area staffing structure of food service establishments, inventory preparation, storage and maintenance of service equipment principles of menu construction menu selling techniques, types of catering organizations (e.g. Fast food, franchise, hospital catering industrial catering, out-door, hotels such as coffee shop, snack bar etc) accompaniments carved with food items (e.g. savories curry pottage etc German etc). Pre-requisite FST 324, 3 Units semester II

FST 470: SEMINAR IN HOME SCIENCE AND MANAGEMENT

Under the supervision of a staff students carry out simple research work in a selected problem area of interests, write and present a report in a prescribed format. This is reviewed and assessed by internal and external examiners. 1 unit, semester 11

FST 480: FINAL YEAR PROJECT

Under the supervision of a staff students carry out simple research work in a selected problem area of interest, write and present a report a prescribed format. This is reviewed and assessed by internal and external examiners. 1 unit, semester II

B. SC. HOSPITALITY AND TOURISM MANAGEMENT

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
HMT 111	Principles of Psychology	2
HMT 112	Principles of Sociology	2
HMT 121	principles of accounting	2

200 LEVEL

Course Code	Course Title	Credit Units
NUD 211	Introduction to Nutrition and Dietetics	2
HCM 211	Introduction to catering	2
HMT 211	Food and Society	2
HMT212	Hotel Accounting and Book Keeping	2
TRM 211	Introduction to Tourism	2
HMT 228	Financial Accounting in the Hospitality Industry I	2
NUD 222	Fundamental of Nutrition Dietetics	2
FST 225	Introduction to Food Science and Technology	2
HEC 221	Introduction to Home Economics	2
HEC 224	Agricultural Food Products	2
HMT 222	Food Production Theory and Practice	2
HMT 223	Food Service (Theory and Practical)	2
HMT 224	Personnel Management	1
HMT 225	Accommodation Management	1
HMT 226	Restaurant Operational Manager	2
MTH 227	Introduction to Computer	2
HMT 228	Financial Accounting in the Hospitality Industry I	2

300 LEVEL

Course Code	Course Title	Credit Units
HMT 311	Cost Control	2
HCM 311	Managing Housekeeping Operations	2
HMT 312	Food and beverage Expirations	2
FST 314	Food Analysis and Sensory Evaluation	3
TRM 311	Intermediate Tourism	2
HMT 314	Front Office/Reception Management	2
HMT 313	Maintenance Management	1
HMT 315	Liquor Studies	1
HCM 312	Catering Hygiene and Safety	2
HMT 316	Financial Accounting in the Hospitality Industry II	2
HMT 321	Employee Labour Relations	2
HEC 427	Interior Decoration and Design	2
HEC 422	Receipt Development and Testing	2
HCM 321	Hotel and Catering Law	2
FST 324	Food Microbiology	4
FST 325	Post Harvest Physiology and Storage	2
HMT322	Bar Organization and Management	2
HMT 323	Food Preparation Management	2

400 LEVEL

Course Code	Course Title	Credit Units
HMT 411	Quantity Food Production and Service	2
HMT 412	Organization & Administration of Hotels	2
HMT 413	Planning and Development of Hotel and Tourism Attractions	2
HCM 411	Catering Equipment and System	2
TEM 405	Ornamental Plants and Flower Production	2
HCM 412	Hotel Furnishing and Management	2
HCM 413	Catering Technology	2
HMT 414	Research Methods in Catering and Tourism	2
TEM 402	Landscaping and Environmental Management	2
SIWES 4000	6 Months Industrial Training in Hotel or Tourism Centers	6

HOTEL AND CATERING MANAGEMENT OPTION

Course Code	Course Title	Credit Units
HCM 511	Hotel Book Keeping and Record	3
HCM 512	Advanced Food Production and Management	3
HCM 513	Restaurant Management	3
HCM 514	Hotel Marketing and Sales	3
HCM 515	Hospitality Facility Planning Design	3
HMT 500	Project in Hotel Management	2
HMT 501	Seminar in Hotel Management	1
HMT 527	Advanced Food Services	3
HMT 521	Human Resources Management	2
HMT 522	Management Accounting and Financial Control I	2
HMT 523	Business Decision Making	2
HMT 524	Strategic Planning in Hospitality	2
HEC 427	Interior Decoration and Design	2
HCM 528	Legislation and the Caterer	2
HMT 502	Project in Hotel Management	2
HMT 526	Marketing and Business Development	2
HMT 526	Insuring Security and Loss Prevention Management	2

TOURISM MANAGEMENT OPTION

Course Code	Course Title	Credit Units
TRM 511	Tourism Transportation	2
TRM 512	Tourism Planning and Environment	2
TRM 513	Tourism Economics	2
TRM514	Travel Retail Operation I	2
HMT 500	Project in Tourism	1
HMT 501	Seminar in Tourism	2
TRM 515	Tourism Marketing Management	2
TRM 516	Tourism Marketing and Management	2
TRM 517	Travel Product Management	6
TRM 527	Advance Food Service	3
TRM 521	Human Resources Management	2
TRM 522	management Accounting and Financial Control	2
TRM 523	Business Decision Making	2
TRM 524	Strategic Planning in the Hospitality	2
TRM 525	Marketing and Business Development	2
TRM 526	Security and Loss Prevention Management	2
TRM 521	Travel Retail Operation II	2
TRM 522	Hospitality Marketing Management	2
TRM 500	Project in Tourism	6

COURSE DESCRIPTIONS

INTRODUCTION TO CATERING 2 CREDITS

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; club organization and operation; meeting industry, cruise industry, casino hotels management and Leadership Ethics.

FOOD AND SOCIETY 2 CREDITS

Food habits, their formulary and change, ethics 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 Asia and African Cookery.

HOTEL ACCOUNTING AND BOOK KEEPING 2 CREDITS

Accounting concepts, nature and purpose of book keeping, gross departmental net profit, assets sales book-keeping, cost-profit-volume relationship Budgetary Control, pricing formula, pricing of accommodation, food and beverages accounting records, accounting transactions, final accounts, capitals, development of management accounting concepts mechanization, legal aspects.

INTRODUCTION TO TOURISM 2 CREDITS

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, Traveling, procedure for booking and ticking routing, and scheduled individual and group travel, linking carriers, financial consideration in owing traveling agency, provision of information services owing a travel agency.

PRINCIPLES OF FOOD PURCHASING

Sources of supply and purchasing information raw material prepared and point prepared product purchasing methods and organization, tendering, contract buying, nominated suppliers, cooperative buying groups food quality, standards, sizes, weighs, labeling requirements and specifications, purchasing methods and organization for liquors, arrangement with brewers, wine merchants; wine suppliers, contractors, cooperative buying groups, cash and carry. Legal standards for licenses.

FINANCIAL ACCOUNTING IN THE HOSPITAL INDUSTRY I 2 CREDITS

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 coasting, coasting concepts.

FOOD PRODUCTION: THEORY AND PRACTICE 2 CREDITS

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

FOOD SERVICE

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

PERSONNEL MANAGEMENT 2 CREDITS

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 behavior modification, status of labor union, collective bargaining, management of conflicts, communication and counseling. Turnover, layoffs, outplacement, personnel research and change.

ACCOMMODATION MANAGEMENT 1 CREDITS

Types of accommodation, cost and control of material, labor, overheads, 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 statement, internal and external audit, daily and periodic summaries of function e.g. guests/room/bed of performance relating to different sector of the industry using standards and comparisons.

RESTAURANT OPERATIONAL MANAGEMENT 2 CREDITS

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

INSTITUTIONAL EQUIPMENT MANAGEMENT 2 CREDITS

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

COST CONTROL

Cost as a management function in hotel and tourism industry; factors affect food cost control, by menus types of service, purchasing methods; storage room control, pricing methods, portion standardization etc. labor cost control, bar and restaurant control, records for control systems, financial reports, operational control, store keeping.

MANAGEMENT HOUSE KEEPING OPERATIONS 2 CREDITS

Housekeeping organization. Housekeeping organization staff relationship with other department head house keeping 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; chalets .sitting and large rooms lines, beds and beddings kits ;safety and fire precaution, health. Hygiene and first aid. Storage container s towels, difference size/types kitchen rubbers, oven cloth, duster, and death of guest; control of rodent and pest; bed bugs; cloth moth and their control.

FOOD AND BEVERAGE OPERATION 2 CREDITS

Management and evaluation of food and beverage system, developing marketing strategy; merchandising concept; menu concept and planning operation for profitable 0peration. Pertinent legislation, simulated commercial operation will be used to develop management skills and evaluate operating system within a realistic scenario.

INTERMEDIATE TOURISM 2 CREDIT

Role of tourism within the broader context of leisure. Developing an appreciation theoretical perspective. Concept and techniques used in the study of tourism .factors. Which determine demand for tourism and identification of those, which are of particular importance in Nigeria .analysis signification of tourism to Nigerian economy and ways in which the net contribution can be maximized. Assessment of measure taken by government worldwide to balance the growth of tourism with the necessity for adequate conservation.

CATERING HYGIENE AND SAFETY 2 CREDIT

Definition , purpose and importance of hygiene of food handlers, personal cleanliness, general health and fairness, kitchen design and equipment kitchen hygiene ,food poising, reservoirs of infection and ways of spread, vehicles of infection e.g. dairy products meat ,storage sterilization and disinfection, cleaning methods, control of infestation e.g. rat ,legislation relating to Nigerian law in hygiene ,heath, safety and welfare, market ,stalls and delivery vehicles, health education.

MAINTENANCE MANAGEMENT 2 CREDIT

Introducing to maintenance and engineering principle requires in today's lodging and food service operations technical information needed to establish effective preventive maintenance programs, role and function of maintenance department ,effect of travel trends on maintenance, responsibilities of the chief engineer, basic electricity concept and electrification of building, electric devices and appliances swimming pools, elimination of pollution.

FRONT OFFICE/RECEPTION MANAGEMENT 2 CREDIT

Reception term-reception and receptionist. Function and staff of reception. Personal qualities and qualification of receptionist, duties. Reservation-advance, reservation diary, description and used. Guidance notes on advance reservation communication and counseling, social skills, selling and marketing techniques, legal aspects, ancillary services checking out, night clerk.

LIQUOR STUDIES

Storage and control of liquors beers cedar and mineral water introduction to wines , definition, terms, wine making French wine-bardux, burgundy, champagnes, German wine, Italian wines, wines of other countries-Spain, Portugal, Hungary, etc. fortified wines , vermouth and aperitifs-definition and types brandies, whisky scotch and other ,gin, blended compounded and mixed drinks, cordials, liquors cocktails.

FINANCIAL ACCOUNTING IN THE HOSPITALITY INDUSTRY LL 2 CREDITS

The accounting process. Role of book keepers and accountants in collection financial information. The tree legal forms of business organization –proprietorships, partnership, and co-operation. major accounting categories that appear on the statement of income ,equity statement and balance sheet, advantage of uniform system of accounts(assets, liabilities, equity ,revenue ,and expenses)and specific account fund in each classification record keeping perpetual and periodic inventory system, application of debits and credits ;nature of contra account , purpose and characteristics of special journals, how they are designed and used in accounting system. Understand the month-and year end accounting processes for hospitality companies.

HOTEL AND CATERING LAW 2 CREDIT

Basic concept of law-common, civil, criminal cases. Introduction to company law, partnership law, sole trading, introduction to employment law, employers liability, common law provision. Relevant provision of ECOWAS contraction basic of employment the contract and its incidence at common law and by statute
Remuneration-salary controls and negotiation the payment of salaries health, safety and welfare, condition and at work.

BAR ORGANIZATION AND MANAGEMENT 2 CREDIT

Characteristics and properties minerals, beers, wines, spirits, and liquors, origin, growers, shippers, distributors, new varieties and development , classification, grading, breakdown of various types. Properties varieties, legislation regarding classification and grading. Quality classification, handling liquor, equipment requirement, combination drinks (aperitifs, long cooled drink, stimulation drinks etc)glasses, decanters, serving features, hygiene cleanliness of premises and equipment; legal aspect, drinks occasion, merchandising.

FOOD PREPARATION MANAGEMENT 2 CREDIT

Purpose of cooking food, used of heat, effect of various methods of heat application on physical nutritional and aesthetic aspect of foods, solution and colloid; enzymatic and microbiological aspect of food preparation, measuring techniques, leavings; flour mixes modern and traditional equipment and procedures in relation to time, energy and monetary expenditures and heath preparation.

QUALITY FOOD PRODUCTION AND SERVICE 4 CREDIT

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

ORGANIZATION AND ADMINISTRATION OF HOTELS AND TOURISM CENTERS 2 CREDITS

Factors and responsibilities of management. Art and science of hospitality management. Tree types of skills required of managers and need for management development in hospitality industry. Four types 0f on-the –job management instruction. 4 steps in the planning process. Criteria for good objectives, organization chart. Method of communication, their importance and function. Responsibilities of personnel department, Maslow's hierarchy of needs and motivational theories. Record keeping responsibilities. Accounting and benefits of uniform systems of accounts. Five basic financial statement. Daily operation report and preparation of annual budget.

PLANNING AND DEVELOPMENT OF HOTEL AND TOURISM ATTRACTION 2 CREDIT

Special consideration for planning and development. The process of planning. The facilities-four layout of different areas. Major recreational facilities and activities; personnel organization and human relation.

CATERING EQUIPMENT AND SYSTEM 2 CREDIT

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.

HOTEL FURNISHING AND MANAGEMENT 2 CREDIT

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

CATERING TECHNOLOGY 2 CREDITS

Kitchen planning, catering service-gas electricity, comparison of fuels, energy conservation standards of hygiene, cook-chill system, soups-vide, centralized production, computer in catering , hotel management software.

SIWES 4000 6 CREDIT

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

TOURISM TRANSPORTATION 2 CREDIT

Tourism transportation within the overall framework of the passenger transportation industry. Extermination 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.

TOURISM PLANNING AND ENVIRONMENT 2 CREDIT

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

TOURISM ECONOMIC 2 CREDIT

Concept and relationship s that result in creation of wealth by the tourism industry. Major economic phenomenon associated with tourism industry in developing countries, economic contributions and importance of tourism industry in Nigeria.

TRAVEL RETAIL OPERATION 2 CREDIT

Accessing information for competent operation in a travel agency. Operation computer reservation systems and technological development in retail travel industry .travel terminology, costing, documentations, ancillary service, tourism destination studies, and special office systems.

TOURISM MARKETING MANAGEMENT 2 CREDIT

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

TOURISM PLANNING AND DEVELOPMENT

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 unplanned development.

TRAVEL PRODUCT MANAGEMENT 2 CREDITS

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

HOTEL BOOKKEEPING AND RECEPTION 3 CREDITS

Nature and purpose of bookkeeping, Day-to-day routine book keeping, sales, purchases, cash accounts, use of double entry, sales book-keeping. Normal accounts, purchase and purchases return journal. Purchases and trading ledger. Supplier's statements.

ADVANCED FOOD PRODUCTION AND MANAGEMENT 3 CREDITS

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

RESTAURANT OPERATIONAL MANAGER 3 CREDITS

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

HOTEL MARKETING AND SALES 3 CREDITS

Introduction to hospitality marketing and sales, scope, element 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.

HOSPITALITY FACILITY PLANNING AND DESIGN 2 CREDITS

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 operation efficiency. cost control through extending equipment and building life and reducing utility expenses. Innovative and environmentally friendly options for solid for solid waste reduction and disposal. Using modern technology to treamside operational procedures, Renovation.

HUMAN RESOURCE MANAGEMENT 2 CREDITS

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. Labor unions. Negotiations and collective bargaining; Health, safety and employee assistance programs. Turnover, discipline and exists: social responsibility and ethnics. Communication. Groups processes with emphasis on diagnosing and developing human management potential of individuals.

MANAGEMENT ACCOUNTING AND FINANCIAL CONTROL 2 CREDITS

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.

BUSINESS DECISION MAKING 2 CREDITS

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

TRAVEL RETAIL OPERATION 2 CREDITS

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, wholesales. and ground operations.

STRATEGIC PLANNING IN HOSPITALITY INDUSTRY 2 CREDITS

Using business and management concepts to conceptualize holistic view of hospitality operations; evaluating statistical and financial reports as a basis fol 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.

MARKETING AND BUSINESS DEVELOPMENT 2 CREDITS

Principles of marketing. marketing concepts, buyer behavior, 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 programs. Business analysis for marketing. Financial analysis for marketing decisions. Strategies for marketing.

SECURITY AND LOSS PREVENTION MANAGEMENT 2 CREDITS

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.

FINISHES IN INTERIOR 2 CREDITS
Physical. chemical and aesthetic properties of finishes and used on walls, floors. ceiling. furniture and cabinets. Application and maintenance of finishes and surface coverings. Care of finishing equipment and safe handing of finishing chemicals.

ADVANCED FOOD SERVICE 2 CREDITS

Organization of the restaurant brigade - Manager, or matter d' hotel, head waiter etc. factors governing size of restaurant brigade. personal qualities required of restaurant staff. ancillary departments, services of various menus - a la certe and table d'h6tel sen,ices, service routine. breakfast, floor and loom services. Table laying for Table d'h6tel and a la certe menu, staff luncheon, afternoon routine. buffets. these evening routines, floral decorations. Types of sen,ice - silver service. plates service, cafeteria or self service. light refreshment service. lull service. Beverages-brewing of different types of teas. coffee making. Restaurant control system. banquets and other arrangements, buffet dinners. balls, wedding and outdoor catering. Bar and cellar organization.

LEGISLATION AND THE CATERER 2 CREDITS

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

SEMINAR IN CATERING MANAGEMENT AND TOURISM I CREDIT

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

PROJECT IN HOTEL MANAGEMENT 6 CREDITS

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 wok will be embodied in a thesis and is a prerequisite for graduation.

MICRO-PROPAGATION OF AGRICULTURAL CROPS 2 CREDITS

TissueCulture: Physiological basis of plant culture at cellular level. Identification of suitable plants and plant parts for tissue culture. Environmental control in tissue culture. influence o1'pathogens on cultured propagates. Recent advances in Biotechnology. Role of tissue culture in Plant Breading and induction of mutants. Role of tissue culture in horticultural crop production and rapid multiplication of clonal materials.

PARK DESIGN AND MANAGEMENT 2 CREDITS

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.

FLORICULTURE 2 CREDITS

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, forms and orchids. Practicals: Field work - to identify various species of trees. shrubs. hedge plants Propagation. esteem cuttings and seeds, etc. potting media. flower show. Flower arrangement.

LANDSCAPE DESIGN 2 CREDITS
Design principles. design practice, basic style. preparing the plan design, landscape construction. Hard landscaping. 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.

FACULTY OF HUMANITIES

B. A. ENGLISH

COURSEOUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
ENG 101	Introduction to Linguistics	3
ENG 103	Spoken English	2
ENL I01	Introduction to Drama	2
ENL 103	Introduction to Poetry	2
ENL 104	Introduction to Nigerian Literature I	3
ENG I02	Introduction to Grammar	3
ENG 103B	Spoken English	2
ENG 104	Intermediate Composition	3
ENL I02	Introduction to Fiction	3
ENL I05	Introduction to Nigerian Literature II	3

200 LEVEL

Course Code	Course Title	Credit Units
ENG 201	Advanced Syntax I	3
ENG 203	Introduction to Phonetics & Phonology	3
ENG 205	History of English Language	3
ENL 201	Introduction to Oral Literature	3
ENL 203	Introduction to African Literature	3
ENG 202	Advanced Syntax II	3
ENG 204	Language and Society	3
ENG 206	Advanced English Composition	3
ENL 202	Creative Writing I	3
ENL 204	Introduction to Critical Theory	3

300 LEVEL

Course Code	Course Title	Credit Units
ENG 301	Advanced Phonology & Phonetics	3
ENG 303	Introduction to Psycholinguistics	3
ENG 305	Introduction to Semantics	3
ENG 307	Pragmatics	3
ENL 303	Modern African Poetry	3
ENG 302	English Language in Nigeria	3
ENG 304	Introduction to Sociolinguistics	3
ENG 306	Research Methods	3
ENL 304	Creative Writing II	3

400 LEVEL

Course Code	Course Title	Credit Units
ENG 401	New Trends in English Language	3
ENG 403	Discourse Analysis	3
ENG 404	Stylistics	3
ENG 405	Applied Linguistics	3
ENG 407	Creolistics	3
ENL 407	The Short Story	3
ENG 402	Multilingualism	3
ENG 406	Dialectology	3
ENG 408	English for Specific Purpose	3
ENG 409	Long Essay	3

COURSE DESCRIPTIONS

100 LEVEL

ENG 101: INTRODUCTION TO LINGUISTICS: 3 CREDITS

The course explores the salient features of English Linguistics. It exposes the student to aspects of linguistics which she will pay particular attention to in the course of the Programme.

200 LEVEL

ENG 205: HISTORY OF ENGLISH LANGUAGE: 3 CREDITS

A diachronic study of the development of the English language from old English to its present status as a word language.

ENG 204: LANGUAGE AND SOCIETY:3 CREDITS

An examination of the role of language as the sine qua non of society. linguistic Vs social categories, the grammar social interaction. whorfiarism etc.

300 LEVEL

ENG 301: ADVANCED PHONOLOGY & PHONETICS:3 CREDITS

The principles of transcription are examined. The main logical processes such as assimilation, dissimulation, epenthesis and delection are discussed with specific reference to the English language in Nigeria.

ENG 303: INTRODUCTION TO PSYCHOLINGUISTICS: 3 CREDITS

The course focuses on developmental psycholinguistics. It examines the mechanism of first and second language acquisition, language and cognitive developments.

ENG 305: INTRODUCTION TO SEMANTICS:3 CREDITS

The course examines semantic organization in English with specific reference to semantic categories and classes, contexts and situation "of words and utterances, the relationship between English syntax, semantics and pragmatics.

ENG 307: PRAGMATICS: 3 CREDITS

The course focuses on utterance meaning, the socio-cultural and linguistics rules that give and determine interpretations in the real world.

400 LEVEL

ENG 401: NEW TRENDS IN ENGLISH LANGUAGE:3 CREDITS

The major trends in the English Language at the levels of phonology, morphosyntax, vocabulary and meaning. The influence of English on such factors as expanding education, the increasing use of English in the world as a working language, the mass media, English in second language contexts, local standards of English around the world.

ENG 403: DISCOURSE ANALYSIS: 3 CREDITS

The course examines the basic principles and practice of the analysis of discourse. Specific topics to be covered include factors responsible for cohesion and coherence in discourse, the status and roles of participants and how these impinge on discourse, the context, the speech acts. etc. Emphasis will be placed on the actual analysis of natural, day-to-day texts in English in a second language context.

ENG 405: APPLIED LINGUISTICS: 3 CREDITS

Application of linguistic principles to the teaching of language with particular attention to the teaching of English with specific reference to the teaching and learning of English as a second language. It also examines the possibilities of applying linguistics to other areas of information processing.

ENG 407: CREOLISTICS: 3 CREDITS

This is a study of pidgins and Creole languages. especially in the west African Sub-region. Attention will also be focuses on some major pidgin and creoles in other parts of the world. The Nigerian pidgin situation, its linguistic and sociolinguistics potential will be extensively discussed.

ENG 402: MULTILINGUALISM: 3 CREDITS

The course examines English in a multilingual and multicultural context with specific reference to Nigeria. Issues such as Interference. Code-switching, Code-mixing and Language inter-lading. borrowing. Bilingual education, language attitudes and language loyalties will be closely examined with specific reference to the English language in Nigeria.

ENG 406: DIALECTOLOGY: 3 CREDITS

This is a course in the study of dialects. especially of the English Language all over the world. It will consider such regional dialects of English as the American, British and Nigerian varieties. Attention will also be paid to some social dialects of English around the English speaking world.

ENG 409: LONG ESSAY: 6 CREDITS

An original, special essay of between 4.000 and 8.000 words to be written by the student. It should be an acceptable topic that deals with the English Language or a balance between Language and Literature. It provides the student with the opportunity o1- collating, analyzing and interpreting data and exposes him/her to the techniques of writing a scholarly paper.

B.A. HAUSA

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
HAU 101	Introduction to Hausa People and Language	3
HAU 102	Introduction of the History of the Hausa People	3
HAU 103	Advanced Comprehension and Composition I	3
HAU 104	Advanced Comprehension and Composition II	3
HAU 105	Hausa Ajami I	2
HAU 106	Survey of Literature	2

200 LEVEL

Course Code	Course Title	Credit Units
HAU 201	Hausa Ajami II	2
HAU 202	Use of Hausa Language	2
HAU 203	Hausa Phonology I	3
HAU 204	Introduction to Hausa Literature	2
HAU 205	Hausa Morphology	3
HAU 206	Varieties of Prose in Hausa	2
HAU 207	Hausa Syntax I	2
HAU 208	Folktales	2
HAU 209	Naming in Hausa	2

300 LEVEL

Course Code	Course Title	Credit Units
HAU 301	Hausa Phonology II	3
HAU 302	Varieties of Poetry in Hausa	3
HAU 303	Hausa Syntax II	3
HAU 304	Introduction to Drama in Hausa	3
HAU 305	Dialects of Hausa	2
HAU 307	Stylistics I	2
HAU 308	Literary Criticism	3
HAU 309	Hausa Culture I	2
HAU 310	Thoughts and Briefs of Hausa People	2
HAU 311	Hausa Prosody	2
HAU 312	Hausa Socio-Linguistics	2
HAU 313	Hausa Written Poetry	3

400 LEVEL

Course Code	Course Title	Credit Units
HAU 401	Issues in Hausa Phonology	3
HAU 402	Social Institution and Material Hausa Culture II	2
HAU 403	Issues in Hausa Syntax II	3
HAU 404	Introduction to Traditional Music of the Hausa People	3
HAU 405	Stylistics II	3
HAU 407	Contemporary Prose Fiction in Hausa	3
HAU 408	Contractive Studies	3
HAU 409	Principle Practice of the Translation	3
HAU 410	Loans and Neologisms In Hausa	3
HAU 411	Hausa Oral Songs.	3
HAU 499	Project Long Essay	4

COURSE DESCRIPTION

100 LEVEL

HAU 101: INTRODUCTION TO THE HAUSA PEOPLE AND LANGUAGE

This course introduces the students to the people, their origin, migration, oral history and their relationship to other peoples in Nigeria and Africa. The language component includes: Introduction to the orthography and the history of the orthography; history of the development aerial; scholarship over the years.

HAU 102: INTRODUCTION TO THE HISTORY OF HAUSA PEOPLE

This is an introductory course on the oral and history of the people in which the various historical sources are critically examined and discussed.

HAU 103: ADVANCED COMPOSITION AND COMPREHENSION I

Introduction to the current Orthography, composition with emphasis on spelling, punctuation, organization and language use; comprehension exercise; oral delivery in the language.

HAU 104: ADVANCED COMPOSITION AND COMPREHENSION II

A continuation of HAU 103.

HAU 105: HAUSA AJAMI

The Ajami form of writing: its development, advantages and problems; a survey of selected works written Ajami; Poems pamphlets, religions material etc; transliteration of Ajami into Hausa Boko and vice-versa.

HAU 106: SURVEY OF THE LITERATURE OF THE LANGUAGE

This is a literary survey of written works in the language, prose, poetry and drama.

HAU 107: AJAMI II

Continuation of HAU 105

HAU 202: USE OF THE LITERATURE

Examination of trends in modern usage of the language; survey of common errors of usage, discussion of the principles of the effective and oral communication in the language; exercises.

HAU 203: HAUSA PHONOLOGY

Elementary phonetic description and phonetic classification of the sounds of the language, examination of their patterns of occurrence and distribution, discussion of contraction, assimilation and features like tone, stress and intonation.

200 LEVEL

HAU 204: INTRODUCTION TO THE LANGUAGES ORAL LITERATURE

This course deals with the scope of oral literature in the language; its oral and written nature, problems involved in the collection and traditional poetic forms.

HAU 205: HAUSA MORPHOLOGY

A morphological description and analysis of words in the language.

HAU 206: VARIETIES OF PROSE WRITING

A study of the various prose forms in the language; novels romance, short stories, essays, translations etc.

HAU 2017: HAUSA SYNTAX

in this course, the student are introduced to the word classes or part of speech of the language, the sentence characterization, setting and techniques; performance, the narrator and the audience; songs in folktales; creativity and of rendering folktales and myths.

HAU 209: NAMING HAUSA

Among Nigerians, naming is not just an arbitrary affair, it is once a mental, an emotional, a linguistic and a cultural affair. This course, then focuses on the linguistic and cultural importance of personal names in the language. Monition of the phonological processes in the languages; assimilation, epenthesis vowel harmony, vowel elision, length, tonal processes, and syllable structure.

300 LEVEL

HAU 302: VARIETIES OF POETRY

A detailed study of the poetic forms of the language, their functions; a critical appreciation of them.

HAU 303: HAUSA SYNTAX II

In this course, an attempt is made to apply the transformational-generative theory to the analysis of the sentences of the language.

HAU 304: INTRODUCTION TO DRAMA IN THE HAUSA

The course covers the concept of the drama in the language; a survey at play writing and play acting. The influence of traditional and folk's drama and an appraisal of the written plays.

HAU 305: DIALECTS OF HAUSA

A fairly detailed consideration of the phonological, morphological, lexical and synthetic characteristics of the major regional and social varieties of the language.

HAUS 307: STYLISTIC I

A theoretical study of stylistics in the language, particularly various theories and ideas of the relationship between stylistic , literature and linguistics, a decision of various literature features of devises of literature in the language.

HAU 308: LITERARY CRITICISMS

A study of the classic, Western and Marxist theories of literature as they relate to the prose and drama, and their application to the literature of the language.

HAU 309: HAUSA CULTURE

A survey of the culture of the people in the widest sense of thee word culture.

HAU 310: THOUGHTS AND BELIEFS OF THE HAUSA PEOPLE

A detailed and analytical study of the thought, belief and religious systems of the people.

HAU 311: HAUSA PROSODY

The meters (feet) of Hausa poems, rhythm; criteria for identifying the meter; stems of feet; combination of feet; changes in feet (types of deviation and defect); the relationship between Hausa and Arabic Metric Systems: practical prosodic analysis.

HAU 312: SOCIO-LINGUISTICS

Introduction to socio-linguistics; Language and Society; language and ethic group/social class/sex social context; language and regional/social dialects; problems of multilingualism; Lingua Franca and national language; language standardization; development of pidgin and Creole language.

HAU 313: HAUSA WRITTEN POETRY

The Jihad and the rise of Hausa written poetry; a thematic study 0-detailed study of language, style and prosody; influence of the 19tr'Century Poems on Modern Hausa verse; survey of works by mid 20th century Hausa poets and contemporary poets.

400 LEVEL

HAU 401: ISSUES IN HAUSA PHONOLOGY

A consideration of current and relevant issues in the phonology of the language (e.g. tones, vowel harmony, syllable structure. intonation, etc)

HAU 402: SOCIAL INSTITUTIONS & MATERIALS CULTURE OF HAUSA PEOPLE II

This is a detailed description and analysis of social and material of the people. This a detailed description and analysis of the social and Material aspects of the people's culture.

HAU 403: ISSUES IN HAUSA SYNTAX OF THE PEOPLE

A consideration of the current and relevant issues in the syntax of the language (e.g. tense, aspect vowel and their relationships, idiophones. pronominazation. relativizalion. and reflexivization, nominalizalion adjectives as verbs).

HAU 404: INTRODUCTION TO THE TRADITIONAL MUSIC OF THE HAUSA PEOPLE

An introductory study of the forms. functions and the qualities of the traditional music of the people.

HAU 405: STYLISTICS II

A detailed study of the stylistics features of prose and poetry both oral and written in the language; applying the principles studies HAU 307.

HAU 406: CONTEMPORARY PROSE IN HAUSA

A detailed and analytical study of Prose fiction in the language.

HAU 407: CONTEMPORARY POETRY IN HAUSA

A detailed and critical study and appreciation of contemporary poetry in the language.

HAU 408: CONTRACTIVE STUDIES IN HAUSA

A systematical examination of the structure of the language as contrasted with those of English and a Nigerian Language, with emphasis on those areas requiring special attention in teaching the language to speakers of English and the selected Nigerian Language.

HAU 409: PRINCIPLE AND PRACTICE OF TRANSLATION

General theory of translation, critical analysis of media translations achievements and lapses; selected passages for translation; Hausa from other languages.

HAU 4I0: LOANS AND NEOLOGISMS IN HAUSA

introduction to linguistics borrowing; what is borrowing how is occurs. what it reflects; factors determining words into Hausa from other languages.

HAU 411: HAUSA ORAL SONGS

A survey of Hausa songs and oral singers; classification of Hausa oral songs; study of themes; style, use of language and content of the various musical types; life history and works of selected Hausa oral singers; comparison between oral songs and written singers and poets - emphasis on theme style. language and content.

HAU 499: PROJECT/LONG ESSAY

Independent research carried out under supervision on a linguistic, literary, or cultural aspect of the language.

B. A. HISTORY AND INTERNATIONAL STUDIES

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
HIS 101	Foundations of Nigerian History I	3
HIS 102	Foundations of Nigerian History II	3
HIS 103	History of African up to 1500 A.D.	3
HIS I04	History of African from 1500-1800 A.D.	3
HIS 105	North Africa from the First Conq. of Egypt to 1500 A.D	3
HIS I06	Introduction to Economic History	3
HIS 107	Islamic Revolutions in West Africa	3
HIS 108	Major World Civilizations	3
HIS 109	Europe to the Age of Revolutions	3
HIS 110	Blacks in the Diaspora	3

200 LEVEL

Course Code	Course Title	Credit Units
HIS 201	History of Nigeria to C. 1000 A.D.	3
HIS 202	History of Nigeria to C. 1000 A.D. - 1500 A.D.	3
HIS 203	Africa in the 19th Century	3
HIS 204	Africa in the 20th Century	3
HIS 205	Economic History of Nigeria in the 19th Century	3
HIS 206	Economic Jihad. of W. Africa in the 19th Century	3
HIS 207	History of Southern Africa from C. 1400 to the Present	3
HIS 208	History of L. America from 15th Cent. to the 20tl' Century	3
HIS 209	History of East and Central Africa	3
HIS 210	History of USA Up to Independence	3
HIS 211	History of USA since Independence	3
HIS 212	History of Russia in the l9'l' Century	3
HIS 213	History of Ottoman Empire and North Africa	3
HIS 214	Europe from the French Revolution	3

300 LEVEL

Course Code	Course Title	Credit Units
HIS 301	Nigerian History 1500 * 1800	3
HIS 302	Nigerian History 1500 * 1800 II	3
HIS 303	History Research Method I	3
HIS 304	History Research Method II	3
HIS 305	Comparative Ind. Growth of USA, USSR, Japan, China & Britain I	3
HIS 306	Comparative Ind. Growth of USA, USSR, Japan, China & Britain II	3
HIS 307	Problem and Issues in African Historiography	
HIS 308	Africa in Contemporary World history	3
HIS 309	USSR from 1900 - 1950	3
HIS 310	Japan from Tokgawa to the Meiji Restoration	3
HIS 311	History of the Commonwealth	3
HIS 312	Capitalism, Communism and Mixed Economy	3

400 LEVEL

Course Code	Course Title	Credit Units
HIS 401	Nigerian History from 1800 - 1900	3
HIS 402	Nigerian History from 1900 to the Present	3
HIS 403	Economic History of Nigeria in the 20th Century	3
HIS 404	Contemporary History of the Middle-East	3
HIS 405	Special Paper (Local History)	4
HIS 406	Project	6
HIS 407	O.A.U. A study of African International Relations	3
HIS 408	Dev. of Parliamentary Sys. in Britain, France & India	3
HIS 409	History of Science and Tech from 1500-1950	3
HIS 410	War and Peace in the 20th Century	3
HIS 4I1	Land and Labour in Africa 1800 - 1950	3
HIS 412	Modern African Political Thoughts	3

COURSE DESCRIPTIONS

100 LEVEL

HIS 101: FOUNDATIONS OF NIGERIAN HISTORY I: 3 CREDITS

This course is designed to introduce students to the major themes in Nigerian History in a manner to inculcate into them the creative appreciation of historical phenomena, in order to expand their capacity to comprehend and concretely relate to the contemporary situation in Nigeria.

The first section of the course deals with a discussion of some historiographical issues that centre on the purpose and meaning of historical studies as well as the nature and significance of source materials for the study of Nigerian history. This part then examines the earliest evidence of man and society in Nigeria, the evolution of the rrarious peoples and culture groups, human settlements, the development of mini and mega states and the various changes involved up to C. 1500 A.D.

The second section covers an examination of the changes and interactions that took place within and between the various groups and communities down to C, 1800 A.D. as well as between Nigeria and the rest of Africa on the one hand and between Nigeria and Europe on the other.

HIS I02: FOUNDATIONS OF NIGERIAN HISTORY II:3 CREDITS

The course begins with an examination of the major historical changes of the 19th Century - the Sokoto Jihad, the collapse of the Alafinate and the civil wars in Yoruba land; the political crises in the Niger Delta and South-western Nigeria; and, the rise of new settlements and groups. It then continues with an examination of the intensification of European contact with Nigeria in the 19th century. This is followed by a critical examination of European imperialism in the last 3 decades of the 19th century and the eventual conquest and domination of Nigeria, including a critical assessment of the Nigerian response to this. The course ends with an examination of the .issues relating to the struggle fol independence economic and political crises up to the present.

HIS 103: HISTORY OF AFRICA UP TO 1500 A.D.: 3 CREDITS

The course focuses on the beginnings of man in Africa, the emergence and development of the economies, societies, cultures, languages and political systems up to the end of the fifteenth century. It will then examine the internal and external relations of Africa in the context of the major changes in world order.

HIS 104: HISTORY OF AFRICA FROM 1500-1800 A.D.: 3 CREDITS

The course examines the internal dynamics of the changes transforming African societies in the late 18^{th} and early 19^{th} centuries placed in the context of the revolutionary changes taking place in the same time in Europe, Asia and the Americas. It also examines the role of Africa in World politics and economy in the 20th century.

HIS 105: NORTH AFRICA FROM THE EAST CONQUEST OF EGYPT TO 1500 A. D.:3 CREDITS

A discussion of Egypt and the beginnings of civilizations. its occupation by foreign powers including Libya, the Greeks and Romans. The spread of Islam, the North African States and their relations with West Africa will also be examined.

HIS 106: INTRODUCTION TO ECONOMIC HISTORY:3 CREDITS

An examination of the general relevance of economic motivation and economic explanation for political and socio-cultural and historical activities.

HIS 107: ISLAMIC REVOLUTIONS IN WEST AFRICA: 3 CREDITS

A general discussion of the State of Islam. its stages of development in West Africa as a religion of aliens, the traders, the rulers and the militant scholars and masses. The Jihads of the Futas, Hausa land, Masina and the Tukolors.

HIS 108: MAJOR WORLD CIVILIZATIONS: 3 CREDITS

A general survey of the major civilizations and some of their major contributions in historical developments, e.g. the Egyptians, the Arabs" the Greeks, the Romans, the Chinese and the Europeans.

HIS 109: EUROPE TO THE AGE OF REVOLUTIONS: 3 CREDITS

A survey of European history highlighting fundamental developments such as the early renaissance, reformation. the age of discoveries, mercantilism. the new scientific views of the world. the age of enlightenment, the American and French Revolutions.

HIS 110: BLACKS IN THE DIASPORA:3 CREDITS

This is the study of the black communities found outside Africa in other areas of the world. the factors of their dispersal and their role in contemporary world affairs.

200 LEVEL

HIS 201: HISTORY OF NIGERIA TO C.1000 A.D.: 3 CREDITS

The course discusses the major issues underlying the study of the Nigerian historical process relating to perspectives, concepts, methods and the meaning and significance of the study of Nigerian historical developments with special emphasis on the nature of history bringing out their importance to the rest of the course. The main focus of this section of the course is the examination of human settlement and activity in Nigeria during the Stone and Iron Ages.

HIS 202: HISTORY OF NIGERIA FROM C.1000 -1500 A.D.: 3 CREDITS

The course examines the nature and pattern of settlements, economy. society. culture and religion, and the process of the formation of political communities up to the fifteenth century. The scope of this involves detailed area studies and the identification of general patterns of migrations, long-distance trade, and cultural relations over the whole region. A comparative survey of modes of production and social and political formations that had emerged in the Nigerian area by the end of the 15th Century will conclude the course.

HIS 203: AFRICA IN THE I9TH CENTURY: 3 CREDITS

The course opens with a discussion of the purpose and meaning of the study and with an introduction to the historical and historiographical issues which arise in this study. it also examines the major characteristics - economic, cultural, social and political - of African Societies at the beginning of the 19th century.

HIS 204: AFRICA IN THE 2OTH CENTURY: 3 CREDITS

An examination of the state of Africa by the beginning of the 20th century, especially its status as colonial possession and the implications economic cultural and political. The study then proceeds with an examination of the decolonization process, and the attainment of independence through constitutional bargaining and armed Liberation struggle.

HIS 205: ECONOMIC HISTORY OF NIGERIA IN THE 19TH CENTURY

A survey of the major units and institution of production, distribution, and their impact. The interaction and interconnection between economic activities and politics are also examined.

HIS 206: ECONOMIC HISTORY OF WEST AFRICA IN THE 19TH AND 2OTH CENTURIES: 3 CREDITS

This would involve undertaking a general survey of major economic developments and activities of the region in the 19th and 20th Centuries as well as the link between European industrialization and economic and political, Developments.

HIS 207: HISTORY OF SOUTHERN AFRICA FROM C.1400 TO THE PRESENT: 3 CREDITS

A survey of internal developments in the Southern Africa region and the external factors of European as adventurers/explorers, settlers miners and rulers.

HIS 208: HISTORY OF LATIN AMERICA FROM 15TH CENTURY TO THE 20TH CENTURY:3 CREDITS

The early empires and civilizations: the Incas and the Aztecs (Peru and Mexico): contact with Europe from the times of their explorations, the independence including the foreign factors. Developments after independence should also be highlighted, including the railway boom, the French adventure, as well as the 20th Century problems of governments in the area such as revolutions and instability.

HIS 209: HISTORY OF EAST AND CENTRAL AFRICA: 3 CREDITS

The impact of Arab and European activities and the African responses to these developments including the struggles for independence.

HIS 210: HISTORY OF THE USA UP TO INDEPENDENCE: 3 CREDITS

This begins with a brief survey of the colonization of North America by Europeans and their attempts to eliminate the indigenous American Indians. The history of the colonies and the declaration of independence from Britain. the American civil war', and developments since the war should also be discussed.

HIS 211: HISTORY OF THE U.S.A. SINCE INDEPENDENCE: 3 CREDITS

An overview of the political, economic and social developments of the U.S.A. since 1877 including its emergence and influence as a world power.

HIS 212: HISTORY OF RUSSIA IN THE 19TH CENTURY: 3 CREDITS

A general survey of the political and social history of Russia in the 19th Century. This, among other things should include the revolutionary currents latent in the Tsarist period and the problems faced by Russia during this period.

HIS 2I3: HISTORY OF OTTOMAN EMPIRE AND NORTH AFRICA:3 CREDITS

A general survey of the Ottoman struggles against the Europeans up to the 1't World war and the emergence of the Arab and Israel States in the world politics after 1945.

HIS 214: EUROPE FROM THE FRENCH REVOLUTION: 3 CREDITS

A study of the impact of French Revolution on Europe from 1914 to 1339 is to be treated in detail.

300 LEVEL

HIS 301: NIGERIAN HISTORY 1500 -1800: 3 CREDITS

The course with an examination of general issues relating to perspectives, concepts and the historiography of the Nigerian region in the sixteenth century bringing out the major issues relating to the nature of the course. The next section deals with the nature of the social and political order in the sixteenth century with emphasis on their internal structures and direction of development up to the mid eighteenth century.

HIS 302: NIGERIAN HISTORY 1500 -1800II: 3 CREDITS

This course examines the forces working for the, overthrow or transformation of the political and social order on the one hand and of those working to preserve and maintain it on the other. The aim here is to set the back-ground for a proper understanding of the movements and processes of change which fully emerged in the 19th century. The roots of later historical movements in the 19th century such as the Sokoto Jihad, the Yoruba Civil.

Wars, the rise of new classes, groups, and centres on the coast and South- Eastern Nigeria. The pattern and tempo of the imperialist penetration, conquest and domination shall be examined.

HIS 303: HISTORY RESEARCH METHOD I: 3 CREDITS

An in-depth study of the available sources of information, methods of gathering historical data. analysis and evaluation needs to be treated in detail.

HIS 304: HISTORY RESEARCH METHOD II:3 CREDITS

An in-depth and critical analysis of and practical exposure to historical source materials as well as various methodologies of historical explanation. exposition and documentation. The exercise should include practical exposure to the Library, the Archives, and Field Work for the collection of Oral tradition.

HIS 305: COMPARATIVE INDUSTRIAL GROWTH OF U.S.A., U.S.S.R., JAPAN, CHINA AND BRITAIN I: 3 CREDITS

The course focuses on industrialization in U.S.A.. U.S.S.R.. and Japan on comparative basis with particular reference to the social, political, economic and other factors that make industrial development possible in these countries.

HIS 306: COMPARATIVE INDUSTRIAL GROWTH OF U.S.A,, U.S.S.R. JAPAN, CHINA AND BRIG IN II:3 CREDITS

This is a continuation of HIS 305 - but with focus on China and Britain. Here the processes involved in industrial growth are compared with those of U.S.A.. U.S.S.R., and Japan.

HIS 307: PROBLEM AND ISSUES IN AFRICAN HISTORIOGRAPHY: 3 CREDITS

The course examines the different philosophies, meaning, and methodological interpretations of African history as well as the sources of conserving and transmitting it. Trends in contemporary African political and economic developments shall also be emphasized.

HIS 308: AFRICA IN CONTEMPORARY WORLD HISTORY: 3 CREDITS

A historical study o1'the general position of Africa in relation to the rest of the World in the 20th Century with emphasis on inter-state relations within Africa and the Continent's political, economic and cultural links with the outside world. Special attention shall be given to the nature and pattern of the relationships.

HIS 309: U.S.S.R. FROM 1900 -1950: 3 CREDITS

The course examines the antecedents of the 1917 Revolution, the impact of the Revolution and the emergence of Russian I socialism as well as the cold war.

HIS 310: JAPAN FROM TOKUGAWA TO THE MEIJI RESTORATION:3 CREDITS

A general examination of the political and economic developments of Japan from the Tokugawa to the Meiji Restoration up to the out-break of World War I in 1914.

HIS 311: HISTORY OF THE COMMONWEALTH: 3 CREDITS

This would involve a general study of the origin, structure, composition, objectives as well as the impact of the common wealth, particularly on its Africa members.

HIS 322: CAPITALISM, COMMUNISM AND MIXED ECONOMY:3 CREDITS

This course examines the three types of economic systems of capitalism, communism and mixed economy, highlighting the modes of production and distribution and the problems associated with each type.

HIS 401: NIGERIAN HISTORY FROM 1800-1900:3 CREDITS

The course examines the major developments which laid the foundations for the emergence of Nigerian into a nation-state. These would include the roles of the two major religions Islam and Christianity, the emergence of the Sokoto caliphate and its bringing together into its fold so many nationalities covering a large part of Nigeria, the penetration of Christianity in to the interior, the increase in the volume trace between Nigerian communities, migrations and northwards and southwards, cultural exchanges, all leading to the integration of the Nigerian ethnic groups.

HIS 402: NIGERIAN HISTORY FROM 1900 TO THE PRESENT: 3 CREDITS

A survey of colonization of the country, the degree of resistance and collaborations. The stabilization of colonial rule should be properly discussed. The anti-colonial movement, especially from 1939, and subsequent decolonization process should be treated in detail. Also, the formation of political parties, the grooming of acceptable politicians by the British, as well as the attainments of political independence, the political and economic problems faced by Nigerian after independence, the 1966, the aftermath of coup and the resulting civil war are discussed.

HIS 403: ECONOMIC HISTORY OF NIGERIA IN THE 20TH CENTURY: 3 CREDITS

The course examines the factors of changes and continuity in the Nigerian economic development with emphasis on patterns of modes of production social relations, development of infrastructures and lab our relations from the colonial period to the presents.

HIS 404: CONTEMPORARY HISTORY OF THE MIDDLE-EAST: 3 CREDITS

This course examines the contemporary history of the Middle East. It highlight the second world war, the creation of Israel and the attendance problems, the Suez crises, the Arab leagues, oil and international politics the new trends of accord.

HIS 405: SOCIAL PAPER (LOCAL HISTORY): 4 CREDITS

The course is a study of a historical topic selected from a range of options within the locality using documentary and other relevant evidence.

i. Trade and politics in the middle Niger and Benue valleys
ii. Africa and European imperialism
iii. Kanem-Borno
iv. The Jihad of Usman Dan Fodio;
v. The Niger-Benue confluence Region

HIS 406: PROJECT: 6 CREDITS

Original project based on student's individual research on topics approved by the department and guided by a supervisor

HIS 407: O.A.U. A STUDY OF AFRICAN INTERNATIONAL RELATIONS: 3 CREDITS

The course examines the origins emergence, organization and the roles of O.A.U. at various levels. The problems and prospect are also analyzed and evaluated.

HIS 408: THE DEVELOPMENT OF PARLIAMENTARY SYSTEM IN BRITAIN, FRANCE AND INDIA: 3 CREDITS

A comparative discussion of the parliamentary common trends and distinguishing differences are identified and explained against the varying historical experiences of the communities involved.

HIS 409: HISTORY OF SCIENCE AND TECHNOLOGY FROM 1500-1950:3 CREDITS

A survey of developments of science and Technology in selected societies of Africa, Asia, Middle-East, and Europe/America from the 16th century to 1900 with emphasis on the similarities and differences in the nature as well as quality of world in General should also be stressed.

HIS 410: WAR AND PEACE IN THE 20TH CENTURY: 3 CREDITS

A study of the major world wars and crises in different parts of the World, the struggle between the super powers, armament and disbarment as well as the search for balance of power and peace through military alliance and world organizations such as the league of nations, and the united nations organizations as well as other regional and sub-regional associations.

HIS 411: LAND AND LABOUR IN AFRICA 1800-1950:3 CREDITS

The study examines the issues of land and labor in Africa stressing the different land tenure system in Africa before the colonial periods, the changing patterns arising out of both internal and external socio-political and economic forces such as political conflicts, population growth and European colonial agricultural and labor policies. It surveys also the development of labor institutions, their organization and relation with the governments.

HIS 412: MODERN AFRICAN POLITICAL THOUGHTS: CREDITS

The course examines the origins, influences on and the contents of modern African political thoughts through their selected exponents.

B. A. ARABIC

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credits Units
ARA 101	Grammar 1	3
ARA 102	Language Skills	3
ARA 103	Study Skills	3
ARA 104	Introduction to Arabic Literature	3

200 LEVEL

Course Code	Course Title	Credits Units
ARA 201	Grammar II	3
ARA 202	Language Skills	3
ARA 203	Text from Pre-Islamic and early Islamic Literature	2
ARA 204	Introduction to Arabic Morphology	3
ARA 205	Grammar III	3
ARA 206	Morphology of Verbs	3
ARA 207	Arabic Literature in Pre-Islamic and early-Islamic Periods	3
ARA 208	Contemporary Arabic Prose	2

300 LEVEL

Course Code	Course Title	Credits Units
ARA 301	Grammar IV	2
ARA 302	Morphology of Nouns	2
ARA 303	Essay Writing	2
ARA 304	Arabic Literature in the Umayyad Period	2
ARA305	Arabic Literature in the Abbasid Period	2
ARA 306	Introduction to Arabic Literature in West Africa	2

ELECTIVES

ARA 307	Arabic Literature in Muslim Spain	2
ARA 308	A Special Author	2
ARA 309	A Literature School	2
ARA 310	Qur'anic Text	2
ARA 311	Hadith Text	2
ARA 312	Classical and Modern Arabic Libraries	2
ARA 313	Introduction to Classical Arabic Criticism	2
ARA 314	A Novel	2
ARA 315	A Play	2
ARA 316	Rhetoric	2
ARA 317	Prosody	2
ARA 318	Phonetics and Phonology	2
ARA 319	Translation II	2
ARA 320	Methods of Research	2
ARA 321	Linguistics (Arabic)	2

400 LEVEL

Course Code	Course Title	Credits Units
ARA 401	Grammar IV	3
ARA 402	The Writing of Nigerian Ulama	3
ARA 403	Project	6

ELECTIVES

ARA 404	Substitution Morphology	2
ARA 406	Introduction to Modern Arabic Criticism	2
ARA 407	A special Author	2
ARA 408	A Novel	2
ARA 409	A Play	2
ARA 410	Selected Topics in Arabic Grammar	2
ARA 411	Introduction to Arabic Lexicography	2
ARA 412	Rhetoric II	2
ARA 413	prosody II	2
ARA 414	Literature in the Mahajar and North Africa	2
ARA 415	Translation II	2

COURSE DESCRIPTIONS

100 LEVEL

ARA 101: GRAMMAR 1

The course entails the study of basics Arabic Grammar including such aspect as topes of sentence, some element and factors that affect the word order therein, as well as the subjunctive (Al-Mansubat) and appositives (At-Tawabic).

ARA 102: LANGUAGE SKILLS 1

The course is intended to expose students to the area of reading, note making summarizing, using the library, as well as using the dictionary, intensive exercise will be given for illustration and testing the level of comprehension.

ARA 103: INTRODUCTION TO ARABIC LITERATURE

The course is intended to introduce students to the basic concepts of literature, with emphasis on the basic components (such as imagery and music), literacy appreciation. Relevant Arabic texts, will be used for illustrations. The course will also dwell on the division of Arabic literature into different literacy periods, as well as the most outstanding characteristics of and literacy figures in each period. Relevant texts will be used for illustration.

200 LEVEL

ARA 201: GRAMMAR II

This course is intended to give historical background to Arabic grammar in addition to the study of some grammatical feature related to nouns and verbs, such as the primary and secondary sign of declension (Calamat Al-Icrab) as well as the dual and its confidants. It will also involve the study of nominative and accusative noun, such as subject and predicate the agent, the vocation, specification and adverbs.

ARA 202: LANGUAGE SKILLS II

The course is designed to be a study of basic aspect deal with in ARA 201. It is also designed for the acquisition of advance reading and writing skills.

ARA 203: TEXT FROM PRE-BASIC ISLAMIC AND EARLY ISLAMIC LITERATURE

This course is designed to be a study of basic Arabic morphology, treating the structural formations and composition forms of words. Emphasis will be placed such aspects as the morphological measure. The naked and compound forms and the defective verbs. The course will also involve the study of morphology of nouns.

ARA 204: INTRODUCTION TO ARABIC MORPHOLOGY

This course is designed to be a study of basic Arabic morphology, treating the structural formations and composition of words. Emphasis will be placed on such aspects as the morphological measure, the naked and compound forms and the defective verbs. The course will also involve the study of morphology of nouns.

ARA 205: GRAMMAR II

This course is intended to give a detailed Arabic verbal morphological analysis. Such aspect as the naked and compound forms as well as the particles of augmentation will be deal with in a detailed manner.

ARA 207: ARABIC LITERATURE IN THE PRE-ISLAMIC AND EARLY ISLAMIC PERIOD

This course is intended to give a general overview of the literature of the two periods. With some emphasis on the literary genres and figures. It will also involve a detailed study of the seven codes, some short poems from such collections as *Mufaddiyat, Hamasah* and *Jamharah*. A variety and representative texts will also be used for illustration.

ARA 208: CONTEMPORARY ARABIC PROSE

This is textual study course designed to acquaint the students with modern terminologies and expressions as may be cited in selections from literary journals and daily press.

300 LEVEL

ARA 301: GRAMMAR IV

This course is designed with a study of certain grammatical features such as numbers, pronouns, types of declensions, and the Passive Mood. Verbs of Approximation, Intensification of Imperfect and Inflection Defective Verbs.

ARA 302: MORPHOLOGY OF NOUNS

This course is designed to detailed morphological analysis of nouns, treating such aspect of diminutive and the noun of relation (an-Nisabl) posture (al-Hayan), place (Makan), tool/number/Marrah etc.

ARA 304: ESSAY WRITING

This course expose students to the main types of essay writing and will give the intensive exercise thereof.

ARA 304: ARABIC LITERATURE IN UMAYYAD PERIOD

This course expose students to the representative works of the Umayyad period, in addition to historical survey, which is intended to facilitate the comprehension and appreciation of the works further.

ARA 305: ARABIC LITERATURE IN ABBASID PERIOD

In addition to given a historical background to this literary period, the cost also exposes the students to the study of selections from the works of the representative poets and writer of the period such as Bashshar, Abutamman, Abu, Nuwas, Al-Mutannabi, Ibn Al- Mukafia and Sahi b, Harur.

ARA 306: INTRODUCTION TO ARABIC LITERATURE IN WEST AFRICA

This course is designed to give a historical survey of the sub-region, as well as its contacts with Islam and Islamic learning. It will also deal with the study of various Arabic selections from the works of some west African scholars, including As-sa'adi, Ahmad Baba and Sheik Jibril.

ARA 307: ARABIC LITERATURE IN MUSLIM SPAIN

This course gives a historical survey of Arabic Literature in Muslim Spain and exposes the students to came works of the representative poets and writers of this part of the part of the world, such as Inb Zaydun, Ibn Hani Ibn Abd Hazm and Ibn 'Shuhayd.

ARA 308: SPECIAL AUTHOR

This course is designed to give insights in to the works of an author at the specified. It will also deal with the personality and biography of the author.

ARA 309: A LITERARY SCHOOL
This course deals with a study of a literary school, its development, major representatives as well as some works exemplifying it.

ARA 310: QURANIC TEXTS

In addition to surveying the contributions of the Qur'an to the development of Arabic language and literature, this course will develop in students a literary appreciation of the Qur'an through a textual study of some selections of verses.

ARA 311: HADITH TEXTS

This is intended to survey hadith contributions to the development of Arabic language and literature. This is in addition to a literary study of some selections hadith texts.

ARA 312: INTRODUCTION TO CLASSICAL AND MODERN LITERATURE

This course is designed to expose the students to some important primary sources, classical and modern, in various branches Arabic scholarship.

ARA 313: INTRODUCTION TO CLASSICAL ARABIC CRITICISM

This course will a survey of the development of classical criticism, laying special emphasis on Al-Madihi's, *Muwazzan.*

ARA 314: NOVEL

This course entails the study and analysis of a novel to be specified.

ARA 315: A PLAY

This course is based on the study and analysis of play to be specified.

ARA 316: RHETORIC I

This course is intended to given a short historical survey of Arabic rhetoric to expose students to the "Byan" and "Ma'ni" aspects thereof. Such elements as smiles, metaphors, Ijaz, Isnad and waj will be treated.

ARA 317: PROSODY I

The course give a historical background to Arabic prosody by a study of "Zihafat" and "Liai" i.e. deviation and irregularities in meter. The fourteen meters are also analyzed in broad outlines.

ARA 318: PHONETICS AND PHONOLOGY I

The course is designed to introduce students the study of phonetics and phonology of the Arabic language. Among others, such as aspects as morphemes, allomorphs, as well as the sound system of Arabic will be treated.

ARA 319: TRANSLATION I

Besides introducing the students to the basic principles of translation, the course exposes them to intensive exercise in literary translation from ant to Arabic.

ARA 320: METHODS OF RESEARCH
This course is designed to expose special honor students to modern methods of research in Arabic studies as well as to familiarize them with scientific methods of editing Arabic manuscripts.

ARA 321; LINGUISTICS (ARABIC)

The course is designed to expose students to modern critical approaches to traditional Arabic grammar contained in such works as Ibrahim Mostapha's *Ihya an-Nahw Makhazoumi's an-Nabw al-Arabic; Nadqdwa Tawjih* and Ibn Mada's Arab*: NaqdwaTawjih wa Tawjih' abd abn Mada's Al-Radd ala al-Nuhat.* Detailed study of some selected topics of Arabic Grammar, such as the construct, the appositives, the Verbs of Preeminence and Nomen Relativum.

400 LEVEL

ARA 402: THE WRITING OF NIGERIAN ULAMA

The course is essential based on a textual study of some selected form literary works of Nigerian authors such as Usman B. Fodio. Abdullahi b. Fodio, Mohammad Bello, Wazir Junaid and Ababakar C. Atiq for analysis, appreciation and comparison with similar works in the Arab World.

ARA 403: SUBSTITUTION MORPHOLOGY

This course is meant to provide a detail analysis of the substitution/bdal and ic Lal/aspects of Arabic Morphology.

ARA 404: MODERN ARABIC POETRY

This is more advanced course designed to survey the development of major modern schools of poetry and expose the students to their representative selections.

ARA 405: MODERN ARABIC PROSE

This course will survey the growth and development of the modern Arabic prose. It will also expose the students to the representative selections from the work of novelist, play writers and essayist.

ARA 406: INTRODUCTION TO MODERN ARABIC CRITICISM

This course is designed to expose the students to some major approaches and issues in modern Arabic criticism, which their by enhancing their literary appreciation and analytical skills.

ARA 407: A SPECIAL AUTHOR

This course is designed for an in-depth study of a special author. In it student will be expose to his personality, biography and works.

ARA 408: NOVELS

This course entails the study and analysis of a novel to be specified

ARA 409: PLAYS

This course is based on the study and analysis of a play to be specified

ARA 410: SELECTED TOPICS IN ARABIC GRAMMAR

This course is designed to involve a detailed analysis of an discussions on some selected topics in Arabic Grammar

ARA 411: INTRODUCTION TO ARABIC LEXICOGRAPHY

This course is intended to give a historical background to the development of Arabic Lexicography. Discussions will also centre on the use and type of the Arabic Lexicon.

ARA 412: RHETORIC II

This course entails the detailed study of the "Badic" Aspect of Arabic Rhetoric, as well as discussions on new ideas on approaches to Arabic and Rhetoric.

ARA 413: PROSODY II

The course involved a detailed study of the aspects of rhymes (al-Qawali"). It is also designed to expose students to modern ideas on the approaches to Arabic Prosody in general.

ARA 414: LITERATURE IN THE MAHAJAR AND NORTH AMERICA

This course is intended to give a historical background to the Arabic literary tradition in the **Mahjar** (i.e. in the Americas) and in North Africa in modern times. Kit will also include the study of a lot of texts representative and illustrative of the various genres involved.

ARA 415: TRANSLATION II

This course further exposes the students to advanced types of translation from and to Arabic and to intensive exercise thereof.

ARA 416: PROJECT

This project to be undertaken Special Honours students, will be on a topic to be approved by the Department.

B. A. ISLAMIC STUDIES

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
ISL 101	Early Hist. Of Islam: Jahiliyya to Death of the Prophet	3
ISL 102	Studies on the Qur'an I	2
ISL 103	Studies on the Hadith I	2
ISL 104	Ilm al-Tawhid	2
ISL 105	The Basics of Islam Thought & Civilization	1

200 LEVEL

Course Code	Course Title	Credit Units
ISL 201	History of Islam from al-Khulafa al-Rashidun to the fall of Umayyad Era	3
ISL 202	Textual Studies of the Qur'an and Hadith I	2
ISL 203	Ibadat	2
ISL 204	The Sources & Development of Islamic Law	2
ISL 205	Ilm al-Kalam and the Development of Muslim Firaq	1

300 LEVEL

Course Code	Course Title	Credit Units
ISL 301	Islam in Africa	2
ISL 302	Islamic Law of Mu'amalat	2
ISL 303	Islamic Family Law	2
ISL 304	Studies on the Qur'an II	2
ISL 305	Studies on the Hadith II	2
ISL 306	Textual Studies of the Qur'an & Hadith	2
ISL 307	Sufism-Tasawwuf	2
ISL 308	Revivalism & Revivalist Movement	2

Electives

ISL 309	Islamic Political Thoughts & Movements	3
ISL 310	Advance Studies of Islamic Theology	3
ISL 311	Comparative Studies of Religious	3
ISL 312	Islamic Arts & Architecture	3
ISL 313	The Research Methods of Muslim Law	3
ISL 314	Contributions of West African Scholars to Islam	3
ISL 315	Advanced Studies of the Qur'an I	3
ISL 316	Advanced Studies of the Hadith I	3
ISL 317	Moral Philosophy in Islam	3
ISL 318	Orientalism & Islamic Studies	3
ISL 319	The Sirah and Maghazi Literature	3

400 LEVEL

Course Code	Course Title		Credit Units
ISL 40I	Islam in Nigeria		2
ISL 402	Islam in Nigeria		2
ISL 403	Islamic Laws of Wassiyyah and Waqf		2
ISL 404	Advanced Studies on the Qur'an II		2
ISL 405	Advanced Studies on Hadith II		2
ISL 406	Islam in Kamem/Borno		2
ISL 407	Textual Studies of the Qur'an & Hadith III	2	
ISL 408	Sokoto Caliphate		2
ISL 499	Research Project		4

Electives

ISL 409	Relationship Between Islam and the West: Impacts on the Muslim		3
ISL 410	Islamic Constitutional Law		3
ISL 411	Heretical Movements According to Islam		3
ISL 412	Islamic Interpretation of History with Special Reference to Ibn Khaldun	3	
ISL 413	Advanced Studies of Islamic Principles of Jurisprudence (Usul al-fi qh)		3
ISL 414	Islamic Education		3
ISL 415	Textual Studies of the Qur'an & Hadith IV	3	
ISL 416	Selected Topics from the Qur'an		3
ISL 417	Advanced Studies of the Creed of Ahl al-Sunnah		3
ISL 418	Islamic Literature in Vernacular		3

COURSE DESCRIPTIONS

100 LEVEL

ISL 101: EARLY HISTORY OF ISLAM AND JAHILIYYAH TO THE DEATH OF THE PROPHET

Arabia during the days of Jahiliyyah. A brief survey of the contemporary world of early Islam. Prophet Muhammad at Makkah. Prophet Muhammad at Madinah.

ISL 102: STUDIES ON THE QUR'AN I

The revelation, compilation and the arrangement of the Qur'an in detail. The Makka and Madina Surahs (Chapters). The essence of the Qur'anic message. Selections from al-Qur'an: Surat Al-Muzzammil-Chapter 73: kal-Muddathir- Chapter 74: Surat al-Alaq-Chapter 96 (Selections are to be done from the different chapters of the Qur'an from year to year),

ISL 103: STUDIES ON HADITH I

Ih &finition of Hadith and Sunnah their importance in Muslim life. The development of Hadith from forgery. , f*rication and method of sifting (Hadith al-jarh wal - ta'dil). Selection from Hadith - 20 Hadith to be taken from Bukhari and Muslim.

ISL 104: ILM AL-TAWHID

The meaning and scope of Kalimat al Tawhid. Belief in Allah (His Existence, Unity and attribute). Belief in the prophets of Allah. Revealed Scriptures. The Angels. Pre-destination and freewill. Resurrection.

ISL 105: THE BASICS OF ISLAMIC THOUGHT AND CIVILIZATION

A survey of the original sources of Islamic thought. The essence of Islamic thought and Philosophy. A survey of contacts of Islamic civilization. Concept, nature and scope of Islamic civilization.

200 LEVEL

ISL 201: HISTORY OF ISLAM FROM AL-KHULAFA AL-RASHIDUN TO THE FALL OF UMAYYAD DYNASTY

Al-Khulafa al-Rashidun: Abubakar al-Saddiq. Umar ibn al-Khattab, Uthman ibn Affan. Ali ibn Abi Talib and achievements. Ummayad dynasty: administration, achievements and the causes of their downfall.

ISL 202: TEXTUAL STUDIES OF THE QUR'AN AND SUNNAH I

Salat. Zakat. Sawm. Hajj.

ISL 203: IBADAT (RITUALS)

A comprehensive and detailed study of all Islamic rituals and their roles in character building: Salat: Zakat: Sawm: Hajj

ISL 204: THE SOURCES AND DEVELOPMENT OF ISLAMIC LAW

Definition and scope of Islamic Law Development of Islamic Law during the time of the Prophet and companions. The periods of Ijtihad and Taglid.

ISL 205: ILM AL-KALAM AND THE DEVELOPMENT OF MUSLIM FIRAQ

Emergence of Firaq in Islam. The general introduction of the main Muslim Firaq and their teachings: Khawarijires, Shiites, Murji'ite. Rise and development of Hm al-Kalam with particular reference to the

Mu'tazilites and Ash'arites. The main Muslim philosophers with particular reference to al-Kindi and his school, al-Farabi, lbn Sina.

300 LEVEL

ISL 301: ISLAM IN AFRICA

Spread of Islam in North, East and West Africa. The development of Islamic institutions in those regions.

ISL 302: ISLAMIC LAW OF MU'AMALAT

Introduction to the Law of Mu'amalat, the essential of valid contracts and the modes of making Sighah. Doctrines of Majilis al-aqd-meeting place for formulation of contract, contracting parties and subject matter of contract. Consideration and the scope of Islamic Law of contract. Specific contracts and dispositions: aqd al Bai: Ariyah: Ijarah/al-kira: Muzabanah: al-Salam: Wadi'ah: Qard: Rahn: Hibah: Kafalah: Ji'alah: Hawalah:Musara'ah; Sherikah: Musaqah.

ISL 303: ISLAMIC LAW

Preliminaries of marriage, marriage contract and the constitutions of valid marriage. Impediments to marriage and invalid marriages. Concept of polygamy, family planning and birth control in Islam.

ISL 304: STUDIES ON THE QUR'AN IT

Studies of the traditional and intellectual types of tafsir. Aspects of the Sunni. Shi'ah and Mu'tazilah tafsir.

ISL 305: STUDIES ON THE HADITH II

The study of the terminology of Hadith and method of its classification Mustalah-al-Hadith. Studies of the six authentic Hadith collections, The attitude of the Muslim Firaq towards Hadith.

ISL 306: TEXTUAL STUDIES OF THE QUR'AN AND HADITH TI

Tafsir of surat al-Baqarah verses 12-227. Tafsir of surat al-Nisa'I verses 1-25. selections of twenty Hadith from the collections of al-Bukhari and Muslim on various topics.

ISL 307: SUFISM-TASAWWUF

A survey of origin, development and the doctrines of Sufism up to the 10th century AD. Studies of the concepts of the Sunni and the philosophical Tasawwuf and their exponents. The Sufi orders with special reference to the Qadiriyyah and Tijaniyyah in West Africa.

ISL 308: REVIVALISM AND REYIVALIST MOVEMENT

The concept of Tajdid. its development and early revivalist leaders. The revivalist movements and their leaders in the 196 century. Contemporary revivalist movements such as al-Ikhwan al-Muslimun and Jama'ate Islami.

ISL 309: ISLAMIC POLITICAL THOUGHT AND MOVEMENTS

Islam as a total way of life and Government as an essential part of it, General principles of government in Al-Qur'an. The Historical Development: the Prophet Government in Madinah: the Government of al-Rashidun: the subsequent Governments. The Intellectual Developments: the early political theories developed by the Muslim Firaq e.g. Shi'a.al-Khawarji and al-Sunnah: the political theories developed by individual Muslim thinkers e.g. al-Mawardi, ibn Taymiyyah. ibn Khaldun, etc. Political Institution e.g. Khalifa, Wazara,Mazalim, Hisba. The Political Thought of the Jihad Movement: Shaykh Uthman Ibn Fudi: Shaykh Abdullahi Ibn Fudi: Shaykyh Muhammad Bello. The encounter with Imperialism Ali Abd al-Raziq Ali: Hassan al-Bannah: Abd al-qadir Udah Audah: Al-Mawdudi: Imam Khomeini: Mu'ammar al-Qadhafit.

ISL 310: ADVANCED STUDIES OF ISLAMIC THEOLOGY (AL-TAWHID)

The concept of Al-Tawhid in Islarn: Al-Tawhid in theory: Al-Tawhid in practice. The concept of Al-lman (belief) in Islam: its meaning according to the different Schools of al-Mutakallimun: the distinction between Mu'umin and Muslim: the creed al al-Manzilah bay na al-Manzilatayn. God's names and attributes (asma Ullahi wa sifatuhu): Self-attributes (Sifat al-dhat): the attributes of action (sifat al-afual): the Holy Qur'an as the word of God and the views of the Sunnis and the Mu'tazilites on the Qur'an. The Concept of God's justice: al-wa'ad wal al' wa'id (The promise and the threat); the opinions of the Qadariyyah, the Jabariyya, the Sunnis on man's action; the creation of good and evil; the problem of al-salah wal al-aslah; the mercy of God. The concept of al-Nubuwwah wal al-Risala (Prophets and Mission) what is al-Nubuwwah (Prophecy); its qualifications: the attributes of the prophets in general: the Mission of Muhammad, Al-Shafa'ha (Intercession); Sunnis and Mu'tazilites concepts of shafa'ah. Al-Sam'l vat al-Mugayyabat (Belief in the Unseen): the Heavenly Angels: aljinn (beliefin Spirits): the Resurrection (Future Life): the concept of torture and comfort in the grave.

ISL 311: COMPARATIVE STUDIES OF RELIGIOUS

Introduction to Judaism Christianity and Islam. The sources of the three religious with special reference to the history of the texts of: The Old Testament: The New Testament: The Gospel of Barnabas: Al-Qur'an. A comparative study of the basic themes with special reference to: faith; worship; ethics; contribution to human progress especially in the field of thought and science. Impact of both Islam and Christianity in Nigeria (especially on Education). The place of African traditional religion. A survey of the comparative studies of religious in Islamic thought e.g. Abu al-Hassan al-Amiri and al-Biruni.

ISL 312: ISLAMIC ART AND ARCHITECTURE

Introduction of the concept of beauty in Islam. Calligraphy as an art in Islam. The architecture of Mosques and palaces at the peak of Islamic civilization: the mosques of al-Mutawakkil in Samarra; the al-Hambra; the TajMahal. Islamic art and architecture in West Africa; Abu Ishaq al-Sahili; the Sankore Mosque at Timbuktu; the Gobarau Minarat in Katsina; the Babban Gwani Mosque in Zaria; Qur'anic Calligraphy in Northern Nigeria.

ISL 313: THE RESEARCH METHODS OF MUSLIM LAW SCHOLARS

The Qur'anic guiding methods of inquiry. The research methods used by al-Muhaddithum (Mustalah alHadith): al-Fuqaha (Usul al-Fiqh): al-Mutakallim (lim al-Kalam): sirah and history (Historiography): Biography (Tabaqat): Bibliography (e.g. Fihrists); the Sufi methods based on insight and intuition (Basira and Hads).

ISL 314: ADVANCED STUDIES OF MUSLIM LAW

Original Source of Muslim Law: Law in the time of the Prophet; the contributions of the Sahaba and the Tabi'u to legal knowledge; Ijtihad and the Mujtahidu: qualification and conditions of Ijtihad; categories of ljtahids. Detailed study of Islamic worship (Ibadat) from some of the recognized texts (e.g. al-Mukhtasar). The Shari'ah in modern times: ijtihad in the modern age; legislation in modern Muslim countries. Contributions of the Sokoto Jihad leaders to the study of Fiqh; Shaykh Uthman bn. Fodiyo; Abdullahi bn. Fodiyo.

ISL 315: THE CONTRIBUTIONS OF WEST AFRICAN SCHOLARS TO ISLAM

Early beginning and introduction of Islam to West Africa. The contact with North Africa. Al-Maghili and the Kunta "Ulama". Abdullahi Sika. Dan Marina and Danmasani. The Borno 'Ulama. Shayky Muhammad Abdurahman al-Barnawi, etc. the rise of Shaykh Uthman Ibn Fudi and his school. Shakh Umar al-Futi and AIBakka'i. Islamic scholarship in formal institutions e.g. (the School for Arabic Studies): Islamic scholarship in Nigeria today.

ISL 316: ADVANCED STUDIES OF THE QUR'AN I

Basic guidelines for the study, of the Qur'an. Various readings of the Qur'an the development of science of Quixura'at. The significant characteristics of the Quroan: Its Universal features: comprehensiveness: Fitra (Suitability to inborn human nature): Unity of Chapters. The Qur'an as the basic source of the shari'ah. Qur'anic principles for the establishment of good society.

ISL 317: ADVANCED STUDIES OF HADITH I

The position of Hadith in Islamic Law. Elaboration of some significant aspects of Hadith. Tadwin (Collection of Hadith): Isnad (the Chain of Narator); Authenticity. Hadith Literature: the case for and against Hadith. Critical assessment of the orientalists' studies of Hadith. Problems facing the studies of Hadith (Mashakil Iim al-Hadith)

ISL 318: MORAL PHILOSOPHY IN ISLAM

The Believer's moral qualities in al-Qur'an. The Prophet as a Uswat al-Hasan. Contribution of early Muslim Scholars to moral thought with special reference to al-Mutakalimun and Muhaddithun. The Muslim Moral Philosophers: al-Kindi: al-Razil: al-Amiri; Miskawayh , The sufi ethics with special reference to al-Ghazali. The ethnjcal writing of the contemporary revivalist Movement e.g. Jama'ate Islami. al -Ikhwan al-Muslimun. Muslim ethics in the modern age.

ISL 319: ORIENTALISM AND ISLAMIC STUDIES

Introduction: Islam and Its General Characteristics: the Original sources of Islam:al-Qur'an. Al-Sunnah. The concept of Ilm (knowledge) in Islam. The qualification of Alim (Muslim scholars). The Orientalists and their approach to Islam: Their main motive and objectives of studying Islam; their main qualifications; The Historical background. The Orientalist influence on some Modem Muslim Scholars e.g. Ali Abd al-Raziq: al-Islam waal Wukm; Taha Hussain; Fi al-Shir'al-Jahiliya; Ahmad Amin: Islamiyyah. Critical evaluation of the main works of orientalists, e.g. Cibb: Mohammadanism; Goldzihr: Gullaume: Islam; Hitti; History of the Arabs; Lawis, B: Arabs in History; Watt, M. Muhammad, Prophet and Statesman.

ISL 320: THE SIRAH AND MAGHAZI LITERATURE

Early biographers of Prophet Muhammad: Ibn Ishaq: Al-Waqidi: Ibn Sa'ad. Later developments in Sirah writings: Ibn Jarrir al-Tabari; Ibn Kathir; Ibn Sayyid al-Nas. The Prophets' biography in verse; Al-Busirri; AlFazazi; Al-Witriyah; Ahmed Shawqi; Aliyu Namangi of Zaria. Contemporary Muslim writing on sirah; Muhammad Husayn Haykal; Shibli Nu'mani; Syed Uleman Nadwi. Contributions of the Jihad Leaders to Sirah Literature. Critical assessment of orientalist studies on the Sirah; William Muir, William M.Watt; Tor Andrae; Maxime Rodimson.

ISL 301: ISLAM IN NIGERIA

The Spread and development of Islamic Institutions in Nigeria. Islam under colonial rule especially a comparative study of the penal systems in Islam (hudud) and the penal code in Northern Nigeria.

400 LEVEL

ISL 402: ISLAMIC LAW OF INHERITANCE

Definition, significance and rationale behind the law of succession. Elements of succession (Arkan al-Mirath) and impediment of inheritance. Rights and liabilities in the estate and its distribution. Legal heirs.

ISL 403: LAWS OFWASSIYYAH AND WAQF

Wassiyya (Wills): definition, formation, legality and condition of validity. Effects of death-sickness on the validity. Effects of death-sickness of the validity of wills. Waqf; definition, significance, conditions of validity and its administration. Terms of Guarantor (Shurut al Wa-qif). Its legal personality and its Liquidation.

ISL 404: ADVANCED STUDIES ON THE QUR'AN II

Comprehensive study of Surat al-Ahzab-Chapter 33,

ISL 405: ADVANCE STUDIES OF HADITH II
Modern contribution to the study of Hadith. Selection of l0 Ahadith from Sihah al-Sitta;

ISL 406: ISLAM IN KANEM/BORNO

A comprehensive study of Surat al-Nur' Chapter 24. selection (20) twenty Hadith from Sihah al Sitta. Selection from tafsir and commentaries on Hadith especially the contribution of West African Scholars such as Diya al Ta'wil

ISL 408: SOKOTO CALIPHATE LITERATURE

Nature and scope of the Sokoto Jihad literature. The origin, development and decline. A comparative study of Sokoto Jihad literature and contemporary Islamic literature. The impact of Sokoto Jihad literature on the society. Manuscripts on Sokoto Jihad literature and scope Jihad literature and scope for research.

ISL 409: THE RELATIONSHIP BETWEEN ISLAM AND THE WEST AND ITS IMPACT ON THE MODERN MUSLIM WORLD

The attitude of Islam to Ahl al-Kitab in: alQur'an, al-Sunnah, and in Islamic Law: the early relationship and the consequent conflict with the West; i.e. Conquests of Roman Empire, Spain and the encounter with the Crusaders. Western imperialism and Muslim World: The Missionaries; The Orientalists; The invasion, colonization and exploitation of the Muslim World in the l9th and 20th centuries. The co-operation between the West and Zionism against Islam (especially the Palestinian question). The impact of the West on the Muslim Societies especially in the field of secular education, law, economics and politics. The Muslim reactions against the West, with special reference to the reactions of the revivalist and revolutions movements e.g. al-Sanusiyyah, Jama'ate Islam, al-ikhwan al-Muslimun, Islamic Revolutions in Iran and Libya.

ISL 410: ISLAMIC CONSTITUTIONAL LAW

The source of Islamic constitutional law. Fundamentals of an Islamic Constitution. The concept of an Islamic State. Constitutional development in Islamic history. Modern attempts at an Islamic State.

ISL 411: HERETICAL MOVEMENTS ACCORDING TO ISLAM

lslamic views on heresy. Its early development, Modern Movements: Qadiyanyiyyah: Babiyyah; Baha'iyyah.

ISL 412: ISLAMIC INTERPRETATION OF HISTORY WITH SPECIAL REFERENCE TO IBN KHALDUN

Qur'anic concept of history. Dialectical study of Islamic historiography among the Muslims i.e. Tabri, Miskawayah and al-Biruni. Ibn Khaldun: his life, scholarly career as the father of modern social sciences. A detailed study of Ibn Khaldun's Muqaddimah.

ISL 4I3: THE ADVANCED STUDIES OF ISLAMIC PRINCIPLES OF JURISPRUDENCE (USUL, AL-FIQH)

Introduction, definition, scope and evolution of Usul al-Fiqh. Al-Ahkam al-Shariyyah; al-Hakim (the ruler) nature of the ruler, al-Hukum (the rule) definition, differences between the action or omission and al-Hukim al-wadai; types of al-Hukum al-Taklifi, wajib, Mandub, Makurh and Mubah; types of al-Hukm al wadai; alSabah al sha, al-Mhih and al-Rubha'ah; al-Mahkum bihi or fihi and alaimi; the linguistic principles. The sources of Islamic legislation: the legislative principles, the sources of Islamic legislation (the original sources on which there is consensus. The secondary sources on which there is no consensus, Other evidences (Adilla Ukhra); alIjtihad (Human endeavour to ascertain a rule of Shari'a); al-Taqlid (the strict adherence to an authoritative legal school; al-Mu'aradah wat tarhih bayna al-adillah; fatwa (the opinions of a jurist on a legal problem).

ISL 414: ISLAMIC EDUCATION

The concept of education in the Qur'an. The birth and development of Islamic education under the Prophet's guidance. The contribution of Sahba and Tai'un to Islamic Education. The subsequent history and the development of Islamic Education: Institutions, Mosque (Masjid), Madrass including Nizamaiyyah, Cordova, al-Azhar; Literature; al-Muhasibi, al-Mawardi and al-Ghazali. Influence of Maghribi writers e.g.: Ibn al-Hajj, Shawshawi. The Jihad educational Literature Islamic Education in West Africa: The Qur'anic School. The Islamiyyah and the ilm School, Islamic Higher Education in Nigeria.

ISL 415: TEXTUAL STUDIES OF THE QUR'AN AND HADITH IV

Special chapters and verses from the Qur'an and selected chapters from the famous six collections of Hadiths to be taken for detailed study.

ISL 416: SELECTED TOPICS FROM THE QUR'AN

Topics to be specified for special study in the light of Qur'anic injunctions. Preference should be given to the current issues and urgent problems of Muslim Community, e.g. Family Planning: Banking and Insurance; Human Rights; etc,

ISL 417: ADVANCE STUDIES OF THE CREED OF AHL.SUNNAH

Introduction: the eight classes of Ahl al-Sunnah and their role in the Muslim community. The major Leaders of the Ahl al-Sunnah and their training. The concept ofthe uprightness ofAhl al-Sunnah. The fifteen principles of Ahl al-Sunnah. The positions of ahl al-Sunnah vis-a-vis the Salat. The Sunni concept of Divine protection of Allah al-Sunnah from mutual Taklif.

ISL 421: ISLAMIC LITERATURE IN VERNACULAR

The course will be devoted to the study of Islamic themes written in Nigerian Languages such as Hausa, Yoruba, Kanuri, Nupe and Fulfulde.

ISL 499: RESEARCH PROJECT

Students are expected to carry out a research project and write a dissertation of reasonable length on a topic related to Islamic Studies and approved by the department.

B. A. FULF'ULDE

COURSE OUTLINE

Course Code	Course Title	Credit Units
FUL 101	Introduction to Fulfulde People and Language	3
FUL 102	Introduction to the History of Fulfulde People	3
FUL 103	Advanced Comprehension and Composition I	3
FUL 104	Advanced Comprehension and Composition II	3
FUL 105	Introduction to Linguistics I	3
FUL 106	Introduction to Linguistics II	3

200 LEVEL

Course Code	Course Title	Credit Units
FUL 201	Survey of Literature of the Fulfulde Language	2
FUL 202	Use of Fulfulde Language	3
FUL 203	Phonology of Fulfulde Language I	3
FUL 204	Introduction to the Oral Literature of Fulfulde Language	3
FUL 205	Morphology of Fulfulde Language	3
FUL 206	Varieties of Prose in Fulfulde Language	3
FUL 207	Syntax of Fulfulde Language I	3
FUL 208	Folktales	3

300 LEVEL

Course Code	Course Title	Credit Units
FUL 301	Phonology of Fulfulde Language II	3
FUL 302	Varieties of Poetry in Fulfulde Language	3
FUL 303	Syntax of Fulfulde Language II	3
FUL 304	Introduction to Drama in Fulfulde Language	3
FUL 305	Dialects of Fulfulde Language	3
FUL 306	Naming in Fulfulde Language	3
FUL 307	Stylistics I	3
FUL 308	Literary Criticism	3
FUL 309	Introduction to the Culture of Fulfulde People	3
FUL 310	Thoughts and Beliefs of Fulfulde People	3

400 LEVEL

Course Code	Course Title	Credit Units
FUL 401	Issues in the Phonology of Fulfulde Language	3
FUL 402	Social Institutions and Material Culture of Fulfulde People	3
FUL 403	Issues in the Syntax of Fulfulde Language	3
FUL 404	Introduction to the Traditional Music of Fulfulde People	3
FUL 405	Stylistics II	3
FUL 406	Contemporary Prose Fiction in Fulfulde Language	3
FUL 407	Contemporary Poetry in Fulfulde Language	3
FUL 408	Contrastive Studies in Fulfulde Language	3
FUL 409	Project	4

COURSE DESCRIPTIONS

100 LEVEL

FUL 101: INTRODUCTION TO FULFULDE PEOPLE AND LANGUAGE

This course introduces the students to the people, their Language, their origin, migration, oral history, and their relationship to other peoples in Nigeria and Africa. The Language component includes: introduction to the orthography and the history of the orthography; history of the development of the Language; its classification: genetic, typological and aerial; scholarship over the years.

FUL 102: INTRODUCTION TO THE HISTORY OF FULFULDE PEOPLE

This is an introductory course on the oral and written history of the people in which the various historical sources are critical examined and discussed.

FUL 103: ADVANCED COMPOSITION AND COMPREHENSION I

Introduction to the current orthography, composition with emphasis on spelling, punctuation, organization, and language use; comprehension exercises; oral delivery in the language.

FUL 104: ADVANCED COMPOSITION AND COMPREHENSION II

A continuation of FUL 103.

FUL 105: INTRODUCTION TO LINGUISTICS I

This course seeks to explain what Linguistics is about, its scope, its application as well as to examine Language, its structure, its nature, and relation to animal language, and culture.

FUL 106: INTRODUCTION TO LINGUISTICS II

This course a continuation of FUL 105, which is a prerequisite. It includes an introduction to acoustic phonetics and a study of the non-segmental features of speech such as pitch, tone; stress, and intonation. In addition, the students will be expected to apply their acquired knowledge in a practical way through the study, analysis, and transcription of the speech sounds of the Language under study.

200 LEVEL

FUL 201: SURVEY OF THE LITERATURE IN OF FULFULDE LANGUAGE

This is a literary survey of written works in the Language: prose, poetry and drama.

FUL202: USE OF FULFULDE LANGUAGE

Examination of trends in modern usage of the Language; survey of common errors of usage, discussion of the principles of effective and oral communication in the language; exercises.

FUL 203: PHONOLOGY OF FULFULDE LANGUAGE I

Elementary phonetic description and phonetic classification of the sounds of the Language, examination of their patterns of occurrence and distribution, discussion of contraction, assimilation and features like tone, stress and intonation.

FUL 204: INTRODUCTION TO THE ORAL LITERATURE OF FULFULDE LANGUAGE
This course deals with the scope of oral literature in the language: its oral and written nature, problems involved in the collection and classification of oral literature, folktales and traditional poetic forms.

FUL 205: MORPHOLOGY OF' FULFULDE LANGUAGE

A morphological description and analysis of words in the language.

FUL 206: VARIETIES OF PROSE IN FULFULDE LANGUAGE

A study of the various prose forms in the Language: novels, romances, short stories, essays, translations, etc.

FUL207: SYNTAX OF FULFULDE LANGUAGE I

In this course, the students are introduced to the word classes or parts of speech of the Language, the sentence and its parts or constituents, the grammatical functions of the sentence parts; the different sentences types.

FUL 208: FOLKTALES

This course focuses on the following; the universality of folktales; types of folktales; motifs in folktales; world of folktales, characterization, setting, and techniques; performance, the narrator and the audience; songs in folktales; creativity and originality of rendering, folktales and myths.

300 LEVEL

FUL 301: PHONOLOGY OF FULFULDE LANGUAGE II

A detailed and analytical examination of the phonological processes in the languages: assimilation, nasalization, epenthesis, vowel harmony, vowel elision, length, tonal processes, and syllable structure,

FUL 302: VARIETIES OF POETRY IN FULFULDE LANGUAGE II

A detailed study of the poetic forms of the language, their structure and their functions; a critical appreciation of them.

FUL303: SYNTAX OF FULFULDE LANGUAGE II

In this course, an attempt is made to apply the transformational - generative theory to the analysis of the sentences of the language.

FUL 304: INTRODUCTION TO DRAMA IN FULFULDE LANGUAGE

This course covers the concept of drama in the language; a survey of early attempts at play writing and play acting, the influence of traditional and folk drama, and an appraisal of the written plays.

FUL 305: DIALECTS OF FULFULDE LANGUAGE

A fairly detailed consideration of the phonological, morphological, lexical and syntactic characteristics of the major regional and social varieties ofthe language.

FUL 306: NAMING IN FULFULDE LANGUAGE

Among Nigerians, naming is not just an arbitrary affair; it is at once a mental, an emotional, a linguistic and a cultural affair. This course, then, focuses on the linguistic and cultural importance of personal names in the language.

FUL 307: STYLISTICS I

A theoretical study of stylistics in the language, particularly various theories and ideas of the relationship between stylistics, Literature, and linguistics; a discussion of the various literary features or devices of literature in the language.

FUL 308: LITERARY CRITICISM

A study of the classic, Western and Marxist theories of literature as they relate to the prose, poetry and drama, and their application to the literature of the language.

FUL 309: INTRODUCTION TO THE CULTURE OF FULFULDE PEOPLE

A survey of the culture of the people in the widest sense of the word culture.

FUL 310: THOUGHTS AND BELIEFS OF FULFULDE PEOPLE

A detailed and analytical study of the thought, belief and religious systems of the people.

400LEVEL

FUL 401: ISSUES IN THE PHONOLOGY OF FULFULDE LANGUAGE

A consideration of current and relevant issues in the phonology of the language (e.9. tones, vowel harmony, syllable structure, intonation, etc).

FUL402: SOCIAL INSTITUTIONS AND MATERIAL CULTURE OF FULFULDE PEOPLE

This is a detailed description and analysis of the Social and Material aspects of the people's culture.

FUL 403: ISSUES IN THE SYNTAX OF FULFULDE LANGUAGE

A consideration of the current and relevant issues in the syntax of the language (e.9. tense, aspect vowel and their relationships, idiophones; pronominalization, relativization, and reflexivization, nominalization adjectives as verbs).

FUL 404: INTRODUCTION TO THE TRADITIONAL MUSIC OF FULFULDE PEOPLE

An introductory study of the forms, functions and the qualities of the traditional music of the people.

FUL 405: STYLISTICS II

A detailed study of the stylistic features of prose and poetry, both oral and written in the language, applying the principles studies in FUL 307.

FUL 406: CONTEMPORARY PROSE FICTION TN FULFULDE LANGUAGE

A detailed and analytical study of prose fiction in the language.

FUL 407: CONTEMPORARY POETRY IN FULFULDE LANGUAGE

A detailed and critical study and appreciation of contemporary poetry in the language.

FUL408: CONTRASTIVE STUDIES IN FULFULDE LANGUAGE

A systematic examination of the structure of the language as contrasted with those of English and a Nigerian language, with emphasis on those areas requiring special attention in teaching the language to speakers of English and the selected Nigerian language.

FUL 409: PROJECT/LONG ESSAY
Independent research carried out under supervision on a linguistic, literary, or cultural aspect of the language

B. A. KANURI

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
KAN 101	Introduction to Kanuri People and Language	3
KAN 102	Introduction to the History of Kanuri People	3
KAN 103	Advanced Comprehension and Composition I	3
KAN 104	Advanced Comprehension and Composition II	3
KAN 105	Introduction to Linguistics I	3
KAN 106	Introduction to Linguistics II	3

200 LEVEL

Course Code	Course Title	Credit Units
KAN 201	Survey of Literature of the Kanuri Language	2
KAN 202	Use of Kanuri Language	3
KAN 203	Phonology of Kanuri Language I	3
KAN 204	Introductions to the Oral Literature of Kanuri Language	3
KAN 205	Morphology of Kanuri Language	3
KAN 206	Varieties of Prose in Kanuri Language	3
KAN 207	Syntax of Kanuri Language I	3
KAN 208	Folktales	3

300 LEVEL

Course Code	Course Title	Credit Units
KAN 301	Phonology of Kanuri Language II	3
KAN 302	Varieties of Poetry in Kanuri Language	3
KAN 303	Syntax of Kanuri Language II	3
KAN 304	Introduction to Drama in Kanuri Language	3
KAN 305	Dialects of Kanuri Language	3
KAN 306	Naming in Kanuri Language	3
KAN 307	Stylistics I	3
KAN 308	Literary Criticism	3
KAN 309	Introduction to the Culture of Kanuri People	3
KAN 3I0	Thoughts and Beliefs of Kanuri People	3

400 LEVEL

Course Code	Course Title	Credit Units
KAN 401	Issues in the Phonology of Kanuri Language	3
KAN 402	Social Institutions and Material Culture of Kanuri People	3
KAN 403	Issues in the Syntax of Kanuri Language	3
KAN 404	Introduction to the Traditional Music of Kanuri People	3
KAN 405	Stylistics II	3
KAN 406	Contemporary Prose Fiction in Kanuri Language	3
KAN 407	Contemporary Poetry in Kanuri Language	3
KAN 408	Contrastive Studies in Kanuri Language	3
KAN 409	Project	4

COURSE DESCRIPTIONS

100 LEVEL

KAN 101: INTRODUCTION TO KANURI PEOPLE AND LANGUAGE

This course introduces the students to the people, their Language, their origin, migration, oral history, and their relationship to other peoples in Nigeria and Africa. The Language component includes: introduction to the orthography and the history of the orthography; history of the development of the Language; its classification: genetic, typological and aerial; scholarship over the years.

KAN 102: INTRODUCTION TO THE HISTORY OF KANURI PEOPLE

This is an introductory course on the oral and written history of the people in which the various sources are critical examined and discussed.

KAN 103: ADVANCED COMPOSITION AND COMPREHENSION I

Introduction to the current orthography, composition with emphasis on spelling, punctuation, organization, and language use; comprehension exercises; oral delivery in the language.

KAN 104: ADVANCED COMPOSITION AND COMPREHENSION II

A continuation of KAN 103.

KAN 105: INTRODUCTION TO LINGUISTICS I

This course seeks to explain what Linguistics is about, its scope, its application as well as to examine Language, its structure, its nature, and relation to animal language, and culture.

KAN 106: INTRODUCTION TO LINGUISTICS II

This course a continuation of KAN 105, which is a prerequisite, It includes an introduction to acoustic phonetics and a study of the non-segmental features of speech such as pitch, tone; stress, and intonation. In addition, the students will be expected to apply their acquired knowledge in a practical way through the study, analysis, and transcription of the speech sounds of the Language under study.

200 LEVEL

KAN 201: SURVEY OF THE LITERATURE IN OF KANURI LANGUAGE

This is a literary survey of written works in the Language: prose, poetry and drama.

KAN 202: USE OF KANURI LANGUAGE

Examination of trends in modern usage of the Language; survey of common errors of usage, discussion of the principles of effective and oral communication in the language; exercises.

KAN 203: PHONOLOGY OF KANURI LANGUAGE I

Elementary phonetic description and phonetic classification of the sounds of the Language, examination of their patterns of occurrence and distribution, discussion of contraction, assimilation and features like tone, stress and intonation.

KAN 204: INTRODUCTION TO THE ORAL LITERATURE OF KANURI LANGUAGE
This course deals with the scope of oral literature in the language: its oral and written nature, problems involved in the collection and classification of oral literature, folktales and traditional poetic forms.

KAN 205: MORPHOLOGY OF KANURI LANGUAGE

A morphological description and analysis of words in the language.

KAN 206: VARIETIES OF PROSE IN KANURI LANGUAGE

A study of the various prose forms in the Language: novels, romances, short stories, essays, translations, etc.

KAN 207: SYNTAX OF KANURI LANGUAGE I

In this course, the students are introduced to the word classes or parts of speech of the Language, the sentence and its parts or constituents, the grammatical functions of the sentence parts; the different sentences types.

KAN 208: FOLKTALES

This course focuses on the following: the universality of folktales; types of folktales; motifs in folktales; the world of folktales, characterization, setting, and techniques; performance, the narrator and the audience; the songs in folktales; creativity and originality of rendering, folktales and myths.

300 LEVEL

KAN 301: PHONOLOGY OF KANURI LANGUAGE II

A detailed and analytical examination of the phonological processes in the languages: assimilation, nasalization, epenthesis, vowel harmony, vowel elision, length, tonal processes, and syllable structure.

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A detailed study of the poetic forms of the language, their structure and their functions; a critical appreciation of them.

KAN 303: SYNTAX OF KANURI LANGUAGE II

In this course, an attempt is made to apply the transformational - generative theory to the analysis of the sentences of the language.

KAN 304: INTRODUCTION TO DRAMA IN KANURI LANGUAGE

This course covers the concept of drama in the language; a survey of early attempts at play writing and play acting, the influence of traditional and folk drama, and an appraisal of the written plays.

KAN 305: DIALECTS OF KANURI LANGUAGE

A fairly detailed consideration of the phonological, morphological, lexical and syntactic characteristics of the major regional and social varieties of the language.

KAN 306: NAMING IN KANURI LANGUAGE

Among Nigerians, naming is not just an arbitrary affair; it is at once a mental, an emotional, a linguistic and a cultural affair. This course, then, focuses on the linguistic and cultural importance of personal names in the language.

KAN 307: STYLISTICS I

A theoretical study of stylistics in the language, particularly various theories and ideas of the relationship between stylistics, literature, and linguistics; a discussion of the various literary features or devices of literature in the language.

KAN 308: LITERARY CRITICISM

A study of the classic, Western and Marxist theories of literature as they relate to the prose, poetry and drama, and their application to the literature of the language.

KAN 309: INTRODUCTION TO THE CULTURE OF KANURI PEOPLE

A survey of the culture of the people in the widest sense of the word culture.

KAN 310: THOUGHTS AND BELIEFS OF KANURI PEOPLE

A detailed and analytical study of the thought, belief and religious systems of the people.

400 LEVEL

KAN 401: ISSUES IN THE PHONOLOGY OF KANURI LANGUAGE

A consideration of current and relevant issues in the phonology of the language (e.9. tones, vowel harmony, syllable structure, intonation, etc).

KAN 402: SOCIAL INSTITUTIONS AND MATERIAL CULTURE OF KANURI PEOPLE

This is a detailed description and analysis of the Social and Material aspects of the people's culture.

KAN 403: ISSUES IN THE SYNTAX OF KANURI LANGUAGE

A consideration of the current and relevant issues in the syntax of the language (e.g. tense, aspect vowel and their relationships, idiophones; pronominalization, relativization, and reflexivization, nominalization adjectives as verbs),

KAN 404: INTRODUCTION TO THE TRADITIONAL MUSIC OF KANURI PEOPLE

An introductory study of the forms, functions and the qualities of the traditional music of the people.

KAN 405: STYLISTICS Il

A detailed study of the stylistic features of prose and poetry, both oral and written in the language, applying the principles studies in KAN 307.

KAN 406: CONTEMPORARY PROSE FICTION IN KANURI LANGUAGE

A detailed and analytical study of prose fiction in the language.

KAN 407: CONTEMPORARY POETRY IN KANURI LANGUAGE

A detailed and critical study and appreciation of contemporary poetry in the language.

KAN 408: CONTRASTIVE STUDIES IN KANURI LANGUAGE

A systematic examination of the structure of the language as contrasted with those of English and a Nigerian language, with emphasis on those areas requiring special attention in teaching the language to speakers of English and the selected Nigerian language.

KAN 409: PROJECT/LONG ESSAY
Independent research carried out under supervision on a linguistic, literary, or cultural aspect of the language.

FACULTY OF EDUCATION

B. A. (ED.) ARTS EDUCATION

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
EDU 101	History of Education	2
EDU 102	Introduction to Psychology	2
EDU 103	Introduction to the Teaching Profession	2

200 LEVEL

Course Code	Course Title	Credit Units
EDU 201	Philosophy of Education	2
EDU 202	Sociology of Education	2
EDU 203	Educational Philosophy I	2
EDU 204	Educational Philosophy II	2
EDU 205	Curriculum and Instruction I	2
EDU 206	Curriculum and Instruction II	2
EDU 222	Social Studies	2

300 LEVEL

Course Code	Course Title	Credit Units
EDU 301	Educational Technology	2
EDU 303	Curriculum Studies (theories and Development)	2
EDU 304	Mini-Teaching	1
EDU 306	English Language & Literature Methods	3
EDU 321	Library Science	2
EDU 322	Comparative Education	2

400 LEVEL

Course Code	Course Title	Credit Units
EDU 401	Teaching Practice	6
EDU 414	Introduction to Educational Administration and Planning	2
EDU 418	Introduction to Health Education	2

COURSE DESCRIPTIONS

100LEVEL

EDU 101: HISTORY OF EDUCATION:2 CREDITS

This course is designed to introduce students to the History Western and Nigerian Education. Its main focus would be the following areas:

i. The Cradle of western Education as exemplified by Greek and Romans Education Middle ages;
ii. Reformation and Education; Renaissance and Humanistic
iii. Education; Indigenous Education; Islamic and Christian Education
iv. Educational Policies and Ordinances; the National Policy on Education.

EDU 102: INTRODUCTION TO PSYCHOLOGY; 2 CREDITS

The Nature of Psychology. The Conceptual Approaches to Psychology. The Scope and Fields of Psychology. The Experimental Research: Designs and Ethics. Observational Research Methods. Development and Growth. Physical Development. Cognitive Development. Social Development. Personality Development and Theories I. Personality Development and Theories II. Adolescence: Physical Development. Adolescence: Cognitive and Moral. Adolescence: Emotional, Social and Personality Development Adulthood. Application of Psychology to Daily Living.

EDU 103: INTRODUCTION TO THE TEACHING PROFESSION: 2 CREDITS

This course is designed to provide the students with some basic facts aboul the teaching Profession. It places emphasis on answering such rudimentary questions as: who is a teacher? Why does he teach? What does he teach? and how does he teach? The ethics of the teaching Profession and the administrative functions of the teacher are also treated. Similarly, attention is paid to the development of interpersonal communication skills and the Professional and personal development of the teacher.

200 LEVEL

EDU 201: PHILOSOPHY OF EDUCATION: 2 CREDITS

The Meaning and Scope of Philosophy. The Structure of Philosophy. Education and the Philosophy of Education. Metaphysics and Education. Epistemology and Education. Axiology and Education. Logic and Education. Philosophy, Philosophy and Education and the Teacher. Schools of Philosophy. Issues in the Philosophy of Nigerian Education.

EDU 202: SOCIOLOGY OF EDUCATION:2 CREDITS

The course focuses on some basic sociological concepts which will be of relevance to the students. Major agents of socialization as well as some basic functions of education are also treated.

EDU 203: EDUCATIONAL PSYCHOLOGY: 2 CREDITS

This course covers the broad concepts in educational psychology to facilitative of understanding of learner-teacher behaviour. It also introduces students to the phenomenon of learning. The relationships between learning and the broad concepts are explored in detail.

EDU 204: EDUCATIONAL PSYCHOLOGY II: 2 CREDITS

The course comprises in-depth study of human learning processes: theories and conditions of learning and teaching with emphasis on individual differences motivation, transfer of learning, reinforcement, reward and punishment and cognitive styles.

EDU 205: CURRICULUM AND INSTRUCTION I:2 CREDITS

This course is designed to introduce the student to the basic principles in curriculum and instruction. It examines the relationship between curriculum and instruction as well as the historical evolution, different concepts of the curriculum and the core curriculum. The course also exposes the student to: behavioural objectives; lesson plan, factors affecting effective teaching; and classroom management.

EDU 206: CURRICULUM AND INSTRUCTION II: 2 CREDITS

This course examines the foundations of the curriculum (such as philosophy, society, culture, learning theories and the nature of knowledge), curriculum designs and curriculum materials. It also exposes the student to various strategies of instruction and innovations in teaching.

EDU 222: SOCIAL STUDIES:3 CREDITS

The course is designed to introduce students to the nature and scope of social studies as well as to the basic content concepts of the subject which will be of relevance at the secondary school level. The organisation of the social studies curriculum as well as the methods for teaching and evaluating it will also be looked into.

300 LEVEL

EDU 301: EDUCATIONAL TECHNOLOGY: 2 CREDITS

What is Educational Technology? Tradition in Educational Technology. Definition of terms - Education, Learning, Teaching, Educational Technology, Instruction, Technology, Communication. Statement of learning/behavioural objectives -Aims, Goals, objectives. Communication. Systems Approach to Instruction. Basic Instructional Design. Media in the Instructional Design Process. Media selection in Design and Instruction. Radio. Television and Film. Slide and Filmstirs. Bulletin Boards and Exhibits. Games, dramatizations, simulation. Local production of media. Utilization of Media. Educational Technology in Business and Industry.

EDU 303: CURRICULUM STUDIES (THEORIES AND DEVELOPMENT): 2 CREDITS

This course examines various curriculum development models (Taba, Wheeler and Kissock). It also examines the strategy for curriculum change and curriculum improvement in Nigeria. It exposes the student to various teaching tools and materials for instruction.

EDU 304: MINI -TEACHING: 1 CREDIT

The course is to help prepare a students for the teaching practice. It is a one unit course in which student teachers teach for a period of 15 -20 minutes once a week. It is particularly useful for those who have never taught before.

EDU 306: ENGLISH LANGUAGE & LITERATURE METHODS: 3 CREDITS

Objectives for English Language Teaching: National Policy on Education. Differences between Ll,L2 and PL teaching. Problems in English Language Teaching. Language Teaching Approaches. Teaching Oral English. Teaching Reading. Teaching Grammatical Structure. Teaching of Vocabulary. Teaching Writing. Teaching Summary. The Teaching of Literature. Integration of the four skills; spoken and written; reading and writing. The teaching of note-taking.

EDU 321: LIBRARY SCIENCE:2 CREDITS

This course is designed to introduce students to library Science as a discipline. Its main focus would be on the following areas: The concept and evolution of libraries: purpose and functions of libraries; types of libraries; library materials and their organisation: library services; symbiotic relationship between education and libraries; library instruction; inter-library cooperation; information sources in education and problems of library development in Nigeria.

EDU 322: COMPARATIVE EDUCATION

Meaning of Comparative Education. Determinants of Education System. Education System of some African countries. Education System of some Developed countries. The Nigerian Education System.

400 LEVEL

EDU 401: TEACHING PRACTICE: 6 CREDITS

The teaching practice is a six credit unit course. It is mandatory for all final year (400 level) students of education. Every student shall be examined at least three and at most four times by each supervisor,

EDU 414: EDUCATIONAL ADMINISTRATION: 2 CREDITS

Introduction to the theory of Administration. Leadership. Communication. Aspects of Educational Planning in Educational Administration. Nigerian Education System. School Administration. Supervision and Inspection. School and Community. Educational Development - Problems and Prospects.

EDU 418: INTRODUCTION TO HEALTH EDUCATION: 2 CREDITS

At the end of the course students should be able to define health education and also appreciate the essence of health in the society and be able to make decisions concerning their own health.

B. SC. (ED.) SCIENCE EDUCATION

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
EDU 102	Introductory Psychology	2

200 LEVEL

Course Code	Course Title	Credit Units
EDU 203	Educational Psychology I	2
EDU 204	Educational Psychology II	2
EDS 222	Integrated Science	2

300 LEVEL

Course Code	Course Title	Credit Units
EDU 316	Guidance and Counseling	2
EDU 305	Introduction to Guidance and Counseling	1

400 LEVEL

Course Code	Course Title	Credit Units
EDU 412	Tests and Measurements	2
EDU 418	Introduction to Health Education	2
EDU 422	Advanced Educational Psychology	2
EDU 424	Continuous Assessment and guidance Tools	2

COURSE DESCRIPTIONS

100 LEVEL

EDU 102: INTRODUCTORY PSYCHOLOGY:2 CREDITS

A broad introduction of psychology comprising its nature - conceptual approaches, contemporary scope and research methods; psychological development - cognitive, personality and social, from early years through adolescence to old age.

200 LEVEL

EDU 203: EDUCATIONAL PSYCHOLOGY: 2 CREDITS

This course covers the broad concepts in educational psychology facilitative of understanding of learner teacher behaviour. It also introduces students to the phenomenon of learning. The relationships between learning and the broad concepts are explored in detail,

EDU 204: EDUCATIONAL PSYCHOLOGY II: 2 CREDITS

The course comprises in-depth study of human learning processes: theories and conditions of learning and teaching with emphasis on individual differences motivation, transfer of learning, reinforcement, reward and punishment and cognitive styles.

EDS 222: INTEGRATED SCIENCE: 2 CREDITS

This course provides an over view of the concepts of integrated science. The scope covers the JSS core curriculum and introduces the student to the philosophy of integrated science and the unifying themes of the JSS integrated science. The main thrust of the course would be the study of the content of integrated science in order to prepare the non-integrated science major to teach JSS integrated science.

300LEVEL

EDU 305: INTRODUCTION TO GUIDANCE AND COUNSELING: 1 CREDIT

The meaning of guidance and counselling. Societal needs for guidance and counselling. Specific needs for guidance and counselling in the secondary school. Need for guidance in the primary school. The present status of guidance in Nigerian schools. Principles of guidance. Guidance services. Guidance Relationships. Guidance and Curriculum. Guidance and Discipline. Guidance and Administration. Guidance and the Community. The Counsellor's relationships with other school personnel. The role of the Principal in guidance and counselling in the school. The role of teachers in the school guidance programme. The role of the community in the school guidance programme.

400LEVEL

EDU 416: GUIDANCE AND COUNSELING

As an introductory course in the theory and practice of guidance and counselling, it is designed to provide students with:

i. An understanding of the meaning and function of education and guidance.

ii. An orientation to the purposes and needs for organised guidance services in Nigeria schools;

iii. A framework of knowledge that will enable students help youths meet their developmental concerns and needs in socially acceptable ways; and

iv. The development of skills that will enable students to organise functional guidance programme in the school.

EDU 412: TESTS AND MEASUREMENTS: 2 CREDITS

This course focuses on the broad concepts in tests and measurements. It provides experience in description and use oftest data, test construction and analysis of test scores.

EDU 418: INTRODUCTION TO HEALTH EDUCATION: 2 CREDITS

The concept of health and health education. Determinants of health. Personal Health. Exercise, rest and Recreation. Family life Education. Nutrition. Safety Education and Emergencies. Emotional and Social Health. The need for Drug Education. Communicable Diseases, measles, chicken pox etc. Non Communicable Disease Diabetes, Hypertension, etc. School Health Instruction. Curriculum Planning in Health Education. School Health Services. Health School Living. Community Health Education.

EDU 422: ADVANCED EDUCATIONAL PSYCHOLOGY

Personality. Psychoanalytic Theory of personality. Trait Factor Theory. Adolescence. Delinquency and Maladjustment. Causes of Delinquency. Maladjustment. Behaviour Modification. Education of Exceptional Children. Education of the Gifted Child, Education of the Backward Child.

EDU 424: CONTINUOUS ASSESSMENT AND GUIDANCE TOOLS

This course has been designed in order to help in the training of teachers in these new skills and to serve as a basic reference material for all those who will be involved in the implementation of the policy. As an introductory course in the theory and practice of continuous assessment, it is meant to provide students with:

i. An understanding of the meaning continuous assessment;
ii. An orientation of the kinds of pupil's learning outcomes to assess;
iii. An overview of the kinds/types of techniques to be used in assessing pupils;
iv. An orientation of means and ways of keeping and reporting assessing information.

B. SC. (ED.) SOCIAL SCIENCE EDUCATION

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
EDU 102	Introductory Psychology	2

200 LEVEL

Course Code	Course Title	Credit Units
EDU 203	Educational Psychology I	2
EDU 204	Educational Psychology II	2
EDS 222	Integrated Science	2

300 LEVEL

Course Code	Course Title	Credit Units
EDU 316	Guidance and Counseling	2
EDU 305	Introduction to Guidance and Counseling	1

400 LEVEL

Course Code	Course Title	Credit Units
EDU 412	Tests and Measurements	2
EDU 418	Introduction to Health Education	2
EDU 422	Advanced Educational Psychology	2
EDU 424	Continuous Assessment and guidance Tools	2

COURSE DESCRIPTIONS

100 LEVEL

EDU 102: INTRODUCTORY PSYCHOLOGY:2 CREDITS

A broad introduction of psychology comprising its nature - conceptual approaches, contemporary scope and research methods; psychological development - cognitive, personality and social, from early years through adolescence to old age.

200 LEVEL

EDU 203: EDUCATIONAL PSYCHOLOGY: 2 CREDITS

This course covers the broad concepts in educational psychology facilitative of understanding of learner teacher behaviour. It also introduces students to the phenomenon of learning. The relationships between learning and the broad concepts are explored in detail,

EDU 204: EDUCATIONAL PSYCHOLOGY II: 2 CREDITS

The course comprises in-depth study of human learning processes: theories and conditions of learning and teaching with emphasis on individual differences motivation, transfer of learning, reinforcement, reward and punishment and cognitive styles.

EDS 222: INTEGRATED SCIENCE: 2 CREDITS

This course provides an over view of the concepts of integrated science. The scope covers the JSS core curriculum and introduces the student to the philosophy of integrated science and the unifying themes of the JSS integrated science. The main thrust of the course would be the study of the content of integrated science in order to prepare the non-integrated science major to teach JSS integrated science.

300LEVEL

EDU 305: INTRODUCTION TO GUIDANCE AND COUNSELING: 1 CREDIT

The meaning of guidance and counselling. Societal needs for guidance and counselling. Specific needs for guidance and counselling in the secondary school. Need for guidance in the primary school. The present status of guidance in Nigerian schools. Principles of guidance. Guidance services. Guidance Relationships. Guidance and Curriculum. Guidance and Discipline. Guidance and Administration. Guidance and the Community. The Counsellor's relationships with other school personnel. The role of the Principal in guidance and counselling in the school. The role of teachers in the school guidance programme. The role of the community in the school guidance programme.

400LEVEL

EDU 416: GUIDANCE AND COUNSELING

As an introductory course in the theory and practice of guidance and counselling, it is designed to provide students with:

v. An understanding of the meaning and function of education and guidance.
vi. An orientation to the purposes and needs for organised guidance services in Nigeria schools;
vii. A framework of knowledge that will enable students help youths meet their developmental concerns and needs in socially acceptable ways; and
viii. The development of skills that will enable students to organise functional guidance programme in the school.

EDU 412: TESTS AND MEASUREMENTS: 2 CREDITS

This course focuses on the broad concepts in tests and measurements. It provides experience in description and use oftest data, test construction and analysis of test scores.

EDU 418: INTRODUCTION TO HEALTH EDUCATION: 2 CREDITS

The concept of health and health education. Determinants of health. Personal Health. Exercise, rest and Recreation. Family life Education. Nutrition. Safety Education and Emergencies. Emotional and Social Health. The need for Drug Education. Communicable Diseases, measles, chicken pox etc. Non Communicable Disease Diabetes, Hypertension, etc. School Health Instruction. Curriculum Planning in Health Education. School Health Services. Health School Living. Community Health Education.

EDU 422: ADVANCED EDUCATIONAL PSYCHOLOGY

Personality. Psychoanalytic Theory of personality. Trait Factor Theory. Adolescence. Delinquency and Maladjustment. Causes of Delinquency. Maladjustment. Behaviour Modification. Education of Exceptional Children. Education of the Gifted Child, Education of the Backward Child.

EDU 424: CONTINUOUS ASSESSMENT AND GUIDANCE TOOLS

This course has been designed in order to help in the training of teachers in these new skills and to serve as a basic reference material for all those who will be involved in the implementation of the policy. As an introductory course in the theory and practice of continuous assessment, it is meant to provide students with:

v. An understanding of the meaning continuous assessment;
vi. An orientation of the kinds of pupil's learning outcomes to assess;
vii. An overview of the kinds/types of techniques to be used in assessing pupils;
viii. An orientation of means and ways of keeping and reporting assessing information.

B. ED. EDUCATIONAL ADMINISTRATION AND PLANNING

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
EDU 101	History of Education	2
ADE 101	Introduction to Adult Education	2

200 LEVEL

Course Code	Course Title	Credit Units
EDU 201	Philosophy of Education	2
EDU 203	Sociology of Education	2
EDU 202	Educational Psychology	2
EDU 205	Curriculum and Instruction	2
EDU 200	Teaching Practice	3
ADE 201	Introduction to Non-Formal Education	2
ADE 202	Introduction to Community Development	2
ADE 203	History & Development of Edu. in W. Africa 1942-1960	2
EDF 211	Introductions to Philosophy of Education	1
EDF 220	Human Learning	1
EDF 221	Growth and Development	2
EDF 222	Measurement and Evaluation in Education	2
EDF 223	Introduction to Guidance and Counseling	1

300 LEVEL

Course Code	Course Title	Credit Units
EDU 300	Teaching Practice	3
EDU 301	Methods Courses	3
EDU 302	Test and Measurement	3
EDU 311	Res. Methods; Data Processing; Stat. & Comp. Usage	3
EDU 320	Educational Technology	2
ADE 302	Learning, Teaching and Communication	2
ADE 303	Introduction to Educational Planning	2
ADE 305	Financing Education in Nigeria	2
ADE 322	Mass Media and Methods of Distance Learning	2

400 LEVEL

Course Code	Course Title	Credit Units
EDU 499	Research Project	4
ADE 401	The Organisation of Primary & Secondary Edu.	2
ADE 402	Emergent Problems in Nigerian Education	2
ADE 411	Practicum	1
ADE 431	Rural Education	2
EDF 412	Guidance and Counseling	2
EDF 413	Sociology of Education	2
EDF 414	Sociology of Education II	2
EDF 415	Comparative Education Theories and Methods	2

COURSE DESCRIPTIONS

100 LEVEL

EDU 101 HISTORY OF EDUCATION

A study of educational development and institutions from ancient times to the present with particular reference to the evolution of modern education in Nigeria.

ADE 101 INTRODUCTION TO ADULT EDUCATION

The concept of adult hood; the neglect of adult in the scheme of formal education in developing countries; its scope and consequences; Education activities; the role and major objectives of Adult Education.

200 LEVEL

EDU 200 TEACHING PRACTICE

A minimum of six weeks supervised exposure to classroom teaching on field experience to demonstrate the degree of proficiency in applying some of the basic theories of instruction.

EDU 201 PHILOSOPHY OF EDUCATION

An introduction to major philosophical ideas which have influenced Educational thought and practices,

EDU 202 EDUCATIONAL PSYCHOLOGY

This course covers the broad areas of general psychology, social psychology development psychology and human learning.

EDU 203 SOCIOLOGY OF EDUCATION

An examination of the school as a micro-society. A study of the school as a component of the larger society as well as the inter dependence of the school and the large society.

EDU 205 CURRICULUM AND INSTRUCTION

A study of the theories and principles of curriculum planning; Development, implementation and evaluation. An emphasis on the designs and use of a variety of instructional strategies in different contexts. An overview of curriculum innovation in subject matter with particular reference to the Nigerian experience.

ADE 201 INTRODUCTION TO NON-FORMAL EDUCATION

The definitions of formal, informal and non-formal education, their distinguishing characteristics and example of each, the potentialities of non-formal education in economic, socio-cultural and political development; non formal education methods; linkages between formal and non-formal education, usefulness and examples.

ADE 202 INTRODUCTION TO COMMUNITY DEVELOPMENT

Community development theories and policies, community development programmes and processes in Nigeria. Identification and satisfaction of community felt needs through local groups. The community development worker as organiser and leader in public enlightenment, public health and other programmes.

ADE 203 HISTORY AND DEVELOPMENT OF EDUCATION IN WEST AFRICA 1942.1960

The earliest beginning of missionary education and Islamic education. The role of the voluntary agencies and the government. The development and pace of European philosophy and methods. The watersheds in further education development; the amalgamation of North and South; the helps Stokes Commission and others, up to the Ashby Commission 1960. The impacts of regionalization and federalism on educational development.

EDF 211 INTRODUCTIONS TO PHILOSOPHY OF EDUCATION

Philosophy as an aid to solution of problems in education. A critical examination and analysis of current ideas within the education field. Processes of clarification, justification, verification and criticism of concepts in education.

EDF 220 HUMAN LEARNING

Theories and conditions of learning and teaching with emphasis on individual differences; motivation, retention and transfer of learning.

EDF 221 GROWTH AND DEVELOPMENT

Principal theories of growth and development.

EDF 222 MEASUREMENT AND EVALUATION IN EDUCATION

Introduction to types of Educational and Psychological Tests.

EDF 223 INTRODUCTION TO GUIDANCE AND COUNSELING

An introduction to the basic principles and methods of behaviour modification for school counselors.

300 LEVEL

EDU 300 TEACHING PRACTICE

A minimum of six weeks supervised exposure to classroom teaching on field experience to demonstrate the degree of proficiency in applying some of the basic theories of instruction.

EDU 301 METHODS COURSES

The application of various teaching methods in different subjects under different situations. Emphasis will be on skill development.

EDU 302 TEST AND MEASUREMENT

An experience in test construction, administration analysis and interpretation.

EDU 320 EDUCATIONAL TECHNOLOGY

An eclectic approach to the design process application and effects of technology in the teaching-leaming situation. Emphasis is on the improvisation with local resources.

EDU 311 RESEARCH METHODS; DATA PROCESSING; STATISTICS AND COMPUTER USAGE

An experience in problem identification; types, design, data gathering, processing, analyzing, interpreting and reporting in educational context. The use of statistics and computer as tools in educational research should be emphasized.

ADE 302 LEARNING, TEACHING AND COMMUNICATION

Community development theories and policies, physical, sociological and psychological factors conducive to adult learning. A group versus individualized methods of instruction; group behaviour versus individual reaction in learning situation.

ADE 303 INTRODUCTION TO EDUCATIONAL PLANNING

Concepts of planning versus free enterprises. Planning and Planning statistics. Indice of growth. Differences between development and growth. Application to Education in Nigeria, with examples.

ADE 305 FINANCING EDUCATION IN NIGERIA

Basic concepts: Public finance, features of good tax system; federal expenditures; the federal government budget; federal, state and local government in Nigeria; Application to education, terms of reference and the findings of major committees on funding education in Nigeria; possible innovations in selected developing economies.

ADE 322 MASS MEDIA AND METHODS OF DISTANCE LEARNING

Elements of human communication-intra-personal, group and mass communication; communication theory a survey of the mass media and auxiliary agencies, distance learning concepts and methods.

400 LEVEL

EDU 499 RESEARCH PROJECT

An application of the research methods and data processing course to a field experience under the guidance of a Faculty member.

ADE 411 PRACTICUM

Students would be expected to teach under supervision real (or at least simulated) adult classes.

ADE 401 THE ORGANISATION OF PRIMARY AND SECONDARY EDUCATION

Administration of education as the coordination and control of factor resources available for equipment and motivation. The nature, scope of classroom Organisation and management. The principles and practices in selected States in Nigeria.

ADE 402 EMERGENT PROBLEMS IN NIGERIAN EDUCATION

Selected problems associated with the organisation and administration of education is analyzed, discussed and possible alternative solutions are proffered.

ADE 431 RURAL EDUCATION

The concepts of reality; Nigerian rural communities and social organisation; rural development principles and processes. The principles of learning, techniques and communication strategies usually employed to bring about desirable changes in a community.

EDF 412 GUIDANCE AND COUNSELING

Introduction to philosophy and historical development of guidance and counseling in the educational processes; role definition, survey, school guidance services and techniques.

EDF 413 SOCIOLOGY OF EDUCATION

Analysis of the role of education in society and of the role of theory in education; consideration of competing theories, with special reference to the characteristics in Nigerian society and their relevance to education.

EDF 4I4 SOCIOLOGY OF EDUCATION II

The role of formal education in relation to other social hierarchies and social mobility, social and cultural characteristics of school populations and the teaching profession.

EDF 415 COMPARATIVE EDUCATION THEORIES AND METHODS

Role of theory in education and consideration of competing theories. The scope and meaning of comparative education and methods, with special reference to the relationship between the state and education and to the factors that determine the character of an education system.

B. SC. EDUCATIONAL MANAGEMENT

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
EDM 111	Introduction to Educational Administration	2
EDM 112	Concepts of Educational Administration	2
EDM 121	Introduction to School Management	2
EDM 122	Introduction to School Personnel Management	2

200 LEVEL

Course Code	Course Title	Credit Units
EDM 211	Demographic Data, School Mapping and Plant Planning	2
EDM 212	Leadership Management and Organizational Theories	2
EDM 221	Introduction to Economics of Education	2
EDM 222	Public Relations/Information and Communication Technology	2

300 LEVEL

Course Code	Course Title	Credit Units
EDM 311	Education Law	2
EDM 312	Research Methods in Educational Administration	2
EDM 321	Educational Management, Planning and Policy Analysis	2
EDM 322	Modem Principles and Techniques in Educational Planning and Management	2

400 LEVEL

Course Code	Course Title	Credit Units
EDM 411	Issues and Trends in Management of Nigerian Primary and Secondary Schools Administration	2
EDM 412	Supervision of Instruction and Accountability	2
EDM 421	Public Policies and Reforms in Nigeria Education	2
EDM 422	Administration of Higher Education in Nigeria	2
EDM 423	Case Studies in Educational Management	2

COURSE DESCRIPTIONS

EDM 111: INTRODUCTION TO EDUCATIONAL ADMINISTRATION 3C

The nature, scope and Functions of Educational Management. Public Administration and Business Administration. The Development of Administration from classical Approval, to the Quantitative systems Approach. Elements of administrative behaviour, Decisions making, Planning, organizing, communicating, supervising, controlling Appraisal and Evaluation. Theoretical aspects of educational planning-Manpower Requirement Social Demand and Law of Returns.

EDM 112: CONCEPTS OF EDUCATIONAL ADMINISTRATION 3C

A critical discussion of management related concepts; Administration, Management, Planning and their relationship, Personnel Supervision, orientation and Assessment, etc.

EDM 121: INTRODUCTION TO SCHOOL MANAGEMENT 3C

Fiscal administration and Record keeping: Sources and levels of funding, methods of funding, budgeting, resource Allocation, fiscal Accountability, Auditing, school records, Internal revenue. Structure of Internal school administration. The Principal and Internal school administration. Student Discipline and the Role of other Duty officers, including prefects.

EDM 321: EDUCATIONAL MANAGEMENT, PLANNING AND POLICY ANALYSIS 3C

Principles and functions of Educational Administration; motivation and Human Needs; Decision Making. Meaning of Educational Planning, types of Planning Implementation and constraints of Educational plans in Nigeria, characteristics and qualities of a good plan. Some Educational policies of state and Federal Government, Educational Policy implemental and problems.

EDM 322: MODERN PRINCIPLES AND TECHNIQUES IN EDUCATIONAL PLANNING AND MANAGEMENT3C

Schools of Thought in Educational Management and planning; Management objectives, decision making theory. Development of modern management principles and practices. Applications and implications of management and planning principles and techniques in education.

EDM 411: ISSUES AND TRENDS IN MANAGEMENT OF NIGERIAN PRIMARY AND SECONDARY SCHOOLS ADMINISTRATION 3R

Innovation/changes in primary and secondary schools system, supervision of primary and secondary schools. Community Development and curriculum development in primary and secondary schools. Policy making and Administration. The role of school Management Boards; school Management Committee; Parents Teachers Association; Universal Basic education Board; Local Government Education Authority and Teachers Registration Council of Nigeria.

EDM 412: SUPERVISION OF INSTRUCTION AND ACCOUNTABILITY 3C

Concepts of supervision, Purpose of school supervision; supervisory techniques and models; Qualities of the supervisor of programmes, principles of supervision of instruction in Educational Administration. What is accountability? Accountability for Resources, Accountability for Results. Who is Accountable? Accountability and supervisor.

EDM 42I: PUBLIC POLICIES AND REFORMS IN NIGERIA EDUCATION 3E

Public Policies and Reforms in education after the Civil War. Public policies during various Military and Civilian reforms in Nigeria. Implications of some of these Educational reforms in Nigeria Educational system. Issues of implementations.

EDM422: ADMINISTRATION OF HIGHER EDUCATION IN NIGERIA 3E

Ashby Commission and the Development of Higher Education in Nigeria, Supervising bodies: NUC, NCCE, NBTE, etc. and their roles. Politics of Higher Education in Nigeria, emphasis on establishment of private tertiary institutions, funding and appointments of Management Personnel.

EDM 423: CASE STUDIES IN EDUCATIONAL MANAGEMENT3E

Actual cases of Planning and Administration issues in Nigeria are to be examined.

EDM 122: INTRODUCTION TO SCHOOL PERSONNEL MANAGEMENT 3C

Concept of personnel administration, goal of personnel administration, recruitment and placement of personnel; personnel development (teacher education), salaries and wages; Union Relation, Labour Law, Collective bargaining etc.

EDM 211: DEMOGRAPHIC DATA, SCHOOL MAPPING AND PLANT PLANNING 3C

Population structure and vital components, Births, Death, migration, life expectancy and survival rates. Natality and Mortality. School age population, Age and sex distribution and age splitting techniques. The school plant, Instructional facilities, open spaces, non. Teaching or residential facilities, factors affecting Design of school plant etc.

EDM 212: LEADERSHIP MANAGEMENT AND ORGANIZATIONAL THEORIES 3C

Meaning of leadership, leadership skills, leadership structure in the school system, leadership theories. Types of organizational theories: Bureaucratic theory, theory X and Y: The social science (Behavioural) theory, the Human Relations and the Scientific Management theories etc.

EDM 221: INTRODUCTION TO ECONOMICS OF EDUCATION 3C

Concepts of Economics of Education. Education, Economy and Private and social costs of education. Education and investment. Education and consumptions. Cost-Benefit analysis in education. Education and cost effectiveness. Budgetary expenditure on education. Manpower development etc.

EDM 222: PUBLIC RELATIONS/INFORMATION AND COMMUNICATION TECHNOLOGY3C

Meaning and importance of Public Relations in educational organizations. Agents and media of effective public relationships; Models of Communication. Meaning and Importance of Information and Communication Technology; Channels and problems of Information and Communication Technology in Education.

EDM 311: EDUCATION LAW 3C

Meaning, sources and classification of law; concept of Education law; Historical Development of Education law in Nigeria; sources/nature of Education law. Toots liability issues in school and the concept of negligence in students' management. Education laws at the state level; Teachers and their employment; Teachers and students' rights; Teachers and students' discipline and control. Legal aspects of school records and reports, etc.

EDM 312: RESEARCH METHODS IN EDUCATIONAL ADM. 3C

Definition of Educational Research, duration of Educational Research, the role of the researcher. Importance and problems of research in Education. Types of Research; Research format in Educational management. Research statistics and analysis etc.

B. SC. PRIMARY EDUCATION

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
EDU 101	History of Education	2
EDU 103	Introduction to the Teaching Profession	2
EDU 101	Introduction to Primary Education Studies I	3
EDU 102	Introductory to Psychology	2
PED 103	Introduction to Primary Education Studies II	3
PES 104	Early Childhood Education in Traditional African Societies	2

200 LEVEL

Course Code	Course Title	Credit Units
EDU 201	Philosophy of Education	2
EDU 203	Educational Psychology I	2
EDU 205	Curriculum and Instruction Educational Psychology II	2
EDU 204	Curriculum and Instruction II	2
EDU 206		2
PED 201		2
PES 203	Human Growth, Development and Learning I	2
PES 205	Early Childhood Education, Teaching Methods I (Choose only one) • Language and Language Arts Contents and Methods • Mathematics Methods and Contents and Science Contents and Methods • Primary Social Studies and Creative Activities Contents and Methods	2 2
EDU 202	Sociology of Education	2
PES 202	Childhood Education in Traditional African Societies	
PES 204	Human Growth, Development and Learning II	2
PES 206	Early Childhood Education, Teaching Methods II (Choose only one) • Language and Language Arts Contents and Methods • Mathematics Methods and Contents and Science Contents and Methods • Primary Social Studies and Creative Activities Contents and Methods	2 2

300 LEVEL

Course Code	Course Title	Credit Units
EDU 301	Instructional Technology	2
EDU 303	Curriculum Studies	2
EDU 3I2	Tests and Measurement	2
EDU 301	Philosophy of Early Education and Primary Education	2
EDU 303	Introduction to Special Education	2
EDU 302	Introduction to Research Methods and Statistics	3
EDU 304	Mini - Teaching	1
EDU 306	Teaching subject Methods Courses	3
EDU 322	Comparative Education	2
PES 305	• Primary Language and Language Arts Contents and Methods I • Primary Mathematics Methods and Contents and	2

PES 302	Science Contents and Methods I	2
PES 304	• Primary Social Studies and Creative Activities Contents and Methods I	2
PES 308	Organization and Administration of Nursery and Primary Education ion Nigeria	2
	Design and Production of Learning Materials for Nursery and Primary Education	2
	• Primary Language and Language Arts Contents and Methods II	2
	• Primary Mathematics Methods and Contents and Science Contents and Methods II	2
	• Primary Social Studies and Creative Activities Contents and Methods II	2

400 LEVEL

Course Code	**Course Title**	**Credit Units**
EDU 401	Filed Teaching Practice	6
EDU 403	Research Project	4
EDU 414	Introduction to Educational Administration and Planning	2
PED 402	Guidance and Counseling in Early Childhood and Primary Education	2
PES 404	Seminar on Early Childhood and Primary Education	2
PES 406	School Library and information Science	2
PES 408	Primary Health and Environmental Education	2
Electives		
EDU 420	Special Education	2
EDU A22	Advance Educational Psychology	2
EDU 424	Continuous Assessment and Guidance Tools	2

B. SC. SOCIAL STUDIES

COURSE OUTLINE

l00 LEVEL

Course Code	Course Title	Credit Units
EDU 100	Introduction to Teaching Profession	2
EDU 101	History of Education	2
EDU 202	Educational Psychology	2
SSE 100	Elements of Social Studies	3
SSE 103	Introd. to Social Studies, Education & Nation Building	3
SSE 104	Family-base of Structure and Society	2
SSE 105	Socio-Economics Environment of Nigeria	3
SSE 106	Introduction to Nigerian Cultural Environment	3
Electives		
SSE 101	Structured Characteristics of Man's Place	3
SSE 102	Introduction to Nigerian Social Life and Cultural	3

200 LEVEL

Course Code	Course Title	Credit Units
EDU 201	Philosophy of Education	2
EDU 203	Sociology of Education	2
EDU 205	Curriculum and Instruction	2
EDU 200	Teaching Practice	2
SSE 202	Social Interactions in Nigeria	3
SSE 203	Social Studies Education and Nation Building Nigeria	3
SSE 204	Socio-political Institutions	3
SSE 205	Socio-Economic Structure of Nigeria	3
Electives		
SSE 206	Culture and Social Stability	3
SSE 201	Study of Maters in Space	3
SSE 234	Advanced Communication Skill	2

300 LEVEL

Course Code	Course Title	Credit Units
EDU 300	Teaching Practice	4
EDU 320	Educational Technology	2
EDU 322	Educational Psychology II	2
EDU 311	Research Methods and Data Processing (Statistical/Computer Usage)	2
SSE 305	Finance and Financial Institutions in Nigeria	3
EDU 306	Nigeria Cultural Partners and Historian Origin	3
Electives		
SSE 301	Study of Events in Places	3
SSE 302	Nationalism and Patriotism in Nigeria	3
SSE 303	Social Studies Education & Theories of Nation Building	3
SSE 304	Politics, Power and Government in Nigeria	3

400 LEVEL

Course Code	Course Title	Credit Units
EDU 205	Curriculum and Institution	2
EDU 302	Test and Measurement	2
EDU 499	Research Project	4
EDU 401	Organization of Primary and Secondary Education	2
SSE 401	Study of ideas in Place	3
SSE 403	Social Studies -- Education Problems and Prospects of ation Building	3
SSE 404	Social Life and party politics in Nigeria	3
SSE 405	Socio-Economic Activities in Nigeria	3

COURSE DESCRIPTIONS

100 LEVEL

SSE l00: ELEMENTS OF SOCIAL STUDIES

This course introduces students to social study. It emphasizes the field. The philosophy behind its introduction. the rationale, general and specific objectives, its evolution, scope and sequence are given specific attention.

SEE 101: THE STRUCTURE AND CHARACTERISTICS OF MAN'S PLACE

A general study of the earth, the atmosphere, hydropheric place and lithospheric place. An analysis of place individuals and place abstract.

SSE 102: INTRODUCTION TO NIGERIAN SOCIAL LIFE AND CULTURE

History and social studies relationships. Use of historiography in social studies interactions in early Nigeria up to 1500. Social studies topics in world history (the modern world) peoples of Nigeria. Concepts of culture and patterns of culture in Nigeria.

SSE 103: INTRODUCTION TO SOCIAL STUDIES EDUCATION AND NATION BUILDING

Analysis of the concepts of development, self reliance, education and nation building. The philosophy of social studies, civic rights and responsibilities (means and ends in development); social institutions (patterns, structures and functions).

SSE 104: FAMILY AS THE SOURCE OF THE STRUCTURE OF THE SOCIETY

Nature, types and structure of the family problem of living in the family. Family as a micro-society; some social institutions that are family based.

SSE 105: SOCIO ECONOMIC ENVIRONMENTS OF NIGERIA

Introduction to man's economic activities. Man and his needs and wants. Man and his ability to make choice, use of resources and pending money.

SSE 106: INTRODUCTION TO NIGERIAN CULTURAL ENVIRONMENT

Man as the focus of social studies, Socialization agencies and Institutions. marriage, religion, health, legal and civic obligations. Civic rights and responsibilities.

200 LEVEL

SSE 201: STUDY OF MATERS IN SPACE

Detailed study of the nature, distribution and values of atmospheric and lithospheric matters in space.

SSE 202: SOCIAL INTERACTION IN NIGERIA

Social interactions in Nigeria 1500 - 1800 (Grassland Zone) 1500 - 1800 (Forest Zone) Political systems in pre-colonial Nigeria. Social interactions in Nigeria 1914 1960.

SSE 203: SOCIAL STUDIES EDUCATION AND PATTERNS O NATION BUILDING

Ideological basis of development. Pattern of life n urban and rural areas. Co-operation and conflict; social attitudes of development; leadership, followership, and the consequences of these systems in development. Nation Building in multicultural setting.

SSE 204: NIGERIA: SOCIO POLITICAL INSTITUTION

Nigeria culture, identity socialization of man marriage and kinship groups: primary, secondary and communities.

SSE 205: THE SOCIO-ECONOMIC STRUCTURE OF NIGERIA

Marketing systems and organization. Prices and income. Savings - why and how to save.

SSE 206: CULTURE AND SOCIAL STABILITY

The concepts of culture and identity. Common heritage and national symbols. Cross culture influences. Social change, alienation and social stability.

300 LEVEL

SSE 301: STUDY OF EVENTS IN SPACE

An analysis of the nature, value and distribution of events n the atmospheric; hydropheric and lithospheric environments.

SSE 302: NATIONALISM AND PATRIOTISM IN NIGERIA

The indigenous political organization; the growth and development of political parties in Nigeria, goals and strategies of nationalists o pre-independence Nigeria, Political and crises in Nigeria 1960 - up to date.

SSE 303: SOCIAL STUDIES EDUCATION AND THEORIES OF NATION BUILDING

Theories of self reliance development. Social change alienation and personality. The role of religion in society; politics and political institutions. Values. technology and development education for place: a new dimension in social education.

SSE 304: POLITICS, POWER AND GOVERNMENT IN NIGERIA

The study of politics, power and government. Forms of government: major generalization from political Science. Study of social order and its constituents.

SSE 305: FINANCE AND FINANCIAL INSTITUTIONS IN NIGERIA

The Economic systems of Nigeria. Factors of production, money - history, functions and types.

SSE 306: NIGERIA CULTURAL PATTERNS AND HISTORICAL ORIGIN

A study of the Nigerian social and cultural relations. Sports arts and culture. Utilization and conversation of resources and loyalty to the nation.

400 LEVEL

SSE 401: STUDY OF IDEAS IN SPACE

Analysis of the nature, value and distribution of atmospheric, hydropheric, lithospheric and universal spatial concepts that relate to either space individuals or abstract places.

SSE 401: INTERNATIONAL AND MULTIDIMENSIONAL INTERACTIONS

Concepts of world power and types. Nigeria in international politics and economic cooperation. International understanding through social studies.

SSE 403: SOCIAL STUDIES EDUCATION, PROBLEMS AND PROSPECTS OF NATION BUILDING

Concepts of culture and identity. Cross cultural influence; cultural factors militating against self reliance and development. Human rights in Nigeria, and human rights education.

SSE 404: SOCIAL LIFE AND PARTY POLITICS IN NIGERIA

Nigerian major political parties; the evolution of political parties. Functions and duties of arms of government. Forms of government.

SSE l05: SOCIO ECONOMIC ACTIVITIES IN NIGERIA

Economic activities performed by persons, firms and government; types of economy, banks and banking system. Nigeria and international economic organizations.

SSE 406 THE NIGERIAN CULTURAL ENVIRONMENT: VALUES, SCIENCE AND TECHNOLOGY

Analysis of the concepts of values. Values vital to the acquisition of science and technology. Choice of values and direction of development. Utilization and conversation of world's resources.

B. SC. BUSINESS EDUCATION

COURSE OUTLINE

200 LEVEL

Course Code	Course Title	Credit Units
EDU 201	Philosophy of Education	2
EDU 202	Sociology of Education	2
EDU 203	Educational Psychology	2
EDU 204	Educational Psychology II	2
EDU 205	Curriculum and instruction	2
EDU 206	Curriculum and instruction II	2
ECN 201	Introduction to Micro Economic	3
ECN 202	Introduction to Micro Economic	3
ECN 203	Introduction to Micro Economic	2
ECN 204	Introduction to Micro Economic	3
BUS 2I3	Principles of Marketing I	3
BUS 214	Principles of Marketing II	3

300 LEVEL

Course Code	Course Title	Credit Units
EDU 301	Education Technology	2
EDU 302	Introduction to Education Research Methods	3
EDU 303	Curriculum Studies	2
EDU 304	Mini Teaching	1
EDU 312	Tests and Management	2
EDU 306	Subject Method	3
EDU 322	Comparative Education	2
BUS 311	Analysis of Business Decisions	3
BUS 315	Business Communication	2
BUS 317	Business Law	2
BUS 322	Marketing Management	3
BUS 323	Money and Banking	3
BUS 325	Management Theory	2
BUS 41 I	Business Policy I	3
ACC 318	Public Finance	3

400 LEVEL

Course Code	Course Title	Credit Units
EDU 401	Teaching Practice	6
EDU 403	Research Project	4
EDU 414	Educational Planning and Administration	2
EDU 416	Guidance and Counseling	2
EDU 418	Health Education	2
BUS 412	Business Policy II	3
BUS 414	Organizational Behaviour	3
BUS 422	Management Information System	3
ACC 415	Principle of Taxation I	3
BUS 325	Management Theory	2
BUS 411	Business Policy I	3
ACC 318	Public Finance	3

COURSE DISCRIPTIONS

200 LEVEL

BUS 213: PRINCIPLE OF MARKETING 1:2 CREDITS

Basic components of marketing, including products, policy, promotion, consumer behaviour and pricing, emphasis on current marketing practices, basic products and strategy concepts and product development.

ECN 201: MICRO ECONOMICS: 3 CREDITS

Introduction to Economics-scope and methodology. Micro – economic theory. Problems of scarce resources and allocation to Nigerian and other economics. Equilibrium and general equilibrium analysis, supply demand theory. Cobweb theory. Introduction Dynamics. Consumer behaviour, general competition - imperfect competition, monopoly and monopolistic competition pricing of product factor. The theory of comparative cost.

ECN 202: MICRO ECONOMIC II: 3 CREDITS

Macro – economic theory, national income accounting, the circular flow of income, macro-economic aggregate. National income analysis, money and monetary system. Domestic economic stabilization, monetary and fiscal policies, price control and inflation. Elements of public finance, international trade and payments.

ECN 203: MACRO ECONOMICS I: 2 CREDITS

History of Economics thought I. Comparative survey and assessment of developments in economic thought.

ECN 204: MACRO ECONOMICS II: 3 CREDITS

History of Economic thought II

- The Keynesian School of economic thought
- The Monetarist School
- The supply side economics
- The rational expectation School
- Common grounds among theories

BUS 214: PRINCIPLES OF MARKETING II: 2 CREDITS

Theory and practice of advertising, development advertising messages, marketing product interaction, channels of distributing, aspects of the distribution system. Analysisof current trends of marketing problems and policies. Critical analysis of marketing, consideration of current development in theory, activities of regular agencies, analysis of ethical, social and public policy aspect of marketing changes.

BUS 217: BUSINESS FINANCE I: 3 CREDITS

Overview of financial management, evolution of fiancé form of business organizations, interest role patterns, fundamental concepts in finance, Risk, Rate of Return, Compound interest and time value of money, stock and Bond values, financial forecasting, introduction of analytical financial management with emphasis on the management of the short-term uses and sources of funds, capital investment an management of long-term sources.

BUS 218: BUSINESS FINANCE: 3 CREDITS

Analysis of financial statements, working capital management cash and marketable securities, accounts receivable and inventories, short-term credits, capital budgeting investing in fixed assets, long-term financing Decisions, long-term debt and refereed stock, common stock, target capital structure, cost of capital, dividend policy, mergers, leasing, bankruptcy and recognition, warrants and convertible.

BUS 322: MARKETING MANAGEMENT: 3 CREDITS

Designed to offer opportunity for a comprehensive understanding of the functional areas of marketing and the integration of these functions into an effective and efficient marketing strategy for the firm. Other topics include the approach to the process of purchase decision from the standpoint of both consumers and marketers. Consideration is given to implication for marketing from social science theory and methodology, consumerist movement. An examination of channel of distribution, social and economic aspects of the distributions system. Basic product and strategy concepts are examined, including the management of innovation and market product integration, product development, modification and crimination strategies are studies, product concept, development, modification and life cycle, pricing management and market segmentation are covered.

300 LEVEL

BUS 323: MONEY AND BANKING: 3 CREDITS

Designed to expose students to the various elements of monetary theory, relationships between money, prices production and employment. Factors determine money supply, operation of capital markets with reference to Nigerian environment, commercial bank management, direction and coordination of the various functions of the commercial bank including money position, leading capital management, trust and auxiliary functions.

BUS 325: MANAGEMENT THEORY: 3 CREDITS

Concepts of theory in the physical and social sciences. Levels of theory. The features of theory in management. Links between management theories and management models. Practice or management conduct as a test of food management theory. Existing difficulties of developing useful management theories in Nigeria and other developing countries. Theories of management e.g the scientific management movement, the human relations movement, the systems movement, and the managerial behavioural movement, theory X and the Y. The Grid approach, participate models.

BUS 311: ANALYSIS OF BUSINESS DECISIONS I: 3 CREDITS

Details study of application of quantitative decisions to policy and planning system. Designed to offer the opportunity for a comprehensive understanding of the functional areas of logistic and the integration of these functions into an effective logistic system.

BUS 315: BUSINESS COMMUNICATION: 2 CREDITS

A course stressing the importance of and problems in effective communication within the organizational setting. Special emphasis will be given to problem of horizontal and vertical communication, communication blockage, informal communication channels and the effects of organizational structures and leadership patterns on communication opportunity for developing business writing proficiency. The course stresses general techniques of report organization and graphic presentation an documentation. Dynamics of inter personal communication both verbal and non-verbal interaction is explored in terms of consequences on the communication process.

BUS 317: BUSINESS LAW: 2 CREDITS

Origin of development of law, judicial procedure, tort law, contracts and wills with emphasis on consumer business rights and responsibilities, agency, partnership, corporations, sales, commercial paper, creditors rights and secured transitions under the uniform commercial code, legal environmental of real property ownership, transfers and legal brokerage, mortgage transactions.

400 LEVEL

BUS 412: BUSINESS POLICY II: 3 CREDITS

Detailed analysis of a firm's opportunities and threats, strengths and weakness. Selecting strategies and structure of public liability companies from their published annual reports. Developing clear business objectives, setting clear strategies and policies and presenting structures that are capable being used in implementing chosen strategies. Organic business functions of marketing, production, finance and personnel in Nigeria. Management process of corporate planning, budgeting and control business performance appraisal,

managing by objectives motivating group and individual efforts and generally relating an organization to the changes taking place in its environment. Predicting the dynamic environment. Impact of environmental changes on the strategies and performance of a firm. Recent development affecting the strategy formulating and implementing processes of firms in Nigeria.

BUS 414: ORGANIZATION BEHAVIOUR: 3 CREDITS

Concepts of behaviour organization management, administrations and performance. Individual behavioral process such as personnel systems, self concept development, interaction styles, Group behavioral processes and as informal structures, norms of work and play states-based rewards and punishments, leadership, task distribution, and performance appraisal theories of organizational behavior and relevance to Nigeria Behavioural model buildings. Theories of behavioural change managing resistance to planned changes. Behavioural modification. Formal work system. The challenges of informal and emergent work systems, systems. Integrity, inefficiency and motivation theories, Altitude to work, Behaviour modification. Designing effective organization in Nigeria.

BUS 418: CORPORATE/STRATEGIC PLANNING; 3 CREDITS

The concept and theory of planning strategic planning environmental study and analysis. Technology forces forecasting, socio-political forecasting, industry analysis tasks and technique's operational planning and the allocation process organization for planning, organization behavioural planer, managing and corporate planning process.

BUS 422: MANAGEMENT INFORMATION SYSTEM: 3 CREDITS

BUS 411; BUSINESS POLICY I: 3 CREDITS

Concept of strategy in relation to business, corporation and management. Linkages between organization and their environments. Concepts of policies, decision-making, business objectives, performance criteria, structure and managerial behaviour. Practice in calculating simple financial and economic induces from business data and other accounting information. Analysis of role of employee and managerial behaviour in success or failure of strategy implementation. Integration analysis.

- The mercantilism School
- Classical economics
- The German historical school
- The Marginalist school
- Welfare School of economic thought

B.SC. CURRICULUM STUDIES

COURSE OUTLINE

100 LEVEL

Course Cod	Course Title	Credit Units
EDU 111	Introduction to Teaching Profession	2
PES 135	Introduction to Primary Education	2
GNS 111	The use of English 1	2
GNS 112	History and Philosophy of Science	2
GNS 113	Introduction to Logic and Philosophy	2
CIT 111	Introduction to Curriculum and Instruction	2
CIT 112	Introduction to the Theory and Practice of Education Technology	2
CIT 113	Information and Development	2
EDU 121	History of Education	2
EDG 121	Development and Adjustment Psychology	2
GNS 121	Introduction to Computer Appreciation	2
GNS 122	The Nigerian Constitution: Duties and Rights	2
CIT 121	Principles of Teaching and Learning	2
CIT 122	Society, Development and Libraries	2
CIT 123	Instructional Design	2

200 LEVEL

Course Code	Course Title	Credit Units
EDU 211	Educational Administration	2
EDU 212	Educational Psychology	2
EOF 213	Moral and Religious Instruction	2
GNS 211	The use of English II	2
GNS 212	Introduction to Petroleum Studies	2
CIT 211	Educational Media Production and Management	2
CIT 212	Introduction to Adult Education	2
EDU 221	Philosophy of Education	2
EDU 222	Sociology of Education	2
CIT 224	Comparative Education	2
GNS 221	General Entrepreneurial Skills and Management	2
GNS 222	Fish Farm and Poultry Management	2
GNS 223	The Stock Market and E-Trading	2
CIT 221	Curriculum and Instruction	2
CIT 222	Computer in Education	2
CIT 223	Learning Environment	2

300 LEVEL

Course Code	Course Title	Credit Units
EDU 311	Test and Measurements	2
EDU 321	Methods Course 1	2
EDU 484	Teaching Practice	2
CIT 311	Trends in Nigerian Education	2
CIT 312	Educational Policy Implementation	2
EDU 321	Curriculum and Instruction	2
EDU 322	Educational Technology	2
CIT 321	Microteaching	2

400 LEVEL

Course Code	Course Title	Credit Units
EDU 411	Curriculum and Instruction II	2
EDU 412	Method Course II	2
EDU 413	Guidance and Counseling	2
EDU 484	Teaching Practice	6
CIT 411	Structure of the UBE core subject-areas	2
CIT 412	Curriculum and Instruction Design	2
CIT 413	Innovation in Educational Technology	2
CIT 414	Internship in Educational Technology	6
EDU 421	Research Methods and Statistics	3
EDU 422	Special Education	2
CIT 421	Seminar in Curriculum and Educational Technology	2

COURSE DESCRIPTIONS

CIT 111: INTRODUCTION AND CURRICULUM AND INSTRUCTION -2C

A study of the concept of education, curriculum and its scope. Syllabus, etc. Factors influencing curriculum development, partial points in the planning and development processes of the curriculum.

CIT 112: INTRODUCTION TO THE THEORY AND PRACTICE OF EDUCATIONAL TECHNOLOGY - 2C

The concept and historical development of educational technology. Analysis of Theories of Learning. Study of the characteristics of available media.

CIT 113: INFORMATION AND DEVELOPMENT - 2R

Definition, generation and types of information and information influences development.

CIT 12: PRINCIPLES OF TEACHING AND LEARNING - 2C

Examination of the relationships among teaching, learning and assessment; teaching as profession, and schools as complex social organization.

CIT 122: SOCIETY DEVELOPMETN AND LIBRARIES - 2R

Definition of society, development and libraries; types of society, development and library, emergence of library to the development of the society.

CIT 123: INSTRUCTIONAL DESIGN - 2C

Concepts of instructional design; principles of instructional design. Models of instructional design-classroom, product and system-oriented models, motivation models, etc. Teaching Subject.

CIT 211: EDUCATIONAL MEDIA PRODUCTION AND MANAGEMENT - 3C

Acquisition of practical skills in the production of educational media Study and Management of Educational Resources Centers, procedures for selection and use of media; principles or organization and personal manament as they aply to directing an educational resources centre. Visits to media facilities. Emphasis is on acquisition of practical skills and production of media

CIT 212: INTRODUCTION TO ADULT EDUCATION CIT 211: CURRRICULUM AND INSTRUCTIONAL - 2C

A critical analysis of the curriculum in term of its relevance to national growth; relational between curriculum and instruction in terms objectives, specifically selection of learning activities, learning materials; methods and media of instructional and evaluation. An overview of curriculum innovation in a subject matter area with particular reference to the Nigerian experience.

CIT 222: COMPUTER IN EDUCATION - 3R

Instruction to the structure, characteristics and functions of the computer; Computer-assisted and computer-managed instruction; Computer in data processing and administration. Problems of computer in the management of instruction and teaching; application of the computer within the Nigerian educational system.

CIT 223: LEARNING ENVIRONMENTS - 2R

A study of the environment as it affects learning. Space, objects and territoriality; School and class size; the environment as a hidden curriculum; risk and risk stress in school; interrelationship of the cognitive, social and physical conditions and outcomes of schools and classrooms. Teaching Subject.

CIT 311: TRENDS IN NIGERIAN EDUCATION - 2E

An overview of the main forces influencing change and innovation in the development of primary, secondary and tertiary education, and the propose reform in education.

CIT 312: EDUCATIONAL POLICY IMPLEMENTATION - 2R

An examination of various educational policies in Nigeria and their implementation strategies

CIT 321: MICROTEACHING - 3C

In-campus peer teaching which is supervised and held in the microteaching laboratory. Teaching Subject

CIT 411: STRUCTURE OF THE UBE CORE SUBJECT AREAS - 2R

Detailed examination of the each of the UBE core subject area such as language arts social studies, integrated science, introductory technology, etc, to show the organizational structure.

CIT 412: CURRICULUM AND INSTRUCTION DESIGN - 2C

Application of models for designed curriculum and instruction. Students design curriculum in collaborative groups Curriculum innovation and change.

CIT 413: INNOVATIONS IN EDUCATIONAL TECHNOLOGY - 6C

Supervised students attachment to agencies involved in educational technology activities such as Television and Radio station, Education Technology Centers, Printing and Publishing Companies, Photographic organizations, Advertising and Public Relations outfits, Museums, Libraries, Training Schools/Centers, Instructional materials and equipment centers, Computer firms, Ministry Ed Tech Departments, Military establishments, etc

CIT 421: SEMINAR IN CURRICULUM AND TECHNOLOGY -2R EDUCATIONAL

Examination and consideration of topical issues and problems in Curriculum, Education Technology and the Nigerian school system with a view to clarifying issues and providing answers to the problems that affect the school system.

B.SC. GUIDANCE AND COUNSELING

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
EDG 111	Introduction to Guidance and Counseling	2
EDF 111	Introduction to Human Growth and Development	3
EDU 121	Education Psychology I	3
EDU 122	Development Guidance	3

200 LEVEL

Course Code	Course Title	Credit Units
EDU 211	History of Education	3
EDU 212	Theories of Counseling	3
EDU 214	Curriculum Development I	3
EDG 211	Techniques of Testing in Guidance/Counseling	3
EDG 213	Occupational Information, Job Analysis & Job Evaluation	3
EDU 212	Educational Psychology II	3
EDU 221	Sociology of Education	3
EDU 225	Curriculum Development II	3
EDF 221	Motivation of Learning	3
EDF 226	Psychology of Deviant Behaviour	3
EDG 221	Laboratory Work: Preparation for Counseling and Interview Techniques	

300 LEVEL

Course Code	Course Title	Credit Units
EDU 311	Research Methods and Statistics	3
EDU 320	Education Technology	3
EDG 312	Organization &Prac. Of Guidance & Counsel in Schools	3
EDG 311	Practicum in Guidance & Counseling	3
EDG 313	Program Dev. & Evaluation in Guidance & Counseling	3
EDG 314	Introduction to Culture and Psychopathology	3
EDG 322	Techniques in Continuous Assessment	3
EDU 321	Tests and Measurement	3
EDF 321	Adolescent Psychology	3
EDG 321	Group Dynamics	3
EDU 322	Educational Technology II	2
EDG 315	Program Dev. & Evaluation in Guidance & Counseling	3
EDG 318	Laboratory Work: Preparation for Counseling and Interviewing Techniques	3
EDF 316	Human Organization Behaviour	3

400 LEVEL

Course Code	Course Title	Credit Units
EDU 411	Teaching Practice	6
EDG 411	Practicum in Guidance & Counseling	3
EDG 413	Counseling Special Settings	3
EDG 412	Issues in Guidance & Counseling	3
EDF 411	Personality Development and Social Adjustment	3
EDU 499	Research Project	6
EDG 421	Methods of Pyschotherapy	3
EDF 421	Affective Development and Behaviour Modification	3
EDG 422	Teenage Counseling	3
EDF 422	Human Behaviour Organization	3

COURSE DESCRIPTION

100 LEVEL

EDG 111: INTRODUCTION TO GUIDANCEAND COUNSELING: 3 CREDITS

The course introduces students to the concept of guidance and counseling. The history of guidance and counseling is traced and key theories of guidance and counseling are highlighted. The principles of guidance counseling are discussed with emphasis on the importance; need and role of guidance and counseling in school and non-school settings.

EDG 122: DEVELOPMENTAL GUIDANCE: 3 CREDITS

As child develops from one stage to another. he/she is confronted with developmental tasks which must be well resolved for healthy development. The course stresses the application of guidance and counseling in every developmental stage to assist a child transit each developmental stage successfully.

200 LEVEL

EDG 211: T ECHNIQUES OF TESTING IN COUNSELING: 3 CREDITS

The concept is defined and its central role in guidance and counseling in providing information about ones behaviour is discussed. Testing techniques appropriate for different behaviour assessments are identified and methods of communicating test results to clients are explored.

EDG 213: OCCUPATION INFORMATION, JOB ANALYSIS AND JOB EVALUATION: 3 CREDITS

The course introduces students to the existing theories of vocational choice and developmental information at both the primary, post primary and tertiary levels of education are identified and discussed. The role of occupational information in vocational development is also explored.

EDG 213: INTRODUCTION TO CULTURE AND PSYCHOPATHOLOGY: 3 CREDITS

The course explains the concepts of culture and psychotherapy. The use of culture in defining normality and abnormality as well as cultural difference in behavioural patterns are discussed along with the cultural implications. Psychopathology observed in school children, their effects on children's school adjustment and academic performance are also examined.

EDG 221: LABORATORY WORK: 3 CREDITS

Preparation for counseling and interviewing techniques. A practical course on procedures for counselling and interviewing. An exploration of the skills utilized in effective counselling and interviewing. Emphasis is on activity.

300 LEVEL

EDG 221: GROUP DYNAMICS: 3 CREDITS

A study of the structure and functioning of groups and the influence of these on the behaviour of individual members. An application of the principles of group dynamics to group counseling. The course also exposes student to the usefulness of studying social behaviour from both interpersonal and inter-group perspectives

EDG 322: PROGRAM DEVELOPENT AND EVALUATION IN GUIDANCE AND COUNSELING: 3 CREDITS

Guidance and Counseling as a program is explained and the characteristics of the various counseling programs discussed. Evaluation procedures for counseling programs are also examined.

EDG 312: ORGANIZATION AND PRACTICE OF GUIDANCE AND COUNSELING IN SCHOOL: 3 CREDITS

Students are familiarized with the Nigerian primary and secondary school system and hierarchy, vis-ir-vis the position and responsibilities of a school guidance and counselor. Problems are identified and solutions are proffered.

EDG 316: HUMAN ORGANIZATIONAL BEHAVIOUR: 3 CREDITS

An introductory study of people's behaviour in organization. The ways of certain behaviours are provided and the organizational structure, hierarchy and communication lines and styles are examined to highlight their strengths and weaknesses. The impacts of motivational problems as leadership styles and physical work environment are discussed.

400 LEVEL

EDG 421: METHODS OF PSYCHOTHERAPY: 3 CREDITS

This is an introductory course on various psychological processes of handling deep emotional problems. The principles underlying each method and techniques used are discussed. The strength and weakness of each technique are highlighted while the coagulation of methods is recommended.

EDF 411: PERSONALITY DEVELOPMENT AND SOCIAL ADJUSTMENT: 3 CREDITS
COUNSELING IN SPECIAL SETTING: 3 CREDITS

Counseling as a helping profession is expected to benefit individuals in school and out-of-school situations by helping them develop a better understanding of themselves are also identify and manage their problems effectively. Students are required to familiarize themselves with various settings and learn how guidance and counseling could be used profitably in each.

EDG 422: TEENAGE COUNSELING: 3 CREDITS

An exploration of the nature and types of needs and problems of teenagers and a survey of the various psychological approaches to their need resolution. The characteristics of adolescents are examined with a view to helping them adjust to changes.

EDG 412: ISSUES IN GUIDANCE AND COUNSELING IN NIGERIA: 3 CREDITS

Guidance is developmental and is still yet to be firmly rooted in the Nigerian schools and out-of-school systems. The course examines the current status of guidance and counseling in Nigeria, identifies the problems and Identifies prospects.

EDG 41I: PRACTICUM IN GUIDANCE AND COUNSELING: 3 CREDITS

The course focuses on the practical of guidance and counseling in natural settings. Interviewing skills, and techniques of counseling are emphasized as prerequisites for effective counseling. Emphasis is on activity on the pan of the student in the field.

B. SC. LIBRARY AND INFROMATION SCIENCE

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
LIS 101	Libraries and Society	3
LIS 102	Introduction to Library and Information Resources	3
LIS 103	History of Libraries and Information Centres	2
Elective		
LIS 104	Library and information Centres Visits	2

Course Code	Course Title	Credit Units
LIS 201	Introduction to Bibliography	2
LIS 202	Organisation of knowledge I	3
LIS 203	Library and Information Services to Rural Community	2
LIS 204	Management of Libraries and Information Centres	2
Electives		
LIS 205	Literature & library services to Children & Adolescents	2
LIS 206	Serials Management	2
LIS 207	The Information User	2
LIS 208	Media Resources	2
LIS 209	Oral Tradition and Cultural Literature	2
LIS 210	Computers and Data Processing	2

300 LEVEL

Course Code	Course Title	Credit Units
LIS 301	Organisation of knowledge II	3
LIS 302	Col lection development	2
LIS 303	4Reference and Information Services	2
LIS 304	Technical Services in Libraries and Information Centres	2
LIS 305	Introduction to Information Science	2
LIS 306	Research and Statistics Methods	3
Electives		
LIS 307	National and Public Libraries and Information Centres	2
LIS 308	School Libraries and Media Resource Centres	2
LIS 309	Academic Collection development	2
LIS 310	Information Technologies	2
LIS 311	Preserve and Conservation of Library Materials	2

400 LEVEL

Course Code	Course Title	Credit Units
LIS 401	Research Project	4
LIS 402	Field Experience (SIWES)	6
LIS 403	Indexing and Abstracting	2
LIS 404	Automation in Libraries and Information Centres	3
Electives		
LIS 405	Government Publications	2
LIS 406	Archives Adm. & Records Techl. Services in Libraries	2
LIS 407	Publishing and Book Trade	2
LIS 408	Bibliography and Literature of the Social Science	2
LIS 409	Bibliography & Literature of Humanities	2
LIS 410	Bibliography & Literature of Science and Technology	2
LIS 411	Book Production & Publishing	2
LIS 412	Africa Bibliography	2

COURSE DESCRIPTION

100 LEVEL

LIS 101: LIBRARIES AND SOCIETY

Factors determining the establishment and patterns of library services in society with particular references to developing countries, library is medium of communication and its relationship with other information and communications system; functions of different types of libraries; oral traditions, illiteracy and libraries, intellectual freedom; the profess ion and professional responsibility.

LIS 102: INTRODUCTION TO LIBERTY AND INFORMATION RESOURCES

Books: (Reference, textbooks, government publications, ephemera, fiction and non-fiction, periodicals, newspapers, magazines etc). Non-book: AV software andhardware); cartographic materials (globes maps, atlases, etc); electronic publication (CD-ROM, INTERNET).

LIS 103: HISTORY OF LIBRARIES AND INFORMATION CENTRE (EMPHASIS NIGERIA)

Outline history of Libraries of the Western world from antiquity to the resent. Evolution of Nigerian Libraries pre-colonial to post-Independence period, Islamic scholarship and growth of Arabic collections, forces in the emergence of modern libraries in Nigeria; development of Nigerian libraries by types legislation; library association international organisations and other external agencies in Nigerian Library development.

LIS 104: LIBRARY AND INFORMATION CENTRE VISITS

Study visits to libraries, information centres, publishing houses, printing presses and allied organisations and institutions acquaint students with the structure and management of information profession. Submission of written reports at the end of the visits.

200 LEVEL

LIS 104: INTRODUCTION TO BIBLIOGRAPHY

History and concept of bibliography; types of bibliography and uses; compilation; criteria for evaluation; role of technology in bibliography.

LIS 202: ORGANISATION OF KNOWLEDGE I

Standard techniques identification and description of bibliography units through description cataloguing using ACCR 2l - subject cataloguingand classification using Sear's List of Subject headings and Dewey Decimal Classification; filling rule.

LIS 203: LIBRARY AND INFORMATION SERVICES TO RURAL COMMITTEE

Nigerian rural setting; people education, occupation and recreation; needs assessment; library andinformationprogrammes and resources; identification of an cooperation with other change agents and local power elites.

LIS 204: MANAGEMENT OF LIBRARY AND INFORMATION CENTRES

The concepts of management as applied to libraries with reference to the librarian roles, powers and responsibilities, delegation and authority; staff committee; Library committee; evaluation; setting goals and developing action plans; budgeting; reporting library activities; rnanaging resources, time people and money.

LIS 205: LITERATURE AND LIBRARY SERVICE TO CHILDREN AND ADOLESCENTS

Characteristic, needs and interests ofchildren and adolescents, children's literature, selection of materials, types school-public library relationship; role of the library and teacher in promoting reading habits of children and adolescents.

LIS 206: SERIALS MANAGEMENT

Definitions; roles of serials in information dissemination, selection; Acquisition, organisation and storage of serial in print and Microforms; problems of bibliography control; user access via indexing and abstracting services.

LIS 207: THE INFORMATION USERS

Kind of information users and their work environment; a users' Information seeking behaviours patters; users of Information; user studies; user education.

LIS 208: AUDIO VISUAL RESOURCES

A- V material as means of Communication; educational functions and users of various types of non-print media (e.g. slide films opaque, overhead and motion picture projectors, audio recording photography, etc) selection and acquisition, organisation, storage and evaluation of A - V materials, bibliography control; maintenance of media centres.

LIS 209: ORAL TRADITIONAL AND CULTURE LITERATURE

Definition of oral lit nature; oral knowledge of the history and culture of a people; oral literature as soursce materials for research; problems.

LIS 210: COMPUTER AND DATA PROCEEDING

Basic knowledge about how to operate a computer, input data, out-put data, conduct searches on databases (e.g. CD-ROM).

300 LEVEL

LIS 301: ORGANISATION OF KNOWLEDGE II

Cataloguing of non-book materials LC, UDU and other special classification schemes, faceted classification; application of computers to cataloguing with special emphasis on the MARC formats and on-line catalogues LC subject cataloguing.

LIS 302: COLLECTION DEVELOPMENT

Criteria and responsibility of the selection of library materials; book selection tools, the role of subject specialist, censorship; wedding and discarding stock revision and evaluation of collections problems of acquisition of Africana.

LIS 303: REFERENCE AND INFORMATION SERVICES

Evolution, theory objectives of reference; reference questions; techniques of literature searching, abstracting andindexing services current awareness; SDI and translation services, reference and Information services indifferent types of libraries, organisation and evaluation of reference services; status of reference and informationservices in Nigeria Libraries.

LIS 304: TECHNICAL SERVICES IN LIBRARIES AND INFORMATION CENTRES

Emphasis on management aspects of Library acquisition; Circulating; order routine; acquisition of foreign publications binding; storage and preservation of materials in tropical countries; cataloguing and processing, automation of technical operations; reprography.

LIS 305: INTRODUCTION TO INFORMATION SCIENCE

Scope of the field and definition of basic terminology problems of growth of knowledge especially in scientific and technological fields, information needs and information gathering techniques role of computers in information storage and retrieval; principles of designing information system.

LIS 306: RESEARCH METHODOLOGY

Nature and purpose of research in Library and Information Science; types of research; survey historical/documentary and experimental etc; steps n research; statement of problem; review of literature, data collection and analysis; conclusion and recommendation. Also introduction to basic statistical concepts andcalculations of descriptive statistics. Application of quantitative techniques in Library and Information management.

LIS 307: NATIONAL AND PUBLIC AND INFORMATION CENTRES

Their concept, history, development, objectives functions; Administration, finance, staffing, clientele, collection and services functions of some major National Libraries and the National Library od Nigeria, role of public library in mass library, adult education, National development; application of modern technology.

LIS 308: SCHOOL LIBRARIES AND MEDIA RESOURCE CENTRES

Structure and functions of Nigerian primary and secondary, functions of school libraries, problem of their development collection; services, development and problems of school libraries and media resource centres inNigeria.

LIS 309: ACADEMIC AND SPECIAL LIBRARIES AND INFORMATION CENTRES

Nature, role ad objectives of libraries in higher institutions and special organisations; their administration, collection, Clientele and special services, personnel budgeting, building and equipment: development and problems of academic and special libraries in Nigeria application of modern technology.

LIS 310: INFORMATION TECHNOLOGIES

Contemporary technologies in libraries and information centres concept of multi-media information system: non-book communications technology; network and networking and use of technologies like the Internet for E-Mail electronic publishing etc.

LIS 311: PRESERVATION AND CONVERSATION OF LIBRARY MATERIALS

Everyday care of library resources and equipment, history of paper making; causes of and prevention of damage paper; preservation process and repairing of damage to paper and other library resources; special storage facilities.

400 LEVEL

LIS 401: RESEARCH PROJECT

A topic on any aspect of Library and Information Science selected by student and written under the supervised direction of a staff member. Students should demonstrate their understanding of research and Statistical/Mathematics through use of collection, analysis and interpretation techniques. An annotated bibliography of the construction of an index or thesaurus may also be accepted.

LIS 402: FIELD EXPERIENCE (SIWES)

At least twelve weeks f supervised filed in any approved library and information centre in Nigeria, undertaken during the long vacation.

LIS 116: INDEXING AND ABSTRACTING

Concepts and methods of indexing and abstracting; design and updating of thesaurus; types of indexes and abstract, indexing and abstracting services including electronic data basic, evaluation of indexes and abstracts;

LIS 404: AUTOMATION IN LIBRARIES AND INFORMATION CENTRES

Definition Planning: automation of library processes such as serial control acquisitions, circulation, cataloguing, reference service nation and international examples of successful automated bibliographic systems and library in automation development countries; status if library automation Nigeria. Hands-on application of appropriate software (e.g. CDS/ISIS)'

LIS 405: GOVERNMENT PUBLICATIONS

Definition, nature and uses of Government Documents; types of documents. bibliographic control of Government publications; international organisations e.g. UN and UN bodies; OAU, (ECOWAS); their publication; acquisition, control and organisation.

LIS 406: ARCHIVES ADMINISTRATION AND RECORDS MANAGEMENT

Definition and development of achieves: principles and techniques of organisation of archival materials, creation of records and the needs for records management; the National Achieves of Nigeria: origin, development and services.

LIS 407: PUBLISHING AND BOOK TRADE

Problems of books publishing in Africa (Nigeria): books for various categories of readers, the multi-national publishers; indigenous publishing; government and individuals as publishers; bookshops and bookselling; problems of marketing and distribution.

LIS 408: BIBLIOCRAPHY AND LITERATURE OF THE SOCIAL SCIENCES

Nature and scope of the Social Sciences; characteristics and structure of social science literature; bibliographic organisation and control: programmes and services of national and international institutions and organisations.

LIS 109: BIBLIOGR4PHY AND LITERATURE OF THE HUMANITIES

Growth, Characteristics and structure of the Humanistic liteture: bibliographic organisation and control; sources of National and International institutions and organisations.

LIS 410: BIBLIOGRAPHY AND LITERATURE OF SCIENCE AND TECI-INOLOGY

Scope, growth characteristics and structure of scientific and technical literature; bibliographic and control: electronic literature searching and information retrieval processes; international cooperation in the organization and dissemination of scientific information.

LIS 411: BOOK PRODUCTION AND PUBLISHING

A brief outline history of printing and publishing from the earliest times to the present day; Manuscript development and editing; author-publisher and publishers printer relationships; marking and promotion techniques; intellectual property laws; use of new, technologies in publishing; problems ofpublishing inNigeria.

LIS 412: AFRICAN BIBLIOGRAPHY

Definition and scope of African studies, sources of African Studies, bibliographical organization control service; legal deposit; international organisations concerned with documentation relating to Africa; UBC, UAP.

B. ED. TECHNOLOGY EDUCATION
COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
EDU 100	Introduction to the Teaching Profession	2
EDU 101	Technology (Electrical, Theory, and Practicals)	2
EDU 102	Introductory Technical Drawing (Practicals)	2
EDU 103	Industrial Safety (Theory)	2
EDU 105	Technology (Metal and Arts)	2
EDU 106	Technical Drawing I	2
EDU 107	Metal Workshop Practical I	1
EDU 108	Auto Workshop Practical I	1

200 LEVEL

Course Code	Course Title	Credit Units
TED 201	Building and Wood Tech III	2
TED 202	Technical Drawing Il	2
TED 203	Elementary Surveying	1
TED 204	Material Technology	1

300 LEVEL

Course Code	Course Title	Credit Units
EDU 300	Teaching Practice	4
EDU 311	Research Methods and Data Processing(Statistical/Computer Usage)	3
TED 301	Technical Drawing III	2
TED 302	Occupational Analysis	1
TED 303	Material Technology II	1
TED 304	Introduction to Industrial Economics	1
TED 308	Project in Special Area	2

WOOD AND BUILDING TECHNOLOGY OPTION

Course Code	Course Title	Credit Units
TED 301	Building Technology	2
TED 392	Surveying	1
TED 301	Wood Technology	1
TED 302	Machine Wood Working	1

POWER AND MECHANICAL TECHNOLOGY OPTION

TED 301	Auto Technology I	2
TED 302	Workshop Practise	2
TED 302	Metal Technology	2
TED 302	Electronic I	1
TED 302	Metal Technology	2
TED 302	Workshop Practices	1

DRAFTING AND DESIGN TECHNOLOGY OPTION

TED 301	Engineering Drawing I	2
TED 302	Machine Design	1
TED 303	Production Design	2

TED 304	Tool Design	1

Electives

TED 305	Computer Concept	1
TED 306	Agricultural Machinery I	1
TED 307	Improvisation of Laboratory Equipment I	1
TED 315	Data Processing	1
TED 317	Improvisation of Laboratory Equipment Ii	1
TED 316	Agricultural Machinery Il	1
TED 314	Internal Combustion Engine	1
TED 315	Computer Aided Design	1

400 LEVEL

Course Code	Course Title	Credit Units
EDU 499	Research Project	4
TED 401	Quality Control	2

ELECTRICAL/ELECTRONIC TECHNOLOGY

Course Code	Course Title	Credit Units
TED 404	Radio and Television	2
TED 405	Electrical Drafting	2
TED 406	Electrical Installation	2
TED 407	Workshop Practice	1

BUILDING TECHNOLOGY

TED 404	Architectural Drawing	2
TED 405	Building Services and Maintenance	2
TED 406	Building Technology II	2
TED 407	Site Practices	1

WOOD TECHNOLOGY

TED 404	Woodwork Technology	2
TED 405	Machine Wood Working	2
TED 406	Workshop Practice	1

METAL TECHNOLOGY

TED 404	Engineering Drawing I	2
TED 405	Metal Technology	2
TED 406	Engineering Design	2

DESIGN AND DRAFTING TECHNOLOGY OPTION

TED 406	Production Workshop	2
TED 407	Architectural Drafting	2
TED 408	Production Development	2
TED 409	Production Evaluation Workshop Practice	1

AUTO MECHANICAL TECHNOLOGY OPTION

TED 404	Auto Technology II	2
TED 405	Engineering Drawing and Design	2
TED 406	Power Engine	2

PRODUCTION MANAGEMENT TECHNOLOGY OPTION

TED 404	Work Analysis	2
TED 405	Advance Quality Control	2
TED 406	Workshop Practices	1
TED 407	Modern Industrial Practice and Safety	2

INSTRUMENTATION TECHNOLOGY OPTION

TED 404	Communication Instrumentation	2
TED 405	Business/ Industrial Instrumentation	2
TED 406	Computer Hardware Instrumentation	2
TED 407	Laboratory/ Hospital Instrumentation	2

Electives

TED 402	Computer Aided Instruction	3
TED 404	Computer Software	3
TED 405	Computer Hardware	3
TED 407	Material Technology IV	3
TED 409	Quality Surveying (Require for Building)	3

FACULTY OF ENGINEERING

COMMON COURSES FOR ALL ENGENEERING PROGRAMMES

COURSE OUTLINE

200 LEVEL

Course Code	Course Title	Credit Unit
CEE 201	Fluid Mechanics	2
ELE 201	Basic Electrical Engineering	3
EGR 201	Manufacturing Technology/ Workshop Practice	2
EGR 202	Engineering in Society I	1
MEE 201	Engineering Drawing	2
MEE 202	Applied Mechanics	3
MEE 203	Strength of Materials	2
MEE 204	Thermodynamics	2
MEE 205	Material Science	2

300 LEVEL

Course Code	Course Title	Credit Unit
EGR 301	Technical Communication	3

500 LEVEL

Course Code	Course Title	Credit Unit
EGR 501	Management for Engineers	3

COURSE DESCRIPTIONS

200 LEVEL

CEE 201:FLUID MECHANICS

Element of fluid static, density, pressure, surface tension, viscosity, compressibility, etc. Hydrostatic forces on submerged surfaces due to incompressible fluid. Introduction to fluid dynamic - conversation laws. Introduction to viscous flow.

ELE 201:BASICELCTRICAL ENGINEERING

Circuit, elements, DC and AC circuits, basic circuit laws and theorems, Resonance power, power factors, 3- phase circuits. Introduction to machines an machine design, physics of devices – discharge devices, semi conductors, diode and transistor characteristics, device and circuits, Electrical and electric power measurement.

EGR 201: MANUFACTURING TECHNOLOGY/ WORKSHOP PRCTICE

Elementary introduction to types and Organization of engineering workshop, covering jobbing, batch, mass production, Engineering materials: their uses and properties. Safety in workshop and general principals of working, bench work of fitting: Hand tools, instrument, Carpentry: Hand tools, materials, and types of joints, processing of timber. Blacksmith: Hand tools and working principles. Joint and fastening: bolt, river, welding: brazing, soldering, measurement and marketing: for uniformity, circulatory, concentricity, etc. Standard measuring tools used in workshop; Welding, brazing and soldering, Principles, Classification, power source. General principles of working of standard metal cutting machine tools.

EGR 202:ENGINEERING IN SOCIETY

Philosophy of Science, History of Engineering and technology. Safety in Engineering and Introduction to risk Analysis. The role of Engineers in the nation building. Invited Lecturers from Professionals.

MEE 201:ENGINEERING DRAWING

Us of draughting instruments, lettering, dimensioning, layout engineering graphics – geometrical figures, comics, etc. graphical calculus and applications. Development, intersection of curves and solids. Projections lines, plane and simple solids. Orthographies and isometric projections. Simple examples. Pictorial/ freehand sketching, conventional practices.

MEE 202:APPLIED MECHANICS

Static – Law of States, system of force and their properties, simple problems. Friction. Particle dynamics, Kinetics of planes motion. Newton's laws – Kinetic of particle, momentum and energy methods. Kinematics of rigid body – velocity and acceleration diagrams for simple problems. Kinetic of rigid bodies – two dimensional motions of rigid bodies, energy and momentary, mass, moment of inertia. Simple problems. Simple harmonic motions.

MEE 203:STREGHT OF MATERIALS

Force of equilibrium – free body diagram. Concept of stress, strain, tensile test. Young's moduli and other strength factors. Axially loaded bars, composite bars, temperature stresses and simple indeterminate problems. Hoop stress, cylinder rings, Bending moments, shear force and axial force diagrams for simple cases. Simple torsion and application.

MEE 204:THERMODYNAMICS

Basic concepts, deformations and laws. The ideal gas, heat and work. The first law of thermodymics, applications to open and close systems. The steady state flow equation (Bernoulli's equation) and applications. Second law of thermodynamics and heat cycles.

MEE 206:MATERIAL SCIENCE

Atomic and molecular structure. Crystal, Metallic states. Defect in crystals, conductors, semi-conductors and insulators. Alloy theory – application to industrial alloys, steel in particular engineering properties, their control. Hot and cold working, heat treatment, etc. Creep, fatigue and fracture. Corrosion and corrosion control. Non-metallic materials- glass.

300 LEVEL

EGR 301:TECHNICAL COMMUNICATION

Principles of Communications, Preparation and writing of technical reports, Oral presentation. Use of visual aids and other communication equipment in technical and research presentations.

500 LEVEL

EGR 501:MANAGEMENT FOR ENGINEERS

Principal of Management. Industrial group and organizational behavior. Motivation. Industrial Law, legislation on wages, trade mark and patents. Law of contract and sale of goods. Liability for industrial injuries. Industrial relations. Trade unions, employer associations, wage bargaining and role of the state.

B. ENG. AERONAUTICAL ENGINEERING

COURSE OUTLINE

Course Code	Course Title	Credit Unit
ARE 301	Aircraft Structures I	3
ARE 302	Fluid Mechanics II	3
ARE 303	Aeronautical Engineering Laboratory I	1
ARE 304	Industrial Engineering Design	2
ARE 305	Aircraft Design	3
ARE 306	Industrial Engineering Laboratory	1
ARE 307	Mechanical Engineering Laboratory II	1
ARE 308	Introduction to Aeronautics	2
ARE 309	Properties of Materials	3
ARE 310	Mechanics of Solids I	3
ARE 312	Mechatronics I	3
ARE 317	Thermodynamics II	3
ARE 319	Mechanical Engineering Design and Production	3
ARE 325	Manufacturing Technology: Processes	2

400 LEVEL

Course Code	Course Title	Credit Unit
ARE 400	Systems Management	2
ARE 401	Fluid Dynamic	3
ARE 402	Aircraft Structure II	3
ARE 403	Mechanics of Solid II	2
ARE 404	Gas Dynamic and propulsion	3
ARE 405	Design Project	3
ARE 407	Advanced Information System	3
ARE 408	Operations Management: System Integration	2
ARE 409	Manufacturing Technology; Systems	2
ARE 411	Principles of Air Transport and Management	2
ARE 413	Thermal Systems	3
ARE 414	Principles of Management and Production	2

500 LEVEL

Course Code	Course Title	Credit Unit
ARE 501	Aircraft Perf and Flight Mech	3
ARE 502	Design of Aircraft Structures	3
ARE 503	Exp. Method Aeronautics I	2
ARE 504	Mech Vibrations and Control	3
ARE 505	Exp. Method Aeronautics II	2
ARE 506	Aircraft Design II	2
ARE 510	Aircraft Design III	2
ARE 511	Stability Control of Aerospace Vehicles	3
ARE 512	Design of Propulsion System	3
ARE 516	Aerodynamics	3
ARE 517	Flight Dynamics	3
ARE 518	Mechatronics II	3
ARE 599	Project	6

COURSE DESCRIPTIONS

300 LEVEL

ARE 301:AIRCRAFT STRUCTURES I

Semi-monocoque structures: Principles of stressed- skin structures. Bending, torsion and shear in semi-monocoque structures. Instability and post- buckling behavior of stiffened plate structures. Semi-tension fields. Composite materials and structures: Introduction to materials. Micromechanics. Failure theories. Classical Laminations theory. Composites as used in Aircraft structure.

ARE 302: FLUID MECHANICS II

Boundary Layer flow: Boundary layer (Prandtl) equations, Von Karman's momentum, integral equation; Thwaites/ Waltz method for flow with pressure gradients; introduction to turbulent flow in boundary layers. Potential flow: description of basic two-dimensional flow fields (source, sink, vortex, etc) using complex mathematics; synthesis of flows by superposition of basic flow elements; conformal mapping; circulation and lift; images.
Drag and Lift: drag and lift coefficients; drag on two-dimensional shapes; drag on three dimensional shapes; lift and drag on an aerofoil.

ARE 303: AERONAUTICAL ENGINEERING LABORATORY I

Experimental methods, data acquisition and analysis; safety in the laboratory; report-writing and professional communication; introduction to selected software packages.
Scheduled experimental assignments on selected topics in aeronautical, industrial and mechanical engineering. Experimental assignments or open-ended projects of an experimental nature, specific to aeronautical engineering.

ARE 304: INDUSTRIAL ENGINEERING DESIGN

A realistic approach to engineering design is to developed by allowing the Student to experience, within a team. Whole open-ended interdisciplinary Industrial Engineering design problems, whilst encouraging the development of judgmental skills. The unit, of necessity, integrates materials provide by other academic courses and includes: the design process; the engineering enterprise; problem solving and decisions making; the interaction of design, materials and manufacture; cost evaluation, optimization; computer modeling; information sources and design communication; project management; value engineering; occupational health and safety legislation, work study; ergonomics;. Industrial visits; visit to companies involved in manufacturing and related areas of interest.
Complete project reports are prepared which describe devices or system designed to meet specific needs, including inter alia, fully specified engineering drawings and instructions. One of the projects will be of a service learning nature.
Training in professional communication is an integral part of this unit and includes: communication theory; technical report writing; oral presentation; group dynamics; graphic communication.

ARE 305: AIR CRAFT DESIGN

Design: General rules and regulations. The design process for aircraft. Design codes and references. Aircraft nomenclature and configurations. Applied aerodynamics of low and high speed aircraft. Aircraft propulsion. Ergonomics. System safety. Complete conceptual projects report on the design on the design of various aircraft. Design of various components of an aircraft including engineering drawing and instructions. Manufacturing and production technology. Machine tools and NC programming.
Industrial visits and lectures: Visit to companies and institutes involve in aeronautics, lecture by expert on manufacturing and practical aspect on aeronautical engineering. Occupational health and safety legislation. Communication studies. Training in professional communications is an integral part of this unit and includes: communication theory, technical report writing, oral presentation, team work and decision choice.

ARE 306: IDUSTRIAL ENGINEERING LABORATORY

Experimental method; data acquisition and analysis; safety in the laboratory; report-writing and professional communication; introduction to selected software packages.
Scheduled experimental assignments on selected topics in aeronautical industrial and mechanical engineering. Experimental assignments or open-ended projects of an experimental nature, specific to industrial engineering.

ARE 307:MECHANICAL ENGINEERING LABORATORY II

Experimental methods, data acquisition and analysis; safety in the laboratory; report-writing and professional communication; introduction to selected software packages. Scheduled experimental assignment on selected topics in aeronautical, industrial and mechanical engineering.

ARE 308:INTRODUCTION TO AERONAUTICS

Aeronautics. Aircraft geometry. Aerodynamic forces and moments. Performance in steady flight of propeller and jet engine aircraft, endurance and range. Performance in accelerated flight; turns, take-off and landing. Element of propulsion. Blade element theory and applications. Introduction to wind tunnel testing. Introduction to static stability.

ARE 309:PROPERTIES OF MATERIALS

Alloys; Thermal equilibrium diagrams. Ferrous metallurgy; plain carbon steels, alloy steels, cast irons, heat treatment. Non- ferrous metallurgy, alloys of aluminum, copper, nickel and titanium. Materials in service: fracture, fatigue, deformation, corrosion.

ARE 310:MECHANICS OF SOLID I

Torsion of solid noncircular shafts and thin-walled tubes; in elastic torsion of circular shafts; unsymmetrical bending: shear stresses in beams: transformation of stresses and strains; failure theories; deflection of beams; buckling of columns; energy method.

ARE 312:MECHATRONICS I

Introduction to Mechatronics: synergistic use of mechanical, electrical, electronic, control and information technologies to optimally perform tasks. Dynamic characteristics of mechanical an electrical drives and actuators. Measurement theory and analysis. Signal conditioning and measurement systems. Elementary control. Computers and micro-controllers in Mechatronics. Laboratory project.

ARE 317:THERMODYNAMICS II

Vapor power systems. Availability analysis. Refrigeration and heat pump systems. Non-reacting gas mixtures and psychometrics. Heat transfer: steady state one-dimensional conduction; introduction to forced and natural convection; black and grey body thermal radiation.

ARE 319:MECHANICAL ENGINEERING DESIGN AND PRODUCTION

Manufacturing topics: Introduction to manufacturing, engineering drawing and its manufacturing implications. Dimensional and geometric tolerances, engineering materials, heat treatment, engineering metrology, casting and forming processes, powder metallurgy, engineering plastics, sheet metal forming, metal cutting, cutting tools and economics cutting, conventional and unconventional Machining. CNC machining, automation and robotics and company information systems.
Design topics: The design process, the system life cycle, functional analysis and allocation of design requirements, specification practice, life cycle cost, design for financial viability, design for the environment. Machine design principles, synthesis of machines assemblies, gear kinetics (spur, helical, bevel, worm and planetary gear sets), brake and clutch systems, computer modeling in design, static in design, tolarencing and reliability, overview of design for static and fatigue strength and fracture mechanics, heat treatment in

machine design: gear strength design case study, CAD & solids modeling, introductory design of experiments (DOE) and design of robustness.
Projects and visits: projects emphasizing creativity, machine design practice, sketching and drawing, calculation, communication and report writing. Industrial visit related to prefects. Occupational health and safety legislation.

ARE: 325 MANUFACTURING TECHNOLOGY: PROCESSES

Engineering design relevant to manufacturing processes e.g. dimensional and geometrical tolerances; design, design and manufacturing datum's, IT grades and manufacturing processes, surface roughness and manufacturing processes, design-for-manufacturing, design-production relationships, design for specific manufacturing processes. Manufacturing processes e.g. casting, glass working, shaping process for plastics, bulk metal deformation processes, sheet metal forming, powder metallurgy, conventional machining processes, metal cutting theory, non conventional machine processes, cutting tools and economics of cutting, coating and deposition processes, engineering metrology.
Advanced manufacturing processes eg cold gas dynamic spray, pulsed (shock waves), spray process, friction welding, and compute numerical control machining.

400 LEVEL

ARE 400: SYSTEM MANAGEMENT

Introduction to manufacturing concept and factor of production. Productivity: concepts, importance, measurement; introduction to critical path analysis and project management; inventory control concepts; production management overview- MRP, MRP II, master scheduling and scheduling, 'JIT' concepts; overview of quality management.

ARE 401:FLUID DYNAMICS

Fluid machinery: centrifugal and axial flow machines; pipe-machines system characteristics; cavitations; water hammer.
Compressible flow: One-dimensional flow with area change, friction and heat transfer; normal shock waves; nozzle performance. Introduction to unsteady flow.
Selected topics from: power hydraulics; two-phase flow; turbulent flows; lubrication; experimental methods (optical diagnostics, pressure and temperature measurement)

ARE 402:AIRCRAFT STRUCTURES II

Semi-monocouque structures: function of components. Load introduction. Cut outs. Loads on fuselage frames and wing ribs. Energy method of structural analysis: calculation of loads, deflections, natural frequencies and buckling loads using complementary energy methods. Rayleigh-Ritz technique and Hamilton's principle. Finite elements Methods: Theory of finite element analysis. F.E modeling techniques, use of F.E.M Software Aeroelesticity: Static phenomena including divergence and control reversal. Lifting and control surface flutter. Dynamic loads.
Additional topics: Joints, fracture in aircraft structure.

ARE 403:MECHANICS OF SOLIDS II

Mechanics of composite materials: Materials; Manufacturing methods; Micromechanics; Macro mechanics of a lamina; Failure criteria; Design of composite structures.
Stress analysis of Axisymmetric solids: Thick-walled and compound cylinders; rotating discs and cylinders; Autofrettege.
Introduction to finite element Methods: Element stiffness matrix; Truss analysis; plane problems; Axisymmetric analysis; three dimensional problems; Modeling, errors and accuracy in linear Applications to practical problems.

ARE 404:GAS DYNAMICS AND PROPULSION

One-dimensional compressible flow: flow with area change, friction and heat transfer. Normal shock waves; nozzle performance; unsteady flow.
Two – dimensional compressible flow: Oblique shock waves, Prandtl-Meyer expansion; engine intakes; nozzle design and waves reflections; method of characteristics. Unsteady flows.
Experimental methods: optical diagnostics; pressure and temperature measurement.
Computational fluid dynamics: Discretisation; grid generation; numerical schemes; incompressible flow; supersonic flow.

ARE 405: DESIGN PROJECT

An essential element of engineering is the creative solution of open – ended problems. The design project provides the student with an opportunity to exercise and demonstrate his ability to coordinate his knowledge, experience and judgment in addressing a major design project and presenting proposed solution.

ARE 406: RESEARCH PROJECT

The research report provides the student with an opportunity to learn how to plan and carry out a challenging investigational project. This involves: understanding the problem so as to be able to define appropriate and specific objectives; planning a course of action to obtain necessary information, in terms of both existing knowledge and new experimental data; carrying out the planned programme, developing in the process sufficient mastery of the necessary techniques; interpreting the assembled body of information and drawing conclusions in terms of the objectives; and reporting effectively on the project, both in writing and orally.

ARE 407: ADVANCED INFORMATION SYSTEMS

IT systems analysis and decision making; random number theory; probability distributions; simulations and modeling techniques; simulation methodology; output analysis; forecasting techniques; introduction to artificial intelligence; expert systems; heuristic development, e.g. randomized search; neural networks. The unit will include an introduction to selected software packages.

ARE 408: OPERATIONS MANAGEMENT; SYSTEMS INTEGRATION

Production and Operation Management: Strategy development; design of products and services; design of facilities, process and layout; capacity management; resource planning, scheduling and inventory decisions; application of methods to achieve competitive advantage in manufacturing (MRP2,JIT, ERP, etc); implementation of total quality management.
Quality assurance and Reliability Engineering: Philosophies of quality management; quality planning, quality function development; statistical process control; process capacity; statistical models for reliability testing; system reliability and availability; risk analysis and safety.

ARE 409: MANUFACTURING TECHNOLOGY: SYSTEMS

Choice of manufacturing processes: Comparison of metal forming, joining and finishing processes. Topics in modern manufacturing technology: These may include topics, such as composite manufacturing, rapid product development, etc.

ARE 411: PRINCIPLES OF AIR TRANSPORT AND MANAGEMENT

Air transport: Modern aircraft maintenance, philosophies, analytical techniques, mathematical models of component failure, actuarial analysis, component monitoring for reliability and productivity. Aircraft performance analysis, traffic forecasting, econometric modeling. Economics of Air Transportation. Aviation Safety.
Principles of Management: the management cycle: planning, organizing, leading, controlling; principle of motivation; power and conflict management.

ARE 413: THERMAL SYSTEMS

Heat transfer: extended surface; multidimensional and un steady conduction, boiling, evaporation and condensation. Heat exchangers. Mass diffusion and convection.
Combustion. Gas power cycles. Gas turbine systems
Topic selected from: internal combustion engines or Refrigeration and Air conditioning.

ARE 414: PRINCIPLES OF MANAGEMENT AND PRODUCTION

Principles of Management: The management cycle: planning, organizing, leading, controlling; principles of motivation; power and conflict management; an introduction to the management issues concerning HIV / AIDS in the SA Economy, Principles of Production; Introduction to manufacturing concepts and factors of production. Productivity: Concepts, importance, measurement; introduction to critical path analysis and project management; inventory control concepts; production management overview – MRP, MRP II, master scheduling and scheduling, "JIT" concepts, overview pf quality management.

500 LEVEL

ARE 516: AERODYNAMICS

Zhukowski and other two-dimensional aerofoils, Kutta condition. Thin aerofoil theory, symmetric fairing theory, finite wing theory, and downwash and interference effects. Linearised two-dimensional compressible flow, similarity last, thin aerofoil in supersonic flow. Application of Navier – Strokes equations. Introduction to turbulence, mixing length theory, universal velocity distribution. Computational aerodynamics: the panel method and applications.

ARE 517: FLIGHT DYNAMICS

Definitions. Longitudinal Static And Maneuvering Stability, stick fixed and stick free: elevator and tab deflections, stick force: flight tests, all moving tailplanes:propulsion and other effects: e.g. limits. Elementary lateral and directional stability. General equations of motion. Axes systems. Small disturbance theory. Non – dimensional equations. Stability derivatives. Solution of equations. Longitudinal and lateral – directional dynamic stability and response; stability diagrams. Introduction to automatic control.

ARE 518: MECHATRONICS II

Principles of System Response and Control: Mechatronics Systems Modelling, Sensors and Actuators, Dynamic Responses of Systems, Design of Closed –loop Controllers; Principles of System Compensation.
Process Automation and Control platforms and Levels: Taxonomy and Hierarchy; satisfactory integration of subsystems in5to overall system; prioritizing control objectives.
Process Safety Systems: Failsafe design (Role of Redundancy), Elementary fault detections.
Integrated Design and Practical Applications: Design of elementary mechanics systems such as subsystems of: industrial robots, vehicle suspension systems with active components, and intelligent systems. This will integrate the core shills in items 1 – 3 above.

B. ENG. AUTOMOBILE ENGINEERING

COURSE OUTLINE

300 LEVEL

Course Code	Course Title	Credit Units
MAT 320	Engineering Mathematics III	3
MAT 321	Engineering Mathematics IV	3
AME 301	IC Engines and Fuels I	2
AME 302	Auto system & Vehicles Dynamics I	2
AME 303	Automobiles workshop practices	2
MEE 301	Laboratory technology	3
MEE 302	Thermodynamics	2
MEE 303	Fluid mechanics	2
MEE 304	Engineering drawing	2
MEE 305	Workshop practice	2
MEE 306	Metallurgy	2
MEE 307	Technical Communication	2
EGR 301	1	

400 LEVEL

Course Code	Course Title	Credit Units
MAT 430	Engineering Mathematics V	3
AME 401	IC Engines and Fuels II	2
AME 402	Automobile system design I	2
AME 403	Automobile maintenance	2
MEE 401	Mechanics of machines	2
MEE 402	Thermodynamics II	2
MEE 403	Fluid mechanics II	2
MEE 404	Mechanical engineering design I	2
MEE 406	Technology policy & development	2

500 LEVEL

Course Code	Course Title	Credit Units
AME501	IC Engines and Fuels III	2
AME503	Automobile system design II	2
AME501	Automobile system & Vehicles Dynamics II	3
AME 504	Automobile testing	2
AME505	Laboratory practical	4
AME599	Project	4
MEE501	Thermodynamics III	2
MEE 502	Fluid mechanics III	2
MEE 503	Engineering metallurgy	2
MEE 506	Engineering materials	3
EGR 501	Management for Engineers	3
	6 Unit from Engineering, science and / or social science	6

COURSE DESCRIPTIONS

AME 301; ENGINES AND FUELS I

Fundamental of I.C Engines.

AME 302; AUTO SYSTEM & VEHICLES DYNAMICS I

Friction forces in automobile systems.

AME 303 AUTOMOBILES WORKSHOP PRACTICES

Practical works on engines and other auto systems. Bodywork techniques. Wheel balancing and alignment

AME 401 IC ENGINES AND FUELS II

SI and CI engines, fuel and lubrications

AME 402 AUTOMOBILE SYSTEM DESIGN

Auto engine design

AME 403 AUTOMOBILE MAINTENANCE

Routine maintenances. Fault finding techniques and rectification procedures

AME501 IC ENGINES AND FUELS III

IC Engines, cycles and their analysis

AME502 AUTO SYSTEM & VEHICLES DYNAMICS II

Drag and propelling forces on automobiles. Effect of body shape on vehicle

AME503 AUTOMOBILE SYSTEM DESIGN II

Design of steering systems. Design of transmission system

AME 504 AUTOMOBILE TESTING

Test and performance analysis of auto and part and systems

AME 599 PROJECT

Individual student project to deepen know knowledge strengthen practical experiences and encourage creativity and independent work. The project ends in a comprehensive written report.

B. ENG. CIVIL ENGINEERING

COURSE OUTLINE

300 LEVEL

Course Code	Course Title	Credit Units
CEE 301	Fluid mechanics	3
CEE 302	Strength of Materials	3
CEE 303	Engineering Geology	3
CEE 304	Civil Engineering Materials	3
CEE 305	Soil Mechanics I	3
CEE306	Design of Structures I	3
CEE307	Structural Mechanics I	3
CEE 308	Engineering Surveying and Photogrammetry I	3

400 LEVEL

Course Code	Course Title	Credit Units
CEE 401	Hydraulics and Hydrology	2
CEE 402	Civil Engineering	2
CEE 403	Structural Mechanics II	2
CEE 404	Design of Structures II	2
CEE 405	Soil Mechanics II	2
CEE 406	Engineering Surveying and Photogrammetry II	2
CEE 407	Highway Engineering	2

500 LEVEL

Course Code	Course Title	Credit Units
CEE 501	Structural Engineering	4
CEE 502	Geotechnical Engineering	4
CEE 503	Water Resources and Environmental Engineering	4
CEE 504	Highway and Transportation Engineering	4
CEE599	Project	4
	Option Courses	6

COURSE DESCRIPTIONS

300 LEVEL

CEE 301: FLUID MECHANICS

Fluid statics: Floatation and Stability. Dynamics of fluid flow conservation equation of mass and momentum. Enter and Bernoulli equations. Introduction to incompressible viscous flow. Reyold's number. Dimensional analysis -Philosophy. Similaritude. Buckingham P1 theorems. Applications. Hydraulic models. Flow measurements

CEE 302: STRENGTH OF MATERIALS

Advanced topics in Beding moment and shear force in beams. Theory of bending of beams. Deflection of beams. Unsymmetrical bending and shear centre. Applications. Strain energy. Biaxial and triaxial state of stress. Transportation of stresses. Mohr's circle. Failure theories. Springs. Creep, fatigue. Fracture and stress concentration.

CEE 303: ENGINEERING GEOLOGY

Geology structures and mapping. Rocks and minerals. Stratigraphy time scale fossils and their importance: special reference to Nigeria. Introduction to geology of Nigeria. Engineering Applications Water supply, site investigation- Dams, Dykes, etc.

CEE 304: CIVIL ENGINEERING MATERIALS

Concrete Technology- types of cements, aggregates properties. Concrete mix, Design, Properties and their determination. Steel Technology-Production fabrication and properties: corrosion and its prevention. Test on steel and quality control. Timber Technology-Types of wood, properties, defects, stress grading. Preservation and fire protection, timber products, Rubber, plastics: Asphalt, tar, glass, lime, bricks, etc. Applications to buildings, Roads and Bridges.

CEE 305: SOIL MECHANICS I

Formation of soils, soil in water relationship – void ratio, porosity, specific gravity and other factors. Soil. Classification. Atterberg limits, particle size distribution. Flow in soils – see and permeability. Laboratory work.

CEE306: DESIGN OF STRUCTURES I

Fundamentals of design process, materials selection, building regulations and codes of practice. Design philosophy, elastic design: limit state design. Design of structural elements in Reinforced concrete.

CEE307: STRUCTURAL MECHANICS I

Analysis of determinate structures. Beams, Irussers: structure theorems, Graphical methods: Application to simple determinate Irussers. Williot Mohr-diagram. Deflection of statically determinate structures. Unit load, moment area methods. Strain Energy Methods. Introduction to statically determinate structures.

CEE 308: ENGINEERING SURVEYING AND PHOTOGRAMMETRY I

Chain Surveying Compass surveying –Methods: Contours and their uses. Traversing –methods and applications. Leveling –Geodetic leveling –error and their adjustments. Application. Tacheometry –Methods: Substance heighting. Self adjustment and electromagnetic methods. Introduction to photogrammetry.

400 LEVEL

CEE 401: HYDRAULICS AND HYDROLOGY

Laminar and turbulent Flows. Boundary layer separation life and Drag. Stream function Velocity potential and application to flow nets. Steady and Unsteady flow in closed conduits. Principles of surface water hydrology. Analysis of hydrographic data. Land drainage and inland navigation problems.

CEE 402: CIVIL ENGINEERING

Civil Engineering Works standard and measurements. Contracts and sub-contracts. Works construction and supervision. Job planning and control -Programme chart -Bar charts. Critical path methods, etc. construction machinery and equipment. Applications/Case study –dams, foundations, bridges, highways, industrial buildings, sewage works.

CEE 403: STRUCTURAL MECHANICS II

Indeterminate structural analysis. Energy and Virtual work methods, stop deflection and moment distribution methods. Elastic inability. Simple plastic theory of bending. Collapse loads. Stress –Grading of Timber. Visual mechanical and electronic stress grading of timber.

CEE 404: DESIGN OF STRUCTURES II

Limit state philosophy and design in steel: elastic and plastic moment Designs. Design of structural elements in steel and connections and joints. Limit state philosophy and design in timber. Elastic methods and design in timber. Design of structural elements in timber and timber connectors. Laboratory tests on structural elements in concrete, timber and steel.

CEE 405: SOIL MECHANICS II

Mineralogy of soils, Soils structures. Compaction and soil stabilization. Site investigations. – Laboratory and course work.

CEE 406: ENGINEERING SURVEYING AND PHOTOGRAMMETRY II

Further work on contours and contouring. Methods of contouring, contour interpolation and uses of contour plants and maps. Areas and volumes. Setting out of Engineering works. Elementary topographical surveying: Element of Photogrammetric. Photogrammetric equipment and errors of measurements.

CEE 407: HIGHWAY ENGINEERING

Soil engineering aspects of highways. Railways and airfields. High way geometrics. Payment structure and design. Pavement materials and Laboratory tests.

500 LEVEL

CEE 501: STRUCTURAL ENGINEERING

Structural mechanics: plastic methods of structural analysis, matrix methods of structural analysis, elastic instability: continuum of plane strain, elastic flat plates and torsion, solution by series, finite differences, finite element: yield line analysis and Strip methods for slabs. Design of structures: composite design and construction in steel and reinforced concrete; design of structural foundations: pre-stressed concrete design: modem structural form: tall buildings, lift shafts and shear walls, system buildings: design projects.

CEE 502: GEOTECHNICAL ENGINEERING

Stressed in soils. Consolidation and settlement. Shear strength of soils. Barth pressures. Bearing capacity of soils. Foundations: normal and deep foundations. Slope stability. Site investigations.

CEE 503: WATER RESOURCES AND ENVIRONMENTAL ENGINEERING

Water Resources: the hydraulics of open channels and wells: drainage: hydro graph analysis: reservoir and flood-routing: hydrological forecasting: hydraulic structures, i.e. das, dykes/levees, weirs, docks and harbours, spillways, silling basins, man holes and coastal hydraulic structures, etc: engineering economy in water resources planning. Environmental Engineering: the work of the Sanitary Engineer: water supply, treatment and design; waste water collection ; treatment ; disposal and design of systems, air pollution and control.

CEE 504: HIGHWAY AND TRANSPORTATION ENGINEERING

Highway planning and traffic surveys. Pavement design, construction and maintenance. Administration and finance of highways. Condition of all transportation media. Transportation planning and economics. Traffic management and design of traffic signals. Parking. Geometrics design. Construction methods. Construction materials and laboratory tests.

CEE 599: PROJECT

For proper guidance of the students, projects will depend on the available academic staff expertise and interest but the projects should be preferably of investigatory nature. Preferably, students should be advised to choose projects in the same area as their option subjects (see below).

OPTION COURSES (6 CREDITS)

The option course is to be taken from the following:

i. Advance Structural Engineering
ii. Highway and Transportation Engineering
iii. Water Resources and Environmental Engineering
iv. Building/Construction Technology
v. Geotechnical Engineering

B. ENG. AGRICULTURAL ENGINEERING

	Course Title	**Lecture/Lab. Unit**
i.	**General Studies**	16
ii.	**Basic Science**	
	Mathematics	12
	Physics	10
	Chemistry	8
iii.	**Entrepreneurial Studies**	4
	Sub-Total	**50**
iv.	**Management and Humanities**	
	Economics	2
	Principle of Management	3
	Farm Management, Rural Sociology and Agric. Extension	2
	Technical Communication	2
	Engineering –in-Society	1
	Sub-Total	**10**
v.	**Basic Agriculture**	
	Animal Production	3
	Crop Production	3
	Soil Science	2
	Sub-Total	8
vi.	**Engineering Mathematics & Statistics, Computers & Computing**	
	Engineering Mathematics & Statistics	9
	Computers & Computing	2
	Information Technology in Engineering	2
	Sub-Total	**13**
vii.	**Basic Engineering**	
	Basic Electrical Engineering	3
	Applied Mechanics	3
	Engineering Drawing	2
	Machine Drawing and Design	2
	Fluid Mechanics	2
	Hydraulics	2
	Hydrology	3
	Geology for Engineers	2
	Metallurgy	2
	Strength of Materials	2
	Materials Science	2
	Manufacturing Tech/Workshop Practice	2
	Thermodynamics	2
	Laboratory Practicals	6
	Sub-Total	**35**

Core Courses

viii. Agricultural and Bio-Resources Engineering

Basic Agric. and Bio-Res. Engineering	2	
Farm Power and Machinery	3	
Irrigation and Drainage		3
Properties, Handling, Processing and Storage of Agricultural Materials		2
Land Surveying		3
Land Clearing and Development		2
Soil and Water Conservation		3
Farm Electrification		3
Farm Structures and Environmental Control		3
Agric. Mechanization		2
Workshop Practice		2
Laboratory Practical		7
Final Year Project	6	
Sub-Total	**41**	

ix. Specialization and Electives **Lecture/Lab. Units**

(Up to 20 Credits selected from any of the threeoptions)

Crop Processing and Storage Option:

Advanced Thermodynamics	3
Engineering Properties and Handling of Agric. Materials	3
Processing and Storage of Agric. Materials	
Solar Energy Applications to Processing and Storage	3
Agric. Machinery	2
Mechanics of Deformable Bodies	3
Design of Agric. Machines	2
Food Engineering	3
Farm Transportation	2
Automotive Service and Maintenance	2
Industrial Studies	**3**
Sub-Total	**28**

Farm Power and Machinery:

Agric. Power	3	
Agric. Machinery	3	
Mechanics of Deformable Bodies	2	
Design of Agric. Machines	3	
Operation and Management of Farm Power and Machinery Systems	2	
Farm Transportation		2
Engineering Properties and Handling of Agric. Materials		3
Processing and Storage of Agric. Materials		2
Automotive Service and Maintenance		2
Industrial Studies		3
Sub-Total	**28**	

Soil and Water Engineering Option:

Irrigation	3
Agriculture Land and Drainage	2
Advanced Hydraulics	3
Rural Water Development and Sanitation	2
Design of Irrigation and Soil Conservation Structures	3
Environmental Engineering	3
Foundation Engineering	3
Farm Transportation	2
Automotive Service and Maintenance	2
Industrial Studies	3
Sub-Total	28

Grand Total	**174 to 177**

Break-down of Courses into Levels of Study:

300 Level

Course Title	**Lecture/Lab. Units**
Engineering Mathematics	6
Basic Agric. and Bio-Res. Engineering	2
Land Surveying	3
Hydrology	3
Geology for Engineers	2
Machine Drawing and Design	2
Hydraulics	2
Metallurgy	2
Mechanics of Machines	2
Soil Mechanics	2
Soil Science	2
Animal Production	3
Crop Production	3
Technical Communication	2
Foundation Courses in Entrepreneurial Studies	2
Laboratory Practicals	3
Sub-Total	41

400 Level

Course Title	**Lecture/Lab. Units**
Engineering Mathematics & Statistics	6
Farm Power and Machinery	3
Irrigation and Drainage	3
Farm Structures and Environmental Control	3
Properties, Handling, Processing and Storage of Agricultural Materials	3
Farm Management, Rural Sociology and Agric. Extension	2
Economics	2
Introduction to Entrepreneurship Studies	2
Sub-Total	**21**

500 Level

Course Title	**Lecture/Lab. Units**
Principle of Management	3
Farm Electrification	3
Soil and Water Conservation	3
Land Clearing and Development	2
Agric. Mechanization	2
Final Year Project	6
Sub-Total	19
Specialization and Electives from any of the three options	
Sub-Total	17 to 20
	36 to 39

COURSE DESCRIPTIONS

300 LEVEL

ENGINEERING MATHEMATICS 6 CREDITS

1. Linear Algebra – Elements of Matrices, determinants, Inverse of matrix. Theory of linear equations, Eigen-Values and Eigen Vectors.
2. Analytic geometry – Co-ordinate transformation – solid geometry, polar, cylindrical and spherical co-ordinates.
3. Elements of function of several variables.
4. Numerical differentiation, solution of ordinary differential equations, Curve fitting, Simple linear
5. Programming.
6. Fourier series – Euler coefficients, even and odd functions. Sine and cosine functions, simple applications. Gama, Beta and probability functions.
7. Differential equation of second order – series solutions. Legendre and Bessel functions and their properties.
8. Vector Theory – Dot product, cross product, divergence, curl and Del operators. Gradient Line. Surface and volume integrals and related theorems.

400 LEVEL

ENGINEERING MATHEMATICS 3 CREDITS

1. Complex variables – advanced topics, differentiation and integration of complex functions. Cauchy – Riemann equations: Related theorems:
2. Laplace and Fourier transform – Applications.
3. Introduction to non-linear differential equations – stability and applications.
4. Probability – Elements of probability, density and distribution functions, moments, standard distribution, etc.
5. Statistics – Regression and correlation – Large sampling theory. Test hypothesis and quality control.

AGRICULTURAL ENGINEERING COURSE DESCRIPTIONS

BASIC AGRIC. & BIO-RESOURCES ENGINEERING 2 CREDITS

Introduction to Agricultural & Bio-Resources engineering profession.
Agricultural and Bio-Resources. Identification of various tractors.
Identification of other farm power sources. Types of farm implements.
Tractor driving and test. Use of tractor for various field operations.

LAND SURVEYING 3 CREDITS

Definitions. Measurement of distances. Use of minor instruments, Random errors. Chain surveying. Bearing of lines. Levelling. Topographic surveys. Traversing. Theodolite traversing. Plane table surveying. Triangulation. Land shaping and earthwork.

HYDROLOGY 3 CREDITS

Hydrologic cycle. Solar and earth radiation. Precipitation.
Evapotranspiration, Infiltration. Rainfall-runoff over agricultural land. Stream gauging. Hydrographs. Streamflow routing. Groundwater hydraulics. Watershed management. Flood control.

GEOLOGY FOR ENGINEERS 2 CREDITS

The earth. Geological processes. Engineering properties of rocks. Stratigraphy. Geotechnics. Geomorphology. Mineralogy and Petrology. Geology of Nigeria.

MECHINE DRAWING AND DESIGN 2 CREDITS

Part assembly. Detailed drawing of machine components.
Sketching and use of standards: design features, symbols, screws, fasteners, couplings, clutches, gears. Machine component design. Presentation of design portfolio.

HYDRAULICS 2 CREDITS

Fluid properties. Fluid statics. Fluid motion: continuity, Bernoulli, energy, momentum equations. Reynolds number. Laminar and turbulent flows. Pipe flow. Open channel flow. Weirs, flumes, pumps, turbines, outlets, gates, valves.

METALLURGY 2 CREDITS

Metals and alloys, their production and use. Nature, origin and control of structure in metallic systems and their relation to mechanical properties. Diffusion, deformation, hardening, transformation. Heat treatment. Metallographic laboratory practice.

MECHANICS OF MACHINES 2 CREDITS

Force and motion relations relationships in constrained mechanism. Analysis of car, gear, linkage, belt drive and chain drive systems for motion and power transmission. Vehicular mechanics: brake and clutch systems. Kinetics of rotating and reciprocating masses. Elements of vibratory systems.

SOIL SCIENCE 2 CREDITS

Origin and formation of soils. Physical properties of soils. Soils colloids; soil reaction; soil mineralogy. Soil organic matter. Soil survey and classification. Water movement in soils.

SOIL MECHANICS 2 CREDITS

Phase relationships, shear strength, consolidation, settlement, compaction. Machinery-soil-relationships, site investigations.

ANIMAL PRODUCTION 2 CREDITS

Types of livestock (for eggs, milk, meat, wool, etc)
Distribution of livestock in Nigeria. Animal feeding and nutrition. Forage crops and their preservation. Artificial insemination. Livestock housing. Livestock processing equipment.

CROP PRODUCTION 2 CREDITS

Classification and ecology of crops in Nigeria. Nutrient requirements and mineral nutrition of plants. Manures and fertilizers. Plant growth and development. Growth stages. Tillage and weed control. Other cultural practice. Cropping sequences and rotation. Farming systems. Production practices for specified crops.

TECHNICAL COMMUNICATION 2 CREDITS

Principles of effective communication. Professional use of the English language. Principles of technical writing. Oral presentation of technical ideas.

FARM POWER AND MACHINERY 2 CREDITS

Farm power sources. Selection and management of farm tractors and equipment. Force analysis and power measurement on tillage tools. Field performance evaluation of crop production equipment. Adjustment, maintenance, and repair of farm tractors and equipment.

IRRIGATION AND DRAINAGE 3 CREDITS

Water requirements in an irrigation system. Methods of irrigation. Frequency and amount of irrigation. Irrigation water scheduling. Evaluating irrigation systems and practices. Design of furrow, basin and sprinkler irrigation. Effect of poor drainage on plants and soils. Drainage requirements of crops, surface drainage. Sub-surface drainage.

FARM STRUCTURES AND ENVIROMENTAL CONTROL 3 CREDITS

Environmental and structural requirements of crops and livestock, planning of plant and livestock houses, storage and stores. Design of structural members. Water supply and sewage disposal. Specifications and selection of farm building materials. Environmental control for plants and livestock. Use of psychometric charts. Farmstead planning and layout.

PROPERTIES, HANDLING, PROCESSING AND STORAGE OF AGRIC. MATERIALS 3 CREDITS

Properties and characteristics of agric. Materials. Cleaning, sorting and grading. Handling methods. Processing techniques. Crop drying. Crop storage.

FARM MANAGEMENT, RURAL SOCIOLOGY AND AGRIC. EXTENSION 2 CREDITS

Application of basic sociological concepts to rural life. Management decision making. Functions of Management Planning, organization, staffing, directing and controlling. Financial management. Principles of Extension: diffusion, adoption and rejection of innovations. Communication and leadership in agricultural extension.

ECONOMICS 2 CREDITS

Basic concepts. Factors of production. Supply and demand. Price, Elasticity analysis. Household behaviour theories, Business organization, production, the market, income, employment – classical, non – classical and keynessian approaches. Money, Expenditure, Taxation, Budget, International trade.

PRINCIPLES OF MANAGEMENT 3 CREDITS

Principles of Management. Industrial group and organizational behaviour. Motivation, industrial Law, legislation on wages, trade marks and patents. Law of contract and sale of goods. Liability for industrial injuries. Industrial relations. Trade unions, employer associations, wage bargaining and the role of the state.

FARM ELECTRIFICATION 3 CREDITS

Electrical codes, tariffs and regulations. Generation and transmission of electricity, farmstead distribution systems. Testing procedure. Power factor correction. Selection and use of electric motors. Transformers. Energy conversion. Application of electricity to handling, processing and storage of agricultural products. Basic electronic applications to farm electrical processes.

SOIL AND WATER CONSERVATION 3 CREDITS

Types of erosion, Soil erosion by water, Universal soil loss equation. Control of soil erosion by water. Wind erosion and control, Desertification and control measures. Earth dams and farm ponds.

LAND CLEARING AND DEVELOPMENT 2 CREDITS

Land resources and Land Use Act in relation to Nigerian agriculture. Objectives, methods and equipment for land clearing and development. Machinery selection, mechanics of operation and vegetation types. Land reclamation. Earthmoving machinery and earthmoving mechanics.

AGRICULTURAL MECHANISATION 2 CREDITS

Nature and objectives of agricultural mechanisation. Factors affecting agricultural mechanisation in the tropics. Analysis of production systems. Agricultural mechanisation as a strategy for rural development. Impact on food production and on infrastructural development. Linkages with rural industrialisation. Case studies of selected farms.

FINAL YEAR PROJECT 6 CREDITS

Individual student project to deepen knowledge, strengthen practical experience and encourage creativity and independent work. The project ends in a comprehensive written report.

AGRICULTURAL POWER 3 CREDITS

Farm power sources. Farm tractor; selection, use, maintenance. Other power sources; selection, use, maintenance. Hitches and hitch systems, design considerations of single-axle, two-wheel drive, four-wheel drive and crawler tractors. Tractors mechanics. Power measurement. Fluid controls. Ergonomics. Tractor testing and test codes.

AGRICULTURAL MACHINERY 3 CREDITS

Force analysis and design consideration of various farm machinery. Hitching methods. Power requirement for operating farm equipment and machines. Operation and maintenance of various farm machinery. Field evaluation. Criteria for replacement. Cost analysis of the use of agricultural machines.

MECHANICS OF DEFORMABLE BODIES 2 CREDITS

Three dimensional stress and strain. Theories of failure. Stress concentration. Moments and products of inertia and area. Mohr's strain and inertia circles. Unsymmetrical bending, shear centre. Curved beams.

DESIGN OF AGRICULTURAL MACHINES 2 CREDITS

Machine design processes and procedures. Materials of construction: selection, strength properties, stress analysis, costing. Design of machine elements. Machine fabrication. Typical designs of low cost agricultural machinery. Problems and prospects of agricultural machinery development and commercial manufacture in Nigeria.

OPERATION AND MANAGEMENT OF FARM POWER AND MACHINERY STSTEMS 2 CREDITS

Integrated approach to machinery usage and agricultural production sequence. Equipment selection, scheduling of operation, seasonality factor. Machinery management. Machinery ownership and financing. Gross margin analysis. Optimisation of machinery – input combinations. Management of farm enterprise. Case studies.

IRRIGATION 3 CREDITS

Design of open channels. Water flow measurement. Pumping power requirements. Design of irrigation systems: border, sprinkler, drip, etc. salinity and quality of irrigation water. Reclamation of saline and alkali soils. Seepage from canals and canal lining. Design of an irrigation project. Evaluating irrigation systems and practices. Irrigation on water management.

AGRICULTURAL LAND DRAINAGE 2 CREDITS

Surface drainage. Subsurface drainage. Design of drainage systems. Envelope materials and their design. Loads on conduits. Drainage pumping. Construction and installation of drains. Maintenance of drains.

ADVANCED HYDRAULICS 3 CREDITS

Pipe flow, pipes in parallel and in series. Branched pipes. Simple pipe network. Hardy cross method of water distribution. Open channel flow. Channel transition and control. Hydraulic jump. Backwater curves. Dimensional analysis and similitude. Reservoir hydraulics and planning. High pressure outlets, gates, valves.

RURAL WATER SUPPLY AND SANITATION 2 CREDITS

Water requirements. Water quality standards. Water borne diseases. Biochemical oxygen demand. Potable water impurities. Sources and treatment methods of water for rural homes. Water lifting devices. Transportation and distribution systems. Pipe sizes. Waste disposal in rural communities. Collection, conveyance, treatment and disposal of sewage from rural homes. Septic tanks, digestion ponds and family privies.

DESIGN OF IRRIGATION AND SOIL CONSERVATION STRUCTURES 2 CREDITS

Factors affecting efficient farm water management. Review of relevant hydraulic theories. Design of irrigation structures. Design of soil conservation structures.

ENVIRONMENTAL ENGINEERING 3 CREDITS

Design of unit operation and processes in water and wastewater treatment. Sedimentation. Chemical coagulation. Ion exchange. Filtration. Disinfection. Water supply treatment and distribution. Water quality. Wastewater handling, treatment and disposal. Solid waste disposal. Air pollution and control.

FOUNDATION ENGINEERING 3 CREDITS

Stress in soils. Consolidation, compaction, CBR and soil improvement, stability of slopes. Earth pressure analysis. Bearing capacity and settlement analysis of shallow and deep foundations. Design of footings, foundations, retaining walls. Analysis and control of groundwater.

ADVANCED THERMODYNAMICS 3 CREDITS

Thermodynamics of gases, vapours and reactive and non-reactive mixtures. Process relation. Concepts of equilibrium, reversibility.

ENGINEERING PROPERTIES AND HANDLING OF AGRICULTURAL MATERIALS 3 CREDITS

Physical, mechanical, rheological and thermal properties of agricultural materials. Newtonian and non- Newtonian fluids. Handling methods. Design and construction of appropriate material handling equipment for tropical products. Economics of material handling.

PROCESSING AND STORAGE OF AGRICULTURAL PRODUCTS 3 CREDITS

Cleaning, sorting, grading and separation: principles, techniques and machine, communication, particles size analysis. Heat treatment. Dehydration and drying. Psychometry, storage types and environment. Deterioration of produce in storage. Containerisation. Design of grain storage structures. Environmental control in storage.

SOLAR ENERGY APPLICATIONS TO PROCESSING AND STORAGE 2 CREDITS

Fundamentals of solar radiation. Solar heating and cooling, heat transfer, solar energy conversion efficiency. Principles of solar collectors. Solar heat storage and storage systems for tropical crops.

FOOD ENGINEERING 2 CREDITS

Definition, heat and mass transfer, insulation, heat exchangers-design and applications. Heat and cold preservation of foods. Food packaging, food quality control. Principles and design of food equipment.

FARM TRANSPORTATION 2 CREDITS

Farm roads. Farm transportation system. Development and construction of farm transport equipment. Farm transport system – standards and specifications. Ergonomics.

AUTOMOTIVE SERVICE AND MAINTENANCE 2 CREDITS

Service and maintenance of all the components of an automobile.

INDUSTRIAL STUDIES 2 CREDITS

Organizational structure of manufacturing organization. Market survey, feasibility studies, project and contract documents. Specification, planning schedule, quality control. Safety and safety procedure

B. ENG. CIVIL ENGINEERING

COUSE OUTLINE

300 LEVEL

Course Code	Course Title	Credit Units
CEE 301	Fluid Mechanics	3
CEE 302	Strength of Structural Material	3
CEE 303	Engineering Geology	3
CEE 304	Civil Engineering Materials	3
CEE 305	Soil Mechanics I	3
CEE 306	Design of Structures I	3
CEE 307	Structural Mechanics	3
CEE 308	Engineering Surveying & Photogrammetry I	3

400 LEVEL

Course Code	Course Title	Credit Units
CEE 401	Hydraulics and Hydrology	2
CEE 402	Civil Engineering Practice	2
CEE 403	Structural Mechanical II	2
CEE 404	Design of Structure II	2
CEE 405	Soil Mechanics II	2
CEE 406	Engineering Surveying & Photogrammetry II	2
CEE 407	Highway Engineering	2

500 LEVEL

Course Code	Course Title	Credit Units
CEE 501	Structural Engineering	4
CEE 502	Geotechnical Engineering	4
CEE 503	Water Resource & Environment Engineering	4
CEE 504	Highway & Transpiration Engineering	4
CEE 599	Project	4
CEE 110	Advanced Entrepreneurship	2

Electives

CEE 505	Advanced Structural Engineering	3
CEE 506	Advanced Highway & Transportation Engineering	3
CEE 507	Advanced Water resources & Environment Engineering	3
CEE 508	Building / Construction technology	3
CEE 509	Advanced Geotechnical Engineering	3

COURSE DESCRIPTIONS

300 LEVEL

CEE 301: FLUID MECHANICS

Fluid static's. floatation and stability, dynamics of fluid flow- conservation equation of mass and momentum enter and Bernoulli equation. Introduction to incompressible viscous flow. Reynolds's number. Dimensional analysis-philosophy. Similarities. Buckingham PI theorems. Applications. Hydraulic models. Flow measurements. Flow meter errors in measurement.

CEE 302: STRENGH OF MATERIALS

Advanced topics in bedding moment and shear force in beans. Theory of bending of beams. Deflection of brams unsymmetrical bending and shear centre. Applications. Strain energy. Biaxial and traxial state of stress transformation of stresses. Mohr's circle. Failure theories spring. Creep fatigue, fraction and stress concentration.

CEE 303 ENGINEERING GEOLOGY

Geology structures and mapping. Rock and minerals. Stratigraphy – time scale- fossil and their importance. Special reference to Nigeria. Introduction to geology of Nigeria. Engineering Applications- water supply, site investigation – dams Dykes etc.

CEE 304 CIVIL ENGINEERING MATERIALS

Concrete Technology – types of cements aggregates properties concrete mix, design properties and their determination steel technology production fabrication and properties corrosion and its prevention. Test on steel and quality control. Timber technology – types of wood, properties defects stress grading preservation and fire protection, timber products, rubber, plastic, asphalt, tar, glass, time, bricks, etc. application to building, roads and bridges.

CEE 305 SOIL MECHANICS I

Formation of the soil in water relationship – void ration, porosity, specific gravity and other factors. Soil classification. Atterberg limits – particle size distribution. Flow in soil – see page and permanently. Laboratory work.

CEE 306 DESIGN OF STRUCTURES I

Fundamentals of design process. Material selection, building regulations and codes of practices. Design philosophy, elastic design. Limit state design. Design of structural elements in Reinforced concrete.

CEE 307: STRUCTURAL MECHANICS I

Analysis of determinate structures. Beams, trusses; structure theorems. Graphical method. Applications. To simple determinate truiss. Williot Mohr diagram. Deflection of statically determinate structures. Unit load, moment area method. Strain Energy methods. Introduction to statically indeterminate structures.

CEE 308: ENGINEERING SURVEYING AND PHOTOGRAMMETRY I

Chain surveying compass surveying – method contour and their uses traversing – method and method and application levelling – geodetic levelling – error and their adjustments. Applications. Tachometry – methods substance heighten self-adjustment and electromagnetic methods. Introduction to photogrammetry.

400 LEVEL

CEE 401: HYDRAULICS AND HYDROLOGY

Laminar and turbulent flows. Boundary layer separation life and Drag. Stream function velocity potential and application to flow nets. Steady and unsteady flow in flow closed conduits. Principles of surface water hydrology analysis of hydrographic data. Land Drainage and inland navigation problems.

CEE 402: CIVIL ENGINEERING PRACTICE

Civil engineering works standard and measurements. Contracts and sub-contacts. Works construction and supervision. Job planning and control- programme charts. Critical path method. Etc construction machinery and equipment. Applications/case study – dams. Foundations. Bridges, highways, industrial buildings sewage work.

CEE 403; STRUCTURAL MECHANIC II

Indeterminate structural analysis. Energy and virtual work methods. Stop deflection and moment distribution methods. Elastic instability. Simple plastic theory of bending. Collapse loads. Stress – grading of timber visual mechanical and electronic stress grading of timber.

CEE 404: DESIGN OF STRUCTURES II

Limit state philosophy and designing steel. Elastic and plastic moment design. Design of structural element in steel and connection and joins. Limit state philosophy and design in timber. Elastic methods and design in timber. Design of structural element in timber connector. Laboratory tests on structural element in concrete, timber and steel.

CEE 405: SOIL MECHINCS II

Mineralogy of soil structures. Compaction and soil stabilization. Site investigations. Laboratory and course work.

CEE 406: ENGINEERING SURVEYING & PHOTOGRAMMETRY II

Further work on contours and contouring. Methods of contouring contour interpolation and uses of contour plants and maps. Areas and volumes, setting out of engineering works. Elementary topographical surveying. Elements of photogrammetry. Photogrammetric equipment and errors of measurements.

CEE 407: HIGHWAY ENGINEERING

Soil engineering aspects of highways. Railways and airfields. Geometric. Pavement structure and deign pavement materials and laboratory rest.

500 LEVEL

CEE 501: STRUCTURAL ENGINEERING

Structural mechanics: plastic methods of structural analysis, matrix methods of structural analysis, elastic instability, centum of plane strain. Elastic flat planes and torsion. Solution by series, finite difference, finites element, yield line Analysis and strip methods for slabs.
Design structures: composite design and construction in steel and reinforced concrete; design of structural foundation; pre-stresses concrete design. Modern structural form; tall buildings. Lift shalfs and shear walls system building, design projects.

CEE 502: GEOTECHINICAL ENGINEERING

Stresses in soil. Consolidation and settlement. Shear strength of soil. Bart pressures. Bearing capacity of soil foundations. Normal and deep foundation. Slope stability. Site investigations.

CEE 503: WATER RESOURCES AND ENVIRONMENTAL ENGINEERING

Water Resources: the hydraulics of open channels and wells; drainage, hydrographic analysis, reservoir and flood routing; hydrological forecasting, hydraulic structures i.e dams dykes/levees. Weirs Docks and harbors, spillways, stilling basin, manholes and coastal hydraulic structures etc engineering economy in water resource planning.
Environmental Engineering: the work of the sanitary Engineer; water supply. Treatment and design; wastewater collection; treatment disposal and design of systems; air pollution and control.

CEE 504: HIGHWAY AND TRANSPORTATION ENGINEERING

Highway planning and traffic surveys. Pavement design construction and maintenance. Administration and finance of highway. Condition of all transportation media. Transpiration planning and economics. Traffic management and design of traffic signal. Parking. Geometric design. Construction methods. Construction materials and laboratory test.

CEE 599: PROJECT

For proper guidance of the students. Project will depend on the available academic staff expertise and interest but the projects should be preferably of investigatory nature. Preferably, student should be advised to choose projects in the same area their option subjects. (see below)

B.ENG. COMPUTER ENGINEERING

COURSE OUTLINE

300 LEVEL

Course Code	Course Title	Credit Units
CPE 301	Digital Devices & Logic Circuit	3
CPE 302	Computer Programming and Languages	4

400 LEVEL

Course Code	Course Title	Credit Units
CPE 401	Numerical Computations	3
CPE 402	Computer Programming and Language	3

500 LEVEL

Course Code	Course Title	Credit Units
CPE 501	Low Level and High Level Languages	2
CPE 502	Commercial Programming Languages	2
CPE 503	Computer Architecture	3
CPE 504	Microcomputer Technology	3
CPE 505	Electronic Material Technology	3
CPE 506	Integrated Circuit Technology	2
CPE 507	Software Engineering	2
CPE 508	System Programming	2
CPE 509	Digital Computer Networks	2
CPE 510	Microprogramming	2
CPE 599	Project	4

COURSE DESCRIPTIONS

300 LEVEL

CPE 301: DIGITAL DEVICES AND LOGIC CIRCUIT

Introduction to analysis and design of digital system. Boolean algebra and mapping methods. Karuangh and variable entered maps. Combination logic realization with gates, multiplexed, rad only memories (ROMs) and programming logic arrays (PLAS). State machine analysis and design; state diagrams, state flip-lops. Input and output forming logic. State assignments. Redundant state sequential counters, and mainly synchronous systems, state machine realization with multiplexes. ROMs and PLAs. Asynchronous system approach to digital system design top – down, trail and error method. Codea number system and arithmetic operation. Introduction to computer structure, register transfer, hardware programming methods. Von Neumann machines. And memory system. Standard topic function with MIS Circuit; seven segment display drives, parity generator/checker, encodes, comparator, address etc.

CPE 302 COMPUTER PROGRAMMING AND LANGUAGES

Number system basic logical operation, the computer system; data representation, computer programming concepts algorithms, flowchart and pseudo – codes structure programming concepts. Detailed of BASIC and FORTRAN programming languages. BASIC, PACAP, COBOL,PL/LC.

400 LEVEL

CPE 401: NUMERICAL COMPUTATION

Number system ad error. Representation of integers, fraction, floating-point arithmetic, error propagation solution of non-linear equation. Newton-Reason's methods iterative methods, Baistow's method. Aitken's a technique, matrices and system (linear equation; Guassian elimination, trangularization method. Iterative method. Interpolation and approximation and Differentiation and integration solution of differentiation Equations. Boundary - value problems in ordinary differential equation.

500 LEVEL

CPE 501: DIGITAL COMPUTER TECHNOLOGY

Basic computer organization, machine representation of instruction and data including the alphanumerical and logical data. Number system representation. Binary arithmetic, code conversion. Gates logic operation, gating function, Boolean algebra, truth tables maps. De-Morgan's theorem. Analysis of logic networks. Gating decoding, register, serial /parallel operations. Sequences and data flow controls. Error detection.

CPE 501: LOW LEVEL AND HIGH LEVEL LANGUAGES

Assembly language programming. Use of system and report software's including JCL, Assemblers, Compliers. Linker, loaders, editor and libraries. Introduction to language theory and structures.

CPE 502: COMMERCIAL PROGRAMMING LANGUAGES

COBOL and RPG II input definition. Record and file description, processing, record selection. File manipulations. Calculation and store minimization. Output; report layout. Programme preparation; coding forms. Fixed flow, and debugging. Data validation. File maintenance backup and protection.

CPE 503: COMPUTER ARCHITECTURE

Introduction to design techniques for the synthesis of digital computer. Principles of computer structure and design as applied to major computer functions. Topics include design methodology; processor and CPU design memory organization, communication I/O and CPU system.

CPE 504: MICROCOMPUTER TEHCNOLOGY

Definition functional parts memory devices, software and instruction execution of a microcomputer. A close study of the commonly used 8 bits and 16-bit microprocessor. Microcomputer interfacing; input/output mapping, memory mapping interrupts, and direct memory access interfacing to prophetical devices keyboard interfacing. Printer interface, display interface (LEDRCPT), teletypewriter serial input/output control interfacing to Analong devices microcomputer – based analog – to digital to analog converters. System development facilities. Design construction programming and microprocessor control system eg by lit control real time clock function generation and system monitoring etc.

CPE 505: ELECTRICAL MATERIAL TECHNOLOGY

Diffraction technique. The growth of crystal include epitaxy vacuum techniques. Oxidation, diffusion, sintering, photo fabrication metallization and encapsulation techniques. Magnetic material devices. Techniques of making storage elements. Pressure devices technologies.

CPE 506: INTEGRATED CIRCUIT TECHNOLOGY

Small, medium, large and very large scale integrated circuits, applications.

CPE 507: SYSTEM PROGRAMMING

General machine structure; programme counter and instruction registers. Machine language and assembly language; in structure formats and types of in structures. Including operation codes. Index and address register. Addressing techniques: the use of uneconomic to represent operation codes in assembly language. Symbolic labels and the function of the symbol tables. The function of the passes of a 2-pass assembler. Macros definition and use, in relation to open subroutine loaders; absolute and relocations loaders-compiler design.

CPE 509: DIGITAL COMPUTER NETWORKS

Communication within computer system; addressing and database. CPU – memory – I/O devices communications. Communication between systems; host/host versus host/slave relationship, handshaking protocols and synchronization. Serial versus paralle communication. Hardware element of network design-terminal modems, multiplexors, and concentrators. Message and control processors. Communication equipment and carriers. Software element of computer network. Host operating system. Message packet switching. Structure of computer networks; star ring and hierarchical networks decentralized networks.

CPE 510: MICROPROGRAMMING

Definition and basic concepts; hard-weird versus micro programmed control. Wilkers' original design; parallelism in microinstructions. Microinstructions address specification, micro operation timing; micro programmed control unorganization. Minimizing microinstruction size; micro programmed compute. Application of microprogramming.

CPE 520: ADANCED COMPUTER PROGRAMMING AND STATISTIC

Elementary of statistics; Distribution and experiments: law of large numerical iteration procedures, revision of FORTRAN and BASIC in engineering. Application programme in Computer aided design of electrical and electronic system.

CPE 599: PROJECT

This course lases for one academic session. Each student must undertake a project under the supervision of a lecturer, submit a comprehensive project report and present a seminar at the end year. A project status reports to be presented at the first semester. Each student must attend Engineering Seminar.

Elective

Student with the Co-ordinators approval will choose these. The course can be chosen from other programmes such as Mechanical Engineering. Physic and Mathematics/Computer Science. The course chosen should provide some breadth to the students chosen area of specialization.

B.ENG. ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE OUTLINE

300 LEVEL

Course Code	Course Title	Credit Units
ELE 301	Electromagnetic Fields and Waves I	3
ELE 302	Electromagnetics Fields and Waves II	2
ELE 303	Circuits Theory I	3
ELE 304	Circuits Theory II	2
ELE 305	Measurements and Instrumentation	3
ECE 301	Electronic Circuits (Analogue & Digital) I	3
ECE 302	Electronic Circuits (Analogue & Digital) II	2
ECE 303	Physical Electronics	3
ECE 304	Electrical Circuits Laboratory	2

400 LEVEL

Course Code	Course Title	Credit Units
ELE 401	Control Theory	3
ELE 402	Electrical Power Principles	3
ELE 403	Electromechanical Devices and Machines I	2
ELE 404	Electromechanical Devices and Machines II	2
ELE 405	Electrical Machines Laboratory	3
ECE 401	Communication Principles	3
ECE 402	Telecommunication Laboratory	2
ECE 403	Digital Electronics Laboratory	2

500 LEVEL

Course Code	Course Title	Credit Units
ELE 501	Reliability & Maintainability of Electrical & Electrical Components and Systems	2
ELE 502	Electrical Mechanical Devices Design	2
ELE 503	Electrical Services Design	2
ELE 504	Power Electronics and Devices	3
ELE 505	Power System Engineering	3
ELE 506	Power System Communication and Control	2
ELE 507	Switchgear and High Voltage Engineering	2
ECE 501	Industrial Electronic Design	2
ECE 502	Control Engineering	3
ECE 503	Communications Systems	2
ECE 504	Telecommunication Engineering	2
ECE 505	Advanced Circuit Techniques	2
ECE 506	Solid State Electronics	2
ECE 507	Digital Signal Processing	2
ELE/ECE 599	Project	4

COURSE DESCRIPTIONS

300 LEVEL

ELE 301: ELECTROMAGNETIC FIELDS AND WAVES I

Review of electrical laws in integral from Gauss's Laws: Electronics due to distribution of charge, magnetic fields in and around carrying conductors, time varying magnetic and electrical fields: conditions and displacement current: Maxwell's equation (in rectangular co-ordinates and vector-calculus notion), derivation of Maxwell's equations.

ELE 302: ELECTROMAGNETIC FIELDS AND WAVES II

Electromagnetic potential and waves; Polynthing vector; boundary conditions; wave propagation in good conductors, skin effect; plane waves in unbounded dielectric media, fundamentals of transmission lines wave-guides and antennae.

ELE 303 CIRCUITS THEORY I

Laplace and Fourier transformer, application of Laplace transformation to transient analysis of RLC circuits, transfer function concepts, reliability of transfer functions, foster and Cauer's methods of Synthesis, 2-port network synthesis, active filters.

ELE 304: CIRCUITS THEORY II

Approximation to non-linear dynamic circuits, applications of computers in the analysis of linear and non-linear circuits.

ELE 305: MEASUREMENTS AND INSTRUMENTATION

General Instrumentations, Basic Meter in DC measurement. Basic meter in AC measurements, rectifier voltmeter, Electro-dynamometer and Wattmeter, instrument transformers: DC and AC bridges and their applications, general form of AC bridge universal impedance bridge: Electronic instruments for the measurement of voltage, current resistance and other circuit parameter: electronic voltmeter. AC voltmeters using rectifier, electronic multimeter, digital voltmeter: oscilloscope: vertical deflection systems, horizontal deflection system, probes, sampling CRO, Instruments for generating and analyzing waveforms; square-wave and pulse generator, signal generators, counter measurement models: Analog and digital acquisition systems: tape recorders. D/A and AID conversion, sample and circuits.

ECE 301: ELECTRICAL CIRCUITS (ANALOGUE & DIGITAL) I

Review of single stage transistor amplifier and operational amplifier circuits. Analysis and designs of multistage amplifiers. Feedback, Broadband and Narrow band amplifiers, power amplifier, voltage and current stabilizing circuits. Sinusoidal RC and LC and crystal oscillators, other communication circuits. Review of elementary digital concept, switching properties of electronics devices. Switching and wave shaping circuits. Generation of non-sinusoidal waveforms: astable, monostable and bistable multi-vibrator, co-operator, Schmidt trigger and time-base generators using discrete transistor, operational amplifier or other integrated circuits.

ECE 302: ELECTRONIC CIRCUITS (ANALOGUE & DIGITAL) II

Timer chips and their applications. Analysis and design of logic gates of various families Diode logic, RTL, TTGL, ECL, MaS, and MaS of digital integrated circuits, Interfacing between various logic families. Concepts of small, medium, large, and very large scale integration and their consequence, some digital building blocks, flip flops, counters, register and decoders. Introduction to D/A and AID conversion principles.

ECE 303: PHYSICAL ELECTRONICS

Free electron motion is static electric and magnetic field, electronic structure of matter, conductivity in crystalline solid, Theory of energy hands in conductors, insulators and semi-conductors; electrons in metals and electron emission; carriers and transport phenomena in semi-conductors, characteristics of some electron and photo devices junction diodes and transistors, FETS, SCR, vacuum tubes, photos resistor, diodes, transistors, photo cell and light emitting diodes. Elementary discrete devices fabrication techniques and IC technology.

ECE 304: ELECTRONIC CIRCUITS LABORATORY

A laboratory work on electronic circuits to illustrate topics covered in electronic circuits.

400 LEVEL

ELE 401: CONTROL THEORY

Basic concepts and example of control systems, feedback, time response analysis, concept of stability, Routh-Hurwits criterion, root-locus techniques, frequency-response analysis, polar and Bode plots, Nyguist stability criteria. Nicholas chat, compensation techniques chart, compensation techniques, introduction to non-linear systems.

ELE 402: ELECTRIC POWER PRINCIPLES

Introduction to power system and resources of electric energy, structure of electric system, load characteristics, electrical energy transmission and distribution, line impedance, representation and per unit system, relationship between currents and voltages, regulations of voltage, transmitted power and losses, construction of overhead lines and underground cables, power system equipment, standard and safety.

ELE 403: ELECTROMECHANICAL DEVICES AND MECHINES I

Review of electrometrical energy conversation, rotating magnetic fields, performance and methods of speed control of DC machines, induction motors, linear induction motors, circuit diagrams, power transformers parallel operation of 3-phase transformers.

ELE 404: ELECTROMECHANICAL DEVICES AND MECHINES I

Performance of synchronous machines, parallel operation of synchronous generators, fractional horse-power motors, single-phase induction motors, universal motors, circuit diagrams, power transformers, parallel, methods of starting and protection of machines.

ELE 405: ELECTRICAL MACHINES LABORATORY

A laboratory work on electrical machines designed to illustrated topics covered in electromechanical devices and machines.

ECE 401: COMMUNICATION LABORATORY

Amplitude modulation, doubled sideband, single sideband, and vestigial sideband modulation schemes, simple modulators, power and bandwidth performance. Angle modulations: frequency modulation, phase modulation, bandwidth requirements, clippers and limiters. Amplitude modulated signal reception: discrimination, frequency tracking loop, phase locked loop and noise performance. Commercial radio systems. Transmission media attention in open space, air, cable and fibre channels: construction of cable and fibres, sampling theorem, pulse amplitude modulation, pulse width modulation, multiplexing, quantization systems and pulse code modulation, delta modulation courses, and correction errors in PCM and DM, ideal and matched filters, frequency acquisition,phase referencing an timing. Line codes, block encoding and Shannon's theorem.

ECE 402: TELECOMMUNICATION LABARATORY

A laboratory work on telecommunication designed to illustrated topics in communication principles as well as topics such as passive filters, tuned circuits and active analogue filers.

ECE 403: DIGITAL ELECTRONIC LABORATORY

A laboratory work on digital electronics designed to illustrate topics covered in electronic circuits.

500 LEVEL

ELE 501: RELIABILITY & MAINTAINABILITY OF ELECTRICAL & ELECTRONIC COMPONENTS AND SYSTEMS

Introduction to reliability, maintainability, availability, elementary reliability theory. Application to power systems and electronic components. Test characteristic of electrical and electronic components. Types of faults. Designing for higher reliability. Packaging, mounting, ventilation, protection from humidity, dust.

ELE 502: ELECTRIC MECHANICAL DEVICES DESIGN

Design of transformers, principles of AC and DC machine design.

ELE 503: ELECTRICAL SERVICES DESIGN

Lighting installation power installation, energy supply and distribution, choice of cable and conductors, systems and accessories, outdoor low voltage lines and cables, protection of low voltage installation, and characteristics of low voltage equipment. Earthing and testing of electrical installation, illumination.

ELE 504: POWER ELECTRONICS AND DEVICES

Switching characteristics of diodes, transistors, thyistors etc. analysis of diode circuits with reactive diodes, analysis of circuits using transistor as switches, power control circuit. Ac-dc converters, characteristics of switching transformers, owner semi-conductor device protection, examples of power electronic circuits, solar devices.

ELE 505: POWER SYSTEM ENGINEERING

Representation of power systems, power system equation and analysis, load flow studies, load forecasting, economic operation of power systems, symmetrical components, symmetrical and unsymmetrical faults, various types of relays used in power systems, protection system, protection system of power transmission lines, principles of fault detection, discrimination and clearance, elements of system systems stability.

ELE 506: POWER SYSTEM COMMUNICATION AND CONTROL

Review of transmission line theory: High frequency communication on power lines. Carrier systems and power line carrier applications. Multiplexing telemetering, Signal processing and data transmission. Control of power generation, voltage control, system stability, automatic voltage regulating transformers.

ELE 507: SWITCHGEAR AND HIGH VOLTAGE ENGINEERING

Generation and measurement of high voltage current; Breakdown theories for gaseous liquid and solid dielectrics, lightning phenomena High Voltage equipment, insulation co-ordination, lightening protection, electric cables and condensers.

ECE 501: INDUSTRIAL ELECTRONIC DESIGN

Characteristics and industrial applications of thyistors and other SCR devices. Transducers and their applications in sensing light. Voltage pressure, motion, current, temperature, etc. mechanical relays, solid state relays, solid state relays and stepping motors, Real time control and remote cent-processor and micro-computer based systems.

ECE 502: CONTROL ENGINEERING

State space description of linear system, concepts of controllability and observability; state feedback, model control observes, realization of systems having specified transfer function, applications to circuit synthesis and signal processing.

ECE 503: COMMUNICATION SYSTEMS

Microwave frequencies and uses. Microwave transmission lines and wave guides, microwave circuit: impedance transformation and matching, microwave circuit, passive microwave devices, resonant and filter circuit, active microwave devices, Klystron and magnetron tubes and semiconductor devices for microwave generation. Antenna: definitions of elementary parameter related to radiation patterns, dipole and aperture antennae and the related design parameters: introduction to antennae arrays. Radio wave propagation, propagation in the ionosphere, troposphere and in stratified media: principles of scatter propagation: applications in general broadcast, television and satellite communication systems. Radar system: nature of radar and equations, composition of radar system; application of different types of radars.

ECE 504: TELECOMMUNCATION ENGINEERING

Cable telegraphy and telephony characteristics, cross talk, equation, Pole lines, aerial and underground cables, Telegraph systems, codes, radio systems, terminal equipment (teleprinters, relays, switching systems, repeaters). Telephone network structure.

ECE 505: ADVANCE CIRCUIT TECHNIQUES

Analysis and design of integrated operational amplifiers and advanced circuit such as Wideband amplifiers, instrumentation amplifier, multiplier circuits, voltage controlled oscillators, and phase locked loops. Design techniques for advanced analogue circuits containing transistors and operational amplifiers.

ECE 506: SOLID STATE ELECTRONICS

Physics and property of semi-conductor including high field effects, carrier injection and semi-conductor surface phenomena. Devices technology, bulk and epitaxical material growth and impurity control. Metal-semi-conductor interface properties. Stability and methods of characterization. Control and surface-controlled devices.

ECE 507: DIGITAL SIGNAL PROCESSING

Discrete signals and Z-transform, digital Fourier Transform, fast Fourier Transform. The approximation problem in network theory. Synthesis of low-pass filters. Spectral transform and their application in synthesis of high-pass and band-pass filters. Digital filtering, digital transfer function aliasing, one-dimensional recursive and non-recursive filters: Computer techniques in filter synthesis, realization of filters in hardware and software. Basic image processing concepts.

ELE/ECE 599: PROJECT

This course lasts for one academic session. Each student must undertake a project under the supervision of a lecturer, submit a comprehensive project report and resent a seminar at the end of the year. A project status report is to be present at the end of the first semester. Each student must attend Engineering Seminars.

Electives

These will be chosen by students with the Coordinators approval. The course can be chosen form other programmes such as Mechanical Engineering, Physics and Mathematics/Computer Science. The courses chosen should provide some breath to the students chosen area of specialization.

B.ENG. MECHANICAL ENGINEERING

COURSE OUTLINE

Course Code	Course Title	Credit Unit
MEE 301	Mechanics of Machines I	2
MEE 302	Manufacturing Technology	2
MEE 303	Thermodynamics I	2
MEE 304	Fluid Mechanics I	2
MEE 305	Engineering Drawing	2
MEE 306	Workshop Practice	2
MEE 307	Control Systems	2

400 LEVEL

Course Code	Course Title	Credit Unit
MEE 401	Mechanics of Machines II	2
MEE 402	Thermodynamics II	2
MEE 403	Fluid Mechanics II	3
MEE 404	Mechanical Engineering Design I	3
MEE 405	Control Systems	3

Course Code	Course Title	Credit Unit
MEE 501	Thermodynamics II	2
MEE 503	Engineering Metallurgy	2
MEE 504	Mechanical Engineering Design II	4
MEE 405	Engineering Materials	3
MEE 599	Project	4

COURSE DESCRIPTIONS

300 LEVEL

MEE 301: MECHANICS OF MACHINES I

Simple mechanism and their analysis: Vector diagrams: simple harmonic motion. Newton's Law of motion; Force analysis of mechanism friction effect: analysis and applications.

MEE 302: MANUFACTURING TECHNOLOGY

Fabrication methods: casting and pattern design: and forging and extrusion: welding methods: use of drilling, boring, grinding and other material processing machines: foundry work.

MEE 303: THERMODYNAMICS I

Dimensions and units: Energy and energy conversions: system and surroundings: Temperature of scales: Zeroth Law: Heat and work.

MEE 304: FLUID MECHANICS I

Fundamental, physical characteristics and properties of fluids, viscosity, surface tension, pressure. Fluid statics manometry, forces on submerged surfaces, buoyancy and floatation, stability of floating bodies. Fluid masses subject to acceleration. Kinematics of Fluid motion, continuity equation, circulation and vorticity. Flow of ideal incompressible fluid. Euler's equation. Bernoulli's equation. Application of principle, elementary and simple flow machines applications. Some aspects of real flows, laminar and turbulent flow, flow in pipes, flow in open channels.

MEE 305: ENGINEERING DRAWING

Use of drawing instruments: Lines. Lettering and dimensioning: paper sizes, scales and drawing layout; first and third angle projections: Auxiliary projects: Isometric projects: Freehand Sketching: Development: Machine drawing.

MEE 306: WORKSHOP PRACTICE

Workshop setting: types of workshop equipment, machines and materials: use of instruments and tools, machine operation practice: safety procedures in workshops.

MEE 307: METALLURGY

Basic metallurgy, Non-metallic materials: Simple stress and strain: Bending and Torsion: torsion: Deflection of beams: Complex stress and strain.

400 LEVEL

MEE 401: MECHANICS OF MACHINES II

Theory of structures: dynamics of linear systems: Balancing: Gear systems and Gear trains: Rigid body; introduction to tripology.

MEE 402: THERMODYNAMICS II

First Law of thermodynamics: Steady flow energy equations: Second Law of Thermodynamics; Properties of pure substances: Perfect gases.

MEE 403: FLUID MECHANICS II

Introduction to hydrodynamics, stream function, flow fields, stream lined bodies, rotational and irrigational flows, velocity potential, conformal transformation. Jon Kowsky transformation. The aerofoil theory, characteristics of two dimensional aerofoil. Sections Introduction to turbo-machines, characteristics curves for pumps, axial flow machines, impulse and reaction turbines, fans blowers and propellers. Introduction to gas dynamics, Introduction to boundary layer theory. Dimensional analysis and similarity law.

MEE 404: MECHANICAL ENGINEERING DESIGN I

Failure analysis: Various types of joints, design of machine elements: system design: design of I gear systems.

MEE 405: CONTROL SYSTEMS

Control Engineering concepts: transfer functions: differential equation of control systems; transducers; automatic control methods.

500 LEVEL

MEE 501: THERMODYNAMICS III

Heart transfer, Gaseous mixtures: Engine Cycles: Heat pump and refrigeration cycles.

MEE 503: ENGINEERING METALLURGY

Continuation of MEE 307.

MEE 504: MECHANICAL ENGINEERING DESIGN II

Material selection in design, design and production matching, optimization in design.

MEE 505: ENGINEERING OF MATERIALS

Types of engineering materials: physical properties of materials. Electrical properties of materials. Mechanical properties of materials: thermal properties of materials: chemical properties of materials: Optical and magnetic properties of materials; stability in the services environment.

MEE 599: PROJECT

This course lasts for one academic session. Each student must undertake a project under the supervision of a lecturer, submit a comprehensive project report and present a seminar at the end of the year. A project status report is to be presented at the end of the first semester. Each student must attend Engineering Seminars.

B. ENG. MINING ENGINEERING

COURSE OUTLINE

300 LEVEL

Course Code	Course Title	Credit Units
MNE 301	Engineering Mathematics	2
MNE 302	Computer Programming	2
MNE 303	Thermodynamics	2
MNE 304	Fluid Mechanics	2
MNE 305	Metallurgy	2
MNE 306	Engineering Drawing	2
MNE 307	Workshop Practice	2
MNE 311	Engineering-in-Society	1
MNE 312	Manufacturing Technology	2
MNE 313	Electrical & Electronic Engineering Course	3
MNE 314	Civil Engineering Course	3
MNE 315	Mine Surveying	3
MNE 316	Mine Systems	3
MNE 317	Laboratory Practicals	3

400 LEVEL

Course Code	Course Title	Credit Units
MNE 401	Geology	3
MNE 402	Mining Systems	3
MNE 403	Mining Surveying	3
MNE 404	Explosive	3
MNE 405	Mining Process Design	3
MNE 406	Plant Technology	3
MNE 407	Technology Policy & Development	2
MNE 408	Laboratory Practicals	6

500 LEVEL

Course Code	Course Title	Credit Units
MNE 501	Geology	3
MNE 502	Mining Systems	3
MNE 503	Petroleum Engineering	3
MNE 504	Mining Process Design	3
MNE 505	Mine Ventilation	3
MNE 506	Mine Health and Safety	2
MNE 507	Rock Mechanics	3
MNE 511	Engineering Metallurgy	2
MNE 512	Mineral Processing Technology	3
MNE 513	Engineering Material Selection and Economics	3
MNE 599	Project	3
MNE 514	Law and Management	3
MNE 515	Laboratory Practicals	3

COURSE DESCRIPTIONS

300 LEVEL

MINE SURVEYING 6 CREDITS

Basic and surveying theory and practice, Mine Surveying; Application; Setting out and typical calculations.

MINING SYSTEMS 9 CREDITS

Surface mining operation; design of surface mining systems; Surface excavation; Ore handling equipment; case study of typical surface mines; Underground mining operations; Tunnelling; Underground mining operations; Tunnelling; Underground mining methods; Handling and haulage; Hydraulic transport and pipeline systems.

ROCK MECHANICS 3 CREDITS

Types and properties of explosives; Application of explosive in rock drilling, boring; and mechanical breakage; Safety consideration in the use of explosives.

400 LEVEL

GEOLOGY 3 CREDITS

Element of physical geology; Structural geology; palaeontology and stratigraph; Minerology; Petrology; Geochemistry; Sedimentrology; Geophysical prospecting methods. Photogeology; Hydro geology.

MINE SURVEYING 6 CREDITS

Basic and surveying theory and practise, Mine Surveying; Application; Setting out snd typical calculations.

MINING SYSTEMS 9 CREDITS

Surface mining operation; design of surface mining systems; Surface excavation; Ore handling equipment; case study of typical surface mines; Underground mining operations; Tunnelling; Underground mining operations; Tunnelling; Underground mining methods; Handling and haulage; Hydraulic transport and pipeline systems.

ROCK MECHANICS 3 CREDITS

Types and properties of explosives; Application of explosive in rock drilling, boring; and mechanical breakage; Safety consideration in the use of explosives.

MINING PROCESS DESIGN 4 CREDITS

Surface mining operation; design of surface mining systems; Surface excavation; Ore handling equipment; case study of typical surface mines; Underground mining operations; Tunnelling; Underground mining operations; Tunnelling; Underground mining methods; Handling and haulage; Hydraulic transport and pipeline systems.

EXPLOSIVE 3 CREDITS

Sequence in mining systems; Design in mining process elements and layout; Safety and control systems; support system design.

MINE VENTILATION 3 CREDITS

Effects and change of poor mine ventilation; Air systems design; Mine ventilation design and control.

PLANT TECHNOLOGY 3 CREDITS

Plant and process control; Mining machinery, operations; Plant maintenance.

500 LEVEL

GEOLOGY 6 CREDITS

Element of physical geology; Structural geology; palaeontology and stratigraph; Minerology; Petrology; Geochemistry; Sedimentrology; Geophysical prospecting methods. Photogeology; Hydro geology.

MINERAL PROCESSING AND TECHNOLOGY 3 CREDITS

Properties of single particles and particle systems; Transport properties; Mass and momentum transfer; Cost analysis and control in mineral processing; Applications of operational research techniques.

ROCK MECHINICS 3 CREDITS

Types and properties of explosives; Application of explosive in rock drilling, boring; and mechanical breakage; Safety consideration in the use of explosives. Mechanical properties of soil and rocks; Failure prediction methods; Mechanics of mine support and roof control.

EXPLOSIVES 3 CREDITS

Sequence in mining systems; Design in mining process elements and layout; Safety and control systems; support system design.

MINE VENTILATIONS 3 CREDITS

Effects and change of poor mine ventilation; Air systems design; Mine ventilation design and control.

MINE HEALTH AND SAFETY 2 CREDITS

Cause of prevention of mine accidents; mine rescue procedures; Mine Health regulations; Mine safety systems.

B.ENG. COMMUNICATION ENGINEERING

COURSE OUTLINE

300 LEVEL

Course Code	Course Title	Credit Units
MAT 320	Engineering Mathematics III	3
MAT 321	Engineering Mathematics IV	3
MAT 430	Engineering Mathematics V	3
EGR 302	Digital Devices & Logic Circuit	3
EGR 303	Computer Programming and Language	4
ECE 301	Electronic Circuit (Analogue & Digital) I	3
ECE 302	Electronic Circuit (Analogue & Digital) II	2
ECE 303	Physical Electronic	3
ECE 304	Electronic Circuit Laboratory	2
ELE 303	Circuit Theory I	3
ELE 304	Circuit Theory I	2
ELE 305	Measurements and Instrumentation	3
EGR 301	Technical Communication	1
GST 107	Science of Qur'an and Hadith	2

400 LEVEL

Course Code	Course Title	Credit Units
	SECOND SEMESTER DEVOTED TO SIWES	
EGR 401	Numeric Computations	3
EGR 402	Digital Computer Technology	3
ECE 401	Communication Principles	3
ECE 402	Telecommunication Laboratory	2
ECE 403	Digital Electronic Laboratory	2
ELE 401	Control Theory	3
ELE 403	Electrochemical Devices and Electrical Machines I	2
ELE 404	Electrochemical Devices and Electrical Machines I	2
ELE 405	Electrical Machine Laboratory	1
GST 108	Introduction to Islamic Law	2

500 LEVEL

Course Code	Course Tittle	Credit Units
CUE 501	Low level and High Level Languages	2
CUE 501	Digital Computer Networks	2
CUE 502	System Analysis and Design	4
CUE 503	Data Communication/Networks	2
CUE 504	Network Architecture and Design	2
CUE 505	Networks Applications Programming	2
CUE 506	Programming Language For WEB Applications	2
CUE 507	Distributed Information Management	2
CUE 503	Electronic Material Technology	3
CUE 504	System Programming	2
CUE 599	Project	4
ECE 506	Solid State Electronics	3
EGR 501	Management for Engineers Electives	3
GST 110	Advanced Entrepreneurship	2

COURSE DESCRIPTIONS

EGR 302: DIGITAL DEVICES AND LOGIC CIRCUIT 3 CREDITS

Introduction to analysis and design of digital systems. Boolean algebra and mapping methods. Karuangh and variables entered maps. Conventional logic realization with gates, multiplexed, read only memories (ROMs) and programmable logic arrays (PLAS). State machine analysis and design; state diagrams, state flip-lops. Input and output forming logic. State assignments. Redundant states sequential counters, and mainly synchronous systems, state machine realization with multiplexes. ROMs and PLAs. Asynchronous system approach to digital systems design top- down, trial and error method. Codes, number system and arithmetic operation. Introduction to computer structures, register transfer, hardware programming methods. Von Neumann machines. And memory system. Standard logic function with MSI Circuit; seven segment display drives, parity generator/checker, encodes, comparator, address etc.

EGR 303: COMPUTER PROGRAMMING AND LANGUAGES 4 CREDITS

Number system basic logical operation, the computer system; data representation, computer programming concept algorithms, flowchart and pseudo-codes structured programming concepts. Details of BASIC and FORTRAN programming languages and their application to engineering problems. Comparison of various programming languages. BASIC, PASCAL, COBOL, PL/LC

EGR 401: NUMERICAL COMPUTATION 3 CREDITS

Number system and error. Representation of integers, fraction, floating point arithmetic, error propagation solution of non-linear equation. Newton-Rapgson's methods iterative methods, Baistow's method. Aitken's a technique, matrices and system (linear equation; Guassian elimination, trangularization method. Iterative method. Interpolation and approximation and differentiation and integration solution of differentiation Equations. Boundary – value problems in ordinary differential equation

EGR 402: DIGITAL COMPUTER TECHNOLOGY 3 CREDITS

Basic computer organization, machine representation of instruction and data including the alphanumerical and logical data. Number system representation. Binary arithmetic, code conversion. Gates, logic operation, gating function, Boolean algebra, truth tables, maps, De-Morgan'd theorem. Analysis of logic networks. Gating decoding, registers, serial/parallel operations. Sequences and data flow controls. Error detection.

CUE 501: LOW LEVEL AND HIGH LANGUAGES 2 CREDITS

Assembly language programming. Use system and support software' s including JCI, Assemblers, Compilers. Linker, loaders, editor and libraries. Introduction to language theory and structures.

CUE 504: SYSTEM PROGRAMMING 2 CREDITS

General machine structure; program counters and instruction registers. Machine language and assembly language; in structure formats and types of in structures. Including operation codes. Index and address register. Addressing techniques: the use on uneconomic to represent codes in assembly language. Symbolic labels and function of the symbol tables the functions of the passes of a 2-pass assembler. Macros definition and use, in relation to open sub routine loaders; absolute and relocation loaders-compiler design.

CUE 501: DIGITAL COMPUTER NETWORKS 2 CREDITS

Communication within computer system; addressing and database. CPU – memory – I/O devices communications. Communication between systems; host/hsot versus host/slave relationship, handshaking protocols and synchronization. Serial versus parallel communication. Hardware element of network design-terminals, modems, multiplexors, and concentrators. Message and control processors. Communication equipment and carries. Software element of computer network. Host operating system. Message packet switching. Structure of computer networks; star ring and hierarchical networks decentralized networks.

CUE 502: SYSTEM ANALYSIS AND DESIGN 4 CREDITS

Introduction to system design, Analysis to Determining system alternatives, physical design of computer sub-system, physical design of manual sub-system design of features.

CUE 503: DATA COMMUNICATION/NETWORKS 2 CREDITS

Introduction, wave, Fourier analysis, measure of communication channel characteristics, transmission media noise and distortion modulation and demodulation, multiplexing TDE, FDM and FCM. Parallel and serial transmission (synchronous Vsanalynchronous).Bus structures and loop systems, computer network. Examples and design consideration; data switching principles, broadcast techniques, network structure for packet switching protocols, description e.g. ARPANET, etc.

CUE 505: NETWORK APPLICATIONS PROGRAMMING 2CREDIT

The course provides students with the principles and method of designing network applications using various protocols mainly IPX/SOX and TC/IP.

CUE 506: PROGRAMMING LANGUAGE FOR WEB APPLICATIONS CREDITS

The course introduction student to the design and application of software for distribution using such as WWW. Main topic include: CGI's; client side programming with javascript; dynamic content using java and Active X; server side programming using active server web page and VB script; the programming paradigm of building software by gluing components; the use of scripting languages such as java and perl; and creating web based client/server data application.

CUE 507: DISTRIBUTED INFORMATION MANAGEMENT 2 CREDIT

The course enable student to understand the deep technical issues underlying distribution information systems in general and WWW in particular. Main topics include:

- Fundamental of WWW technology backed by examples.
- Study of current technologies such as TCP/Hp, HTML, XML, J- and ECMA – script, Applets, Servelets, ASP and Active X and the XML standard set.
- Web technical infrastructures- internet, protocols, markup language, and resource naming.
- Information provision covering document generation, site management, data interfaces, XML and semi-structured data.
- Principles of web engineering.
- The special issues caused by multimedia information.
- Programming and security
- Issues for network management arising from a range of security threat.
- Retrieval of information.

CUE 599: PROJECT 4 CREDITS

The course lasis for one academic session. Each student must undertake a project under the supervisors of a lecturer, submit a comprehensive project and present a seminar at the end of the year. Project status report to be presented at the first semester. Each student must attend Engineering seminar.

ELECTIVES 3 CREDITS

Student with the Co-ordinators approval will choose these. The course can be chosen from other programmers such as mechanical Engineering. Physical and mathematics/computer science. The course chosen and should provide some breath to the student chosen area of specialization.

B. ENG. WATER RESOURCES ENGINEERING

COURSE OUTLINE

300 LEVEL

Course Code	Course Title	Credits Units
WRE 301	Strength of Materials	3
WRE 302	Engineering Mathematics/Analysis	6
WRE 303	Fluid Mechanics	2
WRE 304	Structural Mechanics	4
WRE 305	Design of Structure	4
WRE 306	Hydraulics and Hydrology	4
WRE 307	Public Health Engineering	4
WRE 308	Engineering Geology	3
WRE 309	Engineering Surveying & Photogrammetry	4
WRE 310	Soil Mechanics	2
WRE 311	Laboratory Practicals	6

400 LEVEL

Course Code	Course Title	Credits Units
WRE 401	Engineering Mathematics Analysis	3
WRE 402	Soil Mechanics and Foundation	3
WRE 403	Civil Engineering Materials	2
WRE 404	Engineering Management	1
WRE 405	Design of Hydraulic Structures	4
WRE 406	Hydraulics and Hydrology	3
WRE 407	Quantity Surveying	2
WRE 408	Laboratory Practicals	3

300 LEVEL

Course Code	Course Title	Credits Units
WRE 599	Project	6
WRE 501	Unit Operation and Processes	3
WRE 502	Design of Treatment Plants	3
WRE 503	Hydro-Geology (Groundwater Hydrology)	3
WRE 504	Economics and Law	3
WRE 505	Water and Waste Engineering	3
WRE 506	Pollution Control	3
WRE 507	Drainage and Irrigation Engineering	3
WRE 508	Systems Management (Operations Research)	3
WRE 509	LabolatoryPracticals	3

Electives

	Hydraulics and Hydrology	3
WRE 510		
WRE 511	Hydraulic Structures and Treatment Plants	3
WRE 512	Drainage and Irrigation	3
WRE 513	Water Resources Engineering	3
WRE 514	Environmental Engineering	3

COURSE DESCRIPTIONS

300 LEVEL

WRE 301: STRENGTH OF MATERIALS

Advanced topics in Bending moment and shear force in beams. Theory of bending of beams. Deflections of beams. Unsymmetrical bending and share centre. Strain energy Biaxial and triaxial state of stress. Transformation of stresses. Mohr's circle. Failure theories. Spring creep, fatigue, fracture and stress concentration.

WRE 302: ENGINEERING MATHEMATICS/ANALYSIS

Linear Algebra-Element of materials determinants, inverse of matrix. Theory of linear equations Eigen-values and Eigen-vector. Analytic geometry-Co-ordinate transformation-solid geometry, polar, cylindrical and spherical co-ordinates. Element of function of several variables. Numerical differentiation, solution of ordinary differential equation –curve fitting, simple linear programming .Fourier series – Euler coefficients, even and odd function, since and cosine, functions, simple Applications. Gamma, Beta and probability function. Differential equation of second order-series solution. Legendre and Bessel function and their properties. Vector Theory Dot product, cross product, divergence, curl and Del operators. Gradient, line, surface and volume integral and related theorems.

WRE 303: FLUID MECHANICS

Fluid statistics: Floatation and stability, Dynamics of fluid flow-conservation. Equation of mass and momentum; Euler and Bernoulli equation. Reynolds' number. Dimensional analysis - philosophy, similitude, Buckingham P1 theorems. Applications. Hydraulic models. Flows meters and errors in measurements.

WRE 304: STRUCTURAL MECHANICS

Analysis of determinate structure, Beams, trusses; structure theorems. Graphical methods: Application to simple determination trusses. Williot Mohr-diagram Deflection of statistically determinate structures. Unit load, moment area methods. Strain Energy Methods. Introduction to statically determinate structure.

WRE 305: DESIGN OF STRUCTURE

Fundamentals of design process, material selection, building regulation and core of practice. Design philosophy. Elastic design: Limit state design of structural element in Reinforced concrete.

WRE 306: HYDRAULICS AND HYDROLOGY

Hydrology. Introductions, descriptive hydrology cycle, precipitation, evaporation and transpiration. Quantitative Hydrology: hydrography, Volume runoff, storage routing. Groundwater: occurrence, hydraulics, well yield. Hydraulics. Open channels; Flows, culverts and bridges. Steady uniform flow. steady gradually varies flow. Hydraulic jump. Surge waves. Measurement of flow in open channels. Drainage: Estimate of flows, municipal storm drainage, highway drainage, culverts and Bridges.

WRE: 307 PUBLIC HEALTH ENGINEERING

Structure and growth of microorganisms. Sterilization and culture techniques. Water use water-related diseases. Physical, chemical and biological characteristics of water and wastewater, their determination and significance. Appropriate technology of water supply and treatment. Coagulation, storage, flirtation, disinfection. Excreta Disposal; appropriate technology (septic tanks, oxidation ponds relevant to Nigeria situation) and wastewater treatment. Sewage. Source and Effects of pollution. Water quality standard and controls. Agents of Air pollution, Effects and control, Management and finance of PHE system.

WRE: 308 ENGINEERING GEOLOGY

Geological structures and mapping. Rocks and material, stratigraphy –time scale-fossils and their importance: special reference to Nigeria. introduction to geological of Nigeria. Engineering Application-water supply –site investigations-Dams, Dykes, etc.

WRE: 309 ENGINEERING SURVEYING & PHOTOGRAMMETRY

Chain surveying.Compass surveying-methods; Contours and their uses. Traversing – method and applications. Leveling – Geodetic leveling – errors and there adjustments. Applications. Tachometry – methods: substance heighting, self adjustment and electromagnetic methods. Introduction to photogrammetry.

WRE 310: SOIL MECHANICS

Formation of soils. Soil in water relationship – viod ratio, porosity, specific gravity and other factors. Soil classification: Atterberg limits – particle size distribution. Flow in soils – Seepage and permeability. Laboratory work.

WRE 311: LABORATORY PRACTICALS

All courses share the laboratory schedules to suit; sometimes alternate weeks.

400 LEVEL

WRE 401: ENGINEERING MATHEMATICS ANALYSIS

Complex variables-advanced topics, differentiation and integration of complex functions. Cauchy – Riemann equations: Related theorems. Laplace and Fourier transforms – Applications. Introduction to non-linear differential equations - stability and Applications. Probability – Elements of probability, density and distribution functions, moments standard distribution, etc Statistic – Regression and correlation – Large sampling theory. Test hypothesis and quality control.

WRE 402: SOIL MECHANICS AND FOUNDATION

Soil structures. Compaction and soil stabilization, stability of slopes earth pressures, Retaining Walls. Concepts of permeability, stress distribution, shear strength and pressure in relation to foundation engineering. Bearing capacity of soils. Shallow and Deep foundations. Pile foundations. Site Investigation.

WRE 403: CIVIL ENGINEERING MATERIALS

Concrete Technology – Types of cements, aggregates. Properties. Concrete mix, Design. Properties and their determination. Steel Technology - Production, fabrication and properties: correction and its prevention. Test on steel and quality control. Timber Technology – Types of wood, properties defects. Stress grading. Preservation and fire protection. Timber products. Rubber, plastics, Asphalt, tar, glass, lime, bricks, etc.

WRE 405: ENGINEERING MANAGEMENT

Fundamentals of system objectives and economic analysis in the design and analysis of engineering projects Resources Management: Materials management, purchasing methods, stores and inventory control. Resource utilization. Methods of economic evaluation selection between alternatives. Planning and Decision making: Forecasting, planning, scheduling, Production control. Optimization. Decision making under risk and uncertainties. Applications.

WRE 405: DESIGN OF HYDRAULIC STRUCTURES

Hydraulic Models: hydraulic design criteria, problems of reservoirs, river training and regulations, transition structures, Dams; weirs, spillways, gates and outlets works, stilling basins. Cofferdams, Breakwaters, moulds surge tank. Design of open channel, conduit systems and hydraulic machinery. Design of Municipal Storm Drains, land drainage systems and culverts and brides. Design of (i) Drainage Inlets. (ii) Manholes. (iii)Catchbasins. Introduction to multiple purpose design involving flood control, water supply, irrigation, recreation, drainage navigation and erosion control.

WRE 406: HYDRAULICS AND HYDROLOGY

Laminar and turbulent Flows. Boundary layer separation Lift and Drag. Stream function, Velocity potential and application to flow nets. Steady and Unsteady flow in Closed Conduits. Principles of surface water hydrology. Analysis of Hydrographic Data. Land Drainage and inland navigation problems.

WRE 407: QUANTITY SURVEYING

Measurement contracts Final Accounts measurement: Practical interpretation of contract conditions; Cost reimbursement contract. Procedures for fixing rates. Application of measurements, estimating to practical situations. Analysis of tenders and evaluation of projects in water resources, buildings, etc. materials, labor, plant, production standards. Methods of statement, waste factors, applications.

WRE 408: LABORATORY PRACTICALS

All courses share the laboratory schedules to suit; sometime alternate weeks.

500 LEVEL

WRE 599 PROJECT

Project will depend on staff expertise and interest but most preferable should be of investigatory nature. Preferable, students should be advised to choose projects in the area of their option/elective subjects.

WRE 501: UNIT OPERATION AND PROCESSES

Engineering treatment of eh forms of calculus of variations, maximum principle, dynamic programming. Optimization of staged systems. Optimum seeking methods. Network analysis of water and wastewater systems theory and design of physical, chemical and biological unit processes pertinent to the water wastewater and air environment.

WRE 502: DESIGN OF TREATMENT PLANTS

Storm water Sewage Rational method for design. Preliminary Treatment: Flow measurement, weirs, flumes flow separation, screening storm water settlement, Grit removal, overflow rates. Batch settlement analysis; radial and rectangular design. Secondary Treatment: Activated sludge process, percolating filters oxidation ponds, biological kinetics and application in sludge treatment and disposal. Anaerobic digestion. Sludge processing, pumping and power requirements.

WRE 503: HYDRO-GEOLOGY (GROUNDWATER HYDROLOGY)

Groundwater and Aquifers; Physical Properties of Aquifers. Darcy's Law and Hydraulic conductivity. Well flow Systems: Measurement of hydraulic conductivity, Transmissivity, Specific yield and storage coefficient. Groundwater Explorations, well construction and pumping. Mathematical Techniques – Analytical and numerical solutions and simulation. Digital Computers – Finite Difference and Finite Element techniques in groundwater modeling. Unsaturated Flow. Surface – subsurface water relations.

WRE 504: ECONOMICS AND LAW

General Introduction to Law and Water Resources. Common Law – Equity, statutes (acts, ordinances, Decree, Edit, Statutory instruments, By-laws). The relationship between social, political and economic problems and engineering procedures and programmes. The law of contracts; preparation and criticism of contract documents and specifications. The engineers role in management and administration. Areas of Legal Liabilities. Law of contract, law of torts, land-law, water laws, Water Quality standards. The Economics of pollution – Stream standards and Effluent standards. Case studies of development projects, public and private organizations.

WRE 505: WATER AND WASTE ENGINEERING

Water and wastewater inter-relationship, water and health water-borne diseases. Elements of water chemistry. Treatment processes for surface water and for groundwater. Design fundamentals for water supply, treatment and water distribution systems, including storage, pumping and piping. Sources of wastewater – industrial and domestic wastewater surveys. Elements of wastewater microbiology, wastewater collection, treatment and disposal and design. Wastewater re-sue-options and alternatives. Effluent standards.

WRE 506: POLLUTION CONTROL

Water Supply: Treatment, design of systems. Wastewater: Collection, treatment and Design of systems. Laboratory and course work. Solid waste: Collection. Treatment, Disposal and design of systems. Air pollution and control. Industrial Wastes: Toxic, non-toxic and nuclear waste management.

WRE 507: DRAINAGE AND IRRIGATION ENGINEERING

Land classification: Crop Water Requirements; Crop: Irrigation requirements: Farm delivery requirement; Diversion requirements; Soil moisture; Measurement of Infiltration and Soil Moisture; irrigation water quality. Irrigation planning Criteria. Irrigation Methods; supplemental Irrigation, Irrigation structures. Design, construction, operation and maintenance of surface, sub-surface and sprinkler irrigation systems. Surveys and Investigation – Sources of water, soils and salinity. Water Tables; Drainage structures. Subsurface drains. Design criteria - Drain size, materials used; Installation of subsurface Drains; Pumping for drainage and maintenance of drains. Urban Storm Drainage. Land Drainage.

WRE 508: SYSTEMS MANAGEMENT (OPERATION SYSTEM)

Basic of Operations Research: Introduction, Development of Operations Research. Art of modeling phases of (OR) Study. Applied Linear Programming, examples. General Definition of Linear Programming; problems. The simplex method Development and Computation Procedure of the Simplex method. Artificial variables techniques: Variant of the Simplex Method. Application, Problem and Post-optimality Analysis. Dual Simplex method: Sensitivity Analysis. The Transportation Problem. Review of Vectors and matrices. Introduction to PERT-CPM in systems Management. Queuing Theory and applications.

WRE 509: LABORATORY PRACTICALS

All courses share the laboratory schedules to suits; sometimes alternate weeks.

FACULTY OF LAW

LL.B.LAW

COURSE OUTLINE

100 LEVEL

Course code	Course title	Credit units
LAW 101	Legal Methods I	2
LAW 102	Legal Methods II	2

200 LEVEL

Course code	Course title	Credit units
LAW 201	Constitution Law I	4
LAW 202	Constitution Law II	4
LAW 203	Law of Contract I	4
LAW 204	Law of Contract II	4
LAW 205	Nigerian Legal System I	4
LAW 206	Nigerian Legal System II	4
LAW 207	Islamic Law I	4
LAW 208	The Islamic Law in Nigeria	4
LAW 209	Administrative Law I	4
LAW 210	Administrative Law II	4

300 LEVEL

Course code	Course title	Credit units
LAW 301	Criminal Law I	4
LAW 302	Criminal Law II	4
LAW 303	Law of Torts I	4
LAW 304	Law of Torts II	4
LAW 305	Commercial Law I	4
LAW 306	Commercial Law I	4
LAW 307	Family Law I	4
LAW 308	Family Law II	4
LAW 309	Revenue Law I	4
LAW 310	Revenue Law II	4

400 LEVEL

Course code	Course title	Credit units
LAW 401	Land Law I	4
LAW 402	Land Law II	4
LAW 403	Equity and Trusts I	4
LAW 404	Equity and Trusts II	4
LAW 405	Law of Evidence I	4
LAW 406	Law of Evidence II	4
LAW 407	Industrial Law I	4
LAW 408	Industrial Law II	4
LAW 409	Conflict of Laws I	4
LAW 410	Conflict of Laws II	4

500 LEVEL

Course code	Course title	Credit units
LAW 501	Jurisprudence and Legal theory I	4
LAW 502	Jurisprudence and Legal theory II	4
LAW 503	Company Law I	4
LAW 504	Company Law II	4
LAW 505	Long Essay Project	4
LAW 506	Public International Law I	4
LAW 507	Public International Law II	4
LAW 508	Banking and Insurance Law I	4
LAW 509	Banking and Insurance Law II	4
LAW 510	Conveyancing I	4
LAW 511	Conveyancing II	

COURSE DESCRIPTION

100 LEVEL

LAW 101: LEGAL METHODS I:2 CREDIT

Law in its social context: a) Nature and function of law in society; law order and justice; law freedom; and the state; law and legitimacy, law and sovereignty. b) Aspect of law – eternal law ,divine law, natural law and human or positive law; classification of law; common law and civil law; common law equity, public and private law, written and unwritten law. c) Method of social control though law – penal method; grievance – remedial method; private arranging method, Administrative regulatory method; fiscal method.
Legal reasoning and approach to problems-language of law; principle, standard and issues in law; formality and precision in the use of language and distinctiveness of legal language; legal rhetroric and legal logic; legal reasoning and practical reasoning; legalism.
Legal reasoning – in judicial processes – shifting of fact and law in courts; radio decidend; precedents.
Legal reasoning in legislation – legislative proposals, Legislative drafting; ambiguity, vagueness, open texture, semantics in law; legislative process, construction of statutes; types of legislation; codification of laws.

LAW 102: LEGAL METHODS II: 2 CREDITS

Sources of law – primary sources, statutory materials and judicial materials, secondary source,books and pamphlets, letters, speeches, interview, periodicals and newspapers, foreign materials. Use of source materials-law library and legal research,indexing and identification of library materials ,cases and citation of cases and report, identification of issues of principles, rules, authoritative ,elements in book and judicial opinions, analysis and note taking, use of authorities in legal argument and legal writing. Legal writing – method and approaches in essay writing, styles of writing , analysis of social and legal issues and application of legal rules, division of topics into chapters, sections and subsections.

200 LEVEL

LAW 201: CONSTITUTIONAL LAW 1: 4 CREADIT

Definition and source of constitution law – classification, written and unwritten rigid and flexible, federal and unitary, presidential and parliamentary. The concepts of powers. Rule of law, federalism supremacy of the constitution/parliament. The legal consequences of the change of government by extra- constitutional means (e.g. coup de'tat). Constitution history of Nigeria –from the advert of British rule up to date.

LAW 202: CONSTITUTIONAL LAW II: 4 CREDITS

The Military and Constitution making in Nigeria: a) Law making by the Military. b) The judiciary under theMilitary. c) The Executive under the Military. d) The Military and the search for constitutional and politicalorder. The study of the current constitution: a) Supremacy of the constitution, citizenship, fundamental rights.fundamental objectives and directive principles of state policy, creation of state, and constitution amendments.b) Legislative power: Its meaning, scope and relation with the executive and judicial powers; delegation oflegislative power-division of legislative power between the federation and the states; interpretation of legislativeentries, its doctrines of pith and substance, implied powers, repugnancy, and occupied field-impeachmentpower. c) Judicial Power: Its meaning and scope - judicial review of legislation -independence ofjudiciary, jurisdiction and powers of the Supreme Court, Federal Court of Appeal, Federal and State HighCourts and Sharia and Customary Courts of Appeal, Judicial control of administration - nature, scope of writsand orders, Habeas corpus, mandamus, certiorari, prohibition, quo warrantors, declaration and injunction. d)Executive Power: Its meaning and scope, powers and functions of the President and Governors: appointment,legislative, police, public older, defense. Emergency, prerogative of mercy; foreign affairs -federal (and State)executive bodies Attorney-General's Power.

LAW 203: LAW OF CONTRACT II: 4 CREDITS

Natureof contract: sources of Law, concept of bargain, classification. Formation of contract: Offer andconsideration, intention to create legal relations. Contracts Contents: Terms, representationand limiting terms and fundamental bleach of terms. Capacity: Infants, illiterates, corporations,patients and drunken persons.

LAW 204: LAW OF CONTRACT II: 4 CREDITS

VitiatingElements of a Contract: Mistake, misrepresentation: duress, illegality and unforceable contracts.Privity of Contract: Rules and exceptions. Discharge of Contract: By performance, agreement and breach and frustration. Remedies/Damages; Equitable remedies in outline only, quantum eruit, claims and quasi-contract.

LAW 205: NIGERIAN LEGAL SYSTEM I: 4 CREDITS

The main aim of this course is to introduce students to the study of the sources of Nigerian Law generally, to acquaint him with the machinery for the administration of justice in Nigeria and to further the students' abilityto understand the problems and concepts of substantive law by elucidating the judicial process.

LAW 206: NIGERIAN LEGAL SYSTEM II: 4 CREDITS

Internal Conflicts. Judicial Institutions. Types and Jurisdiction of Courts. Judicial Personnel -Appointment and Tenure. Outline of Civil and Criminal procedure in Nigeria. Legal Aid and Advice: a) Development and future of Law in Nigeria. b) The organisation of Legal Education and Legal profession in Nigeria

LAW 207: ISLAMIC LAW I: 4 CREDITS

Introduction and the Historical background. The nature and sources of Islamic Law. The historical background: a) Pre-Islamic Arabia: Law and Society in Pre-Islamic Arabia. b) The rise of Islarn -Sharia: The Prophet Mohammed (SAW), the Qur'anic Legislation; the Prophetic Sunnah. The Development of Judicial System:Mundh/bin Jabal's appointment and Prophet's directions; Umar's directions to the judges, the development of judicial institutions QadiMuhtasibNasir al Mazaliu. The role of juristic opinion (Ray) and Custom (‘urf’) in thedevelopment of Islamic Law. The emergence of the schools of Law: Maliki, Hanafi, Sherii; Ja'afari and Zahiri. The development of Islamic Legal literature: Types (e.g. compendia, abridgments, gersses, responsa, etc) Thefrequently consulted authoritative texts of the various schools of law. Modern developments: Impact of Wester Legal System. Islamisation of Laws in recent years.

LAW 208: THE ISLAMIC LAW IN NIGERIA:4 CREDITS

The historical background: Introduction of Islamic in West Africa. The Maliki School of Law: Maliki BinAnnas; Maliki School. The spread of Maliki School in Nigeria. Authoritative Books, Court System. Theapplication of Islamic Law during the British period. The extent and application of Islamic Law at present.Nature, scope and sources of Administrative agencies andprocedures. The relationship between administrative law, the Rule of Law and separation of powers andDelegation of powers. Delegated legislation -its nature, making and control thereof.

LAW 210: ADMINISTRATIVE LAW II: 4 CREDITS

Administrative Adjudication Powers of Administration. Administrative invasion of tribunals of the people'slegal rights and delegations. Tribunals and Inquiries. Judicial control administrative and judicial power ofadministration in:

i. Grounds of judicial review, e.g. ultra vires, failure of natural justice, error of law.
ii. Remedies e.g. certiorari prohibition, mandamus, declaration habeas corpus, injunction, damages and appeal, Ombudsman Public Complaints Commission;
iii. Action by and against the State, corporations including Local Government Councils.

300 LEVEL

LAW 301: CRIMINAL LAW I: 4 CREDITS

General introduction and purposes of criminal law. History and sources of Nigerian Criminal Law. The general principles of criminal responsibility. The content of crime. The elements of an offence. Classificationoffence. Parties to an offence. Offences against the person.

LAW 302: CRIMINAL LAW II: 4 CREDITS

Offences against property. Offences against the state and against public order. Offences of corruption. The police and administration of criminal justice. Theories and types of punishment. General principles of sentencing.

LAW 303: LAW OF TORTS I: 4 CREDITS

Historical background and general principles of tortuous liability. Nominate torts and their defenses: assault, battery, false imprisonment, intentional harm to the person; trespass to land, trespass to chattel; conversion and detinue; Negligence to duty of care; proof of negligence; nervous shock. Contributory Negligence. Damages, remoteness of damage. Occupier'' liability.

LAW 304: LAW OF TORTS II: 4 CREDITS

Strict liability, the rule in Rayland's Vs Fletcher nuisance. Liability for animals. Malicious prosecution. Vicarious liability Defamation. Death as cause of action, fatal accident. Deceit, breach of promise to marry. Economic torts - passing off, civil conspiracy, intimidation. interference with contract. Joint torts. Remedies.

LAW 305: COMMERCIAL LAW: 4 CREDITS

Sales of goods: Nature and formation of contract for sale of goods, conditions, warranties and representations. Ownership and passing of property/title, duties of the seller, duties of the buyer: effect of the contract. Remedies for breach of contract of sale of goods. Special commercial contracts in outline. The use ofpayment devices - cheques, credit cards. Luncheon and fuel vouchers.

LAW 306: COMMERCIAL LAW II: 4 CREDITS

Hire purchase: Nature and meaning of hire purchase, H.P. in common law and under the Hire Purchase Act 1965: ownership and passing of property,; remedies of owners and hires: minimum payment clauses. And mages: standard form h.p. agreements. Bills of sales, conditional sales and credit sale agreements. Agency Definition, formalities for creating agency relationships, capacity and authority of agents; ratification, types ofagents. rights and duties of principal and agent: termination of agency relationship relationship/Liability ofprincipal and agents to third parties.

LAW 307: FAMILY LAW I: 4 CREDITS

Nature of the family; extended family system. The nature and sources of Nigerian family and succession from and incidence of marriage under customary and Islamic law, contract and celebration of marriage Formal and essential validity of statutory marriage, void and voidable marriages. Dissolution of marriage.

LAW 307: FAMILY LAW II: 4 CREDITS

Rectification of marriage. Judicial separation. Maintenance, alimony and financial relief. Custody guardianship of children and adoption. Basis to marriage and divorce. Succession -testate and intestate in customary law. Islamic Law under statute law. Recognitionof foreign marriages and conflict of law.

LAW 309: REVENUE LAW I: 4 CREDITS

The nature, meaning and various forms of taxation: general principles and administration of taxes; the rules governing residence (domicile) of tax payers (individuals, trusts, companied and other business organisations). The Definition and computation of income for tax purposes deduction and allowances against incomes.

LAW 319: LAW REVENUE LAW II:4 CREDITS

Different of tax and duties imposed by government; taxing powers of government; problems of double taxation; married women and tax exemption of pensions and gratuities. Tax treatment (assessment) of groups of companies, reconstructions. amalgamations and dividends.

400 LEVEL

LAW 401: LAND LAW I: 4 CREDITS

Introduction: a) Historical evolution of land law. b) Sources of Nigerian land law. c) Terminology of ownership, possession, titles, rights, liability, land. etc. Customary Land law: a) Modes of acquiring title to land, settlement: expansion; loan or borrowing; pledges or pawn, gift, conquest, allotment, kola tenancy. b) Concept andownership of land: i) nature of title to land; ii) control and management of community, land -individualrights and extent of community land today; iii) creation of family land - nature and extent of member's by amember (of family) on family land; and iv) An outline of succession to rights in land.

LAW 402: LAND LAW II: 4 CREDITS

Non-Customary Land Law: a) The land use Act -state control of land; grant of right of occupancy; whatcertificate ofOccupancy connotes; alienation ofcertificate ofoccupancy; revocation ofcertificate of occupancy, compensationfor revocationofcertificateofoccupancy.b) Relationship between Land Use Act and other State Land Law. c) An outline of control of natural resources, minerals water, forests Agrarian reforms. d) Rights and Interests in Land –freehold; joint tenancy, tenancy in commonprescription, laches andacquiescence. leasehold easements, profits a prendre covenants mortgages. e) Landlord and tenant.

LAW 403:EQUITY AND TRUSTS I: 4 CREDITS

General Principles of Equity: Nature, doctrine and history of equity, its development in England and itsintroduction to Nigeria: the relationship between equity and common law; conflict between equity andcustomary law; maxims of equity, nature of equitable rights and interests, priorities, assignment of choses inaction, conversion, election, satisfaction. Equitable Remedies -Injunctions, specific performance, rescission, rectification, delivery and cancellation of documents accounts, receivership, restitution. Equitable Defenses - Estoppels, laches and acquiescence.

LAW 404: EQUITY AND TRUSTS: 4 CREDITS

The Law of Trustees: a) Nature and classification of trusts, the requirements of trusts, constitution of trusts, express and private trusts, charitable trusts constructive trusts, protective and discretionary trusts (outline only),trusts in favour of creditors. b) Appointment of Trustees, duties and discretion of trustees, powers of trustee,breach of trust, retirement and removal of trustees.

LAW 405: LAW OF EVIDENCE I: 4 CREDITS

General Introduction. Sources of Nigerian Law of Evidence Direct and circumstantial evidence. Facts in Issue and Relevant Facts, complaints, similar fact evidence, res gestae.

LAW 406: LAW OF EVIDENCE II: 4 CREDITS

character evidence, opinion evidence, hearsay evidence, estoppels, competence and compellability of witnesses, privileges generally: corroboration, burden of proof, documentary evidence.

LAW 407: INDUSTRIAL LAW I: 4 CREDITS

Introduction: Nature and history, sources scope. Contract of employment - definition, formation content partiesyoung persons, apprentices, women. Employment duties, good faith, accountability confidentiality; restraint oftrade. Termination of the contract of employment; performance; agreement; Notice, Summary dismissal,Repudiation remedies for wrongfuldismissal. Safety at work – employer’s of care, vicarious liability – Factory Act. Workmen’s Compensation Act/Reform.

LAW 408: INDUSTRIAL LAW II: 4 CREDITS

Collective Bargaining and collective agreement, framework. Nature, Legislation. Trade Unions -Formation, Rights, obligations, criminal liability, civil liability. Agencies -l.A.P. (industrial Arbitration Panel), NIC,P.P.l.B. industrial Training Fund. Industrial Law and Economic Development.

LAW 409: CONFLICT OF LAW I: 4 CREDIT

Nature and scope of conflict; of laws -internal/ international conflicts, Jurisdiction and exemption from the jurisdictionof courts. Exclusion of Foreign Law/State Laws -Characterization. Domicile and nationality.

LAW 410: CONFLICT OF LAWS II: 4 CREDITS

Conflict situations (internal and external) law in. Law of pensions -status, marriage and matrimonial causes,Infants, legitimacy and legitimization and adoption, lunatics. succession. Law of obligations, particular contract.Law of torts. Law of property -moveable and immovable. Recognition and enforcement of foreign/statejudgments. The need for a uniform legal system.

500 LEVEL

LAW 501: JURISPRUDENCE AND LEGAL THEORY I: 4 CREDITS

The purpose of the study of law and jurisprudence, Nature, definition and scope ofjurisprudence. Meaning andfunctions of Law. The relation of law to -justice, rnorality, religion; Law and Social change, ethnic. The relationto the above concepts of Islamic and customary Law. Sources of law. Legislation, customs and judicialprecedents, nature, ascertainment, applicability and the role of these courses in contemporary and early society:

LAW 502: JURISPRUDENCE AND LEGAL THEORY II:4 CREDITS

Theories of Law: Natural Law School. Historical School. Positivist School. Sociological School. The "Pure" Theory of Law. Marxist and "economic" theory of law. Islamic school of law. Indigenous theories and concepts of law. Maliki School of Law and concepts of customary law. Law reform I. Codification, restatement, adaptation and unification of customary law.

LAW 503: COMPANY LAW I: 4 CREDITS

Forms of business organisations -sole proprietorship. partnership, incorporated companies, creation and incidents. Formation of companies; certificate of incorporation pre incorporation agreements (contracts): promoter's liability. Memorandum of Association - doctrine of ultra vires, alteration of memorandum and objects clause Articles of Association -contractual effect of memorandum/ Articles, alteration of Articles.Doctrine of Constructive Notice and indoor Management. Prospectus -Statements in Lieu of Prospects. Remedies for mis-representation.

LAW 504: COMPANY LAW II:4 CREDITS

Company securities - shares and Debentures, becoming and ceasing to be a shareholder, transfer of shares, floating charges. Directors and other offices of the company, appointment, removal, duties, rights and powers: Meetings resolutions; Majority powers and minority rights -prevention of oppression and mismanagements; reconstruction and takeovers; Winding up (in outline); partnership; relation of partners inter se to third partiesdissolution of partnership.

LAW 505: LONG ESSAY PROJECT: 6 CREDITS

This course is designed to inculcate in the students the skills needed for research and writing. Many of these students will undoubtedly proceed onto post-graduate studies where the skills ofindependent study research andwill serve them in good stead. The students would be expected to choose subjects that interest them withor without the advice of an academic staff number of the facility. Such topics must be finally approved by the faculty Board before the students commence their research and writing. The essay project should contain a minimum of 10,000 words and should not normally be more than 15,000 words. They would be written underthe supervision of an academic staff member who will be the first marker. A second marker or, an external examiner will also assess the completed project.

LAW 506: PUBLIC & INTERNATIONAL LAW I: 4 CREDITS

General Introduction. History and sources; International and Municipal Law Subjects of the Law of Nations: a) States -Nature and. Classification, recognition of States governments and belligerents de Jure and de dacto. b) State succession. c) Territory. Acquisition and Loss individuals: Individuals: Nationality and domicile, Human rights and Fundamental freedom Diplomatic Representation: Status and functions of diplomatic envoys and consults; privileges and immunities; Diplomatic missions of international organizations. State responsibility and conditions of basic international claims.

LAW 507: PUBLIC INTERNATIONAL LAW II: 4 CREDITS

State Jurisdiction: Territorial waters and airspace, international servitudes and waterways. International agreements: Nature, entry into forces, ratification, reservations, interpretation on discharge. International Organization: a) The United Nations and its charter -specialized agencies, disputes pacific and non-pacific methods of settlements. b) The Organization of African unity. c) ECOWAS.

War and Neutrality: a) Position of Belligelent Forces and Civilians in War. b) The Hague and Geneva Conventions. c) Economic Warfare - On land, sea and air. d). Effects of outbreak of war -persons, actions, contracts, treaties. The legal capacity to use force -states, recognized. Belligerents and the Unified Nations. The legal claims to make war and the United Nations charter obligations. Position of Neutrals. Punishment of war crimes -Nurembelg Trials.

LAW 508: BANKING AND INSURANCE LAW I: 4 CREDITS

Banking: Nature, history and Evolution, banking in Nigerian law regarding the establishment and operation of Banking in Nigeria. Nature and legal effects of negotiable instruments, including cheques, promissory notes, bills of exchange, etc. negotiability and assignability, endorsement and delivery, presentment and notice of dishonour. Bank-Customer relationship, including the nature and legal effects of bank accounts, overdrafts, bank notes, cheques and their crossing, etc. Mortgages and foreclosures, etc., forgeries, and conversions, securities and advances.

LAW 509: BANKING AND INSURANCE LAW II: 4 CREDITS

Banking Nature of Insurance, purpose or functions of insurance. types of insurance including marine insurance; life and personal accident insurance. motor vehicle insurance, Insurance interests and principle of indemnity, parties to-an insurance contract; assignment of insurance policies. Underwriting and reinsurance; claims and settlement of claims. State control of insurance business.

LAW 510: CONVEYANCING I: 4 CREDITS

Transfer of legal estates and interests in law capacity of parties. Contracts for the transfer of a legal estate an interest in land - leases, mortgages, assignments. The Land Use Act 1978.

LAW 511: CONVEYANCING II: 4 CREDITS

The contents of a conveyance. Settlements. The Land Use Act 1978.

FACULTY OF MANAGEMENT SCIENCE

B.SC ACCOUNTING

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
ACC 101	Principles of Accounting I	3
ACC 102	Principles of Accounting II	3
ACC 103	Basic Mathematics I	3
ACC 104	Basic Mathematics II	3
BUS 101	Introduction to Business	3
LAW 111	Introduction to Business	2

200 LEVEL

Course Code	Course Title	Credit Units
CSC 200	Introduction to Computer I	3
CSC 200	Introduction to Computer II	3
ACC 217	Business Statistics I	3
ACC 218	Business statistic II	3
ACC 211	Introduction to Financial Accounting I	3
ACC 212	Introduction to Financial Accounting II	3
BUS 211	Principles of Management I	3
LAW 211	Commercial Law	2
ACC 212	Introduction to Financial Accounting II	3
ACC 216	Introduction to Cost and Management Accounting	3
ACC 218	Statistics II	3
BUS 212	Principles of Management Accounting	3
PUB 216	Element of Government	2

300 LEVEL

Course Code	Course Title	Credit Units
ACC 315	Cost Accounting I	3
ACC 311	Financial Accounting I	3
ACC 312	Financial Accounting II	3
ACC 317	Quantitative Methods	2
ACC 316	Cost Accounting II	3
ACC 319	Accounting Theory	3
BUS 313	Business Communication	3
BUS 113	Business Communication	2
LAW 314	Trusteeship Executors and Bankruptcy Law	2
ACC 318	Public Finance	3
BUS 318	Entrepreneurial Development	3
ACC 322	Research Methods	3

400 LEVEL

Course Code	Course Title	Credit Units
ACC 411	Advanced Financial Accounting I	3
ACC 412	Advance Financial Accounting II	3
ACC 413	Principles of Auditing I	3
ACC 414	Principles of Auditing II	3
ACC 415	Principles of Taxation I	3
ACC 416	International Accounting	3
ACC 417	Financial Management	3
ACC 418	Public Sector Accounting	3
ACC 419	Management Accounting I	3
ACC 420	Management Accounting II	3
ACC 421	Management Information System	3
ACC 422	Taxation II	3

COURSE DESCRIPTION

100 LEVEL

ACC 101: PRINCIPLES OF ACCOUNTING 1:3 CREDITS

The history, principles and conventions of accounting. The role of accounting activity in the operation of an enterprise, principles of double entry book-keeping, books of original entry. Classification of capital and revenue items. Accounting cycle through the use of worksheets, elementary problems in accounting for cash notes and accounts receivable. Ledger accounts, trial balance and book-keeping errors, correction of errors. Adjustments and extended trial balance preparation, petty cash book and the impress system. Bank reconciliation.

ACC 102: PRINCIPLES OF ACCOUNTING II: 2 CREDITS

Depreciation and other provisions. Treatment of accruals and prepayments. Bad and doubtful debts. Use control accounts. Preparation of simple final accounts of sole traders valuation of stock and work-in-progress. Preparation of final accounts from incomplete records. Basic theoretical principles of partnership and corporate accounting. Receipts and payments accounts. Income and expenditure accounts, accounts of non-trading organizations. Manufacturing accounts.

ACC 103: BASIC MATHEMATICS I:3 CREDITS

Mathematics and symbolic logic; inductive and deductive systems; concepts of sets; mappings and transformation; introduction to complex numbers; introduction to vectors; matrix and determinants. Discrete and continuous variables.

ACC 104: BASIC MATHEMATICS II: 3 CREDITS

The straight line in various forms; the circles; trigonometric function log arithmetic functions; exponential functions; Maxima, Minima and points of inflection; integral calculus; integration by substitution and by-parts; expansion of algebraic functions:- simple sequences and series.

BUS 101: IINTRODUCTION TO BUSINESS: 3 CREDITS

The scope of business, the character of business from social, legal and economic perspectives. Forms of ownership, organisation and management. Marketing, production, finance and accounting functions, government and business. The social responsibility of business. International business, problems of Nigerian business enterprises.

200 LEVEL

CSC 200: INTRODUCTION TO COMPUTER I: 3 CREDITS

History and development of computer technology. The why and how of computers, computer types. Analogue, digital, and hybrid central preparation equipment: key punch, sorter etc. Data transmission, nature, speed and error detection.

CSC 200: INTRODUCTION TO COMPUTER II: 3 CREDITS

Data capture and validation including error detections. Systems analysis and design. The programming process: problem definition, flow charting and decision table.

ACC 217: BUSINESS STATISTICS I:3 CREDITS

Nature of statistics, statistical inquiries, forms and design. The role of statistics, basic concepts in statistics discrete and continuous variable, functional relationships, sources of data: methods of collecting primary data, presentation of statistical data, measures of central tendency, measures of dispersion.

ACC 218: BUSINESS STATISTICS II

Moments, skewness and kurtosis, elementary probability, distribution, normal binomial poison and hyper geometric. Distribution statistical decision theory, tests of hypotheses for small and large samples chi-square distribution and test of goodness of fit, linear regression. Correlation, theory, index, numbers, time series and analysis of time series.

ACC 211: INTRODUCTION TO FINANCIAL ACCOUNTING I:3 CREDITS

The nature and scope of accounting: the role of accountants. The accounting function and its relationship with the information system of organisations. Accounting procedure and systems: double entry book-keeping systems, the trial balance, accruals, prepayments and adjustments: classification of expenditure between capital and revenue.

ACC 212: INTRODDUCTION TO FINANCIAL ACCOUNTING II:;3 CREDITS

Accounting for hire purchase, containers, royalties, value added etc. Funds flow statements, bills of exchange and consequential loss claims.

BUS 211: PRINCIPLES OF MANAGEMENT I:3 CREADITS

Basic concepts in management: management principles, function of management, planning: nature and purpose, organisation: nature and purpose, span of management, departmentation, line and staff authority, service department, staffing and directing.

ACC 215: ELEMENTS OF FINANCE I: 3 CREDITS

Finance – definition and functions of finance, relationship to other subjects. Forms of business organisation in Nigeria. Source and application of funds (finance) short-term, intermediate and long-terms. Capital formation the balance sheet, funds flow statement; walls of measuring capital adequate – cash budgeting stock valuation, stock control, re-order quantities (EQQ) and debtor. Management of finance resources – 5 C's credit types of bank credit. Current issues on business finance in Nigerian economy.

BUS 211: PRINCIPLES OF MANAGEMENT I:3 CREDIITS

Basic concepts in management: management principles, function of the manager. Planning: nature and purpose. Organisation: nature and purpose, span of management, departmentation, line and staff authority, service department staffing and directing.

LAW 211: COMMERCIAL LAW: 2 CREDITS

Law relating to contract and agency. On completion of this course unit, students should be able to understand nature off contract, know form of contract, comprehend formation of contracts, know consideration and understand terms of contract. Understand discharge of contract, know remedies for breach of contract. Introduction to law of agency, know how agents are created and understand the relationship between the principal or agent and third parties. Comprehend the termination of agent.

ACC 212: INTRODUCTION TO FINANCE ACCOUNTING II: 3 CREDITS

Method of recording accounting data: manual and mechanical. Manufacturing, trading and profit and loss accounts and balance sheet of a sole trader: Accounting treatment of control accounts and bank reconciliations.

ACC 216: ELEMENTS OF FINANCE II: 3 CREDITS

Financial planning –capital investment appraisal methods: pay back period; on investment (ROI), present value (PV) and discounted cash flow (DCF) involving Net present value (NPV) and internal rate of return (IRR), capital rationing and profitability index (PI). The structure of the Nigerian financial system- money market and capital market, traditional – and modern financial intermediaries. Brea-even analysis (profitability planning) – break-even chart; margin of safety and cost-volume-profit (CVP) analysis. Shares valuation-net asset value (PAV), earning share, market value per share, financial ratios analysis and P.E. ratio.

ACC 218: STATISTICS II: 3 CREDITS

Moments, skewness and kurtosis, elementary probability, distribution, normal binomial poison and hyper geometric. Distribution statistical decision theory, tests of hypotheses for small and large samples chi-square distribution and test of goodness of fit, linear regression. Correlation, theory, index, numbers, time series and analysis of time series.

BUS 212: PRICIPLES OF MANAGEMENT II:3 CREDITS

Selection of managers, appraisal of managers, management development, nature of directing, motivation leadership controlling: the control process, control technique, recent developments in the control process. The Nigerian environment: management, problems in Nigeria, challenges of indigenization, transferability of management systems.

PUB 216: ELEMENT OF GOVERNMENT: 2 CREDITS

Nature of politics: society and social organisation; the state. The problem of law, constitution and constitutionalism, political ideology. The classical heritage, Plato, Aristotle; Steleism and Pax romance: revolt; towards the mass man. Organisation of government: (National Governmental Institutions); public administration; political parties and pressure groups; public opinion and propaganda elections: international order.

300 LEVEL

ACC 315: COST ACCOUNTING I: 3 CREDITS

Nature, scope and functions of cost and management accounting. The principles underlying the preparation and presentation of cost accounts for various types of business. The different meaning of 'cost': Viz: historical cost and classification of costs, cost accounting for material, labour, over heads and equipment: job and process of accounting, elements of marginal costing standard costing and budgetary control. Double entry accounts for cost control. Nature and uses of accounting ratio some current problems and issues.

ACC 311: FINANCIAL ACCOUNTING I: 3 CREDITS

Company accounts: formation, issues and redemption of shares and debtures, final accounts, mergers, amalgamation etc. Including statutory requirements of company accounts in respect of each area. Advanced partnership accounts: admission retirement, dissolution, change of interest, including the treatment of goodwill on admission/retirement. Conversion of partnership to limited companies amalgamation of partnership.

ACCC 312: FINANCIAN ACCOUNTING II: 3 CREDITSS

Departmental and branch accounts (home and foreign branches) introduction to interpretation of accounts and financial statement analysis. Regulatory framework of accounting. Accounting standards – SAS, IAS etc, current purchasing power accounting/inflation accounting.

ACC 317: QUANTITATIVE METHOD: 2 CREDITS

Further application of mathematics in business and economics. Application of decision tree to business. Use of Monte Carlo methods. Queuing theory. Mackou chaired, assignment of problems and further discussion on linear programming using simplex techniques in solving maximization and minimization problems. Game theory, stochastic process, dynamic programming and other quantification and operations research techniques in business analysis.

ACC 316: COST ACCOUNTING II: 3 CREDITS

Specific costing method – job, batch and contract, costing; operation costing method – process costing (including detailed treatment of joint and by – products as well as spoilage); marginal costing (break- even and cost volume-profit analysis); standard costing and budgetary control – variances and variance analysis: quantity, rate, cost and efficiency variances; behavioural aspects of cost accounting; tropical issues in cost account.

ACC 319: MONEY AND BANKING: CREDITS

Money and economic activity: monetary standards. Significance of money, functions of money, importance of money, characteristics of money, price of money and value of money, kind of money. Monetary theory and different schools of thought- the Keynesians and monetants. Evolution of Nigerian currency system; the west African currency board (WACB), CBN industrial bank's, commercial banks, merchant banks and Mortgage banks, community banks and peoples bank. Inflation: definition, measurement, causes, effects and remedies balance-sheet analysis of commercial banks; components of banks reserves, deposit (money) creation theories by the commercial banks. Credits instruments-treasury certificates, certificate of deposits commercial papers, bankers unit funds etc.

BUS 313: BUSINESS COOMMUNICATION: 3 CREDITS

The aim off course is too offer opportunity for developing business writing proficiency. The cause stresses general techniques of report writing, report organisation and make-up and graphic presentation and documentation. Special emphasis is given to the research methodology which precedes report preparation. In addition, the course stresses the importance of and problems of horizontal and vertical communication, communication blockages.

BUS 313 BUSINESS COMMUNICATION: 2 CREDITS

Informal communication channels and the effects of organisational structures and leadership patterns on communication. The course will also stress the means of evaluating organisational communication and effectiveness.

ACC 318: PUBLIC FINANCE: 3 CREDITS

Definition, nature and scope; revenue and expenditure patterns, of government. Benefit cost analysis-cost and uses of alternative source of funds to government. Monetary and fiscal policies – definitions and objectives, effects of policies on Nigerian economy, role of interest rates as an economic recovery measure or tool and effects of interest rates on targeted sectors. Government budgetary system – types of budges, impact of government, budgeting, taxation and spending on our economy. Government source of revenue – charges borrowing and grants.

Different forms of taxation-income tax, personal tax and corporation tax etc. Debt management- domestic and external debts growth of public debt, strategies for debt management and effects of bad debt management on the economy. Current issues on public finance- national annual budget, CBN credit guidelines, and other monetary policies.

BUS 318: ENTREPRENEURIAL DEVELOPMENT: 3 CREDITS

Entrepreneurial theories: interpersonal or personal characters and behavioural traits of entrepreneurship in which business success is most commonly reflected. External aspects of entrepreneurship. Feasibility studies.

ACC 322: RESEARCH METHODS: 3 CREDITS

Skills of scientific investigation, information gathering, analysis and interpretation in dealing with business and organisationalbehaviour problems in Nigeria, the art of problem identification and analysis data gathering, analysis and report writing the problems and prospects of business research in a seller's market like Nigeria.

400 LEVEL

ACC 411: ADVANCED FINANCIAL ACCOUNTING I: 3 CREDITS

Review of company accounts, published financial statement, ratio analysis, capital reduction, reconstruction mergers and acquisition group accounts- consolidated balance sheet, profit and loss account, bankruptcy insolvency and executorships accounts. Funds flow statement, value added statements etc. Advanced treatment of partnership accounts, piece meal realisation, accounts of banks, insurance companies etc, re-organisation and liquidation.

ACC 413: PRINCIPLES OF AUDITING I: 3 CREDITS

Introduction to auditing, legal framework, appointment, remuneration, right duties etc. Audit planning. Internal control, sampling working papers, and EDP auditing.

ACC 414: PRINCIPLE OF AUDITING II: 3 CREDITS

Auditing liabilities, audit report, audit quality control, auditing standards, accounting standards, etc. Audit of special institution, banks, insurance companies etc. Investigation, types and mode.

ACC 415: PRINCIPLES OF TAXATION I: 3 CREDITS

Definition, tax administration in Nigeria, personal income tax, computation of assessable income, self employees. Commencement and cessation, change of accounting date, taxation of partnership, losses relief's capital allowance etc.

ACC 416: INTERNATIONAL ACCOUNTING: 3 CREDITS

Definition and concepts. Accounting classification, standardization, harmonization and the application of international accounting standards. (IAS) group accounts, and issues in international accounting viz. Taxation national performance evaluation – taxation and comparative practices etc.

ACC 417: FINANCIAL MANAGEMENT I: 3 CREDITS

Nature, scope and purpose of financial management. Capital budgeting; management of working capital. analysis and interpretation of basic financial statements; evaluating trade credit and advantages and disadvantages of trading on credit. Capital structure and economic order quantity (E.Q.Q). business mergers and takeovers.

ACC 426: FINANCIAL MANAGEMENT II: 3 CREDITS

Capital market and portfolio theory analysis. Capital market efficiency (CME), portfolio analysis, selection and revision techniques. The market model-capital assets pricing theory. The market model (CAPM). Estimating and predicting Beta. Arbitrage pricing theory. The measurement of portfolio performance. Dividend policy and share value. Factors influencing dividend policies. The miller and Modigliani and traditional views on dividends. Risks of finance and methods of avoiding them.

ACC 418: PUBLIC SECTOR ACCOUNTING: 3 CREDITS

Definition, principles and concepts of public sector accounting differences between private and public sector accounting legal basis of public sector accounting, structure of public sector accounting basis of accounting for noon-for-profit making organisations, fund accounting-consolidated revenue fund etc, federation account auditing in the public sector, accounting for local governments, budget and budgetary control. Accounting for tertiary institutions, Nigeria's involvement in ECOWAS implication to the nation's economy reforms in the Nigerian public enterprises.

ACC 419: MANAGEMENT ACCOUNTING I: 3 CREDITS

Nature and scope of management accounting contribution theory. Break-even analysis, budgets and budgetary control, standard costing and variance analysis.

ACC 420: MANAGEMENT ACCOUNTING II: 3 CREDITS

Long term decisions, capital budgeting. Application of quantitative to various aspects of management pricing policy decisions. Decision making under conditions of risk and uncertainty. Divisional performance evaluation, decision tree and cost volume profit analysis. Transfer pricing etc.

ACC 421: MANAGEMENT INFORMATION SYSTEM: 3 CREDITS

Concept of management information, system, information users, decision needs in organisation, planning and operational information, types of decisions, computer application to information processing, use of computer package, decision support systems DSS, computer models and the artificial intelligence (IA) system. Data base and data base management systems. System analysis and design etc.

ACC 422: TAXATION II: 3 CREDITS

Principles of company income taxation, computation of assessable income and profits, adjusted income capital allowances, pioneer companies, taxation of banks insurance companies, petroleum profit tax (PPT) capital gain tax, capital transfer tax (CTT), withholding taxes foreign allowances and operations, taxation of trusts and deeds.

ACC 42: RESEARCH: 6 CREDITTS

Final year easy to be written by all final year students.

B.SC. BANKING AND FINANCE

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
BAF 101	Introduction to Finance	3
BAF 103	Business Mathematics I	3
BAF 102	Elements of Banking	3
BAF 104	Business Mathematics II	3

200 LEVEL

Course Code	Course Title	Credit Units
BAF 201	Statistics for Finance I	3
BAF 202	Statistics for Finance II	3
BAF 203	Elements of Finance	3
BAF 204	Mathematics for Finance	2

Elective

BAF 206	Principles of Insurance	3

300 LEVEL

Course Code	Course Title	Credit Units
BAF 301	Monetary Theory & Policy	3
BAF 302	Comparative Banking	3
BAF 303	Banking Laws & Regulations	3
BAF 304	Banking Methods and Processes	3
BAF 305	Investment Systems	3

400 LEVEL

Course Code	Course Title	Credit Units
BAF 401	Financial Management	3
BAF 402	Project Evaluation	3
BAF 403	Capital Market & Portfolio Theory	3
BAF 404	Marketing and Financial Services	3
BAF 405	International Finance	3
BAF 406	Business Ethics	3
BAF 407	Bank Lending & Loan Administration	3
BAF 490	Research Project	3

COURSES DESCRIPTIONS

100 LEVEL

BAF 101: INTRODUCTION TO FINANCE
BAF 102: ELEMENTS OF BANKING
BAF 103: BUSINESS MATHEMATICS I
BAF 104: BUSINESS MATHEMATICS II

200 LEVEL

BAF 201: STATISTICS FOR FINANCE I
BAF 202: STATISTICS FOR FINANCE II
BAF 203: ELEMENTS OF FINANCE
BAF 204: MATHEMATICS FOR FINANCE

300 LEVEL

BAF 301: MONETARY THEORY AND POLICY

The structure and function of financial system and markets. General outline of financial institution, markets and their roles, competition between banks and other financial institutions. Theory of money supply and demand and supply of financial assets, determination of money interest and prices. Stabilization policies coordination. International adjustment and liquidity.

BAF 302: COMPARATIVE BANKING

Political economy of banking; banking under capitalism. Banks banking and socialism. Inter-county comparison of regulation and conduct of banks inter-temporal comparison of banking Nigeria.

BAF 303: BANKING LAWS AND REGULATIONS

Need for, nature and forms of bank regulation, regulatory agencies: their evolution and functions critical aspect of banking practices subject to control, current status of banking regulation and their effect on bank performance.

BAF 304: BANKING METHOD AND PROCESS

Banking and the mechanism, mode and method of payments. Evolution of banking methods and processes. Instruments of payments in banking system. Clearing houses electrical and remote control. Fund transfer system, social aspects of banking processes.

BAF 305: INVESTMENT BANKING

BAF 306: FINANCIAL SYSTEMS

The central bank commercial banks, merchant banks, development bank's, investment companies, insurance companies etc. Role, function, evolution, structure and performance, rural banking. Marketing of bank services. Financial markets, role, functions, structure and performance comparative banking and financial institution. International financial system.

BAF 308: PUBLIC FINANCE

400 LEVEL

BAF 401: FINANCIAL MANAGEMENT

BAF 402: PROJECT EVALUATION

Project, concept and dimensions; project cycle, techniques identification. Elements of project analysis assignment of private profitability. Cash flow dimensions; analysis of risk and uncertainly, project evaluation and review techniques (P.E.R.T) project implementation assessment of social profitability.

BAF 403: CAPITAL MARKET AND PORTFOLIO THEORY

Study of portfolio selection and management. Risk and returns. Potential profitability of various investments, forecasting returns on individual portfolios. Stock exchange; growth, structure, performance in Nigeria. Capital market theory, and current state of empirical evidence of models for evaluation portfolio performance.

BAF 404: MARKETING AND FINANCIAL SERVICES

BAF 405: INTERNATIONAL FINANCE

Monetary aspects of international trade, balance of payments and its adjustments. Foreign exchange market and its efficiency. Theory and practice of devaluation. International financial institutions and market functions features instruments, structures and performance, international capital flows.

BAF 406: BUSINESS ETTHICS

BAF 407: BANK LENDING AND LOCAL ADMINISTRATION

Objectives of bank and credit administration. Lending appraisals and decision. Types of loans. And constraints on bank lending. Pricing of loan. Loan supervision and security. Problems of default and bad debts.

BAF 490: RESEARCH PROJECT

Development of students' skill in analyzing and writing reports bases on an empirical or library study of a specific subject matter or topic in relevant. Student would present a research-based report of not less than 2,000 words at the end of the session.

B SC. MANAGEMENT

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
MTH 101	Introduction to Math I	3
BAF 111	Element of Economics I	3
ENG 111	Use of English I	3
ACC 111	Intro. To Fin, Accounting I	3
BUS 111	intro. To Business	3
ANT 100	Man & Society	3
CMS 111	Introduction to computer I	3
MTH 102	Introduction to math II	3
BAF 112	Element of economics II	3
ENG 112	Use of English II	3
ACC 111	Intro. To fin, accounting II	3
HIS 100	African history	3
MGT 112	Elements of management	3
CMS 111	Introduction to computer II	3

200 LEVEL

Course Code	Course Title	Credit Units
BUS 211	business statistics I	3
PHI 100	Intro. To logic and philosophy	3
BUS 221	business communication	3
BAF 211	economic theory	3
MKG 211	elements of marketing	3
MGT 211	labour economics	3
BUS 201	computer application to business I	3
BUS 212	business statistic II	3
BUS 232	business and society	3
ACC 232	Intro. To cost &Mgt accounting	3
BUS 202	element of government	3
GOV 212	Intro. To industrial psychology	3
MGT 212	peace and conflict studies	3

300 LEVEL

Course Code	Course Title	Credit Units
MGT 341	Human resources management	3
BAF 321	Business finance	3
LAW 343	Business law	3
MGT 351	Production management	3
ACC 431	Management accounting	3
MGT 341	Marketing management	3
MGT 311	Material management	3
MGT 343	Organizational behaviour	3
BAF 322	Financial management	3
BUS 314	Management information system	3
BUS 352	Quantitative business method	3
MGT 332	Management theory	3
BUS 372	Research methods	3

400 LEVEL

Course Code	Course Title	Credit Units
MGT 461	Corporate planning	3
BUS 431	Entrepreneurial development	3
BUS 461	Business policy I	3
BUS 451	Analysis of business decisions	3
BUS 421	E – commerce	3
MGT 481	Research project I	3
MGT	Research seminar	1
BUS 462	Business policy II	3
MGT 432	Comparative management	3
MGT 472	Industrial relations	3
MGT 434	International business management	3
MGT 436	Advance Mgt/Org. Theory	3
MGT 482	Research project II	3

COURSE DESCRIPTION

100 LEVEL

BUS 111: INTRODUCTION TO BUSINESS: 3 CREDITS

The nature and scope of business. Business systems and the character of business from social, political/legal and economic perspectives. Forms of ownership, organization and management. Marketing, production finance and accounting and human functions. Government and business, the social responsibility of business. International business and multinationals in Nigerian business enterprises. (pre-requisite: NIL).

MGT 112: ELEMENTS OF MANAGEMENT: 3 CREDITS

Definition and basic concepts in management: nature of management principles and theories. Functions of the management: planning-mature and purpose, organization-nature and purpose, spans of management, departalization, line and staff authority. Service departments, delegation and decentralization, staffing and directing recruitment, selection, motivation, leadership, controlling; the Nigerian environment: management problems in Nigeria; challenge of indigenization, transferability of management systems. (pre-requisite: Nil)

ENG 111: USE OF ENGLISH I: 3 CREDITS

Use of English is compulsory for all students in RSUST and exposes them to an intensive, practical and skill oriented course of study. This section of the course focuses on word-formation processes, diction and style, grammar, punctuation and mechanics. Introductory writing principle in the form of effective sentence construction and paragraph writing are taught. Note taking is also taught.

ANT 100: MAN AND SOCIETY: 3 CREDITS

The course is designed to acquaint students with the concepts, theories method and research technique of the social science of anthropology. This course covers the definition and branches of anthropology, the nature of anthropology as a science, the four periods of the history of chronology, the anthropological categories in Nigerian setting and Nigerian cultural values, the uses of socio-cultural anthropology; anthropology and the issue or national development. The difference between method and research techniques in anthropology religion as an aspect of culture, contemporary concepts of culture, enculturation of functional education moral training and discipline.

ENG 112: USES OF ENGLISH II: 3 CREDITS

This is the second section of the use of English, it is an advanced form of writing skills, which involve the essay, personal and business letters, technical and scientific reports, summary writing, term papers, comprehension and interpretation. Students are able to acquire the skills of writing, reading and listening. Given the seeming gap ion language acquisition and usage levels of the students upon entry into the university, adequate and intensive drills for strengthening their knowledge in the usage of English is emphasized.

HIS 100: INTRODUCTION TO AFRICAN HISTORY: 3 CREDITS

Students are acquainted with a general introductory course to the history of Africa, which equips them with a broad knowledge of the major developments in Africa. Consequently, topical issues that affect Africans in the intra and international relationships as well as issues that have common historical implications for Africans are emphasized, given this perspectives students development the ability to understand historical developments within context and use them for objective appreciation of issues. Students also have the opportunity to lift the history of their country, Nigeria in particular, into that of their continent (Africa), as well as appreciate the way in which the destiny of their country is linked to the destiny of Africa and the larger world.

BAF 111: INTRODUCTORY ECONOMICS I: 3 CREDITS
The basic problems of scarcity and choice, the methodology of economics science, the general problems of resource allocation, the concept of optimality and equity; equilibrium, macro economics versus macro economics; demand supply and price. Types of resource allocation decision methods of resource allocation in an economy; theory of the firm; introduction to welfare economy.

BAF 112: INTRODUCTORY ECONOMICS II: 3 CREDITS

Introduction to macro economics, national income determination; the public sector in the national economy; macro economic objectives and instruments introduction to money and banking, introduction to economic growth and development, trade polities with particular reference to Nigeria.

ACC 111: INTRODUCTION TO FINANCIAL ACCOUNTING I: 3 CREDITS

The nature and scope of accounting; the role of accounts. The accounting function and its relationship with the information system of organizations. Accounting procedure and systems. Double entry book keeping systems, the trial balance, accruals, prepayments and adjustments; classification of expenditure between capital and revenue.

ACC 112: INTRODUCTION TO FINANCIAL ACCOUNTING II: 3CREDITS

Methods of recording accounting data: manual and mechanical manufacturing, trading and profit and loss account and balance sheet of a sole trader: accounting treatment of control accounts and bank reconciliation.

200 LEVEL

BUS 211: BUSINESS STATISTICS I: 3 CREDITS

The first course in business statistics is mainly introduction and, would there address conceptual issues concerning descriptive statistics such as (a) statistical concepts: nature and role of statistics, data variables, population sample, measurement scales etc. (b) data organization, representation and summarizing; raw data array, frequency distribution, histogram, bar and pie charts, frequency polygons and curves; stem and leaf displays etc. (c) measures of central tendency; means, modes, median, quartile; (d) measures of variability and shape range, inter-quartile range, means absolute deviation, variance, standard deviation, coefficient of variation skewness, kurtosis, etc. (e) elementary probability theory: concepts and rules of probability operations joint marginal and conditional probabilities (f) probability distributions: discrete and continuous distribution. Binomial and poison distribution etc. (pre-requisite: Nil).

BUS 221: BUSINESS COMMUNICATION: 3 CREDITS
It is design to develop communication skills in prospective managers and administrators. It teaches skills for writing business letters, memos, proposals and reports. Communications systems in organization are also studied (pre-requisite: Nil).

BUS 212: BUSINESS STATISTICS II: 3 CREDITS

The follow-up course will mainly address the use of statistical methods in managerial decision making. Focus is directed at inferential statistics. Topics include: (a) decision theory; decision making and criterion. Decision making under uncertainly: expected value of information; (b) sampling theory and sampling distribution; random sampling, simple; systematic, stratified and cluster (c) probability and non-probability sampling. Standard error sampling distribution of means and of small and large samples; interval estimate of the difference between independent means and proportions; estimating sample size; (d) hypothesis testing: basic concepts. Test involving a single mean (large and small samples), proportions:; testing involving F-ratios (analysis or variance) chi-square and regression and correlation; (e) time series analysis and index numbers. Forecasting: times series components-trend, clinical fluctuations, seasonal variations, number (pre-requisite: Nil).

MGT 212: INTRO. TO INDUSTRIAL PSYHOLOGY
The course will introduce the students to the nature and science of industrial psychology, its root and value to employees in organizations. Some behavioural theories and concepts, which are useful in the understanding of organizational processes, will be explored. The topics to be covered will include social and personality development, attitude formation, perception and impression management, role theory and stress, communication, motivation and emotion in workers, leadership, learning theories, human capital intelligence development and time management (pre-requisite: Nil).

GOV: 212: ELEMENTS OF GOVERNMENT 3 CREDITS

Nature or politics: society and social organizations: the state, the problem or law, constitution and constitutionalism; political ideology. The classical heritage: Plato, Aristotle, stanzas and pas romanica revolt. Towards the mass management organization of government (national governmental institutions): public administration, political parties and pressure groups, public opinion and propaganda; elections; international order. (Pre-requisite: Nil).

BUS 232: BUSINESS AND SOCIETY: 3 CREDDITS

Students will be exposed to various business and society models: management's need for environmental knowledge; subjective experience of work and business development towards public policy and reactions: ethical standards and social values for business: and occupations changes and their consequences for business development. The course will also focus on business government-society interdependence; organized interest groups and the performance of business; free enterprise and competing socio-economic system; business and development of social institutions such as the family and other social institutions. Government regulations of business; business and educational development; corporate powers and survival of business in society: consumer protection in society; business and media relations: science and technology: social and ethical impacts on business: global business and social policy, (pre-requisite: BUS 111).

BUS 201: COMPUTER APPLICATION IN BUSINESS I: 3 CREDITS

General introduction: computer and information technology defined and distinguished. Review of computers and telecommunications technologies with particular references to emerging input/output, storage, processing and telecommunications technologies. Software tools for business: classification of software database management system, spread sheets. Word processing systems, desktop publishing systems, multimedia applications (pre-requisite: CSM II).

BUS 202: COMPUTER APPLICATION IN BUSINESS II: 3 CREDITS

Communication technologies for business: computer networks, internet/extranets, world wide wave. Review of the following technologies: e-mails, voice-mails, telecommuting video conferencing, digital assistants, pagers, the virtual office. Strategies for effective computer applications: strategies for acquiring hardware/software system. Strategies for deploying computers for competitive advantage; ethical, moral, social and legal issues of computer applications in business (pre-requisite: CMS 112).

GST 222: PEACE STUDIES AND CONFLICT RESOLUTION: 3 CREDITS

This course aims at a practical change of students orientation. It is geared towards the development of the intellectual capabilities of individuals to appreciate and promote peaceful co-existence. Concepts of peace and conflict resolutions to issues facing the Nigerian man and woman in their daily life from conflicts within families, to community, ethnic, religious conflicts, to gang and random violence. The course will give attention to the basic concepts in peace studies and conflicts, resolution, peace as vehicle of unity and development, conflict issue, types of conflicts, eg. Ethnic/religious/political/economic/communal/family conflicts. Root causes of conflicts and violence in Africa, indigence/settler/refugee phenomenon, peace building, management of conflict and security. Elements of peace studies and conflict resolution, developing a culture of peace, peace mediation and peacekeeping. Alternative dispute resolution, role of international organisations/non-governmental organization (NGO's) in conflict resolution eg. ECOWAS, African union, united nations, etc.

300 LEVEL

MGT 311:; MATERIALS MANAGMENT: 3 CREDITS

Materials purchase management, organization of materials purchasing department, purchase procedures and records; purchase price, material control; ABC analysis; determination off stock levels, re-order quantity, stores organizations, centralized stores, impress stores and decentralized stores location and layout; classification and coding of materials. Stores routing records; materials requisite control; receipts and issues of materials; store material control record; perpetual inventory control system; methods of valuing materials issues; materials ledger; methods of pricing materials in store (pre-requisite BUS 111).

BUS 313: MANAGEMENT INFORMATION SYTEMS: 3 CREDITS

Introduction to and fundamental of data processing, brief history and conventional data processing methods, manual methods and mechanized methods. Classification of systems and their relative merits; closed loop and open loop systems effect on time-lag. The total system (MIS): the organization of MIS including the use of mechanical and electronic accounting machines. How charting and the information needs of management, design of MIS. Computer and data processing-evolution of the computer and the computer system input. Output and central processing unit. Hardware and software, introduction to common computer programming language used in business; COBOL, FORTRAN, SPSS, etc. Electronic data processing (EDP) methods batch processing, real-time processing and the management of EDP. Business systems, hierarchical structure of organization; the sub optimization issues (pre-requisite. MGT 112).

MGT 351: PRODUCTION MANAGEMENT: 3 CREDITS

Element of production, production and process design and management, facility location and layout: modern tools and machinery production, standard definition. Line balancing, automation, production scheduling and control, work-study. Maintenance and tools and equipment, quality control, Inventory control, project planning forecasting, aggregate planning, control and materials resources planning (pre-requisite: BUS 111).

MGT 332: MANAGEMENT: 3 CREDITS

Concept of theory in the physical and social sciences, levels of theory. The features of theory in management. Links between management theories and management models, practice of management conduct as a test of good management theory. Existing difficulties of developing useful management theories in Nigeria, other developing countries. theories of management e.g. the system movement, and the managerial behavioural movement; theory X and Y, the grid approach, participative models, management by objectives. Quantitative and behavioural models; testing specific theories and models in Nigeria; practice construction management; theories from the Nigerian socio-cultural experiences of managing extended family issues, of settling group conflict of securing productivity at work, maintaining control over the force in the environment. Theories observable in the way Nigerian parastatals are being managed. Expatriate management approaches to work in Nigerian organizations; the confluence of management philosophy management theory, and management theories may be introduce to particular Nigerian organizations (pre-requisites: MGT 112).

MGT 342: ORGANIZATIONAL BEHAVIOUR: 3 CREDITS

Concepts of behaviour, organization, managers, administration and performance: individual behavioural process such as personal system, self concept development interaction styles. Groups behavioural process such as informal structures, norms of work and play, status-based rewards and punishment. Leadership, task distribution and performance appraisal; theories of organizational behaviour and relevance to Nigeria. Behavioural model-building. Exercise in simple models or behaviour observable in Nigeria organizations. Making changes in individuals and groups. Theories of behaviours changes. Managing resistance to planned changes. Behavioural modification. Formal work systems. The challenges of informal and emergent work systems. The limitations of policies, laws regulations and the general rules of Civil service procedure in controlling human behaviour. Application of concepts to Nigeria. Empirical data on supervisory, managerial and employee behaviour in Nigeria (pre-requisite: MGT 212).

BUS 352: QUANTITATIVE BUSINESS METHODS: 3 CREDITS

It treats quantitative methods used in solving management problems-models and models building linear programming, maximization and maximization problems. Graphical solutions, extensions, degeneracy multiple optima interger programming model, queuing theory, simulation network analysis, project planning and control inventory control, optimization etc. (pre-requisite: Nil).

MGT 341: HUMAN RESOURCES MANAGEMENT: 3 CREDITS

The personnel function, supply and demand characteristics of labour-by-type: organization of the personal function, manpower planning, motivation, leadership styles, training and development, performance appraisal, disciplinary procedure, employee welfare and the human factor in organizations (pre-requisite: MGT 112).

BUS 372: RESEARCH METHODS: 3 CREDITS

Skills of scientific investigation, information gathering analysis and interpretation in dealing with business and organizational behaviour problems in Nigeria; the art of problem identification and analysis, data gathering analysis and report writing; the problems and prospects of business research in a sellers market like Nigeria (pre-requisite: Nil)

400 LEVEL

MGT 431: ENTREPRENEURIAL DEVELOPMENT: 3 CREDITS

Introduction to entrepreneurship and new venture creation, entrepreneurial philosophy, theories and practice: interpersonal characters and behavioural traits of entrepreneurs in which business success is most commonly reflected. Entrepreneurial development. External aspects of entrepreneurship. Analysis of case studies (pre-requisite: BUS 111).

BUS 451: ANALYSIS FOR BUSINESS DECISIOONS: 3 CREDITS

Elements of decision making analysis types of decision situations, decision trees. Operational research approach to decision analysis, mathematical programming: transportation model, assignment model, conflict analysis and sequencing, and search (pre-requisite: BUS 352)

BUS 461: BUSINESS POLICY I: 3 CREDITS

Concepts of strategy in relation to business, corporations, and management linking between organization and their environments, concepts of policies, decision-making business objectives, performance criteria, structure and managerial behaviours practice in calculating simple financial and economic indices from business data and other accounting information. Learning the behavioural implications of courses of action, analyzing a firm's opportunities and threats, strengths and weaknesses (pre-requisite BUS 111).

MGT 461: CORPORATE PLANNING: 3 CREDITS

The concept and theory of planning strategic planning. Environmental study and analysis, technological, forecasting, socio-political forecasting, industrial analysis, planning tasks and techniques, operations planning and the resource allocation processes; organization for planning, organizational and behavioural planner, managing the corporate planning process (pre-requisite MGT 112).

MGT 481: RESEARCH PROJECT I: 3 CREDITS

Based on their exposure to BUS 372: research methods, students are exposed to complete and present their research proposals. (pre-requisite: BUS 372).

MGT 432: COMPARATIVE MANAGEMENT: 3 CREDITS

The comparative approach to management and administration. Elements of management and administration. The skills of management in private sectors; the military administrator, the civil servant, the manager as interchangeable experts; constraints of organizational setting on the management of group activities; profiles of Nigeria executive that have moved from public to private sectors and vice versa. The use of management consultants and management contracts in streamlining the operation of Nigerian national petroleum corporation; theories of comparative administration; theories of management constraints imposed on managerial discretion in public corporations; a human resources management model that meets the needs of private and public sectors; selected problems in comparative management and administration, motivating personal, controlling and rewarding performance;; training and development of staff. Introducing change, and modifying employee behaviour; the change-agent role of Nigerian professionals in undertaking comparative management and administration research (pre-requisite: BUS 372).

MGT 434: INTERNATIONAL BUSINESS MANAGEMENT 3 CREDITS

The environment and its impact ton international business across nations: comparative management, international marketing, international finance, production, personal management, corporations, matopma; controls over multinational etc. (pre-requisite: NIL)

MGT 436: ADVANCED MGT/ORGANIZATION THEORY: 3 CREDITS

Overview of system approach and methodology: management information systems: data processing system design; human factors in system design, man-machine systems; training and cybernetics. Concepts of feedback and control systems: cybernetics and organization cyber filters.

BUS 462: BUSINESS POLICY II: 3 CREDITS

Organic business functions of marketing, production, finance and personnel in Nigeria: management process of corporate planning. Budgeting and control; business performance appraisal, managing by objective, motivating group and individual effort, and generally relating an organization to the changes on the strategies and performance of firm; analysis of role employee and managerial behaviour in success or failure of strategy implementation;; recent development affecting the strategy formulation and implementation processes of firms in Nigeria (pre-requisite MGT 332).

MGT 472: INDUSTRIAL RELATIONS: 3 CREDITS

The concept of industrial relations; trade union characteristics, industrial relations in Nigeria, type of unions; internal structures and government of union, trade union federation; central labour organization and international affiliations, union solidarity and check-off systems; collective bargaining. Industrial disputes settlement; joint consultations; the states and industrial relations. Comparative industrial relations. (pre-requisite MGT 212).

MGT 482: RESEARCH PROJECT II: 3 CREDITS

Developing students' skill in analyzing and writing reports based on an empirical or library study of a specific subject matter on topic in relevant administration and management studies. Students would present a research based report of not less than 2000 words at the end of the session (pre-requisite: BUS 372).

B. SC. ENTREPRENNEURSHIP STUDIES

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
ETS 101	Principles of Management 1	3
ETS 102	Principles of Management 11	3
ETS 103	Business Mathematics 1	3
ETS 104	Business Mathematics 11	3

200 LEVEL

Course Code	Course Title	Credit Units
ETS 211	Management Theory 1	3
ETS 212	Management Theory 11	3
ETS 213	Principles of Marketing 1	2
ETS 214	Principles of Marketing 11	2
ETS 215	Business Statistics 1	3
ETS 216	Business Statistics 11	3
ETS 217	Business Finance1	3
ETS 218	Business Finance 11	3
ETS 219	Industrial Psychology 1	2
ETS 220	Industrial Psychology 11	2

300 LEVEL

Course Code	Course Title	Credit Units
ETS 311	Analysis for Business Decision 1	3
ETS 312	Analysis for Business Decision 11	3
ETS 313	Managerial Economics	2
ETS 314	Industrial Relations	2
ETS 315	Business Communication	3
ETS 316	Human Resources Management	3
ETS 317	Business Law	2
ETS 318	Research Methods	2
ETS 321	Entrepreneurship Development	3
ETS 322	Marketing Management	3
ETS 323	Money and Banking	3

400 LEVEL

Course Code	Course Tittle	Credit Units
ETS 411	Business Policy 1	3
ETS 412	Business Policy 11	3
ETS 413	Small Business Management	3
ETS 414	Organisational Behaviour	3
ETS 415	Production Management 1	3
ETS 416	Production Management 11	3
ETS 417	Investment Analysis	3
ETS 418	Corporate/Strategic Planning	3
ETS 419	International Business	3
ETS 422	Management Information System	3
ETS 424	Advanced Management Theory	3
ETS 426	Comparative Management	2
ETS 420	Research project	6

COURSE DESCRIPTIONS

100 LEVEL

ETS 101: PRINCIPLES OF MANAGEMENT 1:3 CREDITS

This course is designed to familiarize the students with forms of Business from social, legal and economic perspectives. The activities of the manager in an organisation. The course follows a functional approach, analysing such management concepts as organizing, decentralization and forms of business ownership. The social responsibility of business, small business management and indigenization of business

ETS 102: PRINCIPLED OF MANAGEMENT 11:3 CREDITS

System theory of business, the changing environment of business, basic concept of entrepreneurship development. Operation of business firms career development in Business, corporate strategy source of finds for business firms, Basic element of control, basic tools of management. Use of staff and relationship between staff and managers.

ETS 103: BUSINESS MATHEMATICS 1: 3 CREDITS

A course designed to offer the students the opportunity to gain the necessary mathematical tools for coping with modern technological society, linear equation and inequalities, ratios, proportions and variations. A general introduction to differential and integral calculus, graphing and analyzing polynomial logarithmic and exponential-functions, mathematics of finance

ETS 104: BUSINESS MATHEMATICS 11: 3 CREDITS

An introduction to the concept of limit, continuity and derivative, mean value theorem and application of derivative such as maximization and curve, sketching, methods of integration, inverse trigonometric functions, application of the integral multiple integrals, vector spaces and metric algebra, matrices and determinants. Analysis of the time value of memory. Basic probability theory.

200 LEVEL

ETS 211: MANAGEMENT THEORY 1: 3CREDITS

An overview of organization, external environment of organizations, evaluation of management theory, the planning process, management by objective concept, decision-making process, organizational structure, organizational objectives and goals, fundamentals of organizational design, co-ordination and span of management. The concept of staff, selection and appraisal performance. of managers. The Nigerian environment. Management problem in Nigeria challenges of industrialization transferability of management systems.

ETS 212: MANAGEMENT THEORY 11: 3 CREDITS

Futher management development, nature of management, derecting, motivation, leaders, authority and supervision. Basic elements of control. Dynamic organization and behavior, expentancy theories, integrating controls with other management processes. Discipline approaches, rules and penalties, management problems in Nigeria.

ETS 213: PRINCIPLES OF MARKETING 1: 2 CREDITS

Basic components of marketing, including product policy, promotions, consumer behavior and pricing, emphasis on current marketing practices, basic products and strategy concepts and product development.

ETS 214: PRINCIPLES OF MARKETING 11: 2 CREDITS

Theory and practice of advertising, development advertising messages, market product integration, channels of distribution, technological, social and economic aspect of distribution system. Analysis of current trends in marketing problems and policies. Critical analysis of marketing, consideration of current development in theory, activities of regulatory agencies, analysis of ethical, social and public policy aspect of marketing changes.

ETS 215: BUSINESS STATISTICS 1: 3 CREDITS

Meaning and scope of statistics. Method of collecting and analyzing business data, frequency distribution and graphical representation, measures of location, measures of variability, simple linear regression and correlation index numbers, time series analysis. Application of statistical techniques to research methodology, sample design, multiple regression analysis. Introduction to business forecasting, basic decision- theory techniques.

ETS 216: BUSINESS STATISTICS 11: 3 CREDITS

Probability theory, stochastic variables, multiplication and addition rules, permutations and combinations. Bayes theorem, discrete and continuous probability distribution –binomial, Hyper geometric, poison and exponential distribution, normal distribution, statistical estimation, Hypothesis Testing, chi- squaregoodness of fit test and analysis of variance.

ETS 217: BUSINESS FINANCE 1: 3 CREDITS

Overview of financial management, evolution of finance, form of business organistions, interest role patterns, fundamental concepts in finance, risk, rate of return, compound interest and time value of money, stock and bond values, financial forecasting, introduction of analytical financial management with emphasis on the management oof the short-term uses and sources of funds, capital investment and management of long-term sources.

ETS 218: BUSINESS FINANCE 11: 3 CREDITS

Analysis of financial statements, working capital management , cash and marketable securities, accounts receivable and inventories, short term credits, capital budgeting, investing in fixed assets, long term financial decisions, long-term debt and preferred stock, common stock, target capita; structure, cost of capital, dividend of policy, mergers, leasing, bankruptcy and recognisation, warrants and convertibles.

ETS 219: INDUSTRIAL PSYCHOLOGY 1: 2 CREDITS

Nature and scope of industrial psychology, psychology of human development and personality, social psychology, working in group, group dynamics and effectiveness, work integration, social skils in supervision and management, community and national behavior, psychology and social- technical systems, selection and training procedures.

ETS 220: INDUSTRIAL PSYCHOLOGY 11: 2 CREDITS

Applications of psychological knowledge to industrial problems such as personal selection, employee motivation and satisfaction and the influence of organization on behavior. Examination of casual and purposive accounts of human behavior, dynamics of abnormal behavior with intention to personality. Application of quantitative measures to psychological data, interpretational strategies and assessments of validity and reliability.

300 LEVEL

ETS 311: ANALYSIS FOR BUSINESS DECISION 1: 3 CREDITS

Detailed study of application of quantitative decisions to policy and planning systems. Designed to offer the opportunity for a comprehensive understanding of the functional areas of logistic and the integration of these functions in to an effective and efficient logistic system. Business decision techniques including modeling and optimization of deterministic and non deterministic systems in the applied areas of business, fundamentals of decision theory, decision making with decision trees and utility theory, marginal analysis and normal distribution, cases for or analysis, mathematical programming.

ETS 312: ANALYSIS FOR BUSINESS DECISION 11: 3 CREDITS

Details application of linear programming include graphical and simplex methods, primal and duality concepts. Fundamental concepts of transportation problems and assignment problems. Queuing theory, mark or analysis for decision making approach game theory. Concepts of simulation, project management.

ETS 313: MANAGERIAL ECONOMICS: 3 CREDITS

A comprehensive course in operations of individual markets, market structure, theory of the firm, theory of production, demand theory, theory of cost, short run and long run costs, optimization elasticity of demand, theory of consumer behavior, indifference curve approach, consumer's equilibrium substitution effect. Evaluations of mathematical models, survey of classical models, scopes and methods of econometric analysis.

ETS 314: INSDUSTRIAL RELATIONS: 3 CREDITS

A survey of industrial relations laws in Nigeria, union organization and functions, union objectives and behavior, impact of the union upon management. Trade union federation, central labour organization and international affeliations. The nature of collective bargaining, trade union acts, labour acts and trade disputes acts, judicial decisions including arbitration panels and industrial courts awards, the impacts of labour laws on industrial relation activities and strategies in Nigeria.

ETS 315: BUSINESS COMMUNICATION: 2 CREDITS

A course stressing the importance and effective communication within the organizational setting. Special emphasis will be given to problems of horizontal and vertical communication, informal communication channels, and the effect of organizational structures and leadership pattern on communication opportunity for developing business writing efficiency. The course stresses general techniques of report organization and graphical presentation and documentation. Dynamics of interpersonal communication both verbal and non verbal interaction is explored in terms of consequences on the communication process.

ETS 316: HUMAN RESOURCES MANAGEMENT: 3 CREDITS

This course is designed to familiarize students with modern human resource techniques and methods successfully adopted in progressive industrial and commercial organizations; designed to offer comprehensive understanding of the functional areas of personnel and the integration of these functions in to an effective and efficient personnel system. Introduction and applications of various personnel management principles, approaches to personnel management, line and staff organization structure, supply and demand characteristics of labor, manpower planning, motivation, leadership styles, training and development, performance appraisal, disciplinary procedures, employee welfare, job analysis, safety and health programs and communication process, career planning compensation and manpower forecasting.

ETS 317: BUSINESS LAW: 2 CREDITS

Origin and development of law, judicial procedure, tort law, contract and wills with emphasis on consumer – business rights and responsibilities. Agency, partnership, corporations, sales, commercial paper, creditor's rights and secured transactions under the uniform commercial code, legal environment of real property, ownership, transfer and legal brokerage, mortgage transactions.

ETS 318: RESEARCH METHODS: 2 CREDITS

Sampling and sampling design. Time and costs problem in research. Questionnaire design developing students skills in analyzing and writing reports based on empirical or library study of a specific subject matter or topic in relevant management studies, information gathering, analysis and interpretation in dealing with business and organizational behavior.

ETS 321: ENTREPRENEUSHIP DEVELOPMENT: 3 CREDITS

This course focuses on the developmental process of executive talents in organization. Emphasis is placed on topics such as effects of stress, routes to the executive suite, socialization process, managerial styles, the success ethic career and political realities in the organization other topics include entrepreneurial theories interpersonal characters and behavioral traits of entrepreneur.

ETS 322: MARKETING MANAGEMENT: 3 CREDITS

Designed to offer the opportunity for a comprehensive understanding of the functional areas of marketing and integration of these functions in to an effecitive and efficient marketing strategy for the firm. Other topics include the approach to the process of purchase decisions from the standpoints of both customers and marketers. Consideration is given to implications for marketing from social science theory and methodlogy, consumerist movement. An examination of channels of distribution, social and economic aspects of the distribution system. Basic product and strategy concepts and examined, including the management of innovation and market- product integration, product development, modification and elimination strategies are studied, product concept, development and life cycle, pricing management and market segmentation are covered.

ETS 323: MONEY AND BANKING: 3 CREDITS

Designed to exposed students to the various elements of monetary theory, relationships between money, prices, production and employment. Factors determining money supply, operation of capital market with reference to Nigerian environment, commercial bank management, direction and co-ordination of the various functions of the commercial bank including money position, lending , capital management, trust auxiliary functions.

400 LEVEL

ETS 411: BUSINESS POLICY 1: 3 CREDITS

Concepts of strategy in relations to business, corporations and management. Linkages between organization and their environments. Concepts of policies, decision making, business objectives, performance criteria, structure and managerial behavior. Practice in calculating simple financial and economic indices from business data and other accounting information. Analysis of the role, of employee and managerial behavior in success or failure of strategy implementation. Integrated analysis.

ETS 412: BUSINESS POLICY 1: 3 CREDITS

(Pre-requisite ETS 411)

Detailed analysis of firm's opportunities and threats, strengths and weakness. Selecting strategies and structures of public liability companies from their published annual reports. Developing clear business objective , setting clear strategies and policies and presenting structures that are capable of being used in implementing chosen strategies. Organic business functions of marketing , finance and personnel in Nigeria. Management process of corporate planning, budgeting and control, business performance appraisal, managing by objectives, motivating group and individuals efforts and generally relating an organistaion to the changes taking place in its environment. Predicting the dynamic environment. Impact of environmental changes on the strategied and performance of a firm. Recent developments affecting the strategy formulation and implementation process of firms in Nigeria.

ETS 413: SMALL BUSINESS MANAGEMENT: 3 CREDITS

The course focuses on the generation of small businesses, theory and practice of small business management. Analysis of the accounting , finance, production and marketing functions as they pertain to entrepreneurial endesvours. Develops overall managerial awareness. The course also focuses on the importance of small business management and its relationship to Nigerian economy, and the opportunities and requirement unique to operation and management.

ETS 414: ORGANISATIONAL BAHAVIOR: 3 CREDITS

Concepts of bahaviour,organistions managers, administrators and performance. Individual behavioural process such as personal system, self concept development, group behavioral processes such as informal structures norms of work and play status – base rewards and punishments, leadership, tasks distribution and performance appraisal theories of organistional behavior and relevance to Nigeria behavioural model building. Theories of behavioural change management resistance to planned changes. Behavior modification formal. Work systems. The challenges of informal and emergent work systems. Integrity, efficiency and motivation theories, attitude to work, behavior modification. Designing effective organization in Nigeria. Empirical data on supervision, managerial and employee behavior in Nigeria.

ETS 415: PRODUCTION MANAGEMENT 1: 3 CREDITS

Elements of production, production and process design management, production systems and models. Production planning, sales forecasting factors of production, plant layout and materials handling system. Quality control, modern tools and machinery of production, line balancing, automation production scheduling and control work study, maintenance and tools and equipment. The production function within the corporation location of plant. Applications of modeling and optimazition techniques.

ETS 416: PRODUCTION MANAGEMENT 11: 3 CREDITS

Concepts of production and operations functions. Determination of economic order quantity, resource procurement and operation control. Development of efficient work methods, quality assurance control techniques, health and safety at work. Incentive schemes, employess motivation. Linear programming C.P.M and PERT Analysis. Examination of modern industrial systems. Objectives, organistaion and economics of production management. Inventory control and optimization of resources are covered.

ETS 417: INVESTMENT ANALYSIS: 3 CREDITS

Applications of investment principles to management of investment portfolios of individuas and institutions consideration of business cycles, investment constraints, investment timing and securities. Application and evaluation of quantitative tools of analysis in the risk management decision process. Nature of risk and risk aversion theory and analysis of equilibrium in the financial markets and the changing structure of financial intermediation. Capital assets pricing, efficient markets, portfolio theory.

ETS 418: CORPORATE/STRATEGIC PLANNING: 3 CREDITS

The concept and theory of planning, strategic planning environmental study and analysis, technological forecasting , socio- political forecasting, industrial analysis, operational planning and the resource allocation processes organization for planning, organizational and behavioral planner, managing and corporate planning process.

ETS 419: INTERNATIONAL BUSINESS: 3 CREDITS

A consideration of a financial problems of firms engaged in international business including the effects of the host country policies on private investment flows. The importance of international trade, international trade and specialization. international trade and the company problems of international trade, facilitating international trade, organization for export, organization for importing, government control and world commerce world economic communities, multinational corporations, its economic, legal and political dimensions.

ETS 422: MANAGEMENT INFORMATION SYSTEM: 3 CREDITS

The course is designed to exposed the students to the expanding role of information systems and the people managing the human side of systems and managing information resources. Evaluation of computer and organization of computer and functional units of computers. MIS-technologies: planning of MI, developing MIS, implementation of MIS, and evaluation of MIS covered historical perspective: Mainframes to micros, managing and controlling the MIS function. The effect of MIS on management and the management process. The changing world of MIS.

ETS 424: ADVANCED MANAGEMENT THEORY: 2 CREDITS

A comprehensive decision making process and methodlogy for examining , defining, analyzing and solving complex problems. Overview of system approach human factors, man machine systems, design method, training, cybernetics , concepts of feedback and control system. Emphasis is on leading theories and concepts in the management of bureaucratic structures, administrative behavior and techniques and their environment.

ETS 426: COMPARATIVE MANAGEMENT: 2 CREDITS

The comprehensive approach to management and administration. Elements of management and administration. The skill of management in private and public sectors. The military administrator, the civil servants, the manager as inter-changeable experts. Constraints of organizational setting on the the management of group activities. Profiles of Nigerian executives that have moved from public to private sectors. The use of management consultants and management contracts in streamlining the operations. Theories of comparative management. A humana resources management model that meets the needs of private and public sectors. Selected problems in comparative management and admistration, motivating personnel, controlling and rewarding performance, training and developing staff, introducing change and modifying employee behavior.

ETS 420: RESEARCH PROJECT: 6 CREDITS

An application of business research methods, a planned programme of observation study and work in a selected firm or organization. A project paper is required in the course and students are required to apply the concepts of research techniques to business decision making.

B. SC. HUMAN RESOURCE MANAGEMENT AND PUBLIC RELATIONS

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
HRM 101	Introduction to Personnel Management 1	3
HRM 102	Introduction to Personnel Management 11	3
HRM 103	Mathematic for Personnel Management 1	3
HRM 104	Mathematic for Personnel Management 11	3
HRM 106	Introduction to political Science	3

200 LEVEL

Course Code	Course Title	Credit Units
HRM 201	Statistic for Personnel Management 1	3
HRM 202	Statistic for Personnel Management 11	3
HRM 211	Nigerian government Administration	3
HRM 212	Educational Administration	3
HRM 216	Elements of Government	3

300 LEVEL

Course Code	Course Title	Credit Units
HRM 311	Administrative Thought	3
HRM 313	Administrative Law	2
HRM 319	Inter-Government Relations	3
HRM 316	Public Finance	3
HRM 310	Research Methods	3
HRM 318	Traditional Administrative System in Nigeria	3
HRM 301	Office Management	3
HRM 307	Introduction to Local Government Administration	3
HRM 305	Public Personnel Administrative 1	3
HRM 314	Administrative Behavior	2
HRM 312	Rural And Community Development	3
HRM 306	Public Personnel Administrative 11	3
HRM 320	Organization and Administrative Theory	3

400 LEVEL

Course Code	Course Title	Credit Units
HRM 411	Theory and Practice of Planning	3
HRM 415	Public Policy Making and Analysis	3
HRM 407	Project Evaluation	3
HRM 409	Social and Welfare Administrative	3
HRM 405	Nigerian Local Government	3
HRM 420	Public Financial Management	3
HRM 412	Development Administration	3
HRM 419	Research Project	3
HRM 416	Comparative Personnel Management	3
HRM 418	Public Enterprises Management	3

COURSE DESCRIPTIONS

100 LEVEL

HRM 101: INTRODUCTION TO PERSONNEL MANAGEMENT 1

An introduction to the discipline of personnel management. It will focus concepts of personnel management: nature of personnel management; importance of personnel management differences and similarities between public and administration. Approaches to the study of personnel management, the Goal model, system model, decision- making model, the classical model, Human relations model, sociological model, personnel Management and other social sciences, control over Administration.

HRM 102: INTRODUCTION TO PERSONNEL MANAGEMENT 11

A continuation of HRM 101, classifications of typologies of organizations, Bureaucracy- nature, strengths and weakness, features of ideal type Bureaucracy. Functions, Personnel Management in National Development-Growth and development, reforms of the civil service, changing role of socio- economic and political transformation. International personnel management and its relationship with domestic personnel management, Corruption in Personnel Management.

HRM 103: MATHEMATICS FOR PERSONNEL MANAGEMENT 1

Mathematics and symbolic logic, inductive and deductive system, concepts of sets, Mappings and Transformation, introduction to complex numbers, introduction to vectors: matrix and determinants. Discrete and continuous variables. The straight line in various forms.

HRM 104: MATHEMATICS FOR PERSONNEL MANAGEMENT 11

A continuation of HRM 103, involves. The circle, trigonometric functions, Logarithmic functions, Exponential function. Maxima, minima and points of inflection, integral calculus. Integration by substitution and by- parts: Expansion of Algebraic functions- simple sequences and series.

HRM 106: INTRODUCTION TO POLITICAL SCIENCE 200 LEVEL COURSES

Nature, scopes and uses of political science; politics defined, political science and other social sciences, major concepts of political science e.g Nation, State, sovereignty etc. use of political science , Nature and functions of Government, Organs of Government, Types of Government. Government law, constitutions-Nature and types. Rule of law, Nature, Assumptions and breaches, Discretionary power, separation of powers political parties – nature and theories, nature and types of electoral systems, Ideologies of government, Dynamics of government and politics, uses and abuses of state power, strategies for political control, international relations, Foreign Policy-nature and functions.

200 LEVEL

HRM 201: STATISTICS FOR PERSONNEL MANAGEMENT 1

Nature of statistical inquiries, form and design. The role of statistics, Basic concepts in statistics, Discrete and continuous variables, functional relationships, source of statistical data, measures of central Tendency, Measures of Dispersion, moments, skewness and kurtosis.

HRM 202: STATISTICS FOR PERSONNEL MANAGEMENT 11

Elementary probability Distribution, Normal Binomial, poison and Hypergeometric. Elementary sampling theory, Estimation theory, student's Distribution, statistical Decision theory, Tests of Hypotheses for small and large samples, chi-square distribution and test of goodness of fit, linear regression. Correlations theory, index Numbers, Time series and analysis of time series.

HRM 211: NIGERIAN GOVERNMENT ADMINISTRATION

Review of the history of Nigerian administration form earliest times through the colonial era to the present time. A study of the machinery of government (at federal, state and local levels,) and analysis of th administrative process with emphasis on problem posed by the operation of a federal system of government, the existence of so many public enterprises.

HRM 207: INTRODUCTION TO LOCAL GOVERNMENT

The course is aimed at introducing students to the broad system of local government administrative institutions and processes. Areas to be covered include the legal status of local government, local government autonomy's, local government finance, others includes local government functions such as promoting grassroots participation, mass mobilization and community development. Other areas are typologies of local government systems and philosophical bases for local government.

HRM 212: EDUCATIONAL ADMINISTRATION

This course will focus on the origin and growth of educational institutions in Nigeria, Africa and selected foreign countries. A study of educational institutions as a complex organizations, staff – students relations. Academic planning, physical planning, budgeting , financial , personnel policies and practices.

HRM 214: INTRODUCTION TO INTERNATIONAL RELATIONS

What is international relations? international relations or international politics, features and structures of the international system, determinants of inter- state relations Modern Diplomacy and Foreign policy. Regional organizations, concepts and theories of international relations.

HRM 216: ELEMENTS OF GOVERNMENT

Nature of poltics society and social organization. The state. The problem of law, Constitution and Constitutionalism, political ideology. The classical heritage, Plato, Aristotle, Stoleism and pax Romanica Revolt, towards the Mass Man. Organs of Government (National Government Institutions), personnel management, political parties and pressure groups, public opinion and propaganda, Elections, International order.

300 LEVEL

HRM 311: ADMINISTRATIVE THOUGHT

This course revolves round the evolution of management thought and contributions of the following selected management, thinkers: F.W. Taylor's principles of scientific management. Henri Fayol's on the job of the chief executive, Weberian Bureaucratic model, Gulick- Urwick's functions of the chief executive, Edon –Parker Follets radical views on the philosophy and process of administrative system, Chrisargyris integration of the individual and the organization, Herbert Simon's analysis of Administrativebehavior, and Riggs analysis sociological approach to administration.

HRM 313 ADMINISTRATIVE LAW

Administrative process, purposes of government, separation of powers, Legislation, Delegated Legislation, Redress of grievances, Public corporations, Discretionary powers, Case Studies.

HRM 319: INTER-GOVERNMENTAL RELATIONS

An examination of the relations between the federal, state and local government in Nigeria, federal-state-state-local, local-local and federal-local relations. The role of the National Council of intergovernmental relations (NCIR) and other bodies.

HRM 316: PUBLIC FINANCE

An introduction to the principles of public finance, examine subject matter and methodology or public finance, the concept of public sector, government budgeting and expenditures, reasons for increase in governmental expenditures. Revenue, types and sources, public debt, external and internal etc.

BUS 321: ENTREPRENEURIAL DEVELOPMENT

Entrepreneurial theories. Interpersonal or personal characters and behavioral traits of entrepreneurs, financial aspects of entrepreneurship in which business success is most commonly reflected. External aspect of entrepreneurship.

HRM 310: RESEACH METHODS

Skills of scientific investigation, information gathering, analysis and interpretation in dealing with business and organizational behavior problems in Nigeria, the art of problem identification and analysis, data gathering analysis, and report writing.

HRM 318: TRADITIONAL ADMINISTRATIVE SYSTEM

Early history of Nigeria not culture in detail, migration and formation of centralized institutions, Hausa states, Knem- Borno, Yoruba states, Benin etc. administration in those states. Formation of acaphellous groups East and West of Niger, Delta, North, and south of the Benue, administration within these groups.

HRM 301: OFFICE MANAGEMENT

The essentials of office training in basic skills and new techniques. It starts by asking questions about world of work and place of the office within it. Each of the skills needed by the students is then discussed in logical order, emphasis on improving practical ability. Communication verbal and written, stationary and equipment, filling, paper handling, of money, methods of payment, production/operations, slaes and marketing, purchasing, accounts, personnel and payroll, management services, office services, getting and keeping an office job.

HRM 314: ADMINISTRATIVE BEHAVIOUR

Decision making and organization, some problems of administrative theory, facts and value in decision making rationality in administrative behavior. Psychology of administrative decision equilibrium in organization the future of information processing technology. Applying information to organization., a problem in organizational design.

HRM 312: RURAL AND COMMUNITY DEVELOPMENT

Theories of rural and community development, strategies of rural development policies in Nigeria, DFRRI Better life program etc.

HRM 306: PERSONNEL ADMINISTRATION

Personnel management principles,Approaches of personnel management, line and staff organization structure, personnel policies. Employment, procedures and processes, advancement, training, and executive development, compensation, job evaluation systems, incentive systems. Job analysis for manpower planning, safety and health programs and employee service programs. Employee integration need patterns, motivation processing of grievances and communication process.

HRM 320: ORGANISATION AND ADMINISTRATIVE ANALYSIS

Origin, structure and management of organizations, formal and informal organistaions, the impact of informal norms in formal organization. Organization theories, co-ordination, efficiency, retrenchment and growth. Motivation, Leadership, Communication and Dynamics of change in organization. The concept of administration dichotomy, decentralization, deconcentration and devolution, delegation, conflict resolution strategies, leadership and innovation, communication skills.

400 LEVEL

HRM 411: THEORY AND PRACTICE OF PLANNING

Planning meaning and nature, basic features of planning, various approaches and theories of planning. Socialist and capitalist planning. Factors that determine the choice and success of planning, Development planning in Nigeria. Manpower and strategic planning, annual plans and budget. Planning processes and administration of development.

HRM 415: PUBLIC POLICY MAKING AND ANALYSIS

Nature and complexity of policy, implementation and evaluation, basic concepts like policy, plan, program, project, factors, stakeholders, policy arena, etc. are defined and illustrated, the main body of the course is divided into two sections: section 1 covers the theoretical aspect of the course such as policy scale, agenda setting in policy formulation, formal and informal ways of generating policy relevant ideas. Theories of decision making, selected models in policy analysis. The second section covers case studies of selected policies in Nigeria. Such as general economic and social development policy, health, sanitation and welfare policy, housing policy, license and foreign policy, education policy, agriculture and rural development policy.

HRM 407: PROJECT EVALUATION

Project concept and dimension, project cycle, technique of project identification. Element of project analysis. Assessment of private profitability, cash flows dimensions, analysis of risk- and uncertainty project evaluation and review of techniques (P.E.R.T) project implementation and assessment of social profitability.

HRM409: SOCIAL AND WELFARE ADMINISTRATION

Nature and development of social policy in the context of changing Nigeria social conditions and impact upon family and group organization. Welfare policies and social services. The following specialzed areas will be touched upon, criminology, policies and problems in education, housing and health and food provision.

HRM 405: NIGERIAN LOCAL GOVERNMENT

The history and development of local government in Nigeria. From colonial era till date. The nature of local government administration, the 1976 local government reforms, the Dasuki report and contemporary changes in the local government system of administration.

HRM 420: PUBLIC FINANCIAL MANAGEMENT

Environmental and distinguishing characteristics of government and institutional accounting. State and local government organization for financial management, special methods of accounting within the legal and financial constraints for local government. Hospitals and state owned companies, planning in the public sector, planning programme, accounting and the budget. Process, problems of developing output. Measure and quantification of effectiveness, control reporting and auditing in the public sector, accountability to the electorate.

HRM 412: DEVELOPMENT ADMINISTRATION

The nature of underdevelopment.Specific problems of less developed countries. National cultures and political and administrative systems. The giving of assistance, types of foreign aid, problems of working with aid givers, problems of the transfer of administrative capability from one country to another. Political and administrative development. Unilateral and multilateral approaches. The role of the innovators. Strategies of administrative development planning.

HRM 499: RESEARCH PROJECT

Developing students' skils in analysis and wrinting reports based on an empirical or library study of a specifi subject matter or topic in relevant administration and management studies. Students would present a research based on report of not less 2,000 words at the end of the session.

HRM 416: COMPARATIVE PERSONNEL MANAGEMENT

Concepts and the evalution of comparative personnel management (Gross-national study of personnel management both in emergent and developed states, structures and functions of Bureaucratic in these states.

HRM 418: PUBLIC ENTERPRISES MANAGEMENT

Objectives and classification of public enterprises in Nigeria. Organization and problems, performance measurement and control, capital structure and funding, relationship between state and federal parastatals, detailed consideration of commissioned reports on parastatals.

B.SC. MARKETING

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
ECO 101	Basic Statistical Methods	3
POL 104	The citizen & the State	4
SOC 101	Introduction to Sociology	3
PSY 101	Introduction to Psychology	4

200 LEVEL

Course Code	Course Title	Credit Units
ACC 201	Introduction to Financial Accounting 1	3
ACC 202	Introduction to Financial Accounting 11	3
ACC 203	Introduction to Cost & Management Accounting	3
BUS 201	Introduction to Business	3
MAN 202	Production Management	3
MKT 201	Elements of Marketing	3
PUB 201	Introduction to Public Administration	3
ACT 201	Introduction to Insurance	3
ECO 201	Micro Economics	4
ECO 202	Macro Economics	4

300 LEVEL

Course Code	Course Title	Credit Units
MKT 301	Promotion	3
MKT 302	Consumer Behaviour	3
MKT 303	Distribution and Sales Management	3

400 LEVEL

Course Code	Course Title	Credit Units
MKT 401	Marking research	3
MKT 402	Marketing Management	3
MKT 499	Research Project	4

COURSE DESCRIPTIONS

200 LEVEL

ACC 201: INTRODUCTION TO FINANCIAL ACCOUNTING I

The natures and scope of accounting; the role of Accountants. The accounting function and its relationship with the information system of organizations. Accounting procedure and systems: Double entry book-keeping system, the trial Balance, Accruals, prepayment and Adjustment.

ACC 202: INTRODUCTION TO FINANCIAL ACCOUNTING II

Classification of Expenditure between Capital and Revenue. Methods of Recording Accounting Data: manualand Mechanical. Manufacturing. Trading and profit and loss Accounts and Balance sheets of a Sole TraderAccounting Treatment of Control and bank Reconciliations.

ACC 203: INTRODUCTION TO COST AND MANAGEMENT ACCOUNTING

Nature, Scope and functions of cost and lr4anagement Accounting. The Principles underlying the preparationand presentation of cost Accounts for various types of business. The different meanings of Cost: viz. Historical,costs, standard cost, Marginal cost. Average cost, etc. Cost Unit and Cost centers. The Elements of cost and classification of cost. Cost Accounting for material, labor, Overheads and Equipment: Job and process of cost Accounting, Elements of Marginal Costing, standard costing and budgetary control. Double Entry Accounts for,cost control. Nature and uses of Accounting Ratio. SSome current problems and issues.

BUS 201: TNTRODUCTION TO BUSINESS

The scope of business; the character of business from social, legal and economic perspectives. Form of ownership, organization and management, marketing, production, finance and Accounting functions,Government and Business. The social responsibility of business. International business, problems of Nigerian business enterprises.

MAN 201: ELEMENTS OF MANAGEMENT

Basic concept in management: management principles, of the manager, planning: nature purpose. Organization: Nature and purpose, Span of management, Departmentalization, Line and staff Authority, service Departments. Staffing and Directing: selection of managers, Appraisal of manager, management Development, Nature of directing, motivation Leadership Controlling: the control process, control technique, recent developments in the control process. The Nigerian environment: management problems in Nigeria, challenges of indigenization, transferability of management system.

MAN 202: PRODUCTION MANAGEMENT

Elements of production. Production and process design and management. Facility location and layout, modern tools and machinery of production. Standard definitions. Line balancing, automation, production scheduling and scheduling control. Work study. Maintenance of tools and equipment. Quality Control. Inventory control, project planning forecasting. Aggregate planning control and rnaterial resource planning.

MAN 203: ELEMENTS OF MARKETING

Marketing definition, concept evolution, role and importance. The marketing system. Market analysis: the marketing environment: buyer behavior'; market segmentation; market measurement and forecasting; marketing research. The marketing mix: the product concept: development and life cycle; product classification and marketing strategies, pricing, management of the channels of production. Promotion: advertising: personal selling: public relations and sales promotion: marketing of professional service. Apprising the marketing effort.

PUB 201: INTRODUCTION TO PUBLIC ADMINISTRATION

Nature of public administration. Similarities and differences between public and private administration. The functions of administration. Schools or conceptual approaches to the study public administration. The goal model, system model, decision making model, the classical model, human relations model, sociological model classification of organizations. Bureaucracy –Nature, strength and weakness, features of idea bureaucracy, functions. Public administration in national development growth and development. Reforms in the civil service. Changing role of sock- economic and political transformation. International public administration and its relationship with domestic public administration.

ACT 201: INTRODUCTION TO INSURANCE

History development of insurance – insurance carriers and institutions. The scope of insurance. The general functions of insurance. Detailed analysis of the various classes of insurance. Company orgnisation and operations. The insurance contract and analysis. Social insurance, pension schemes. Group insurances current legislation in Nigeria on insurance business.
The general principle of insurance, insurable interest, utmost good faith, indemnity: subrogation and contribution, proximite cause of insurance and wagering. The insurable market: insurers and insured; brokers and agents. Insurance association and organization; in practice; physical; and moral hazard, renewals claims and dispute in the practice of insurance. Insurance marketing. History of insurance legislation in Nigeria.

300 LEVEL

MKT 301: PROMOTION

The role of promotion in marketing behavior and communication, cultural and social conditioners, creativity in promotion, elements of the promotion mix: personal, selling, adverting, sales promotion, publicity, management of the promotion, programme ethnical and legal environment of promotion, promotion in the future, budgeting.

MKT 302 CONSUMER BEHAVIOR

Introduction: role of the consumer in marketing, the consumer perspectives and view-points, overview of consumer decision-process behavior, group influence on consumer: culture context of consumer behavior, social stratification, reference group and sub culture influence. The nature and influence of individual, predispositions. Information processing, learning process, evaluation cretaria, attitudes, personality, attitude change and persuasive communications: nature of communication; attitudes change. Decision process: problem recognition process, purchasing process, post-purchase process, consumerism issues in consumerism, current status of consumer behavior research.

MKT 303: DISTRIBUTION AND SLAES MANAGEMENT

Sale management and control: setting personal- sellig objectives, determining sales policies, formulating personal-selling strategy. Organizing the sales effort: the sales executive jobs, the sales organistaions, distributive network relations. Sales forecasting force management: personnel management in the selling field, recruiting sales personnel, planning and conducting sales training programme, sales technique, motivating the individual sales person, sale meeting and sales contests, compensating sales personnel, assigning sales personnel to territories, evaluating and supervising sales personnel. Controlling sales effort: the slaes budgets, quatas, sales control and analysis.

MKT 401: MARKETING RESEARCH

Application of analytical tools to marketing problems including markets, distribution channels, sales efforts and advertising emphasis on planning, investigation, collection, interpretation of data and presentation of data and presentation of results. Marketing research, panels and ex-post factor, experimentation. Measurement and research: questionnaire design; attitudinal scales, observation, depth interviews and projective techniques. Sampling and research, analysis of data: data reduction, statistical techniques, problem identification research, market share and sales analysis. Sales forecasting, product and pricing research, promotion and distribution research control, evaluation and reporting of marketing research, ethnical issues in marketing research.

MKT 402: MARKETING MANAGEMENT

Application of fundamental principles of management to the marketing function. The organistaion, planning control and co-ordination of the marketing functions, organization of the marketing plan, co-ordination and interaction of the whole marketing function (product, physical distribution, pricing, and promotion) marketing and social responsibility, consumer behavior etc.

MKT 499: RESEARCH PROJECT

Developing student's skill in analyzing and writing report based on an empirical or library study of a specific subject matter or topic in relevant area. Student would present a research based report of not less 2000 words at the end of the session.

FACULTY OF MEDICINE

B. SC. ANATOMY

COURSE OUTLINE

200 LEVEL

Course Code	Course Title	Credit Units
ANT 201	Anatomy and Embryology	1
ANT 202	Histology I	3
ANT 203	Gross Anatomy I	3
ANT 204	Gross Anatomy II	5
ANT 205	Histology II	2
ANT 206	Embryology II	1
BHC 231	Chemistry of Carbohydrates, proteins and Lipids	1
BHC 232	Medical Chemistry Laboratory	2
BHC 233	General Metabolism of Carbohydrates, proteins & Lipids	2
COM 201	Man and His Environment I	3
COM 202	Demography and Biostatistics	3

300 LEVEL

Course Code	Course Title	Credit Units
ANT 301	Gross Anatomy III	3
ANT 302	Histology III	2
ANT 303	Embryology III	2
ANT 304	Human Genetics	2
ANT 305	Advanced Gloss Anatomy I	3
ANT 306	Histochemistry	3
BHC 331	Metabolism of Amino Acids, One Carbon Unit, Lab.	2
BHC 332	Medical Biochemistry Laboratory II	1

400 LEVEL

Course Code	Course Title	Credit Units
ANT 401	Advanced Development Anatomy I	3
ANT 402	Advanced Gross Anatomy II	2
ANT 403	Principles and Techniques of Advanced Microscopy	2
ANT 490	Seminar	2
ANT 499	Project	4

COURSE DESCRIPTIONS

200 LEVEL

ANT 201: ANATOMYAND EMBRYOLOGY

Descriptive terms, planes terms of relationship to human body, terms of comparison, attachment of the muscle,of muscles, movements of joints, (b) Osteology, (c) Principles of Kinesiology, general Organisation of nervous system, and vascular system, (d) General embryology, gametogenesis, cyclic changes in the female genital tract, fertilization, cleavage, fsblastocyst, gastrulation and formation of germ layers, segmentation of mesodems, folding of embryo fetal membranes, umbilical cord and placentation and development of limbs, and teratology, (e) Development anomalies, clinical syndromes.

ANT 202: HISTOLOGY I

Cytology; cell, membrane, metabolism, components of the cells, cell cycle, chromosomes, protein secretion and transcription of DNA. (b) Methods in Histology. (c) Introduction to light microscopy, electron microcopy and unit of measurement. (d) General Histology, basic tissues of the body, the epithelial, connective tissues, muscle nervous tissue (e) Lymphoid Organs.

ANT203: GROSS ANATOMY

Upper limb; pectoral regions and mammary gland, axilla and brachial plexuses, back deltoid and scapular regions, upper arm, forearm, hand-bones and joints. (b)Lower limb, front and medical side of thing, glueal region back of the thigh and popliteal fossa, leg, sole of foot, bones and joints, regional anatomy, furface, anatomy applied and radiological anatomy of upper limb and lower limb.

ANT 204: GROSS ANATOMY II

Thorax and Abdomen, Thoracic wall, pleura, lungs, mediastinum and diaphragm. Abdomen, anterior abdominal wall and herniae-external genitalia-portoneum, stomach and intestines, blood supply, gut, liver, pancreas, spleen, kidneys and suprarenals (c) Pelvis-male and female perium-pelvic walls and floor-pelvic peritoneum, viscera, nerves and vessels. Regional Anatomy, surface anatomy, radiological anatomy.

ANT 205: HISTOLOGY II

Cardiovascular system, skin, gland of the skin, nails, structure of the hair; respiratory system, digestive system and urinary system, electron microscopic observation of each organ.

ANT 206: EMBRYOLOGY II

Development aspects of cardiovascular system. Integumentory system,Respiratory system, digestive and urogenial system, development anomies, clinical syndromes.

BCH 231: CHEMISTRY OF CARBOHYDRATES, PROTEINS AND LIPIDS

Chemistry of carbohydrates, protein and lipids introductory enzyme kinetics; enzymes co-enzyme and vitamins.

BCH 232: MEDICAL CHEMISTRY LABORATORY

1st and 2nd Semesters), Prerequisite, Concurrent registration in BCH 231 &232.

BCH 233: GENERAL METABOLISM OF CARBOHYDRATES, PROTEINS AND LIPIDS

General metabolism of carbohydrates, proteins and lipids and integration of metabolism, TGA cycles, electron transport and oxidative phosphorylation.

COM 201: MAN AND HIS ENVIRONMENT I

The course introduces the concept of interdependence of man and other forms of life in the ecosystems, the process of adaptation, community structure and Organization. The relationship of man to his social environment and how his influences the occurrence of health and disease will also be discussed. Topics will be covered from human ecology, medical sociology, social psychology and anthology. The historical development of the science and practice of medicine, the importance of observations and experimentations and some current ethical issues Will also be presented. Mode of instruction will be by lectures and field work.

COM 202: DEMOGRAPHY AND BIOSTATISTICS

The principles of population, composition, distribution and growth and the health effects of population characteristics and analysis. In biostatistics, emphasis will be on students acquiring the necessary skills for the collection and presentation, analysis and interpretation of data. instruction is by lectures and field work (COM 201)

300 LEVEL

ANT 301: GROSS ANATOMY 111

Head and neck: face and scalp, back and spinal cord, cranial cavity, orbit-parotid, temporal and infratemporal regions, triangles of neck, submandibular region, nerves and vessels in deep dissection of neck, thyroid and parathyroid, prevertabral region and joints of neck, mouth and tongue, pharynx and plato-nasal cavity and sinuses, larynx, ear and eye. (b) Neuroanatomy , meanings, base of brain and blod supply, hind brain, medulla, pons, cerebellum and 4 ventricle, midbrain, diencephalon and third ventricle, cerebral hemispheres, sulci and gyri, internal structures of cerebrum and lateral ventricles, basal ganglia, thalamus and hypothalamus, synpses and reflex are sensory and ascending pathways, cerebellar connections – pathways for heain, smell and vision, autonomic nervous systems, radiological and applied anatomy of the above.

ANT 302: HISTOLOGY 111

Studies of the male and female reproductive system. The Endocrine system and neurohistology: spinal cord, brain stem ,cerebrum and cerebellum. Organs of special sense, sensory receptors and ear and eye. Also functional co-relational with other organs.

ANT 303: EMBRYOLOGY 111

Development of the face and pharyngeal derives and teratology and development of nervous system, sense organs, development anomalies and clinical syndromes.

ANT 304: HUMAN GENETICS

Include fundamenta human genetic principles, variation in gene expression in man, patterns of inheritances in families(autosomal dominant, auto somal recessive, X-linked dominant, X-linked recessive, y -linked and sex influenced) Cytogenetics, types and classification of human chromosomes, methods of preparation of human and karytotyping. Types of numerical and structural chromosome aberrations and their causes.

ANT 305: ADVANCED GROSS ANATOMY 1

All sections of 200 and 300 levels for general gross; Radiological, anatomy; (upper limb, lower limb, thorax and abdomen) will be reviewed with special emphasis on its application to clinical medicine. Advanced and more detailed anatomy will be introduced as and when it is required to elucidate problem.

ANT 306: HISTOCHEMISTRY

Principles and techniques of Histochemistry including immunocytochemistry.

BCH 331: METABOLISM OF AMINO ACIDS, ONE CARBON UNIT, LABORATORY

Porphyries and nucleotides, Nuclei acids (structure, biosynthesis and functions) ribonsomes, chromosomes and viral genetic apparatus. Hormones (structures and general functions). Genetics disorders of metabolism. Diet, food value, protein and energy requirements, PEM, vitamins deficiency diseases, assessment of cycle and bone formation prerequisites: BCH 231 AND 232

BCH 332: MEDICAL BIOCHEMISTRY LABORATORY 11

400 LEVEL

ANT 401: ADVANCED DEVELOPMENT ANATOMY 1

All section of 200 and 300 levels for developmental anatomy will be reviewed with 1 special emphasis on its application to clinical medicine.

ANT 402: ADVANCED GROSS ANATOMY 11

Includes a review of head and neck., neuroanatomy, pelvis and pericum and also includes anatomy techniques (Embalming and cadaver preservation.

ANT 403: PRINCIPLES AND TECHNIQUES OF ADVANCED MICROSCOPY

The principles and techniques for the use of advance light microscopes will be taught and where possible demonstrated i.e. polarizing microscope, phase contrast microscope, interference microscope, dark-field microscope, and ultraviolet microscope. The principles and techniques for the use of the X-Ray and Electron Transmission and scanning microscopes will also be taught and where possible demonstrated.

ANT 490: SEMINAR

Seminar in areas related to Gross Anatomy, Embryology, Histology and Histochemistry.

ANT 499: PROJECT

Students will undertake research project on simple problems in areas of their interest and guided by their supervisors. In addition to experimental work, the students will be required to learn how to search and compile the literature review, present, collect and arrange bibliography.

B.SC. MEDICAL LABORATORY TECHNOLOGY

COURSE OUTLINE

200 LEVEL

Course Code	Course Title	Credit Units
MLT 201	Introduction to Medical laboratory Science	3

300 LEVEL

Course Code	Course Title	Credit Units
MLT 301	Basic Clinical Chemistry	3
MLT 302	Basic Hematology	3
MLT 303	Basic Microbiology	3
MLT 304	Basic Histopathology	3
MLT 305	Basic Immunology	3
MLT 306	Laboratory Posting I	3
MLT 307	Practical Exelcise I	4
MLT 308	Fundamentals Of Blood Group Serelogy	3
MLT 309	Basic Medical Parasitology	

400 LEVEL

Course Code	Course Title	Credit Units
MLT 401	Laboratory Management and Function	3
MLT 402	Hematology I	4
MLT 403	Histopathology I	4
MLT 404	Microbiology I	4
MLT 405	Lab Instrumentation & Techniques	4
MLT 413	Professional Ethics In Medical Laboratory Sciences	2
MLT 406	Research Methodology	2
MLT 407	Medical Entomology	2
MLT 408	Laboratory Posting II	2
MLT 409	Biomedical Engineer.ing	3
MLT 410	Clinical Chemistry I	4
MLT 411	Blood Group Serology	3
MLT 412	Immunology And Immunochemistry	3

500 LEVEL

Course Code	Course Title	Credit Units
MLT 501	General Lab Practice	4
MLT 502	Laboratory Posting III	4
MLT	Option I: Major Specialty I	4
MLT	Option II: Minor Specialty I	4
MLT 503	Practical Exercise II	4
MLT 504	Project	2
MLT 505	Seminar	4
MLT	Option I: Major Specialty II	4
MLT	Option II: Minor Specialty II	

COURSE DESCRIPTION

200 LEVEL

MLT 201: INTRODUCTION TO MEDICAL LABORATORY SCIENCE

General introduction to Medical. Laboratory subjects, namely: Clinical chemistry, Hematology, Medical Microbiology Histopathology and Immunology. specimen collection, reception and registrations, storage and disposal specimen bottles' Safety precautions, laboratories. Microscope and microtomy, use and care of Microscopes' Sterilization - principle and techniques, Glassware - care and maintenance. Refrigeration, principle, uses and care. Handling of Laboratory animals.

300 LEVEL

MLT 302: BASIC CLINICAL CHEMISTRY

Traditional and S I units in Clinical chemistry: Reference values Gastric function tests. Agents for Gastric stimulation' ward procedures and Laboratory Investigation of Gastric Secretions. Intestinal function tests. Digestion and absorption; causes of Malabsorption.. Laboratory investigation of malabsorption. Renal function tests; functions of the kidney; Measurement of Renal plasma now, glomerular filtration rate creatinine, Inulin clearance, concentration and Dilution Tests; urinary Acidification Tests, urine specific gravity/osmolality dye erection test water and Electrolyte metabolism Acids base balance; Definition and causes of acidosis and alkalosis; Blood buffers Transport of blood gases; assessment of acid/base status. Liquids; definition and types of liquids; Formation of free fatty acids ketone bodies and lactate,Measurement of plasma lipids and Lipoproteins. Plasma protein and physiological functions; factors affecting synthesis and catabolism. Methods for the determining of total protein in serum. carbohydrate metabolism: Blood glucose homeostasis; hyperglycemia diabetes mellitus Its causes and investigation;

MLT 302: BASIC HEMATOLOGY

Origin, development and functions of blood cell. Synthesis and breakdown of hemoglobin. Methods of hemoglobin estimation. Methods of cell counting. Absolute values. Introduction to homeostasis. Principle and mode of action of common anticoagulants. Principle and components of hematological stains. Simple test used in blood coagulation. Blood firms- normal and abnormal. Practical classes.

MLT 303: BASIC MICROBIOLOGY

Scope of microbiology, historical approach etc. classification and nomenclature of microorganisms. Introduction to microbial world: introduction to bacteriology mycology, virology, and parasitology (the protozoan)
Bacteriology: the general properties of bacteria, structure, growth, reproduction, bacteria genetics and variation. Strerilization in microbiology, bacteria in health and diseases: antibiotics and chemotherapy, infection and immunity; introduction to laboratory techniques and methods including serology.
Viruses: General properties, structure and biology of viruses, classification various methods, reproduction. Resistance pathology purification of virus, propagation of viruses, immunity and diagnosis of viral infection, interferon and interference, inclusion bodies, cytopathic effects. viral-host interactions and identification.
Fungi: morphology, groups and classification. Types of lesion and types of mycoses, growth requirements. Characteristics and general features of fungi and their diseases. Identification and demonstration in the laboratory.

MLT 304: BASIC HISTOPATHOLOGY

Introduction to histopathology. Fixation – autocyclsis, bacterial decomposition. Effects of fixation, common fixing agents and their uses. Secondary fixation, post-fixation and post chroming and post-mordanting. Fixation pigments. Decalcification – aims and applications, test for clearing decalcification. Dehydration, clearing and infiltration/embedding. Frozen and celloidin sections. Embedding media. Basic histology of organs. Principles and application of exfoliate cytology. Collection and fixation of specimens for cytological examination. Meseum technique-color restoration. Mounting in meseum jars. Tissue and cellular injury inflammation. Healing and repairs. Gross appearance of diseased organs in routine post-mortem examination. Slid sections to illustrate common tumors.

MLT 305: BASIC IMMUNOLOGY

The historical background of immunology. Classification of immunity. Innate immunity. Development and structure of cells in the immune system cellular interaction in the express and regulation of immunity. Acquired immunity.

MLT 307: PRACTICAL EXERCISE

The students is expected to carry out practical exercise in all the displines:

Clinical chemistry: titration: presentation of volumetric analysis. Methods for chloride determination. Determination of bicarbonate in plasma, percentage purity of carbonate. Determination of the composition of the mixture NaHO/NaCO3, NACI/HCI, specific gravity, reactions with ferric chloride, urobilingen, bilirubin,indicant, myoglobin, cysteine, protein, bence-jones, blood, reducing substances, keynote bodies. Phenylpyruvic acid. Spectroscope of plasma and urine CSF analysis- sugar, protein.

Hematology and BGS: Blood film, WBC count, HB estimation, absolute values eosinophil count, retics count. Osmotic fragility. Blood grouping techniques, antiserum titration, Anti- human globulin (AHG)direct and indirect, antibody screening. Donor screening, secretor status.

Hematology: preparation of fixatives, removal of formalin pigments, testing of end point of decalcifictionusing chemical methods. General tissue staining by Hematoxylin and counter-staining with eosin. Domenstration of elastic and collagen fibers. Prussian blue(perl)reaction for iron in tissue. Gram and Ziehl Nellsen (Zn) staining methods. Use of automatic tissue processors. Microtome.

Medical microbiology and parasitology: safety precautions in the microbiology laboratory. Getting acquired with basic tools of microbiologist. Preparation of films and basic staining techniques; the Gram stain, Ziehl Neesen stain, spores, capsule and negative staining procedures. We preparation and microscopy. Motility tests. Media preparation and culturing. Plate reading. Demonstration of the ubiquity of micro-organisms especially bacteria from different environment. Recognition of different types haemolysis. Sensitivity testing. Use of autoclave. We mount for parasites. Identification of trophozoites, cysts and ova of different protozoa and helminthes in stool. Thin and thick films preparation for malaria microfilaria and trypanosome parasites. Staining techniques: giemsa, wrights, fields and leishman stains. Identification of trichonomonas SPP, Paragonimus Trichuris and other helminthes and protozoa of medical importance including schistosomes. Skin snip. Urine microscopy. Concentration techniques for stool and sputum for ova and cysts. Examination and recognition of Helminths from tissue Biopsy.

MLT 306: LABORATORY POSTING 1

Laboratory posing students are posted to medical laboratories for on the job training under the supervision of qualified medical laboratory scientists for 3 days weekly for the entire semester and the whole of the long vacation. Scored log book records are kept for each student per posting.

MLT 308: FUNDAMENTAL BLOOD GROUP SEROLOGY

ABO and Rhesus Blood groups, inheritance, distribution and genetic theory. Blood grouping techniques principles, Disadvantages and advantages. Preparation of antisera- antiserum titration, avidity, potency and specificity. Plant lectins- preparation and standardization of antisera from lectins e.g dolochos bifrous. Anticoagulants used in BGS; ACD, CPD-CPA-A etc. modes of actions side effects. Blood bottles MRC and plastic bags- advantages and disadvantages. Donor screening using cuso4 method- other methods of screening. Preparation of blood products –cryoprecipitate, platelet rich plasma, packed cell fresh frozen plasma, fibrinogen etc.

Storage of blood and blood products- various methods, advantages. Blood banking – organization, structures, facilities and records. Blood group specific substances- synthesis, identification methods and application. Quality control of physical, chemical and reagent. Practical/tutorials ABO and Rhesus grouping methods, antiserum titration DCT and ICT antibody screening.

MLT 309: BASIC MEDICAL PARASITOLOGY

Introduction to the parasites. Classification of protozoa, (the amoebas, the ciliates, the flagellates, nematodes(ascaris, strongyloides, trichuris, guinea worm, hookworms, trichinella, enterobiusetc). Life cycle and pathogenicity of cestodes. (the tape worms, larval forms of cestodes).). Life cycle and pathogenicity of trematodes(the schistosome, fasciola, paragniums ets). Methods of demonstration of parasites in blood, faces, faces vagina, urine, urethra, pus from lung and liver, skin snips, etc. mechanisms of their disease production; epidemiology and control of parasitic diseases.

400 LEVEL

MLT 401: LABORATORY MANAGEMENT AND FUNCTIONS

Principles and functions of management. Personnel Management, staff/Management relationships, stock control, record keeping. Management and administrative practices. Ecology of administration. Inventory and quality control accounting and budgeting. Medicolegal aspects of medical laboratory sciences. Professional ethics. Laboratory planning. Introduction to statistical procedures and biological research estimation., analysis of variance, tests of significance, goodness of fit, correlation and regression. Theiry and practice of equality of control setting up quality control, various methods of quality vontrol, fact control, factors affecting quality of output.

MLT 402: MEDICAL LABORATORY HEMATOLOGY 1

Iron metabolism, folate and B12 metabolism. Nomenclature, classification and investigation of common heammoglo binopathies, hemolytic anemias; myeloproliferative disordes; lymphoprolifertive disorder; homeostasis and disorders of hmeostasis, investigation of bleeding disorders. Bone marrow . practical classes.

MLT 403: MEDICAL LABORATORY HISTOPTHOLOGY 1

In this course students are introduced to: principles of histochemical methods. DNA- demonstration by Feulgen Techniques. Silver impregnation methods. Genes and genetic code. Tissue culture techniques; chromosome analysis. Autoradiology- Defination and principle organization of medical museum. Methods of color maintain. Fixation and storage of museum specimens. Special museum techniques e.g Dawson's method. Principle of photography macro and micro photography preparation of stained sections for micro photography. Preparation of specimens for macro photography. Cytological normal cell. Histology of tissues. Atypical and malignant cells. Collection of cytological smears and processing and screening. Principles of general pathology. Systematic pathology. Gastrointestional track. Urogenital, cutaneous. Principles of microscopy materials for electron microscopy. Respiratory – tuberculosis. Nephropathy associated with infestations and infections. Embalming techniques and demonstrations. Practical based on the topic.

MLT 404: MEDICAL LABORATORY MICROBIOLOGY 1

Epidemiology of communicable diseases and disease spectrum and control. Aspects of public health and environmental microbiology. Applied microbiology; aspects of food and industrial microbiology. Diagnostic microbiology. Vaccines and production/immunization. Preservation of cultures and cultural methods. Pathogenic mechanisms of bacteria. Antibiotic assays and monitoring from body fluids etc. anaerobic and methods. Phage typing; Research methods and other techniques in microbiology. Use of metabolic pathways in identification of bacteria, fluorescent antibody methods. Quality control and instrumentation. Practical based on the above topic.

MLT 405: LABORATORY INSTRUMENTATION AND TECHNIQUES

Instrument aspects of qualitative and quantitative analysis- theory and practice of some analytical techniques: colorimetry, spectroflourimetry flames photometry, conductometry, polarography, coulometry etc. osmometry, Rephelometry; turbidimetry, PH measurement by ion specific electrodes- separation techniques including Electropheresis;- paper, cellulose acetate, agar gel, starch and polycrylamide gel; isotaphoresis; chromatography- paper, thin layer chromatography, gas liquid chromatography, ion exchange, gel filteration, molecular sieves; dialysis filteration, solvent extraction, centrifugation- ultracentifugation. Immunoelectrophoretic techniques, radioimmunoassay, competitive protein binding. Isotope dilution techniques. Enzyme immune assays, receptor assays, automation, micro and ultramicro analysis. Theory and practice of some common analytical techniques including tissue processing, microscopy and other basic microbiological equipment, principles and working of

hematological equipment; other applied techniques in the medical laboratory with emphasis on general medical laboratory instrument practical on the above topics.

MLT 406: RESEARCH METHODOLOGY

Introduction to research methodlogy. Collection of literature review articles. Problem defination. Sampling technique experimental designs of medical and public health studies. Questionnaire design and collectionanalysis. Interpretation and utilization of research findings. The role of research in health and social welfare. The need for institutional and government ethical clearance for some research projects. Research proposals and sourcing of funding for research projects. Art of scholarly publications, and instructional design.

MLT 407: MEDICAL ENTOMOLOGY

Arthropods of medical importance- the crustaceans. Arachnida, hexapoda, myiasis etc their biology, life cycles and control. Life history as disease and vectors; various diseases of importance transmissible by insects. Biology of mosquito in relation to transimission of malaria, filariasis, and viral infections etc.

MLT 408: LABORATORY POSTING 11

Students are posted to the various laboratories for on-the bench training in the different analytical techniques used in the department. Students participate in the routine operation of the laboratory. Scored log book records per bench are kept for each student per posting.

MLT 409: BIOMEDICAL ENGINEERING

Workshop practice. Principles of use, maintain and repair of common apparatus and laboratory equipment. Principles of applied and general electronic. Circuit diagrams. Computer programming. Improvisation. Glass blowing and construction of simple laboratory equipment. Design techniques. Improvement on existing equipment, review and modifications of laboratory methods.

MLT 410: CLINICAL CHEMISTRY

Porphyrin, causes, symptoms and laboratory investigation of porphyrinemia. Porphyria and porphyrinuria. Hemoglobin, synthesis, function. Glycoslated hemoglobins. Abnormal hemoglobins hemoglobinopathies, sulp Hb, CoHb, Hb, liver function tests.
Mechanism of enzyme action and kinetics; clinical enzymology; isoenzymes in medicine, coenzymes and vitamins. Definition, causes, consequences and investigation of some inborn errors of metabolism; phenylketonuria, galactosemia fructose intolerance. Albinism, aminoacidurias, endocrine glands and function; the hypothalamus, the pituitary, the parathyroid, adrenal cortex, adrenal medulla, the gonads and reproductive endocrinology, feto-placental function. Calcium and bone metabolism. Pancreatic functions tests. Basic neurochemistry, CSF- NORMAL COMPOSITION AND CHANGE IN DISEASE.

MLT 411: BLOOD GROUP SEROLOGY

Blood groups- other blood groups e.g MNS, Duffy, kell, kidd etc. grouping techniques and antibody screening, clinical significance, secretor status, antenatal serology- screening and titration(quantitation) compatibily procedurs- different methods, advantages and disadvantages, blood transfusion reactions- causes and types; investigation, risks attendant in blood transfusion- diseases, anaphylactic, hemolytic and allergic reactions. Screening of donor blood for disease agent e.g HbAgs, HIV, VDRL. Practical/tutorials. Compatibility procedures-advantages and disadvanatages. Practical based on the above topics.

MLT 412: MEDICAL LABORATORY IMMUNOLOGY/IMMUNOCHEMISTRY

Immunoglobin – structure and function. Gene generation and assembly. Mediators of cellular immunity. Phagocytic cell—Chemotaxix and effector function of macrophage and granulocytes. The complement system. Laboratory methods of detection of sntigens and antibodies. Autoimmunity, tissue and graft reactions, immunotolerance, self and non-self. Histocompatibility, transplantation, tumor immunology, hypersensitivity etc.

MLT 4I3: PROFESSIONAL ETHICS IN MBDICAL LABORATORY SCIENCE

Introduction to the science and profession of Medical Laboratory Science. The different arms of medical laboratory sciences. Hall marks characterizing the lives of all professions; licensing to practice Group culture patterns. Justice, rights and responsibilities as a professional. The concepts of duty, professional standards and laboratory management. Authority and discipline. The use of reason. Personal relationships - inter and intra professional. Act of good faith. Place of religion in the hospital. Value judgment, exercise of professional judgment, skill and care charge and well being of patients. Patients - professional relationship - confidentiality. communication skills; trust; seeking to sale guard patients" particularly in respect of health and safety and information. Research training. professional development, knowledge and skill, quality control in the field of medical laboratory sciences and practice: Reputation. Fulfillment of professional role with integrity, refraining from its misuse to the detriment of patients. Employers and colleagues. Medico-legal aspects.

500 LEVEL

MLT 501: GENERAL LABORATORY PRACTICE

Theory and practice of some common analytical techniques including tissue processing. Microscope and other basic microbiological equipments use, and principles of historical equipment, principles and working of hematological clinical chemistry equipment; other applied techniques in the medical laboratory with emphasis on general medical laboratory instrumentation. Practical based on the above topics. General review and appraisals of all subjects and practice of medical laboratory sciences to be examined as a common general paper.

MLT 502: LABORATORY POSTING III

Students are posted to the laboratory of their specialty for further practical experience in laboratory techniques and management for all disciplines under the suspension o1'laboratory scientists participate in all the routine activities of the laboratory.

MI,T 503: PRACTICAL EXERCISE II

Each student carries out practical based on the area of major specialty.

CLINICAL CHHMISTRY
Determination of blood glucose. glucose tolerance test. Determination of calcium and phosphate, uric acid, cholesterol, cleat nine. clearance. electrolytes and urea, total protein albumin and globulin. Plasma protein electrophoresis. Determination of plasma enzymes:- aspartate transaminase, alanine transaminase, acid and alkaline phosphates. Demonstration, Blood gases and pH by Astrup Techniques. Paper and thin layer chromatography. Immunoelectrophoresis and agar gel immunodif'ussion techniques.

Demonstration: Radioimmunoassay of hormones in blood. Estimation of 17-OXO and Oxogenic steroids in urine. Estimation of urinary buffers. Calculation from first principle. Absorption and calibration curves. Color Equivalence of artificial standards. Fractional test meal. Calculi and analysis.

HEMATOLOGY AND BGS
Investigation in paternity dispute. Investigation of hemorrhagic and preparation of cryoprecipitate, hemolytic disease of the newborn (HND), hemoglobinopathies, autoimmune hernolytic anemia, enzymopathis. Preparation of antisera, bovine albumin, anti-human globulin, Gemma globulin neutralization test. Forensic application of Blood Group Serology. Dilferential leucocyte counts. Cytochemical procedures. Advanced techniques e.g. Demonstration of lron. l-etal Hemoglobin, I{arn's'l'est etc.

HISTOPATHOLOGY
Special staining methods - PAS. Manson Trichrorne. Iron Impregnation Methods. Cytological staining methods and collection of cytological samples. Chromosome analysis. Autoradiography. Museum techniques. Cyto-screening and slide reporting. Cutting sections using the microtomes. Tissue (cell) culturing, fungi, amyloid, enzyme and other specialized demonstration methods.

MEDICAL MICROBIOLOGY AND PARASITOLOGY

Examination, culture and identification of bacteria in CSF pleural, ascitic fluid. Blood culture, High vaginal swab, wound swabs, ear, eye, nasal and other swabs, Stool bacteriology. Sputum bacteriology. Urine bacteriology. Systemic fungal culture and identification. Semen analysis. Special serological tests. ASO Widal, VDRL, Rheumatoid factor, Complement fixation, neutralization, hem agglutination tests for identification of viruses, Genelal identification of micro-organism by animal inoculation. Biochemical tests for the identification of vibro cholera, shigella. candida, Neisseria.

MLT 511: CLINICAL CHEMISTRY II

Analytical Techniques. Birth of a new methods, devising new techniques, Biological trials and tests for acceptability. Solid/dry phase chemistry, dipstick technology, thin film technology. Immobilized enzymes. Analytical techniques employed in qualitative and quantitative determination of (1) enzymes * Phosphatase, Transaminases, Dehydt'ogenases, Kinases (2) Holmones - Catecholamines and metabolites peptide and steroid hormones (3) Protein - Total proteins albumin and globulin. Specific protein (a) Lipids - cholesterol, trigly cerides, glycerol, fatty acids and lipoproteins. (5) trace element - Fe, Cu. Zn, Mg. Selenium (6) Non-protein nitrogen - Urea, cratinine, creative. uric acid, au-rino acids and ammonia urinalysis; detennination of urine specific gravity, osmolairity; qualitative tests fol protein. glucose.. and reducing substance, ketnone bodies. biliruin urobilinogen and blood. Hemoglobin and hemoglobin derivatives urine. Spectroscopy of hernoglobin and its derivatives in blood and urine. Astrr,rp techniques.

MLT 5I2: CLINICAL CHEMISTRY III

Causes and laboratory investigation of disorders of iodine metabolism. Plasma Proteins in health and disease. Definition, causes and investigation of paraproteinemia; Bence-Jones proteinnuria and significance. Diseases o muscle. Lipidemias. Definition, causes and investigation of hyperlipo-proteinaemia and hypolipoproteinamia. Causes and investigation of nutritional disorders. Definition, causes and investigation of diabetes mellitus, hypoglycemia. Types, causes and features of glycogen storage diseases. Definition and causes of hypernatraemia and hyponatremia, hyperkalenia and hypokalemia. Investigation of water and electrolyte imbalance. Homeostasis in clinical chemistry. Acid-base balance. Biotechnology-recombinant DNA. Hybriodoma. ISiochemistry of neoplastic disorders. Kidneys diseases, aminoacidurias. Trace elements - bioavailability function, interaction. Toxicology. Diseases of the nervous system.

MLT 52I: MEDICAL LABORATORY HEMATOLOGY II

Anemias, disorders of Iron metabolism. vitamin B12 and Folate deficiencies, Hemochromatosis and related storage disorders; Radiosotopes in Hematology; Automation in I-Iematology, Hemoglobinopathies. Cytochemical pt'ocedule, Lyniphocyte Transformation Tests. Myelomatosis and order paraproteinaeenrias. Test. Advance Techniques.

MLT 522: MEDICAL LABORATORY HEMATOLOGY III

Ante-natal Serology; Hemolytic disease of the new born. Hepatitis B antigens. Applied Blood Group Serology. Other Blood Groups. Preparation and standardization of AHG. Iso antibodies. Auto-lmmunization - IgG, IgA antibodies. Quality Control in Serology - Advanced Techniques.

MLT 53I: MEDICAL LABORATORY HISTOPATHOLOGY II

Theory and Mythology of Histochemistry - Chromaffin tissues, Schmols, Diazo and perls and other histocheniical techniques. E,nzyrne histochemistry - Acid and alkaline phosphatase, Oxidative enzymes. Genetic diseases. Karyotopic abnormalities. Chromosome techniques. Tissues culture technique. Chromosome staining techniques. Slide reporting.

MLT 532: MEDICAL LABORATORY HISTOPATHOLOGY III

This courses expose the students more in general Cytology, Histology, control of results and management of Histopathology laboratory. More facts of Electron microscopy and Autoradiography are highlighted. Cytology of celis. Epithelial cells and tissues, atypical and malignant cells. Gynea-Cytology" Hormonal evaluation. Cells and other constituents, sputum, effusions. urine and other fluids. Cytological fixatives and stains, Cytoscreening. Principles of general pathology applied to individual organs. Systemic pathology. Hypertensive

heart disease, heart failure and cardiomyopathies. Respiratory - Tuberculosis. Nephropathy associated with infestations and infections. CNS, special senses. Malignant lymphomas, liver - cirrhosis liver cell carcinoma, Hepatitis virus. Electron microcopy - preparation of materials for electron microscopy. Embedding reagents used in electron microscopy. Toxicity of some reagents used in electron microscopy. Techniques involved in autoradiography, laboratory management. Quality control and automation in histopathology laboratory.

MLT 541: MEDICAL LABORATORY MICROBIOLOGY II

General characteristics if fungus diseases, types of mycoses and properties; opportunistic fungi Diagnosis and chemotherapy. Systemic mycoses (Cryptococosis. Blastomycoses, histoplasmosis, Coccidoidomycoses). Opportunistic mycoses (candidiasis, Phycomycoses, Aspergilloses etc). Subantenuoes mycoses. (e.g. madurommycoses, sporotricoses, chlomobistornucosis, etc. Cutaneuos mycoses - Dermatophytoses. Superficial mycoses.

General properties, pathogenesis, diagnosis. Epidemiology and control recognition of fungi. Theermatropic and viscertrotropic viruses. Smallpox, cowpox and vaccination; measles, rubella, chickenpox and shingles. Herpersviruses. Yellow fever; Iassa fever, Hep A and B, Influenza, arbovit'uses. The neutrotropic viruses (rabies. poliomyelitis, encephalitis Lymphocytic choriomenigintis virus, mumps viral transformation and types
of tumors and viruses. Oncegene theory etc. Viral gastroenteritis; Miscellaneous viruses.

NILT 542: MEDICAL LABORATORY MICROBIOLOGY III

History of pathogenic microbiology. Host parasite relationships, sources of vectors of infection, laboratory diagnosis and identification, immunization, serology of bacterial infections. The pyogenic cocci, (Staph, Strep, Pneumococci and Neissriae). The entero-bacteriacecea. coliforms, gastroenteritis, salmoneteritis, salmonellosis, shigellosis cholera, r,ibrios, pseudemonas, bacteriodes etc). The hernophilic bacilli (haemo-philus, brucelaer, yershinia, boardetella etc. Anaerobic spore formers, aerobic spore formers. (Bacillus anthracis, the clostridia, the spirochetes, the mycobacteria, the fungus-like bactelia (actinomycetes) - corynebacteria, rickettsiae, chlamdia mycoplasma, L-forms. listeria, erysipelotrix, bartonella etc, General pathology, epidemiology. features, diagnosis, control and therapy.

COURSE OUTLIE

200 LEVEL

Course Code	Course Title	Credit Units
OPT 200	Optics Laboratory	2
OPT 207	Human Anatomy	4
OPT 208	Ocular Anatomy Laboratory	2
OPT 209	Human Physiology	4
OPT 210	Geometrical Optics	2
OPT 2T7	Ocular Anatomy I	2
OPT 220	Physics Optics	2
OPT 227	Ocular Anatomy II	2

300 LEVEL

Course Code	Course Title	Credit Units
OPT 300	Physiological Optics Laboratory	2
OPT 301	Ophthalmic Optics Laboratory	2
OPT 310	Physiological Optics I	2
OPT 311	Ophthalmic Optics	2
OPT 312	General Optometry I	2
OPT 317	Neuro-Physiology	3
OPT 318	General Pathology	2
OPT 320	Physiological Optics II	3
OPT 321	Ophthalmic Optics II	2
OPT 322	General Optometry II	2
OPT 327	Ocular Physiology	2
OPT 328	General Pharmacology	2

400 LEVEL

Course Code	Course Title	Credit Units
OPT 400	Physiological Optics Laboratory	2
OPT 403	General Optometry Laboratory	3
OPT 404	Contact Lens Laboratory	2
OPT 410	Physiological Optics III	3
OPT 412	General Optometry III	2
OPT 414	Contact Lens I	2
OPT 417	Ocular Pathology I	2
OPT 418	Ocular Pharmacology	2
OPT 420	Physiological Optics IV	3
OPT 422	General Optometry	2
OPT 424	Contact Lens II	2
OPT 427	Ocular Pathology II	2

Electives

OPT 432	Optometric Instrumentation	2
OPT 433	Epidemiology	2
OPT 435	Functional Optometry	2
OPT 437	Health Science for Optometry	2

500 LEVEL

Course Code	Course Title	Credit Units
OPT 500	Mechanical Optics	2
OPT 501	Clinical Optics	2
OPT 503	Primary Optometry Clinic	4
OPT 504	Contract Lens Clinic	2
OPT 505	Special Optometry Laboratory	4
OPT 512	Pediatric Optometry	3
OPT 515	Strabismus and Amblyopia	2
OPT 519	Practice Management	2
OPT 522	Geriatric Optometry	2
OPT 524	Rehabilitative Optometry	2
OPT 525	Orthoptics	2
OPT 500	Research Project	6

Electives

OPT 531	Scientifics Research Methods	2
OPT S36	Neuropathology	2
OPT 537	Applied Psychology for Optometrists	2
OPT 538	Endocrinology and Nutrition	2

COURSE DESCRIPTIONS

200 LEVEL

OPT 200: OPTICS LABORATORY: 2 CREDITS

Optical bench experiences; object - Image relationship, with lessens and Mirrors, Magnification. Abbreviations; Roy tracing principles Lensometry.

OPT 207: HUMAN ANATOMY: 4 CREDITS

General anatomy with emphasis on the Head, neck and thorax. An introduction to histology and embryology.

OPT 208: OCULAR ANATOMY LABORATORY: 2 CREDITS

Prepared slides of various section of the eye. Identification of bones and sutures fessa of the orbits and Geranium, Dissection of Borine eye.

OPT 209: HUMAN PSYCHOLOGY: 4 CREDITS

Basic psychology, Haemostatic, circulation of fluids, respiration, with an emphasis on chemical principles, properties of excitable cells, renal physiology. endocrine control, gastro-intestinal physiology and the physiology of the nervous systems.

OPT 210: GEOMETRICAL OPTICS: 2 CREDITS

Principles of geometrical optics including reflections and refractions, spherical and cylindrical lenses, mirrors, thin and thick lenses, lens systems, ray tracing, apertures, prisms, aberrations, lens design and optical instruments. Transposition and specification of ophthalmic lenses. Laboratory work is included.

OPT 217: OCULAR ANATOMY: 2 CREDITS

An overview of the anatomy of the eye and orbit. Structure of the orbit, eye lids, lactrinmal, apparatus, conjunctiva, sclera, cornea, anterior chamber iris, posterior chamber, lens, cliliary body and extra ocular muscles.

OPT 220: PHYSICAL OPTICS: 2 CREDITS

Principles of wave optics, interferences: diffraction, polarization, radiometry, holography, quantum nature of light, spectroscopy, lasers. Relativistic Optic. Laboratory work is included.

OPT 227: OCULAR ANATOMY: 2 CREDITS

A continuation of OPT 217.The structure of the vitreous and retina. Nerve and blood supplies to the eye and orbit. Embryology and development of the eye. Laboratory work is included.

300LEVEL

OPT 300: PHYSIOLOGICAL LABORATORY:2 CREDITS

Schematic eye, Visionalacrities, Vernieractrity, Stereocecrity, Optometes, Contrast Scraitivity. "AC/A Ratio"

OPT 301: OPHTHALMIC OPTICS LABORATORY: 2 CREDITS

Ophthalmic lens, Manupedire, surveying and edging. Insection of lenses into frames and frame repairs.

OPT 310: PHYSIOLOGICAL OPTICS I: 2 CREDITS

The eye as an optical instrument; Reduced and schematic eyes; Anomalies of refraction and optical aberrations of the eye. The bedeloptometer, Resolution and Visual acuity. Laboratory work is included.

OPT 311: OPHTHALMIC OPTICS I: 2 CREDITS

The history and devolvement of ophthalmic lenses and lens materials; spiral, cylindrical and stero-cylindrical lenses. Transposition, toxic surfaces, centration and decentration, ophthamioprims and prismatic effects. Speciallenses.

OPT 312:GENERAL OPTOMETRY I: 2 CREDITS

The development of optometry as a profession and its relationship with other allied health-care professions including opticianry and ophthalmology. The function and scope of the optometrist and other vision-care or professionals at present and in the future.Legal recognition of optometry and the role of professional organisations.An introduction to optometric terms and instrumentation.The types and incidence of retroactiveerrors.

OPT 317: NEURO PHYSIOLOGY: 3 CREDITS

Anatomy, physiology and functions of the Sypraretional System; Ganglian Cell.Optic nerve, Lateral genialete body, Visional cortex, forebrain, superior collicculus, practical and fectal regions, Cerebellum, Veolibullar system, inferiorcollicculus. Broadman and the 'V' classifications of the brain.Functional Mappings in thebrain like colour, memory etc.

OPT 318: GENERAL PATHOLOGY: 2 CREDITS

Introduction to the study of disease.Fundamental pathological processes, anomalies of cellular functions and human immunology, disorder of organ systems.

OPT 320:PHYSTOLOGICAL OPTICS II: 3 CREDITS

The extraocular muscles, their electrophysiology, actions, and innovational systems, Accommodation, convergence, the AC/A radio and binocular co-ordination. Fusion, fissional vengeance, retinal disparities and the horopter. Laboratory work is included.

OPT 321:OPHTHALMIC OPTICS II: 2 CREDITS

Bifocal and multimodal lenses; absorptive lenses, optics of contract lenses and low vision devices.

OPT 322:GENERAL OPTOMETRY II:2 CREDITS

Clinical techniques used to evaluate the optical properties of the eye; theory and measurement of visual acuity and retinoscopy. An introduction to keratometry, opphalmoscopy and external examination techniques. Accommodation: It measurement and relationship to convergence. Ocular deviations: Phorias tropics and an introduction to their relationship to convergence. Ocular deviations: Phorias, tropics and an introduction to their measurement.

OPT 327:OCULAR PHYSIOLOGY: 2 CREDITS

The physiology of the eye. Functions of the eye lids, lachrymal apparatus, conjunctiva, aclera, cornea, anterior and posterior chamber, iris, ciliary muscle, retina, choroids and optic nerve. Production and drainage of extra and intraocular fluids. Intra ocular pressure. Metabolism. Laboratory work is included.

OPT 328:GENERAL PHARMACOLOGY: 2 CREDITS

General principles of pharmacology; principles and classification of autonomic drugs.

400 LEVEL

OPT 400: PHYSIOLOGICAL OPTICS LABORATORY: 2 CREDITS

Pulfrich Phenomenon, Postpoint, Presion adaptation, Colour Vision, Horontor, fixation disparity, Desk adaptation labs, Optical illusions Holography, Entoptic phenomenon.

OPT 403: GENERAL OPTOMETRY LABORATORY: 3 CREDITS

Techniques learnt in OPT 412 are practiced and developed preparatory to examining patients.

OPT404: CONTRACTLENSLABORATORY:2CREDITS

Prefitting examination, contract lens selection and fitting, evaluation of fit, insertion and removal.Lens inspection and verification, lens modification (Hard lens) ordering and dispensing.

OPT 41 0:PHYSIOLOGICAL OPTICS III: 3 CREDITS

The photochemistry of vision. Sensory aspects of vision, thresholds and adaptation. The mechanisms of colourvision, colour vision defects, their detection and significance. electro physiology of the retina and visual pathway. Labolatory work is included.

OPT 412:GENERAL OPTOMETRY III: 2 CREDITS

The optometric examination: Visual acuities, cover testing, test of versions and vergences, near point ofconvergence, fusion test and keratometry. Techniques of photometry, Von Graefephoria testing and monocular cross cylinder, monocular and binocular balancing. Methods of measuring amplitude of accommodation and determining in bear addition.

OPT 414: CONTRACT LENSES I: 2 CREDITS

History and development of contract lenses and their physical and optical properties. The anatomical and physiological implication of contract lens wear. Patient selection and contraindications to contract lens wear. Basic fitting techniques and contract lens design. Assessing success of contract lens therapy.

OPT 477:OCULAR PATHOLOGY I: 2 CREDITS

Mechanism in ocular pathology, Pathophysiology, detection and management of anterior segment disorders.

OPT 418:OCULAR PHARMACOLOGY: 2 CREDITS

Principles of ocular pharmacology. Choice and administration of diagnostic and prophylactic ophthalmic drugs. Anti-infective preparations. Examination under drugs-interpretation and allowances. Precautions and adverse effects from use of ophthalmic drugs. Therapeutics. Clinical works is included.

OPT 420:PHYSIOLOGICAL OPTICS IV: 3 CREDITS

The perception of depth, direction, size shape distance. motion and time through the visual medium. Optical illusions and entopic phenomena; their causes and significance to the visual system. Laboratory work is included.

OPT 422:GENERAL OPTOMETRY IV:2 CREDITS

A continuation of OPT 412.The case history and its relationship to optometric examination; the integration of individual findings. Visual analysis. Graphical analysis, diagnosis, prognosis and therapy. Introduction to specialized techniques such as tonometry, ophthalmoscopy, Iensometry, biomicroscopy, stereacuity testing, gonioscopy perimetry, colour vision testing and sphygrromanometery.

OPT 424: CONTACT LENSES II: 2 CREDITS

A continuation of OPT 414.Advanced fitting techniques; toric and bitoric lenses, keratoconic patients. Monitoring contact lens wearers and fitting presbyopic patients.

OPT 427: OCULAR PATHOLOGY ll:2 CREDITS

A continuation of 417.Pathophysiology, detection and management of posterior segment disorders; ocular'emergencies.

OPT 432: OPTOMETRIC INSTRUMENTATION: 2 CREDITS

Principles of operation, basic maintenance and repairs of common optometric instruments.

OPT 433: EPIDEMIOLOGY: 2 CREDITS

General epidemiologic concepts. Distribution and dynamics of diseases. Natural history, epidemiologicmethods. infectious disease epidemiology, decision analysis and clinical decision making. study design, corestudy.

OPT 435: FUNCTIONAL OPTOMETRY: 2 CREDITS

Analytical methods in evaluating optometric data. Optometry extension programme methods. Case analysis using the DEP techniques.

OPT 437: HEALTH SCIENCE FOR OPTOMETRY: 2 CREDITS

Consideration of prevalent diseases that are of interest to the effects, ocular and general emergencies.

500 LEVEL

OPT 500: MECHANICAL OPTICS: 2 CREDITS

Ophthalmiclens manufacture; surfacing and edging. Insertion of lenses into frame and flame repair.

OPT 501: CLINICAL OPTICS: 2 CREDITS

Ophthalmic frames, facial measurement and frame sizes. Placement of Optical Centre, bifocals and multifocal segments. Adjustment of frames and minor repair. Order writing.

OPT 503: PRIMARY OPTOMETRY CLINIC: 2 CREDITS

Examination, diagnosis and treatment of patients in the optometry clinic under the supervision of an optometrist. Emphasis is placed on the routine optometric and the detection of pathology

OPT 503:CONTRACT LENS CLINIC: 2 CREDITS

Advanced fitting techniques; toric and bitoric lenses, keratoconic patients Monitory contract lens wearers and fitting precebyopic patients.

OPT 512:PEDIATRIC OPTOMETRY: 3 CREDITS

A review of the development of vision and the distribution of refractive errors among infants, common congenital disorders, clinic assessment procedures for the young patient (birth through elementary school), identification of learning disorders and recommendation of appropriate remedial programme. Clinic work is included.

OPT 515:STRABISMUS AND AMBLYOPIA: 2 CREDITS

Requisites for normal binocular vision. Incidence and classification of strabismus and amblyopia. Neurophysiology basis for binocular vision. Courses o strabismus and Amblyopia. Adaptive conditions commonly associated with strabismus. Clinical characteristics of eyes with amblyopia. Routine examination of strabismus patient and anisometpixaublyope. Clinical work is included.

OPT 519:PRACTICE MANAGEMENT: 2 CREDITS

The various modes of practice; single partnership, group practice, employed practice in hospitals, government and industry. The development and management of an optometric practice. Office location and layout and the development of inter-and intra-professional relationships.

OPT 592:GERIATRIC OPTOMETRY: 2 CREDITS

Defining the geriatric patient, Psychological, Physiological, social and ocular problems of the elderly.Techniques for refraction, binocularity and ocular health assessment of the elderly with emphasis on evolutional and pathological changes. Special ocular-visual problems of concern to the elderly patient, presbyopia, contracts, aphasia, visual field loses, low contrast sensitivity and colour vision. Handing and counselling theelderly patient. Problems of therapy, management and compliance. Special problems of the hospitalized and bedridden elderly patients. Clinical work is included.

OPT 524:REHABILITATIVE OPTOMETRY: 2 CREDITS

Principles of low vision; Magnification, telescope system, microscopic systems and magnifiers. The definition and etiology of low vision. Prognosis and management. illumination control, optical and non-optic aids. Ocular prostheses. Aniseiekonia.

OPT 525:ORTHOPICS: 2 CREDITS

An introduction to the binocular vision anomalies of both the strabismicand non-strabismic patient. The treatment of problem of convergence and divergence, accommodation, fusional reserves.The detection measurement and treatment of strabismus eccentric, fixation. microstrabismus, etc. The prognosis for a functional or cosmetic cure of binocular vision anomalies.

OPT 531:SCIENTIFIC RESEARCH METHODS: 2 CREDITS

Introduction to the basic principles of scientific research – Definition of scientific problem; Review of current literature. Experimental design; Data collection; Analysis of data interpretation of results; Preparation of and complete, readable and correct report of the research.

OPT 536:NEURO PATHOLOGY: 2 CREDITS

Review of partner Anatomy. Pulpilary and accommodative anomalies in Neurological diseases. Headaches, Migraines and other photoptics episodes. Optic nerve disorders, suprandeer, nuclear and inter acnucerOculomotor presentations, nystagnus, practical approach to some common non-ocular neurological complaints.

OPT 537:APPLIED PSYCHOLOGY FOR OPTOMETRIST: 2 CREDITS

Introduction to clinical psychology. Role of behavioral sciences in optometric practice; clinician-patient relationship. Psychology; identification and management, crisis intervention. Clinician-patient communication. Suggestion and hypnosis.

OPT 538: ENDOCRINOLOGY AND NUTRITION: 2 CREDITS

Basic human endocrine system, their general functions modes of action, oegutation and transport. Metabolic distribution related to dietary deficiencies and excesses.

B. SC. PHYSIOLOGY

COURSE OUTLINE

200LEVEL

Course Code	Course Title	Credit Units
PHS 201	Introductory Physiology & Autonomic Nervous System	2
PHS 202	Haematology	2
PHS 203	The Cardiovascular System	2
PHS 204	Renal Physiology, Body Fluids & Temp. Regulation	2
PHS 205	Respiratory System	2

300LEVEL

Course Code	Course Title	Credit Units
PHS 301	Gastrointestinal Physiology	3
PHS 302	Endocrinology and Reproduction	3
PHS 303	Neurophysiology I	3
PHS 304	Blood Regulation of Body Electrolytes and Fluids	3
PHS 305	Neurophysiology I1	3
PHS 306	Selected Topics in Gastroenterology	3
PHS 307	Selected Topics in Neurophysiology	3
PHS 308	Laboratory Teaching and Instrumentation	3

400 LEVEL

Course Code	Course Title	Credit Units
PHS 401	Neuroendocrinology	3
PHS 402	Cardio-Pulmonary Physiology	3
PHS 403	Environmental Physiology and Metabolism	3
PHS 404	Laboratory Teaching and Instrumentation	3
PHS 405	Biostatistics	3

COURSE DESCRIPTIONS

200 LEVEL

PHS 201: INTRODUCTORY PHYSIOLOGY AND THE AUTONOMIC NERVOUS SYSTEM

Introduction to Physiology and its place in medicine.The composite cell, cell membrane andtransportmechanisms, membrane€ potentials, Physiology and excitable tissues.Functional Organisation of Automaticnervous system, basic characteristics of sympathetic and parasympathetic divisions.

PHS 202: HAEMATOLOGY

General characteristics and functions of blood.Properties and functions of plasma. Red blood cells, factors involved in erythropoiesis, blood groups. White blood cells, origin, type, properties functions, antigenicity and immunities Platelets and homeostatic mechanisms.Reticulo endothelial system.Clotting and fibrinolytic systems.

PHS 203: THE CARDIOVASCULAR SYSTEM

overall plan and functions of the C.V.S. Physiologic anatomy of the heart, mechanical events of cardiac cycle,cardiac output and its estimation, E.C.G. The Vascular system; Cross sectional area of different vascular groups, systolic, diastolic, pulse and mean pressures exchange of fluids across the capillaries, venous and central venouspressures. Integration of C. V .S. functions, central control centres, regulation of systemic blood pressure. Cardio vascular adaptations in health and disease.Circulation through special areas.

PHS204: RENAL PHYSIOLOGY, BODY FLUIDS AND TEMPERATURE REGULATION

The skin, functional anatomy, temperature regulations, abnormalities of temperature regulation.Metabolism,factors regulating metabolism, conditions for measuring basal metabolic rate.Compartmentalization andcomposition of body fluids.Physiologic anatomy of the kidney, renal circulation and autoregulation.Glomerular filtration.Tubular transport, Urine formation; Counter-current system.Water volume and ionic regulation.Acid-base balance" Micturition.Abnormalities of renal function.

PHS 205: RESPIRATORY SYSTEM

Physiologic anatomy of respiratory apparatus, brief review of relevant gas laws, Lung volumes.Mechanics of breathing.Gas diffusion through abeoli capillary membrane, pulmonary circulation, Ventilation perfusion ratio.02 and CO2 transport, control of respiration, hypoxias, 02 treatment. abnormal types of breathing. Altitude and depth acclimatization.Respiratory adjustments in health and disease.

300 LEVEL

PHS301: GASTROINTESTINAL PHYSIOLOGY

Physiologic anatomy of the gastrointestinal tract. Review of smooth muscle function. Secretions in the G.l.T.andtheir control.Movement of the gastrointestinal tract.Digestion and absorption of various food substances.Liver and its functions.Disorders of G.l.T.

PHS 302: ENDOCRINOLOGY AND REPRODUCTION

Endocrine stem: Introduction and neuroendocrine relationship. Hypothalamo- Pituitory axis,Endocrine glands,normal, hypo-and hyper-functions.Other hormones of some clinical importance.Physiologic anatomyof female reproductive system.Male and female sex hormones.Cyclicity of hormone secretion in States.Physiology of contraception.

PHS 303: NEUROPHYSIOLOGY I

Development and general plan of the central nervous system.Nerve, Morphology generation and conduction of action potential.Sensory division of the nervous system, morphology receptors, sensory pathways, reticular formulation, thalamus and sensory cortex.

PHS 304: BLOOD REGULATION OF BODY ELECTROLYTES AND FLUIDS

A review of the general properties and functions of blood. Functions and life cycle of various blood cells. Abnormalities of blood.Brief recapitulation of the functionality of the kidneys.Renal handling of electrolytes.Current concepts ofconcentration and dilution of urine.The renin-angiotensionsystem.Renal disorders.

PHS 305: NEUROPHYSIOLOGY II

Synapse; morphology synaptic transmission, processing of data, neurotransmitter in the CNS.Motor division of the CNS; morphology motor cortex, basal ganglia, pyramidal and extrapyramidal system.Cerebellum.locomotion and maintenance of posture; spinal and body-orienting reflexes. brainstem control- muscle spindle muscle tone. Hypothalamus andlimbicsystem,Higherfunctionsofthenervoussystem.Special senses.

PHS 306: SELECTED TOPICS IN GASTROENTEROLOGY

General review of gastro-intestinality.Physiologic anatomy of a typical section of the gastrointestinaltract.General principles of the mechanisms of gastrointestinal secretion.Animal experimental techniques for gastric acid analysis and measurement of gastric acidity.Movement of the gastrointestinal tract.Liver function tests.Basic principles of gastrointestinal absorption and methods of it investigation.Gastrointestinal disorders.

PHS 307: SELECTED TOPICS IN NEUROPHYSIOLOGY

Pathophysiology of pain.The association areas of the cortex physiological basis of motivated behaviours.Muscle spindle function in motor control. Maintenance of posture.Mechanism of locomotion.

PHS 308: LABORATORY TEACHTNG AND INSTRUMENTATION

Opportunity for students to review the Physiological concept of systems taught and understand them so thoroughly as to enable them demonstrate the concept using available equipment to medical or more junior physiology students.

400 LEVEL

PHS 401: NEUROENDOCRINOLOGY

Historical origins of a Neuro-endocrine connection.A review of the physiologic anatomy of hypothalamuspituitary,link.Current concepts of channels of communication between hypothalamus and the pituitary.Hypothalamic neurosections.The "master gland" of the endocrine system.Pituitary secretions and theircurrent concept on the servomechanisms between the hypothalamus, the pituitary and other endocrine organs.

PHS 402: CARDIO PULMONARY PHYSIOLOGY

Developmental milestones in cardiovascular and respiratory physiology.Cardio-pulmonary function in the fetus and in old age. Cardio-pulmonary responses at rest and in moderate to severe stress physiological basis of hypertension. Principles of servomechanism as applied to cardio-pulmonary physiology. Aviation, space and deep sea physiology.

PHS 403: ENVIRONMENTAL PHYSIOLOGY AND METABOLISM

Current concepts on the control of energy balance. Brief review of intermediary metabolism; interrelationships between metabolism of major food substrates. Metabolism of specific organs; Brain; renal, pulmonary and cardiac metabolism: Diabetes Mellitus: specific in-born errors of metabolism. Physiological basis of tropical environmental problems: Family planning, malnutrition.

PHS 404: LABORATORY TEACHING AND INSTRUMENTATION

Opportunity for students to review physiological concept of systems taught and understand them so thoroughly as to enable them demonstrate the concept using available equipment to medical or more junior physiology students.

PHS 405: BIOSTATISTICS

Orientation to statistics, definition and examples of basic statistical terminology. Descriptivestatistics: Tabular and Graphical presentations. Populations, samples and the Normal Distribution.Design of experiments.Introduction to Demography in Medicine.Procedures for hypothesis testing.Analysis of variance, Correlation and regression.Chi-square.Nonparametric Techniques, relative risk and measures of strength of association.Computers; An overview.

B. SC. PHYSIOTHERAPY

COURSE OUTLINE

200 LEVEL

Course Code	Course Title	Credit Units
PHT 201	Anatomy	10
PHT 202	Physiology	10
PHT 203	Biochemistry	4
PHT 204	Electro-Physics	6
PHT 205	Physiology	1
PHT 206	Sociology	1

300 LEVEL

Course Code	Course Title	Credit Units
PHT 301	General Nursing	4
PHT 302	Exercise Therapy and Remedial Gymnastics	10
PHT 303	Electrotherapy	8
PHT 304	Pathology	4
PHT 305	Clinical Medicine and Surgery	10
PHT 306	Clinical Work	4

400 LEVEL

Course Code	Course Title	Credit Units
PHT 401	Clinical Medicine and Surgery	6
PHT 402	Clinical Work	10
PHT 403	Hydrotherapy	2
PHT 404	Rehabilitation and Functional Training	8
PHT 499	Project	6
PHT 405	Special Lectures	2

COURSE DESCRIPTION

200 LEVEL

PHT 201: ANATOMY: 10 CREDITS

A correlated course of developmental gross and microscopic anatomy of the human body withparticular emphasis on muscular, skeletal and nervous systems.Lectures and demonstrations on functional anatomy of the living subject, and application to physiotherapy and manual muscle testing.

PHY 202: PHYSIOLOGY: 10 CREDITS

A lecture and laboratory course designed to enable the students to understand normal human physiology withspecial emphasis on neuro-muscular, cardio-vascular, and Respiratory systems.

PHY 203: BIOCHEMISTRY: 4CREDITS

The aim of this course is to make it easier for students to grasp and understand fully the physiology of the neuromuscular, cardio-vascular and respiratory system which are essential to pathkinesiology.

PHY 204: ELECTRO-PHYSICS: 6 CREDITS

A course of lectures covering the principles of mechanics, heat, light, and sound, magnetism and electricitywhich form the basis for the understanding ofthe application ofthese topics tophysiotherapy.

PHY 205: PHYSIOLOGY: 1 UNIT

An introductory survey of the major topics, theories and research results of contemporary psychology.

PHY 206: SOCIOLOGY : 1 UNIT

Elements of sociology with basic methodology and introduction to social anthropology.

300 LEVEL

PHT301: GENERAL NURSING: 4 CREDITS

Studentsundergo a series of lectures and demonstrations on the principles of nursing and spend sometime in the Wards observing ward routine and assisting in patient care.

PHT 302: EXERCISE THERAPY AND REMEDIAL GYMNASTICS: 10 CREDITS

Biomechanics of exercise; kinesiology; specific exercises.Analysis of activities and movement.Group therapy and patient management.Exercise and group work for specific conditions.

PHT 303: ELECTROTHERAPY: 8 CREDITS

Lecturer covering all electrical agents with a review and correlation of basic physical and physiological principles.Techniques of application, indications, and contraindications.Lectures and clinical practice in various manipulation techniques.

PHT 304: PATHOLOGY: 4 CREDITS

A brief description of general pathological processes enabling the student tocomprehend the pathology of diseases, Lectures cover atrophy and hypertrophy, degeneration, inflammation, reaction to injury and repair processes; wounds, edema, thrombosis, infarction, infection immunity and tumors.

PHT 305: CLINICAL MEDICINE AND SURGERY: 10 CREDITS

A detailed consideration of disease and injuries requiring treatment byPhysiotherapy including psychiatry and community Medicine.

PHT 306: CLINICAL WORK: 4 CREDITS

Students are given increasing responsibility for the evaluation of patients, planning treatment, programs, and carrying out the treatment in approved hospitals.

400LEVEL

PHT 401: CLINICAL MEDICINE AND SURGERY: 6 CREDITS

Continuation of detailed consideration of disease and injuries requiring treatment by physiotherapy including psychiatry and community Medicine.

PHT 402: CLINICAL WORK: 10 CREDITS

Students are given the opportunity to evaluate patients. plan treatment programs and carry out the treatment of patients in approved hospitals. A minimum of 2,000 hours should be allocated to this spanning from year 111 to year IV.

PHT 403: HYDROTHERAPY: 2 CREDITS

Theory of exercises in water.Effects and dosage of hot, and cold baths, precautions; practical techniques of pool treatment.

PHT 404: REHABILITATION AND FUNCTIONAL TRAINING: 8 CREDITS

Functional assessment and activities of daily living; uses of various prosthetics and orthotics: application of plaster of Paris; occupational therapy; speed therapy, medical social work and vocational rehabilitation.

PHT 499: PROJECT: 6 CREDITS

Each student will be guided by a supervisor, in the interested. This will lead to a dissertation which choice or a project in an area in which the student is interested. This will be presented for assessment during the path IV examination.

PHT 405: SPECTAL LECTURES: 2 CREDITS

(i) Administration
(ii) Ethics.

M.B.B.S BACHELOR OF MEDICINE, BACHELOR OF SURGERY

COURSE OUTLINE

STAGE I (2 SEMESTERS)

Course Code	Course Title	Credit Units
MED101	Human Ecology	2
MED 102	Human Evolution and History of Medicine	2
MED 103	Case Study	2

STAGE II (3 SEMESTERS)

Course Code	Course Title	Credit Units
ANT 200	Anatomy	13
PHS 200	Physiology	13
BCH 200	Biochemistry	11
PHA 200	Pharmacology	4
COM 200	Community health I	5
TMD 200	Traditional Medicine I	1
MED 202	Human Evolution & History of Medicine	1
MED 203	Case Studies in Biomedical Sciences	2

STAGE III (3 SEMESTERS)

Course Code	Course Title	Credit Units
PAT 300	Pathology	16
MCB 300	Medical Microbiology & Parasitology	10
PHA 300	Pharmacology II	7
COM 300	Community Health II	5
MED 300	Medicine I	6
SUR 300	Surgery I	3
TMD 300	Traditional Medicine II	2
PSY 101	Introduction to Psychology	4
SOC 410	Sociology of Medicine	2

STAGE IV (2 SEMESTERS)

Course Code	Course Title	Credit Units
PED 400	Pediatrics	16
OBG 400	Obstetrics & Gynecology	24
MED 490	Elective Postings	12
MED 499	Research Project	4
MED 410	Medicine II	10
MED 420	Psychiatry	8
PYS 400	Forensic Medicine	2
MED 430	Dermatology	6
MED 440	Medicine III	2
SUR 410	Surgery II	17
SUR 420	Surgery III	12
SUR 430	Ophthalmology	2
SUR 440	Ear Nose & Throat	2
SUR 450	Orthopedics & Radiology	6
SUR 460	Anesthesia	4
TMD 400	Traditional Medicine III	1
COM 400	Community Health III	8

COURSE DESCRIPTIONS

STAGE I: HUMAN ECOLOGY

MED 101: HUMAN ECOLOGY

Populationdistribution in relation to habitat and ecology.Climatic, nutritional and diseasesecologies, radiation biology, population growth, structure and immigration. Occupational hazards, in outline, introduction to social medicine.Vital statistics. The nature, genetics distribution and selective significance of human characters which show geographical variation, e.g. blood groups haemoglobins, serum proteins, and colour blindness, finger-prints, pigmentation susceptibiIity to infection. Racial classification.

MED 102: HUMAN EVOLUTION AND HISTORY OF MEDICINE

Theevolution of the humanoid and evolutionary origin of man, man's place in the animal kingdom.Introductionto physical anthropology and social behaviour. Outline of History of Medicine including important developments in Nigeria.

MED 103: CASE STUDY

A study m depth of an agreed biomedical problem of major current Interest (plus other relevant courses, from the Faculty of Science)

STAGE II: FIRST PROFESSIONAL EXAMINATION (3 SEMESTERS)

ANATOMY

GROSS ANATOMY

Tissues of the body (introduction) and anatomical terminology.

(a) Regional Anatomy of Upper Limb

Bones, pectoral region axillae, back shoulder region, arm and cubital fossa front of forearm, back of forearm hand, joints lymph drainage, nerve injuries, surface landmarks and radiographicappearance.

(b) Regional Anatomy of Lower Limb

Bones, front of thigh, medial side of thigh, gluteal region, back of thigh, politeal fossa, front and lateral side of leg, back of leg, foot. Joints, mechanisms of walking, lymph drainage, veins of lower limb, formoralhermia, surface landmarks and radiographic appearance.

(c) General Embryology

Marretogenesia, menstrual cycle, segmentationimplantation, embedding, placenta, notochord, intra-embryonic mesoderm, amnion and yolk sac, folding of embryonic disk, umbilical cord, external features of fetus, derivatives of germ layers, developmental malformations.

(d) General Histology and Cytology

Structure of the cell epithelium, connective tissue, bone and cartilage, muscle tissue, nervous tissue, bloodlymphoid tissue, introductory cytogenetics.

(e) Regional Anatomy of Thorax

Bones, joints, thoracic wall, pleura and lungs, pericardium, heart, mediastinum (superior & Posterior), lymphdrainage, x-ray, respiratory movements.

(f) Regional Anatomy of Abdomen and Pelvis

Interior abdominal wall, inguinal hernia, abdominal incisions, external male genitalia, peritoneum, peritoneal spaces, peritoneal folds, stomach, coeliac trunk, spleen, small intestine, superior mesenteric vessels. Large intestine inferior mesenteric vessels.Duodenum, pancreas, portal vein, porto-carval anastomosis, liver gall bladder and bile ducts. Kidney, yreters, suprarenal glands, Diaphragm, posterior abdominal wall muscles, fasciavessels, and nerves,lymph drainage of abdomen proper, bony walls of pelvis and its joints, pelvic peritoneum, pelvic viscera (rectum, urinary bladder genital organs in male and female. vessels and erineal spaces,analsphineter'sischiorectalfossal), applied anatomy of pelvis, radiographic examination.

(g) Systematic Embryologly

Cardiovascular system (heart and blood vessels), digestive system and respiratory system, urinary system, genital system (Male and Female), coelomic cavities and diaphragm, Iocomotor system, integumentaty system.

(h) Systematic Histology

Cardiovascular system respiratory system, digestive system, urinary system, male and female genital systems, endocrine glands, special senses.skin and its appendages.

(i) Regional Anatomy of Heart and Neck

Skull and mandible, growth changes in skull, and mandible, scalp and face, temporal, fossa, parotid region, backof neck vertebral canal, cranial cavity and dural venous sinuses, orbit, eye-ball, eye lids and lachrymal apparatus, infratemporal fossa, submandibular region, anterior triangle of neck,thyroid gland. root of neck, cervical fascia and its clinical importance, deep dissection of neck (carotid sheath. sympathetic chain), oral cavity, and tongue nasal cavity and paranasal sinuses, pharynx, larynx, ear, applied anatomy including cranial nerve injuries, collateral circulation in head and neck, lymph drainage ofhead and neck, x-ray.

(j) Anatomy of Brain and Spinal Cord

Nerve cells and nerve fibres degeneration and regeneration in nervous tissue, meninges, C.S.F. circulation, blood vessels of brain and spinal cold, anatomy of spinal cord at various levels, ascending and descendingpathways, nuclei in spinal cord, brain stem (medulla oblongata, pons and midbrain), nuclei of cranial nerves, lobes of cerebrum sulci and gyrl, cerebellum, connections and peduncles of cerebellum. Thalamus and itsconnections, internal capsule and basal nuclei, limbic system, visual pathways, auditory pathways.pathway of taste, pathway smell, lateral ventricle,3rd ventricle, 4th ventricle, autonomic nervous system (sympathetic and parasympathetic).

(k) Systematic Embryology

Nervous system, organs ofspecial senses.brachial apparatus, endocrine glands.

(l) Human Genetics

Cell division, non-disjunction, linkage, karyotype, human chromosomes, application of Mendel's laws, patterns of inheritance, pedigrees, genetics of twins, mutation and chromosomal aberrations. gene frequency in population, genetic basis of blood groups and other genetic markers, genetics and diseases, genetic counseling.

BIOCHEMISTRY

(a) Chemistry of Bio-molecules

Introduction to Biochemistry Bio-molecules.Chemistry, properties and functions of carbohydrates, lipids, amino acids and proteins, vitamins and co-enzymes and nucleic acid.Acids, bases and buffer systems.Henderson equation application, Enzymes, their properties and kinetics.Related practicals.

(b) Intermediary Metabolism I

Carbohydrate metabolism, glycolysis, TCA cycle HMS pathway, electron transport chain and biological oxidation.Glycogenolysis, gluconeogenesis. Control mechanisms. Fatty acid phospholide and steroidmetabolism.Amino acid metabolism, urea formation.Metabolic acidosis and alkalosis.Related practicals,

molecular biology and Biochemical genetics; DNA, its replication and transcription.Genetic code and biosynthesis protein.Role of antitics.In-born errors of metabolism and associated diseases.Detoxication reactions.Control of intermediary metabolism.Hormonal enzymatic control.Antimetabolites.Endocrine disorders.Human nutrition. Dietary requirements of protein, energy, minerals, trace elements and vitamins.Deficiency state.Biochemical assessment of nutritional states; protein value, protein-energy malnutrition,obesity and starvation.Food toxins.alcohol. Cooking-methods of study diets.

PHYSIOLOGY

physiology of Cell. Excitable Potential Excitation and conduction.Physiology of Muscles.Neuro Muscular transmission.

(a) Blood Body Fluid and Reticulo-Endothelial System

Internal environment. Homeostasis, Fluid compartments, Blood volume measurement and variations, functions of blood components. Anaemias, viscosity, fragility and E. S .R. Blood coagulation, blood groups. Lymph:Formation, flow and functions. Functions R.E.S. outlines on immune mechanisms.

(b) Cardio-Vascular System

Design of circulatory system, functions of circulation, Pacemater tissues, initiation of cardiac impulse.Pacemaker potentials. Spread of caldiac impulse. Properties of cardiac muscle. Electrocardiogram: Recording and interpretation. Cardiac cycle.Time relation of various events.Pressure and volumes changes. Heart sounds, Jugular venous pulse, Arterial pulse. Circulation Time. Arterial blood pressure reflexes. Cardiovascular adjustments during muscular exercise.Heamodynamics. Streamline versus turbulent flow. Peripheral/venousand peripheral arterial resistance.Capillary circulation.Venous pressure.Coronary circulation.Pulmonarycirculation.Coetaneous circulation. Blood flow through skeletal muscles. Hemorrhage and shock.

(c) Experimental on Amphibian Muscle and Nerve

simple muscle twitch. Effect of temperature.Summation.Genesis of tetanus.Phenomenon of fatigue.After load and free-load muscle.

(d) Haemolysis Fragility and E.S.R

Bleeding Time, Clothing Time and capillary Fragility Test of Hess.Respiratory and Environmental Physiology. Mechanics of Respiration: Intrapulmonary pressure. Compliance, Lug Volumes and capacities; Measurementand significance.Dead space, Surfactant.Respiratory minute volume.Alveolar ventilation.Ventilation, perfusion ratio, composition of alveolar air, Diffusion of gases in the lung.Oxygen transport.Carbon dioxide Transport.regulation of Respiratory; neural and chemical. Respiratory adjustments during muscular exercise.Periodic breathing.Dyspnoea, cyanosis, Hypoxia and Hypercapnea, high altitude and acclimatization. Effects of increased Barometer pressure, Decompression sickness, Artificial Respiration.

(e) Gastro Intestinal Tract

Swallowing Mechanism. Salivary secretion: Composition and functions of saliva. Gastro secretion Methods ofstudy of gastric function. Mechanism of gastro secretion: Composition and functions of gastric Juice. Tests ofexocrine function of pancreas. Intestinal juice: Composition and functions of bile. Gall Bladder function.Mechanism of filling and evacuation of G. Bladder'. Movements of stomach, control of Pyloric Sphineter, Emptying of stomach. Vomiting Causes and Mechanism.Movements of small intestinal.Methods of study ofintestinal movement.Ileocesphineter and its action.Functions of large intestine.Movements of large intestine.Defaecation, Gastro intestinal hormones.

(f) Physiology of Excretion and Shin

E,tnctions of l<idney; Functions of Nephron. Glomerular filtration.Measurement of GFR. Cancer clearance irnalStooaFlorv. Filtration fi'action.Autoregulation of Renal Blood Flow. Transport actubules. Active venus nrssivetransport. Transport maximunr Reabsorption of Glucose. Na. water Secretion of K+, H+ etc. Mechanism Iiconcenuation of urine, counter-current mechanism, u/ater clearance. Role of kidney in the regulation of "*traceltular fluid volume. Renal regulation of I(+ concentt'ations and osmolality. Action of Aldoterone and n.p.t-t. Renin-,qngiotensinsy Thirst. Temperatule Regulation.Physiology of micturition. Filling and ernptl,ing

of B t Cy.torrethlograrn. Function of skin. Surface alea. Vascular responses and role in temperature Iegulation'

(h) Autonomic Nervous SYstem

grganisation of Autonomic NelvousSystern Transmission Autonomic functions - responses of effector organs.

(i) Experiments of Amphibian Heart

Recording of norn.ral heart.effect of Temperature valiation on healt beat. Extrasystole and Refi'actory period, effect of Stirnulation of vagos-sympathetic trunk of heart beat. Perfusion of isolated healt -effect of ions and drugs.

(j) EndocrinologyandReproduction

Holmones in general and their mechanism of action. Outline of legulation of Hormonal secretion. Pituitary hormones; secretion, transport, and action. Regulation of pituitary secretion. Hypothalamic regulation and feedback/r'egulation. Pliysiology of grou,th. Abnormaiities resulting fi'ompituitarl, dysfunction. Thyroid hormones, Synthesis. secretiontrarlspol't and action. Regulations of secretion. Diseases of th)/roidParathyroids. Synthesis and secretion of Palathyroid hormone.Action of parathyroid hormone.Tetany h1,per-palathyroidism. Calcitonin.Adlenalcoltex and rnedulla.Synthesis of adrenal coltical hormones; the lelease and transport. Action of gluco-corticoids.mineralocorticoids and sex steroids. Regulation of adrenal cortical secletion. Abnorrnaiitiesoladretrocoltical function. Cushing sl,ndrome. Addison's disease.Plimaryliyperalodotemism and adrenogenital syndrome. Adrenal nredullaryholrnones.Synthesis and actions of catechojantines. Endocrine functions f pancreas. Actions of insulin.Actions of glucagon.Regulation ol blood glucose level. Diabetes mellitus. Reploductivesysterx. Puberty; Precocious and delayed pubelty. Secondarl, sexual charactel's. Menalche and Menopause.rnale Reproductive system: Garnetogenic and endocrine functions of testis. Action of testosterone. Regulation of secretion. Female Reploductive system: Physiology of menstrual cycle. Ovai'ian and e,d.mcii;al c',,cles. clra,ge in ce^,icala,d vaginal mucosae. control of o'arian function Hypothalamopitr.ritary-or,arian axis. Action of estrogeiis and progesrerorrs.irisii,ai,c\ l::d lacr.rtion. Hormone of the placenta. Significance of hurtran chorionic gonadotrophin.

(k) Central Nervous Systern

Or'ganisation of rrelvoussystelr.Levels of contlol sensory perception. Touch plopriioception temperature and pain. Motor systenl.Contlol of posture and movement.Pyrarnidal and extrapyramidal system. Effects of lesions andUppel and Lou,erlnotorlleuronparall,sis. Parkinsonisrn, athetostosis, etc.Celebellunr. Effect of tlansection of spinal cord, Thalarnus hypothalamus. Cerebral cortex and functions.Electt'oencephaloglarn. Reticular activating system, Sleep, Synaptic transmission and its rnodulation. Reflexes; Classification, properties and control. Limbic S),stern. Ernotions motivation sexual behaviour, fear and rage.

(l) Special Senses

Optical media of the eye and image forn.ration of Retina, Receptols for vision -rods and cones and their function. Optic pathu,ay and effects of lesion. Field of vision and acuity of vision.dark adaptation by the eye. Pupillary reflexes. Accornmodation.Rell'actirie errors.Coloul vision. Colour blindness and tests for colour vision.

(m) Ear

Functions of ear, Mechanisrn of sound transmissiorr.mechanism of pitch pelception. Electrical phenomena, Endo-cochlear potentials.Auclionretly Vestibular function: Role of semicircuilal canals. utt'ick and saccule.

(m) Smell and Taste

nrination of Cranial Nerves. Examination of Motor system and Reflexes. Examination of Sensory system for hearing -Rinne's and Webber's Determination of Visual acuity -Seneller's charts. Tests for colour Detelmination of field of vision - perimetryRetinoscopy and ophthalmoscopy.

PHARMACOLOGY

introduction to Pharmacology. Routes of drugs administration. Absorption; distribution and Metabolism of drugs, Sio-araitability of drugs, Excretion of dlugs.Mechanism of drug action.Drug interactions.Bioassay physiological solutions. Prescriptions Writing, abbreviations and instruments.

(a) Drugs Acting On Central Nervous System

General introduction to central nervous system. Pre-anaesthetic medication, General anaesthetic, Alcohol, Hypnotics and sedatives, Narcotic analgesics.non-narcotic analgesics (anti-pyretic, analgesics, anti-inflammatory;, anti-epileptics, Drugs used in Psychiatlic disorders (Tranquilizers, antidepressants). CNS stimulants, Drug abuse, Dt'ugtreattnent of Parkinson's disease, Local anaesthetics.

(b) Drug Acting On Autonomic Nervous System

Introduction to autonomic ner\/ous system - Neurohumoraltlansmission.General consideration. Cholinergic drugs. Anticholinesterase drr-rgs, anticholinergic dlugs, Ganglionic stimulating and blocking agents, Beuronuscular blocking agents.

(c) Practical Demonstration

I. To demonstrate the local anaesthetic actions of dlugs by surface infiltration and conduction block anaesthesia.
II. Analgesic eflectol morphine.
III. Vasom for Reverlal Phenomenon of Dale.
IV. Muscarinic and Nicotinics of Acetylcholine.
V. Effect of drugs on isolated Rabbit Heart (Langendorffs)

(d) Drugs Acting on Cardiovascular System

Digitalis and allied cardiac glycosides.antiarrhythrnic agents, antihypeltensive agents vasodilatot'and treatment olangina pectoris. drugs used in the tleatmentofthe shock, phypolipaemic agents.

(d) Drugs Acting on Renal System

Introduction, Diuretics and otlier agents employed in mobilization of oedema fluid.

(f) Drugs Acting on Uterine Motility

Oxytocin, Prostaglandins and Ergot Alkaloids, uterine relaxants.

(g) Autocoids

Histamine - its role in allergy. Antihistaminics. 5 hydroxy-tryptamine and antagonists, polys-peptides, Angiotensin, Kinins and others.

(g) Drugs Acting of Respiratory System

Drugs used as cough suppressants and expectorants. Bronchodilators and treatment ofBronchial asthma.

(h) Drugs Acting on Blood and Blood Forming Organs

Drugs effective in lron deficiency and other hypochlornicanaetnias vit,P12, Folic acid and treatment of megalo-blasticanaernias, coagulants and anticoagulants.

j) **Hormones and Hormone Antagonists**

Introduction to Adenohypo-physeal hormones and related substances, thyroid and antithyroid drugs, parathyroid hormone, calcitonin, calcium and Vito D; insulin and Oral hypoglycaemic agents, adrenocorticotropic hormones, Oestrogens, Progestins and oral contraceptives, Androgens and anabolic steroids.

k) **Chemotherapy of Microbial Diseases**

General consideration of antimicrobial agents, Sulfonamides, Trimethoprim – Sulfamethaxozole and urinary tract antiseptics. Penicillins and cepthalosporins, Amino glycosides, Tetracyclines and chloramphenicol, Chemotherapy of tuberculosis, leprosy, fungal Infections and viral diseases.

l) **Chemotherapy of Parasitic Diseases**

Chemotherapy of helminthiasis, Malariz,Ameobiasis and protozoal infections, chemotherapy of Neoplastic diseases, immuno suppressives.

m) **Drugs Used in the Disorders of Castro/Intestinal Tract I**

Appetizers, Digestants, Carminatives aooetite suppressants, Emetics and drug therapy of vomiting and diarrhea. Pharmacotherapy of constipation, pharmacotherapy of peptic ulcer. Antiseptics Disinfectants and insecticides.

n) **Practicals to be Done by the Students Themselves after the Demonstration**

(i) Effect of drugs on blood pressure and respiration in dog.
(ii) Effect of drugs on isolated Rabbit Jejunum.
(iii) Effect of drugs on Frog's Rectus Abdominous muscle preparation.
(iv) Effect of drugs on Frog Heart perfusion.
(v) Spotting cards, instruments, etc.

COMMUNITY HEALTH

(a) **Introduction to Community Health**

Simple definition in Community Health. Principles of Community Health. The Family; Groups; Socialization; Social differentiation. Biostatistics –Simple statistical Calculations. Graphs; Probability; Hypothesis Testing. Elements of Psychology. Epidemiology –Defination. Demography; Vital Statistics. Environmental Health I; Principles of Health Education, Organizing Health Services. Environmental Health II (Human activities and health), Health and illness –Pathogenesis of Hospitalization; Politics of Health. Introduction to Clinical Epidemiology. The concept of epidemics and endemicity of some common diseases. Investigation and control of epidemics. Socio-Cultural factors affecting endemicity of some common disease. Principles of Health Screening. Epidemiology: Family Health I. Epidemiology of Communicable Diseases. Epidemiology of Non-Communicable Diseases. Epidemiology I: Family Health, School Health, Mental Health and Child Health, Family Planning.

(b) **Special Posting in Community Health**

Selection of Project Topics. Multiple Causation of Diseases. Seminar with Specialists. Community Health Tutorials. Primary Health Care. Assignment at the rural Health Clinics. Identification of Community Health Problems. Some aspects of management of Health Services. Data Collections. Processing and Storage. Projects in Selected Topics. Traditional Medicine.

PATHOLOGY

1. CHEMICAL PATHOLOGY

(a) Water Electrolytes Acid-Base Balance Disturbances in Carbohydrate Fat and Protein Metabolism, Human Nutrition Theory

Disturbance in water-electrolyte balance, Acidosis and alkalosis. Chemical Pathology of carbohydrate, fat and protein Metabolism regulation of blood glucose level. Abnormal Plasma Protein and Lipoprotein patterns. Human nutrition importance of Nutrition for Health, Dietary requirements. Composition of well-balanced diet. Chemical pathology of protein energy malnutrition rickets and other nutritional deficiencies. Practical: Analysis of blood glucose and glucose tolerance test. Flame Photometric analysis of serum and urine. Examination of gastric juice.

(b) Chemical Pathology of Blood, Cardio-Respiratory and Digestive System Theory

Laboratory methods for diagnosis of anaemia, Haematology indices. Iron metabolism in health and disease. Serum iron and Total Iron Building Capacity (TIBC). Haptoglobin. Abnormal haemoglobins. Blood group serology and blood transfusion. Use plasma in enzymes for diagnosis of mycocardinal infection. Analysis of fat absorption by fat balance text and carbohydrate absorption by xylose load test; Liver function tests. Serum bilirubin and abnormalities in bilirubin metabolism in liver/bile duct disease. Differential diagnosis between hepatocellular and obstructive jaundice. Practical: Analysis of serum Iron and TIBC. Haemoglobin electrophoresis. ABO and RH blood grouping. Coombs' direct test for detection of autoantibodies against RG's and coombs' indirect test for diagnosis of Rh-Immunization and for cross matching. Determination of direct and indirect bilirubin in serum. Liver function tests.

(c) Chemical Pathology of Renal Endocrine and Central Nervous System Hospital Laboratory Theory

Change in blood Chemistry in renal failure; Uraemia and Azotaemia. Blood urea and serum creatinine. Renal clearance tests. Laboratory diagnosis of disturbances in the pituitary gland, hypothalamus and adrenal cortex. Adrenal medulla; Metabolism of epinephrine and norepinephrine. Urinary excretion of catecholamines and vanilmandelic acid (VMA). Laboratory diagnosis of phaechromocytoma. Laboratory diagnosis of disturbances in the function of the thyroid gland. Thyroxine (T4), tri-iodothyronin (T3), protein-bound iodine (PB) Thyroid hormone binding pre-albumin and globulin. Relation between free and bound thyroid hormone T3-resin uptake test. Test for thyroid function using radio-active-iodine (I 131). Cetral nervous system. Chemical and cytological changes in cerebrospinal fluid in disease. Hospital laboratory reports. Traditional Units and SI-Units. Standardization of techniques. Continuous-control of Laboratory procedures. Reference values. Significance of variation in evaluation of laboratory data. Practical and Laboratory Postings: Analysis of blood urea and serum creatinine clearance. Chemical and microscopical examination of abnormal urine sediments. Diagnosis of pregnancy by immunological pregnancy tests. Chemical and cytology examination of cerebrospinal fluid. Posting to clinical laboratories and blood bank.

2. MORBID ANATOMY

General Pathology introduction, Disease and its causes. The sick cell internal environment, oedema, schlock, hyperaeiaa, inflammation, repair, intercellular substance reaction and amyloidosis, Neoplasia, Deficiency diseases, thrombosis and embolism. Generic factors in diseases, mineral metabolisms, radiation hazards, genetic factors disease, cytology and cytogenetic and Biopsy and autopsy techniques.

(a) Histopathology Practicals

General on degenerations, hyperosmia, acute chronic inflammations, granulomatous inflammation, amyloidosis, Neoplastic diseases, thrombosis and infactions and cytological slides.

(b) **Haematology Anaemias**

General consideration, iron deficiency, sideroblastic, other microcytic anaemias, megaloblastic and aplastic anaemias. Haemolytic anaemias, haemoglobinopathies, hormone deficiency anaemias, anaemias, anaemias due to parasitic infections and chronic blood loss.

(c) **Leukaemias General**

Consideration, acute and chronic leukamias and Eryth-roleukaemias. Myeloproliferative disorders and coagulopathis. Systematic Pathology diseases of reticule-endothelial system and cardio-vascular system.

(d) **Haematology Practicals**

Demonstration of smears of anaemias, normal and abnormal bone barrow, Smears of leukaemias leukaesmoid reactions and myeloproliferative disorders. Histopathology practical on reticule-endothelial and cardio-vascular system.

(e) **Systematic Pathology**

Diseases of respiratory system and digestive system. Diseases of urinary system. Endocrine and central nervous system. Diseases of male and female reproductive system. Muscle-skeletal and integumentary system.

(f) **Histopathology Practicals**

Bronchiectasis, pneumonias, granulomatous lesions and tumor and lungs, hepatitis, cimhosis liver, glomerulonephritis, pyelonephritis and tumor of kidney, thyroid disorders, inflammatory and neoplasm of female reproductive system.

MICROBIOLOGY AND PARASITOLOGY

(a) **Introduction to Microbiology and Parasitology**

Important milestone in development of microbiology, Morphology and classification of bacteria, parasites, viruses and fungi. Growth and nutrition of micro-organisms. Effects of antibiotics and chemotherapeutic agents. Brief description of bacterial genetics like mutation, transduction, conjunction and transformation. Sterilization. Host-parasite relationship. Normal flora of human body. Host defence, Microbial pathogenicity. Innate immunity, Antigen, antibody and their reactions, antigen antibody responses. Hypersensitivity Humoral and cell mediated immunity, Laboratory techniques in the diagnosis of bacterial, parasitic, viral and fungal infections.

(b) **Practicals/Tutorials**

Safety precautions in Microbiology, Laboratory. Handling and care of light Microscope. Media preparation. Sterilization Techniques. Plating out of cultures. Smears preparation and staining techniques. Hanging drop preparation. Isolation of normal microbial flora of human surfaces. Common Biochemical Tests for Identification of bacteria. Identification of common bacteria. Antibiotic sensitivity testing. Orthomyxo-viruses, paramyxo-viruses, picoma-viruses, Rubella-viruses, and other viruses of human importance, slow viruses. Oncogenic viruses.

(c) **Medical Mycology**

Dermatophytes and other fungi causing skin infections, yeast-like fungi, e.g. Candida and Cryptococcus. Dimorphic fungi –Histoplasma. Balstomycos, Coccidioides, paracoccidioides Sporrothrix. Subscutaneous phycomlosis, and other subcutaneous phycomyosis infection causing fungi. Opportunistic fungi like Aspergillus. Mucor, Rhizopus, Penicillium, etc.

(d) **Practicals/Tutorials**

Clinical Bacteriology –processing of various clinical like throat swab and other swabs. Pus, Urine, C.S.F., Sputum. Stool Serological Tests –V.D.R.L., Widal Test Parasitology –Stool examination using direct and concentration techniques. Preparation of peripheral blood smear and staining by Giemsa and Leishman stain. Mycology – Identification of common contaminants and yeast.

MEDICINE

(a) **Medicine I**

Introduction to Clinical Medicine. Signs and Symptoms. Diseases of Nutrition. Diseases of Metabolism. Diseases of Fluid and Electrolyte Balance. Human Genetics. Preliminary Clinical Instruction.

(b) **Medicine II**

Disorder of Blood. Diseases of Reticulo-Endothelial System. Respiratory System. Endocrine Disorder; Cardio- Vascular System; Nervous System; Musculoskgeletal Diseases of Skin; Veneral Disease. Clinical Instruction; Clerking of Patients in Wards; Tutorials covering important Topics like ECG –Heart sounds and mumurs, etc. Diseases of Kidney. Gastrointestinal disorders. Infectious Diseases. Tropical Diseases and Worms. Poisoning Diseases due to Physical agents. Continuation of Clinical work. Participation in call duties. Carrying out Side-Laboratory Investigations. Day-to-Day Management of Cases.

(c) **Medicine III (Psychiatry)**

Relationship between body and mind. Psychosomatic disorders. Psychological disorders. Psychiatric posting. Psychiatric examination of patient. The treatment procedures in Psychiatry.

(d) **Medicine IV (Forensic Medicine)**

General Principles of medico-legal autopsy and their interpretations. Principles of Toxocology. Medico-legal problems.

SURGERY

(a) **Surgery I (Posting)**

Introduction to Surgery: Signs and symptoms. Clinical Examination. Practical Instruction. Ward Clerking and case presentation.

(b) **Surgery II (Posting)**

Integrated infectious Diseases.

(i) Instruction in Ward Dressing. Diagnosis and patient management.
(ii) Instruction in operation theatre, procedure and simple management of casualty cases.
(iii) Instruction in Traumatology Orthopaedics and management of acute surgical abdominal emergencies.
(iv) Instruction in the basic principles of surgical investigations of urinary tract disorders and surgical management hernia, scrotal swellings and testicular disorders.
(v) Instruction in the basic principles of surgical management of bums and other skin and subcutaneous afflictions. Plastic Surgery.
(vi) Instruction in the basic principles of gastro-enterology including biliary and pancreatic surgery.

(c) **Casualty Posting**

Practical instruction in Emergency Room. Procedures in casual cases. Teaching of simple surgical procedures. Further courses in ward dressing and ward patient diagnosis and management and instruction on simple surgical procedures.

(d) **Traditional Bone Surgery and Dressing**

Simple traditional surgical procedures. Instructions in the basic principles of cardiothoracic surgery, Neuro-Surgery. Instruction in the basic principles of surgical oncology and organ transplantation. Instruction in the basic principles of Surgical research.

(e) **Surgical Anatomy**

Anatomy of nerve injuries, fractures, dislocations, exposure of big blood vessels and nerves, lymphatic drainage, fascial spaces and spread of infections, peritoneal spaces, anastomonses of vessels, radiological and surface anatomy of the bonypelvis, anatomy of major neurological syndromes, anatomy of surgical procedures, testing of muscle action, surgical anatomy of mammary, thyroid and prostate glands, surgical anatomy of hemis, surgical anatomy of thoracic and abdominal organs.

(f) **Surgery III (Ophthalmology)**

Introduction to ophthalmology –Anatomy of the eye. Local diseases which affect the eye Systematic diseases surgical ophthalmology. Paediatrics Ophthalmology. Ophthalmology Posting clinical instruction in ophthalmology. Ophthalmoscopes, Reginoscope, Slit lamp. The shellen's Examination of the Patient. Theory and Practice in the treatment of eye diseases.

(g) **Surgery IV (Ear, Nose and Throat (E.N.T))**

Clinical instruction in E.N.T. Local diseases which affect E.N.T. Examination of the Patient

(h) **Surgery V (Orthopaedies and Radiology)**

Theoretical and Practical instruction in anaesthesia and resuscitation. General and Local anaesthesia.

PAEDIATRICS

Basic principles of Paediatrics Theoretical course. Growth and development, disturbance of nutrition. Fluid and Electrolytes. Malabsorption Protein – Energy malnutrition. Childhood infections Diseases. Some Systematic diseaases Neurological, Haematological and oncological disorders.

(a) Community Paediatrics Clinical genetics. Some aspects of growth. Resistance to infection. Inborn errors of metabolism. Active immunization. The premature infant. New born and its diseases. Neurological disorder in childhood. Congenital heart diseases. Some infectious diseases. Snake bites. Emergencies. Paediatric drugs, usage and dosage.

(b) Case Presentation. Patient Clerking in ward, Clinical attendace, Diagnostic Management in Paediatrics. Participation in on call duty.

TRADITIONAL MEDICINE

(a) **Traditional Medicine I**

Definition of terms; Concepts, aim, scope and background, Major Traditional Medical Systems including African Ayurvedic, Chinese, and Unani Tibb, Summary of some basic traditional therapeutic and diagnostic techniques including, for example, homeopathy, Indology, osteopathy, herbalism natureopathy acupuncture yogs, etc. Classification of various Traditional Medical Practitioners and practices which had existed and still existing in Nigeria, with particular reference to bonesetters, Traditional Midwives, Surgeons, Herbalists and others.

(b) **Traditional Medicine II**

Evaluation of principles, practices, and diagnostics and therapeutic tools and techniques including their possible efficacy, scientific basis and validation. Review of current trends and research methods. Role of traditional medicine and traditional medical practitioners in Primary Health Care Programmes with particular reference in traditional psychiatry, T.B.A. Training Programmes, herbalists, bone-setters, and other interactions. Relationship between "Western" and "Traditional" Medicine Systems.

(c) **Traditional Medicine III**

During this part of the course the students will be conducted on supervised field visits to recognize high grade traditional medical practitioner to obtain a greater understanding and appreciation of the contribution and scope of Traditional Medicine.

OBSTETRICS AND GYNAECOLOGY

(a) **Gynaecology**

Introduction/Definition/Historical BackgroundDevelopmental Anomalies. Age Changes in the Genital Tract; Physiology of Reproduction; Clinical Evaluation of a Gynaecological Patient. Inflammatory Lesions of Genital Tract/Pelvic Pain; General Diseases; Tropical Diseases; Disorder of Menstrual Functions, Retroversion, Prolapse of Uterus; Displacements, Injuries to the Genitourinary Tract; Pelvic Endometriosis Neoplasms of the Genital tract; Benign and Malignant Fertility; Infertility, Over fertility Contraception, Sterilization, Medical Termination of Pregnancy; Operative Management; Instruments; Radiotherapy; Hormone Therapy Chemotherapy/immunotherapy; Cytogenetics/Vaginal Cytology; and Clinical Instruction and Practice.

(b) **Obstetrics**

Introduction/Definition, Historical Background; Anatomy of Genital Tract; Reproductive Physiology; Physiology of Pregnancy; Labour; Obstetrics, P.N. Care-Puerperium Normal/Abnormal; The Disorder of New Born –Evaluation of High Risk Factor, High Pregnancy assessment (Preventive OB/GYN.); Statistical Evaluation- Vital Statisitcs P>N>M; Ectopic Gestation; Traphoblistic Growth; Special Problems; and Clinical instruction and Practice.

FACULTY OF NATURAL AND APPLIED SCIENCES

B.SC. BIOLOGY

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
BIO 101	General Biology I	4
BIO 102	General Biology II	4
BIO 103	General Biology III	2
BIO 104	Biological Techniques I	1

200 LEVEL

Course Code	Course Title	Credit Units
BIO 201	Genetics I	2
BIO 202	Introductory Ecology	2
BIO 203	General Physiology	2
BIO 204	Biological Techniques	1
BIO 205	Introductory Developmental Cell Biology	3
BOT 202	Seedless Plants	2
BOT 203	Seedless Plants	2
ZOO 211	Invertebrates	3
ZOO 203	Chordates	3
MCB 201	General Microbiology I	3

300 LEVEL

Course Code	Course Title	Credit Units
BIO 301	Genetics II	3
BIO 302	Field Course	1
BIO 303	General Cytology	3
BIO 304	General Ecology	3
BIO 305	Molecular Biology	3
BIO 306	General Physiology II	3
BIO 307	History and Philosophy of Science	3
BIO 308	Evolution	2
BIO 309	Introductory Nematology	3
BIO 399	Industrial Filed Experience	3
BCH 211	General Biochemistry I	3
BCH 212	General Biochemistry II	3
MCB 303	Immunology and Immunochemistry	4
MCB 304	Environmental Microbiology	2
ZOO 304	Animal Behaviour	3
ZOO 305	Basic Entomology	3

400 LEVEL

Course Code	Course Title	Credit Units
BIO 401	Population Genetics	3
BIO 402	Cytogenetics of Plants	3
BIO 403	Soil Ecology	3
BIO 404	Systematic Biology	3
BIO 415	Seminar	1
BIO 499	Project	6
BIO 405	Developmental Biology	3
BIO 406	Marine Biology	3
BIO 407	Hydrobiology	3
ZOO 401	Parasitology	3
MCB 402	Food Microbiology	2
MCB 406	Medical Virology	3
ZOO 405	Nigerian Animals	3
MCB 407	Industrial Microbiology	4
MCB 408	Microbial Ecology	2

COURSE DESCRIPTIONS

100 LEVEL

BIO 101: GENERAL BIOLOGY I: 4 CREDITS

General concept of the cell; plant and animal cells. A study of the cell structure and functions of the organelles as viewed under light microscope. Diversity characteristics and classification of living things; intra and inter-relationships between organisms (competition, parasitism, predation, commensalities and mutualism); relationship between heredity and evaluation; introduction to Darwinism and Lamarckism, and Ecological concepts; Type of habitats and adaptations of organism to various habitats.

BIO 102: GENERAL BIOLOGY II: 4 CREDITS

General survey of levels of organization in plant and Animal kingdoms based mainly on the study of similarities and differences in the external featured, habitat selection and life cycle of each group. Ecological adaptation of these groups to their habitats.

BIO 103: GENERAL BIOLOGY III: 4 CREDITS

Anatomy of flowering plants: primary vegetative body viz. stem, leaf and root to show the mature tissues namely, parenchyma, collenchyma, sclerenchyma, xylem and ploem. Types of meristema and their roles in tissue maturity. Anatomy of the productive organs viz. flower, fruit and seed. General histology of animal tissue based mainly on vertebrate form. Morphology and functions of epithelial, muscular, nervous and connective tissues. The histology of skin, teeth thyroid pituitary and mammary glands and selected alimentary organs such as salivary gland, liver and villus.

BIO 104: BIOLOGY TECHNIQUES I: 1 CREDIT

Common Laboratory hazards: Prevention and first aid; used and care of microscopes (compound, sterio, and dissecting- Hand sectioning). Care and uses of dissecting kits and other biological wares. Biological drawings and illustrations: scale, accuracy and proportion. Micrometry.

200 LEVEL

BIO 201: INTRODUCTORY ECOLOGY: 2 CREDITS

Ecology concepts, population, community, Ecosystem; Biomes; Succession, niche; habitat; Productivity; Tropic relationships, Pyramids of number, biomass and energy, Limit factors in an ecosystem.

BIO 203: GENERAL PHYSIOLOGY I: 2 CREDITS

General physiology of plants and Animals; Reproduction; Nutrition; Excretion; Respiration; Hormones, and Nervous system in animals.

BIO 204: BIOLOGICAL TECHNIQUES II: 1 CREDIT

Chromatography: Paper, thin layer and column, colorimetry; conductometry. Collection and preservation of biological specimens, Histological techniques (sectioning, mounting, fixation and staining), smear and squash methods. Experimental deisgn, Data collection and analysis.

BIO 205: INTRODUCTORY DEVELOPMENTAL CELL BIOLOGY: 3 CREDITS

Early history and recent advances in cell biology: A stoutly of the cell as viewed under the electron microscope; submicroscopic cell structure and function of organelles; molecular components and their functions; proteins; chromosomes; and nucleic acids (DNA & RNA); cell division; mitosis and meiosis; cell growth, differenciation and development; fertilization.

BOT 202: SEEDLESS PLANTS: 2 CREDITS

Review of the Thallopyta, Eryophyta and Pteridopyta: Characteristics of the groups and their phylogenetic relationships fossil Cryptograms, Morphology, development of more advanced structures and their origin from lower plants groups, comparative study of life histories to emphasize the differences between groups.

BOT 203: SEED PLANTS: 2 CREDITS

General characteristics of spermatophytes; the development of spermatophytes; the similarities and differences between this group of plant and the cryptograms; phylogenetic relationships; comparative studies of the morphology; reproductive structures and life histories of selected general of spermatophytes to emphasize differences within the group.

ZOO 203: CHORDATES: 3 CREDITS

The classification and general characteristics of the various vertebrate classes (Agnatha, Chondrichthyes, osteichthyed, Amphibia, Reptilia, Aves and Mammalia); Typical examples from each classes to study their structure respiration, excretion, reproduction and nutrition evolutionary trends and adaptations to aquatic and terrestrial forms of life. Local or tropical examples should be used where ever possible.

MCB 201: GENERAL MICROBIOLOGY I: 3 CREDITS

Historical aspects; scope of Microbiology, General characteristics of micro-organisms growth and reproduction sterilization and disinfection; brief survey of microbes as friends and foes.

BCH 211: GENERAL BIOCHEMISTRY I: 3 CREDITS

The structure of cell unit membrane; the fluid-mosaic model of membrane structure. Carbohydrates, lipids and proteins; the chemistry of amino acids and peptides including method of isolation and identification. Primary, secondary, tertiary and quarterly structures of proteins and biochemical applications of these structures.

BCH 212: GENERAL BIOCHEMISTRY II: 3 CREDITS

The structure and chemistry of Nuclei acids; nomenclature of nucleosides and nucleotides, the effects of PH on hydrolysis of nucleic acids. Acidity and alkalinity PH and PKa values and their effects on cellular activities; Buffers and their action in the control of body fluid PH.

300 LEVEL

BIO 301: GENETICS II: 3 CREDITS

Genes and genetics interactions; human genetics; autosomes; sex chromosomes and sex determination; pedigree analysis; abnormal human karyotypes; aberrations of chromosomes.

BIO 302: FIELD COURSE I: 1 CREDIT

Description of techniques used in sampling for aquatic, terrestrial and arboreal flora and fauna.

BIO 303: GENERAL CYTOLOGY: 3 CREDITS

Cytology techniques: Microscopy: Light, Phase contrast, darkfield and election, staining techniques; auto-radiography; elements of cytogenetics.

BIO 304: GENERAL ECOLOGY: 3 CREDITS

(Pre-requisite BIO 202)
Biogeochemical cycles (water, nitrogen, phosphorous and carbon); Tropic levels and energy flow in an ecosystem; food chain and food web, Population dynamics; growth rates; life tables; survivorship; age structure and pyramid; carrying capacity and environmental resistance; density dependent and density independent factors; relationship between organisms of same species or different species (competition, parasitism, predation, commensalism, mutualism); ecology of man: human population growth; natural resources (management of game, range-land, minerals, forestry, land and water); environmental pollution.

BIO 305: MOLECULAR BIOLOGY: 3 CREDITS

Origin and development of cell organelles viz.: microtubules, microfilaments, golgi apparatus and mitochondria; structures and roles of micromolecules: such as polysaccharides, glycoproteins, phosphoproteins in relation to cell organelles, membrane- membrane interactions; genes and chromosomes; nucleic acids; replication, transcription and translation; protein synthesis; metabolic pathways; gen expression and regulation.

BIO 306: GENERAL PHYSIOLOGY I: 3 CREDITS

Comparative physiological processes in the animal kingdom in relation to habitats homenstatics, nutrition, respiration, transport, excretion, osmoregulation; growth and development; sensitivity; nervous and hormonal coordination; neuromuscular physiology; reproduction, dyfunctions of animal heart and circulatory systems; diseases (e.g. atherosclerosis) associated with these physiology processes should be treated briefly. Growth and metabolic activities of plants from seed to senescene; plant hormones; development of roots, stem and leaves; apical growth and dominance; rhythm of growth and growth correlations, methods of growth analysis; temperature effects (verbalization); tropisms and factors that control them; water relations to cell: imbibitions, cauolation, osmotic pressure, water potentials and tension in cell wall; permeability; water and mineral absorption and movement; transpiration; translocation; flowering, seed and fruit formation; fruit ripening; photoperiodism and effect of light in plants; abscission.

BIO 307: HISTORY AND PHILOSOPHY OF SCIENCE: 3 CREDITS

The history and philosophy of Science history of Biology from ancient Greekto present; historical development of Biological concepts and principles current trends and modern developments in Biology; the future of Biology.

BIO 308: EVOLUTION: 2 CREDITS

Origin of life, evolutionary theory; evidences to support evolution; variations; adaptations, natural selections, speciation; geological periods and epochs; evolution of selected organisms.

BIO 309: INTRODUCTORY NEMATOLOGY: 3 CREDITS

General classification and characteristics of animal and plant nematodes; studies of morphology and life-cycles; epidemiology, pathology, diagnosis and control of important parasitic nematodes of medical, veterinary and agricultural importance; pathological studies with reference to their roles as vectors of soil-borne viruses and relationship with other pathogens; nematology techniques.

BIO 399: INDUSTRIAL FIELD EXPERIENCE: 3 CREDITS

Candidates are expected to have a field experience in any of the following: Aquatic pollution, pest control and public health.

MCB 303: IMMUNOLOGY AND IMMUNOCHEMISTRY: 4 CREDITS

Basic concepts of immunology, structure of antigens, antigenic determinants; cellular response, genetics of response to antigenic stimulation. Structure and classification of immunoglobulin and antibodies. Mechanism and theories of antibody formation. Antigen and antibody interactions. Role of lymphoid tissues and thymus in immune responses. Hypersensitivity, immunopathology autopathology, auto-immunology, tumor and transplantation immunology, Immunoprahylaxis and serotherapy. The practicalswill include laboratory exercise in modern techniques in immunology and immune-chemistry.

MCB 304: ENVIRONMENTAL MICROBIOLOGY: 2 CREDIT

Micro-organism and other organisms important in aquatic system and disposals. Ecology of micro-organisms in fresh water. Population and self purification of water Disease transmission by water. Microbiological examination of water. Microbiology of waste disposal. Biological oxygen demand and chemical oxygen demand, test for sewage and water.

ZOO 304: ANIMAL BEHAVIOUR: 3 CREDITS

Behavioural patterns in animals; behaviour as a function of nervous and hormonal complexity; characteristics of innate and learned behaviour; the interaction of nature and nurture social behaviours; hierarchy, migration, homic territoriality, reproactive behaviour; roles of biological clocks and rhythms.

ZOO 305: BASIC ENTOMOLOGY: 3 CREDITS

Evolution, classification, characteristics and distribution of insects, general morphology and adaptive features of insects, mode of nutrition: ingestion, digestion and excretion; hemocoelsystem; behaviour and ecology of social insects.

400 LEVEL

BIO 401: POPULATION GENETICS: 3 CREDITS

Quantitative genetics; gene and genotype frequencies and application of Hardy-Weinberg equilibrium; factors influencing allele frequency.

BIO 402: CYTOGENETICS OF PLANTS: 3 CREDITS

Detailed study of mitosis and meiosis; chromosome morphology and behaviour duringcell cycle; causes and consequences of chromosomal aberrations; effects of polyploidy in plants.

BIO 403: SOIL ECOLOGY: 3 CREDITS

Composition and characteristics of soils: structure, texture, cation exchange capacity, micro and macro nutrients; soil water; capillary, gravitational, hygroscopic and structural; soil properties; soil organic matter and the process of humification; nutrient pools and biogeochemical cycles.

BIO 404: SYSTEMATIC BIOLOGY: 3 CREDITS

General principles of classification; biological nomenclature; subspecies and categories above species, development and use of taxonomic keys; experimental taxonomy.

BIO 415: SEMINAR: 1 CREDIT

Each candidate is to write a seminar paper on an aspect of pure or applied Biology/Botany/Zoology under the supervision of one or more academic staff. The paper should be presented orally in a departmental seminar.

BIO 499: PROJECT: 6 CREDITS

Each student is required to carry out a research project in any Biological area under the supervision of lecturer; the project should be written up in form of a scientific paper and presented at a Departmental seminar.

BIO 405: DEVELOPMENTAL BIOLOGY: 3 CREDITS

A detailed study of Genes and DNA and information storage; preformed information as genetic macromolecules; Genetics Code; protein synthesis; protein as subunits. The role of proteins assembly of cell organelles; cell multiplication mitosis and meiosis; cytogenesis; prokaryotic and eukaryotic cells; endogenous and exogenous control of cell cycle; way of achieving multicellulanity; aggregation, cell specialization; differentiation; malignancy; morphogenesis; reproduction; gametogenesis cogenesis and spermatogenesis; fertilization and embryo development; growth polarity; genetic and hormonal control of development.

BIO 406: MARINE BIOLOGY: 3 CREDITS

The physical and chemical properties of brackish and marine habitats; marine organism; adaptations, nutrition, osmoregulation, reproduction, excretion, economic importance of marine flora and fauna.

BIO 407: HYDROBIOLOGY: 3 CREDITS

Classification of aquatic habitats: marine, brackish and fresh water (rivers and lakes including man-made lakes); the physical and chemical properties of water and their biological importance; Thermal stratification; solvent action of water; dissolve oxygen; carbon dioxide, inorganic ions and carbonate – bicarbonate system; waves and currents and their effects on substratum. Aquatic communities; phytoplankton, benthic algae, macrophytes, zooplankton and zoobenthos; factors affecting their distribution and abundance; primary productivity; oligotrophic, dystrophic and eutrophic lakes; water pollution.

ZOO 401: PARASITOLOGY: 3 CREDITS

Parasitism in the Animal Kingdom: The concept of parasitism and its relationship with other animal associations; The Ecology and Physiology of parasites; Adaptations in structure and life histories; Host parasite and parasite – Parasite relationships; Effects of parasites on their hosts; Antagonistic and synergistic reactions; Development of resistant and immunity reactions.

MCB 402: FOOD MICROBIOLOGY: 2 CREDITS

The distribution, role and significance of micro-organisms in food; intrinsic and extrinsic parameters of foods that affect microbial growth, food spoilage and food borne diseases. Micro-organisms. Indices of food sanitary growth and food microbiological standards. Diseases of animals transmissible to man via animal food productions. Pre-requisites MCB 201/202; BCH 201.

MCB 406: MEDICAL VIROLOGY: 3 CREDITS

Attention will be given to the viruses pathogenic for man and animals with emphasis on virulence, type of disease produced, methods of control. The bacteriophage will be used in some of the laboratory practicals to demonstrate the characteristics of the viruses. Representative animal viruses will also be studied in the laboratory to demonstrate the nature of viral virulence. Method of viral cultivation and identification with special reference to tissue culture techniques will also be introduced. Pre-requisites, MCB 101/102.

ZOO 405: NIGERINA ANIMALS: 3 CREDITS

Identification and recognition of Nigerian molluscis, arthropods and vertebrates by sight, sound made by them and signs left by them; Habitats and habitats of Nigerians fauna; Endangered species.

MCB 407: INDUSTRIAL MICROBIOLOGY: 4 CREDITS

Nature of industrial microbiology. Micro-organisms of industrial importance. Aspects of the biology of moulds, yeast, bacteria, actinomycetes and viruses of importance in various fermentations. Culture techniques and maintenance of selected cultures. Mutation, strain selection and development hybridization. Media formulation and economics. Optimization of fermentation media at laboratory scale. Perimeter design operation. Antifoams. Aspect of biochemical engineering. Patents and patent law. Pre-requisites MCB 101/102/306 and BCH 201.

MCB 408: MICROBIAL ECOLOGY: 2 CREDITS

Microbes and ecological theory. Physiological, morphological and genetic adaptations of micro-organisms to their environments. Microbial interactions. Micro-organisms in ecosystems. Microbial bioconversions. Pre-requisites are MCB 304 and BIO 202.

B. SC. BIOCHEMISTRY

COURSE OUTLINE

200 LEVEL

Course Code	Course Title	Credit Units
BCH 201	`General Biochemistry	6

300 LEVEL

Course Code	Course Title	Credit Units
BCH 301	Enzymology	3
BCH 302	Metabolism and Carbohydrates	2
BCH 303	Metabolism of Amino Acid & Proteins	2
BCH 305	metabolism of nucleic acids & Pothyrins	2
BCH 306	Methods in Biochemistry	1
BCH 307	Membrane Biochemistry	1
BCH 308	Food Biochemistry	1
BCH 309	Nutritional Biochemistry	1
BCH 310	Bioenergetics	1
BCH 311	General Biochemistry Methods	2
BCH 313	Biochemical Endocrinology	2
BCH 399	Students Industrial Work Experience	3

400 LEVEL

Course Code	Course Title	Credit Units
BCH 401	Advance Enzymology	2
BCH 402	Biosynthesis of Macromolecules	1
BCH 403	Tissue Biochemistry	1
BCH 404	Bioinorganic Chemistry	1
BCH 405	Genetic Engineering	1
BCH 406	Metabolic Regulations	2
BCH 407	Plant Biochemistry	2
BCH 408	Biochemical Reasoning	1
BCH 409	Special Topics/Seminar in Biochemistry	2
BCH 410	Advanced Biochemical Methods	2
BCH 411	Industrial Biochemistry	3
BCH 412	Pharmaceutical Biochemistry	2
BCH 499	Research Project	6

Electives

Course Code	Course Title	Credit Units
BCH 413	Clinical Biochemistry	3
BCH 414	Comparative Biochemistry	3

COURSE DESCRIPTIONS

200 LEVEL

BCH 201: GENERAL BIOCHEMISTRY: 6 CREDITS

Chemistry of amino acids, proteins and their derivatives: methods of isolation and identification acidity and alkalinity, pH and pK a value and their effects on cellular activities: Buffers. Chemistry/Structures of carbohydrates, lipids and nucleic acids. Primary, Secondary, Tertiary and quaternary structures of proteins: determination and biochemical applications of the structures. Nomenclature of nucleasides and nucleotides effects of acid and alkali on hydrolysis of nucleic acids. Structures and functions of the major cell components, prokaryotic versus eukaryotic organisms.

300 LEVEL

BCH 301: ENZYMOLOGY: 3 CREDITS

Vitamins and co-enzymes, fat and water soluble vitamins, Structures and functions of vitamins and co-enzymes. Classification and nomenclature of enzymes. Genetics of enzymes and inhibition. Mechanism of enzyme – catalyzed reactions. Effects of temperature, pH, Ions and inhibitors on enzyme catalyzed reactions. Estimation of kinetic parameters – enzymes activities, km Vmax, ki, etc. Zymogen activation, digestive enzymes etc.

BCH 302: METABOLISM OF CARBOHYDRATES: 2 CREDITS

Degradation and digestion of carbohydrates – sugars, storage polysaccharide and walls. Reactions of sugars. Glycolysis, the Tricarboxylic acid cycle, the phospogluconate pathway the pentose phosphate pathway and the cori cycle, the Calvin pathway, Gluconchenesis and glyconeogenesis. Disorder of carbohydrate metabolism.

BCH 303: METABOLISM OF LIPIDS: 2 CREDITS

Classification of lipids – fatty acids, triglycerides, glycosylglyceroles, phaopholipids, waces, prostaglandins. Lipid micceles, monolagers and bilayers lipoprotein system. Oxidation and synthesis of fatty acids; cholesterol synthesis. Formation of ketone bodies. Integration lipid metabolism. Acetic acid as a central precursor for biosynthesis of fluids.

BCH 304: METABOLISM OF NUCLEIC ACIDS: 2 CREDITS

Amino acids as building blocks of proteining convertent backbone of proteins; Amino acid sequence of proteins. Protein isolation fractionation, purification and characterization of proteins. Biological functions of protein. Oxidative degradation of amino acids and metabolism of one carbon units. Biosynthesis of amino acids and some derivatives, and urea cycle metabolism of inorganic nitrogen. Disorder of amino acid metabolism.

BCH 305: METABOLISM OF NUCLEIC ACIDS: 2 CREDITS

Genome organization and biosynthesis of proteins. Metabolism of purines and pyrimidines, nucleusides and nucleotides and paphyrins; abnormalities in nucleic acid metabolism-xeroderma pigmentation and skin cancer. Pre-requisite BHC 304.

BHC 306: METHODS IN BIOCHEMISTRY: 1 CREDIT

Principles of instruction, Principles of methodologies and application of electrophoresis, chromatography, thin layer chromatography, spectosory and spectrophotometry, centrifugation and isotopic techniques. Pre-requisite BCH 201.

BCH 307: MEMBRANE BIOCHEMISTRY: 1 CREDIT

Structure, composition and functions of biological membranes. Isolation, characterization and classification of membranes: chemistry and biosynthesis of membranes. Molecular organization of membrane transport system – active versus passive transport systems. Transport of sugar and amino acids ionospheres.

BCH 405: GENETIC ENGINEERING: 1 CREDIT

Replication transcription and translation – a brief review. The genetic code and its relationship to cellular functions. DNA replication in a cell – free system. Genetic transformation, transfuction and conjugation. Gene mutation, mutagenic agents and thin applications to gene transfer. Gene mapping, structure of eucaryotic genome. Recombinant DNA and its application. Hybridomes.

BCH 406: METABOLIC REGULATIONS:

The relationship of Krebs' Cycle to proteins, carbohydrate, lipids and nucleic acids metabolism. Integration of metabolic pathways. Turn-over rates and metabolic pools. Regulation of enzymes of metabolic pathways feedback inhibition versus enzyme synthesis. Gatabolite repression and product repression the lactose operon and arabinose operon identification of different regulatory mechanism in metabolic pathways.

BCH 407: PLANT BIOCHEMISTRY: 2 CREDITS

Organization of plant cells, photosynthesis, alkaloids and flavonoids, plant hormones. Biosynthesis of caretonoid pigments. Biochemistry of plant Development. The plant cell wall structure formation and growth lignin formation. Free amino acids, pyrimidines, purines and nucleosides in plants. Metabolism of auxins, gibberellins and cytokinins. Synthetic growth regulators and herbicides. Structure function relationship of plant hormones.

BCH 408: BIOCHEMICAL REASONING: 1 CREDIT

Evaluation and design of experimental biochemistry from available information and data. Analysis, interpretation and inference –drawing from biochemical research data.

BCH 409: SPECIAL TOPICS/SEMINARS: 2 CREDITS

Hormones, immunochemistry, oncology, brain biochemistry, monoclonal antibodies. These may be taught or seminars may be given by academic staff and students.

BCH 410: ADVANCE BIOCHEMICAL METHODS: 2 CREDITS

The purpose of this course is to farmiliarize students with operations of latest biochemical equipment and with methods of research, assimilation and dissemination of information. Students will therefore go round lectures and laboratories housing specialized equipment with the aim of exposing them to such equipment under the supervision of lecturer. Part of the course will also cover the effective use of the library, preparation of dissertation or theses papers for journal publications and journal reviews. Special assignments and essays will be given to students.

BCH 411: INDUSTRIAL BIOCHEMISTRY: 3 CREDITS

A short review of microbial physiology and genetics. A review of general metabolic pathways, control and application in industrial processes. Continues culture methods, principles an application. The chemostat and its application in industrial fermentations – alcoholic, amino acids, antibiotics and other secondary metabolites. Primary and secondary metabolism. Process evaluation and development. Over production of metabolites – amino acids, taste enhancers, vitamins, toxin etc. methods for screening and selecting micro-organism of industrial importance. Introduction of mutation in micro-organisms and plants for the purpose of production. Strain selection/development and enhancements. General dosage and application industrial processes.

BCH 412: PHARMACOLOGICAL BIOCHEMISTRY: 2 CREDITS

Cellular metabolism in infected cells. Biochemical aspects of host-parasite relationships. Metabolic factors affecting chemotherapeutic agents. Theories of the mechanism of drugs action. Drug resistance and other factors affecting drug efficiency. The physiological and biochemical action of some selected drugs. Nigerian traditional medicinal plants in the management and therapy of common ailment in Nigeria – malaria, sickle cell anemia, common cold, hepatitis. Etc.

BCH 413: CLINICAL BIOCHEMISTRY: 2 CREDITS

Comparative study of the metabolism of organ/tissue (blood, liver, kidney, heart, brain) in normal and diseased states. Acid base electrolyte balance. De-arrangement in homeostasis in carbohydrate, lipid, amino acids and protein metabolism. Biochemical tests performed in clinical laboratory.

BCH 414: COMPARATIVE BIOCHEMISTRY: 2 CREDITS

Introduction, Genesis: The colonization of fresh water, composition of blood. Biochemical evolution; biochemical embryology and the biochemistry of morphogenesis. Nutrition and digestion in different organisms. Review of the metabolism of Nitrogenous compounds in different organisms. The distribution of nitrogenous bases and phosphagens. Excretion of Nitrogenous compounds. Comparative biochemistry of respiration.

BCH 499: RESEARCH PROJECT: 6 CREDITS

Independent research findings into selected areas/topics of interest to the academic staff. Student will be required to carry out literature survey in the topics, perform experiments and produce short reports (preferably at the end of second semester). Students will be subjected to both seminar and oral examination on the projects undertaken.

B.SC. BIOTECHNOLOGY

COURSE OUTLINE

300 LEVEL

Course Code	Course Title	Credit Units
BTC 303	Cell Biology	3
BTC 301	Biostatistics	1
BCH 303	Biochemical Techniques	3
BTC 302	Microbial Growth & Growth Kinetics	3
BTC 304	Genetic Engineering	3

Elective

Course Code	Course Title	Credit Units
BTC 306	General Ecology	3

400 LEVEL

Course Code	Course Title	Credit Units
BTC 401	Pharmacology of Natural Products	2
BTC 402	Biochemical Engineering I	3
BTC 403	Cell & Tissue Culture	3
BTC 404	Pest Management & Control Technology	3
BTC 405	Agricultural Biotechnology	3
BTC 406	Bioassays & Chemical Screening	3
BTC 407	Biochemical Engineering II	3
BTC 408	Environmental Bioscience	3
BTC 409	Seminar Topics in Biotechnology	1
BTC 499	Research Project in Biotechnology	4

Elective

Course Code	Course Title	Credit Units
BTC 410	Diagnosis of Parasitic Infections	3

COURSE DESCRIPTION

300 LEVEL

BTC 301: BIOSTATISTICS

Introduction to Biostatistics, Numerical Statistics, Arithmetic, Average, Mean, Mode, Media and Standard Deviation, Standard Error, Graphs, Pit Charts, Bar Charts/Histograms. Inferential statistics, T-test, Z-test, Chi-square, probability, Bernoulli, Principles, Regression, Correlation, use of computer.

BTC 302: MICROBIAL GROWTH AND GROWTH KINETICS

Cell and population growth; batch, continuous and synchronous culture. Measurement of microbial mass, total and viable counts of microbial populations. Growth curve of micro-organisms and conditions for growth. Principles of microbial cultivation in aqueous. Mathematics of population growth rates in batch, fed batch continuous cultures. Derivation of equations for log time, mean generation time and specific growth rate. Comparison of methods of measuring growth limitation of growth in batch culture, substrate utilization and measurement of growth yields. Death phase of bacterial growth curve and method of preventing growth and killing cells.

BTC 303: CELL BIOLOGY

Living matter (Protoplasm) its nature and characteristics. Origin of cells; molecular basic of cell structure and composition; Nature features. The cell membrane, Cytoplasm and cell Nucleus. Cell organelles, Endoplasmic Reticulum, Golgi Apparatus, Mitochondria, Lysosmes, Ribosomes, Vacuoles, Microtubules, Microfilaments, Nucleolus, Membrane Interactions, Cell Physiology and Metabolism, Cell Growth, Multiplication and Cell Division/Reproduction.

BTC 304: GENETIC ENGINEERING

Replication transcription and translation – a brief review. The genetic code and its relationship to cellular functions. BNA replication in cell-free system. Genetic transformation, transduction and conjugation. Gene mutation, mutagenic agents and their applicators to gene transfer. Gene mapping. Structure of eukaryotic genome. Recombinant DNA and its application.

BTC 306: GENERAL ECOLOGY

Science of Ecology, Mature of our Environmental, the Ecosphere, Biosphere, Ecosystem, Physical and Chemical factors in the Environment, environmental and Biogeochemical Cycles. Population of Organisms and Population Ecology and Dynamics. Relationship and interdependence of Organisms; Tropic Relations, Food Chains and Food Webs. Energy flow through the Biosphere, Biotic communities and Ecological succession.

400 LEVEL

BTC 401: PHARMACOLOGY OF NATURAL PRODUCTS

The living plant cell. Cell differentiation, ergastic cell contents. Biological and geographical sources of Drugs. Cell cultures as source of drugs. Factors involved in the production of drugs. The Pharmacological, action of plant drugs. Phytochemistry: Basic metabolic pathways and the origin of secondary metabolite, Microbiological conversions. Aberrant synthesis in higher plants. Drugs of biological origin. Commerce and quality. Control of drugs.

BTC 402: BIOCHEMICAL ENGINEERING I

A brief review of kinetics of enzyme-catalyzed reactions and applied enzyme catalysis. Metabolic, stoichrometry and Energetic. A brief review of Molecular genetics and control systems. Kinetics of substrate utilization, product formulation, and biomass production in cell-cultures. Transport phenomena in Bioprocess system.

BTC 403: CELL AND TISSUE CULTURE

Review of basic principles of Microscopy, Cytology and history. Cultivation of micro-organisms and various cell type and tissues. Types of culture media, their composition, preparation and uses. Principles and application of in

vitro and in vivo cultivations. Isolation and Identification techniques; Incubation and preservation of cell and Tissue Cultures, Physical, Chemical and Biological Standardization methods. Immunological and Serological methods. Role of Antimicrobial Agents in cell and Tissue Culture. Cultivation of viruses and other sundry organisms.

BTC 404: PEST MANAGEMENT AND CONTROL TECHNOLOGY

Principles of Pest Management. Methods and Techniques available for management of various types of pests (e.g. Agricultural, Industrial and Public Health Pests as well as stored Produce Pests, Domestic Urban Rural and cosmopolitan Pests etc). Technological as pest of pest control including the use of chemical, Biological, Bio-physical (e.g. Irradiation) and Bio-chemical (e.g. Sterilization) techniques, plus such-contemporary approaches as use of microbial pesticides, and Insect Growth Regulations etc for the control of sundry Pests in various habitats. Focus on strategies and Equipments for Pest Management and Control.

BTC 405: AGRICULTURAL BIOTECHNOLOGY

Principles of plant and Anima Breeding, Cross-breading, selection and hybridization, Fermentation and Food processing etc. Quality control and preservation method for Agricultural produce. Laboratory culture and field cultivation methods. Formulation and Application of Bio-fertilizers and feed rations, culture media for Micro-organisms, clonal propagation and Germplasm conversation. Genetic engineering methods for Pest and pesticide resistance and for breed selection, disease resistance and virus tolerance. Antibody and vaccine production techniques as applicable to livestock rearing and production generally.

BTC 406: BIOASSAYS AND CHEMICAL SCREENING

Nature and characteristics of chemical pesticides. Methods of Synthesis (including composition) and classification of Chemical (e.g. Insecticides, Molluscicides, Rodenticides, Fungicides, Herbicides etc) employed in Agriculture, Public Health, Environmental Protection, and Industry generally. Essence of Bioassays for the detection, measurements and monitoring of chemical substances in Plants, Animals, Soils, Water and air, and in the Environment generally. Chemical screening technique employed in the handling of Drugs, Pesticides, Trace metals, and Pollution factors generally.

BTC 407: BIOCHEMICAL ENGINEERING II

Design and Analysis of Biological Reactions. Ideal bioreactors, reactor dynamics. Sterilization of reactors, multiphase bioreactors, fermentation technology and animal and plant cell reactor technology. Instrumentation and control. Product recovery operations. Basic theory will be illustrated with specific examples of current biotechnological processes. Micro-organisms and other organisms important in aquatic systems and disposals. Ecology of micro-organisms in fresh water. Pollution and self purification of water; water purification. Brief studies of marine microbiology, Disease transmission by water, Microbiological examination of water. Microbiology of waste disposal. Biological oxygen demand and chemical oxygen demand tests for sewage and water; pest control. Wrinkler's method of determining available oxygen in water sample.

BTC 408: ENVIRONMENTAL BIOSCIENCE

BTC 409: SEMINAR IN BIOTECHNOLOGY

BTC 410: DIAGNOSIS OF PARASITIC INFECTIONS

Review of methods available for diagnosis of various Parasitic Infections; especially Protozoal Infections, Helminthic Infections (caused by Parasitic Trematodes, Cestodes and Nematodes), and Infections caused by Parasitic Arthropods (e.g. myiasis-producing maggots, fleas, mites etc). detailed laboratory techniques and process including wet and permanent preparations, staining techniques and concentration methods (for parasite cyst, eggs and larvae) etc. Study of Sero-Diagnostic and various other Immunodiagnostic Techniques.

BTC 499: RESEARCH PROJECT IN BIOTECHNOLOGY

B. SC. CHEMISTRY
COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
CHM 121	Foundation Chemistry I	3
CHM 151	Foundation Chemistry II	3
CHM 171	Foundation Chemistry III	3

LEVEL 200

Course Code	Course Title	Credit Units
CHM 221	Inorganic Chemistry I	3
CHM 222	Theoretical Inorganic Chemistry	2
CHM 251	Thermodynamics and Basic Reaction Kinetic	3
CHM 252	Thermodynamics and Electrochemistry	2
CHM 271	Organic Chemistry I	3

300 LEVEL

Course Code	Course Title	Credit Units
CHM 301	Analytical Chemistry I	3
CHM 311	Industrial Raw Material: Organic and Inorganic	3
CHM 312	Polymer Chemistry	3
CHM 313	Carbohydrate and Proteins	2
CHM 314	Radio-Nuclear Chemistry	2
CHM 315	Food and Drugs	2
CHM 316	Colour Chemistry and Technology	2
CHM 317	Petrochemistry	2
CHM 318	Organometallic Chemistry I	2
CHM 321	Inorganic Chemistry II	4
CHM 322	Inorganic Chemistry III	2
CHM 351	Statistical Mechanics and Thermodynamics	4
CHM 352	Theoretical Chemistry	2
CHM 371	Organic Chemistry II	4
CHM 372	Natural Products I	2

400 LEVEL

Course Code	Course Title	Credit Units
CHM 401	Analytical Chemistry II	3
CHM 411	Applied Spectroscopy	3
CHM 421	Coordination Chemistry	3
CHM 422	Organometallic Chemistry II and Chemistry of the Inner Transition Elements (Actinides and Trantham Des)	2
CHM 423	Inorganic Reaction Kinetics & Electron Def. Compounds	2
CHM 424	Environmental Chemistry	2
CHM 451	Advanced Physical Chemistry	3
CHM 425	Advanced Electrochemistry and Kinetics	2
CHM 453	Molecular Spectroscopy	2
CHM 471	Organic Chemistry III	3
CHM 472	Physical Organic Chemistry	2
CHM 473	Organic Methods and Synthesis	2
CHM 474	Natural Product Chemistry II	2
CHM 490	Project	2

COURSE DESCRIPTIONS

100 LEVEL

CHM 121: FOUNDATION CHEMISTRY I: 3 CREDITS

The electronic structure of atoms. Discovery of the sub- atomic particles; cathode ray, J. J. Thompson, Milliken (oil drop), Rutherfold, Rotgen, etc, experiments; Bohr's atom and atomic line spectra. Quantum theory and planck's constant and Hund's rules; Pauli's exclusion principles. Electronic arrangement in the first twenty (20) elements- Ionization energies, electron affinities and electro-negativities. The periodic table, correlation with electronic configuration. Vertical and horizontal relationships. Periodicity of atomic properties e.g. Ionization Energies, atomic radii, electro-negativity, metalloid character and atomic volume. Oxides, hydrides and hydroxides and halides of the elements of the first short periods. The chemical bonds, physical properties related to structure and position in the periodic table. Ionic covalent, coordinate, and metallic bonds; van-der-wall forces.

CHM 151: FOUNDATION CHEMISTRY II: 3 CREDITS

States of matter - gas, liquid, and solid. The gas laws Boyles; Charles, Dalton's, Graham's law of diffusion. Avogadro's principle. Ideal gas equation. Kinetic theory of gases and the general gas equation. Real gases and deviation from ideal behaviour, Boltzmann distribution law. Liquefaction of gases. Liquids -pressure and temperature, relationship. Raoult's and Henry's laws, Azeotropic mixtures. Partition/distribution law, Colligative properties -boiling point elevation, freezing point depression and osmotic pressure. Solid state -structure of solids, types of crystal structure. Eutectic mixtures and phase diagram. Thermochemistry, entropy, free energy, Hess' laws and heat of reaction. Introduction to chemical kinetics: First order reactions, rate constant, half-life, rate and factors affecting rate of reaction. Activation energy and catalysis.

CHM 171: FOUNDATION CHEMISTRY III: 3 CREDITS

Tetravalency of carbon and scope of organic chemistry. Isolation and purification of organic compounds (crystallization, fractional distillation, chromatography, etc). Qualitative and quantitative analysis of organic compounds. Empirical and molecular formulae calculations. Structural formula, structural isomerism. Electronic concepts in organic compounds: sp3, sp2 and sp hybridization. Functional groups in Organic compounds. A survey of the various families of organic compounds viz.: hydro-carbons (including benzene), alcohols, alkyl halides, aldehydes, ketones, carboxylic acids, esters, amine etc.

CHM 221: INORGANIC CHEMISTRY I:3 CREDITS

Systematic chemistry of the representative elements of Groups I- VIII. General characteristics and periodic trends. General properties of transition elements; introduction to nuclear chemistry. Concepts of acids and bases. Arrhenius, Bronted- Lowry and Lewis concepts. Classification of Lewis acids and I bases into Class A&B and the Schgardenbach classification.

CHM 222: THEORETICAL INORGANIC CHEMISTRY: 2 CREDITS

Approaches to covalent bonding: Heitler -London, valence bonds and molecular orbital theories of simple (Home and heteroatomic) molecules. Bonding, non-bonding and anti-bonding molecular orbitals. Bonds order. Solid state chemistry and energetics; Haber's cycle. Inorganic reactions in awueous and non-awueous media.

CHM 251: THERMODYNAMICS AND BASIC REACTION KINETICS: 3 CREDITS

Kinetic theory leading to Maxwell-Boltzman distribution law, rate laws and theory of reaction rates; interpretation of kinetics data. Reactions in solution involving Bronted-Bjerrum treatment of primary salt effects; acid-base catalysis and linear-free energy changes. Heterogeneous reactions.

CHM 252: THERMODYNAMICSANDELECTROCHEMISTRY: 2 CREDITS

First Law, Kirchoffs equations, molecular basis of thermodynamics. 2nd law computation of entropy for a simple free energy and spontaneity of reactions. Thermodynamics -versus kinetics. Relationship to equilibrium constant, Van't Hoff Isochore, chemical potentials and definitions. Ions in solutions: The Arrheniuns theory, colligative properties of electrolytes, the conductivities of ions; measurement of conductance and its applications. Solvation

of ions, transport numbers, a qualitative treatment of dybye-Huckel theory of ion, ion interaction and its application. E.m.f. of cells, and its application to thermodynamic parameter.

CHM 271: ORGANIC CHEMISTRY I: 3 CREDITS

Factors affecting chemical and physical properties of organic compounds. Factors affecting availability of electrons - inductive and mesomeric effects. Bond fission and formation, free radical substitution reactions of alkanes. Electrophilic and nucleophilic substitution reaction. Detailed functional group chemistry of main classes of organic compounds. Aromaticity: Chemistry of aromatic compounds.

300 LEVEL

CHM 301: ANALYTICAL CHENTISTRY I: 3 CREDITS

Statistical treatment of data. Sources and nature of errors. Processes in analytical chemistry. Volemetric and gravimetric methods of analysis: Separation methods: chromatography: thin- layer, paper, and column chromatography; gel permeation and ion-exchange. Fractional distillation.

CHM 311: INDUSTRIAL RAW MATERIAL: ORGANIC & INORGANIC: 3 CREDITS

a. Organic:

i. Products from petroleum composition, refining cracking and reforming of petroleum.to yieldalkanes, acetylene, aromatics and hydrogen and conversion of these to basic chemicals.

ii. Coal: destructive distillation. coking,'Fischer-Torpsch synthesis, etc.

iii. Products from fermentation; alcohol, other chemicals and drugs. Biodegradation.

iv. Natural vegetation and possible resources from agricultural products.

b. Inorganic:

i. Sources of chemicals and energy. lnventory of Nigeria's natural resources. Resource depletion.Renewable and non- renewable resources. Recycling. Environmental effects of chemical industry.

ii. Extraction of selected metals featuring processing of ores, thermal and electrolytic reductionmethods,purification processes. Uses of these metals. Corresion and passivity.

iii. The chloro-alkali industry. Electrolysis of brine. Production and used of caustic soda chlorine. bleaching powder.

iv. Manufacture, purification and uses of industrial gases.

v.

CHM 312: POLYMER CHEMISTRY: 3 CREDITS

Polymer nomenclature. Sources of raw materials for polymers. Polymerization processes -addition andcondensation polymerization. Solubility and solution properties of polymers. Structure and properties ofpolymers. Fibre forming polymers. Polymerization mechanisms, stereospecific polymerization.Copolymerisation. Phase system for polymerization. Industrially important thermoplastic and thermosetting polymers. Polyurethanes. Rubber elasticity, Mechanical properties of polymers. Analysis and testing ofpolymers Degradation of polymers.

CHM 313: CARBOHYDRATES AND PROTEINS: 2 CREDITS

Carbohydrates: classification, structure and nomenclature Sugars: general reactions, preparations and reaction mechanisms. Configuration. Epimerisation. Protein, structure determination. Viscosity and molecular weight determination, preparation of ammonia acid.

CHM 314: RADIO-NUCLEAR CHEMISTRY: 2 CREDITS

Radioactivity: Radiations, nuclear structure, isotopes, separation of isotopes. Radioactive decay and kinetics, radioactive series. Nuclear mass and stability, m/p ratio, mass excess binding energy, Nuclear instability and decay modes; nuclear fusion and fission. Half-life detection and measurement countries. Nuclear reactors and nuclear bombs; future trends. Ortho - and parahydro gen spectroscopic techniques based on nuclear properties further uses of isotope tracers; dating and safety precautions.

CHM 315: FOOD AND DRUGS: 2 CREDITS

Industrial fermentation Processes. Flavouring agents and preservatives, Herbicides and insecticides. Drugs: antibiotics and analgesics.

CHM 316: COLOUR CHEMISTRYAND TECHNOLOGY: 2 CREDITS

Colour and constitution. Chemical properties of dyes and pigments. Classification of dyes and fibres. Dyeing mechnisms, preparation and dyeing of material and synthetic fibres, Colour fastness properlies. Quality control procedure and the colouration industry.

CHM 317: PETROCHEMISTRY:2CREDITS

Basic concepts in petrochemicals. Basic raw materials sources and end-use products (e.g. Polymers). Crude oil:origin, composition and classification. Natural gas: wet and unassociated. Basic refinery operations products and utilization. Products of base petrochemicals and acomparative analysis of production routes. Coal as a basedraw material. A technologicalappraisal.

CHM 318: ORGANOMETALLIC CHEMISTRY I: 2 CREDITS

Classification of organometallic compounds. A comprehensive study of the synthesis, properties, structure anduses of the organometallic compounds of the alkali metals and of the transitionmetals. Classification of ligands, 18 electron rule; reaction pathways; bonding analysisinvolving organometallic compound. The organicchemistry of ferrocene and relatedcompounds.

CHM 321: INORGANIC CHEMISTRY II: 4 CREDITS

Introduction of coordination chemistry: definitions, basic concepts and elementary nomenclature of complexes. Systematic chemistry of elements of the first transition series (i.e. 3rd elements). Structure and bonding in polyatomic molecules.

CHM322: INORGANIC CHEMISTRY III: 2 CREDITS

Chemistry of representative elements of 2^{nd} and 3^{rd} transition series (i.e. healthiest transition elements). Generalproperties of the platinum: metals. Introduction to organometallic chemistry: bonding in ' ' and ' ' acid complexes, metal atom halide clusters; structural aspects, i.e. l8 electron rule; mononuclear metal carbonyls. Organometallic fragments and the isolobal analogy. Bioinorganic chemistry.

CHM 351: STATISTICAL MECHANICS AND THERMODYNAMICS: 4 CREDITS

Introduction to statistical thermodynamics equipartition principle. Variation of CP and CV with temperature Molecular basis for thermodynamics. Microstates and configurations;Boltzman law leading to formal derivation of Maxwell-Boltzmann. Distribution law of molecular, velocities,partition functions, third, law chemical potential and application to solutions, liquids and changes ofstates.

CHM 352: THEORETICAL CHEMISTRY: 2 CREDITS

Quantum mechanics -the Schratinger equation. Solution for a particle in a box and particle in a ring. Solution fora hydrogen atom, sodium atom; ground and excited states. Theory of atomic spectra. Russell-Sanders coupling.

CHM 371: ORGANIC CHEMISTRY II: 4 CREDITS

Polyfunctional compounds: alicyclic and heterocyclic compounds, stereochemistry and introduction to thetheory of organic chemistry. The interaction of functional groups within a molecular synthesis and reactions.Chemistry of hydroxyl-acids, hydroxyl-ketones, and hydroxyl-aldehydes. Lactones and lactan formation.Properties of bicarbonyl compounds. Polyhydric alcohols, unsaturated alcohols, other carbonyl compounds andacids. The chemistry of 3.4.5 and 6 membered heterocyclic compounds containing nitrogen, oxygen andsulphur. Stereochemistry of organic, compounds and optical isomerism of compounds with one or more asymmetric centres. Concepts of chirality and absolute configuration. The synthesis. of alicyclic compounds and their Cycloalkanes and cycloalkenes. Rearrangements, electrocyclic and cycloaddition reaction

CHM 372: NATURAL PRODUCTS I: 2 CREDITS

Terpenoids: Classification and biogenesis. Steroids: squalene as precursor; classes of sterols; oxygen containing heterocydic natural products and y -pyrones; chromones, conmarins, flavonoids, isoflavonoids and anthcyaindins. General methods of isolation, separation, purification, structural determination of natural Products.

CHM 401: ANALYTICAL CHEMISTRY II: 3 CREDITS

Separation methods: solvent extraction methods of analysis and separation. Spectrophotometric (colorimetry) methods of analysis turbidimetry and nephelometry. Flame methods of analysis - I Electroanalytical methods - electrogravimetry, polarography potentiometry, amperometry, etc.

CHM 411: APPLIED SPECTROSCOPY: 3 CREDITS

Application of U.V.I.R, NMR and mass-spectrometry in chemical analysis and structural elucidation. CHM 421 (C)

CHM: COORDINATION CHEMISTRY: 3 CREDITS

Nomenclature, coordination numbers and stereochemical preparation, isomerism and stability, kinetic and theories of bonding in complexes. Electronic and magnetic properties of coordination on compounds. Coordination chemistry applied to first raw transition elements, stereochemical preferences and deviations from regular geometries. Jahn-Teller theorem.

CHM 422: ORGANOMETALLIC CHEMISTRY II AND CHEMISTRY OF THE INNER TRANSITION ELEMENTS (ACTINIDES AND TANTHAMIDES): 2 CREDITS

organometallic chemistry II: Metal carbonyl halides and hydrides. Reactions of organometallic compounds including syntheses and structure. Fluxional complexes, metallocenes and cyclopentadienyl compounds. Inner Transition Elements: configuration, orrurance, extraction, purification and isolation of lanthanides and actinides Uses of elements.

CHM 423: INORGANIC REACTION KINETICS AND ELECTRON DEFICIENT COMPOUNDS: 2 CREDITS

a. Introduction: Techniques employed in the investigation of reaction mechanisms. Insert and Labile complexes; substitution reactions of octahedral and square planar complexes. Redox reactions. A mechanistic survey of Organometallic reactions.
b. Electron deficient compounds: Neutral bones borane anions, borarine, carboranes andmetallocarboranes.

CHM 242: ENVIRONMENTAL CHEMISTRY: 2 CREDITS

Concepts of elementary cycles. Characteristics of the atmosphere. Sources, types and effects of environmental pollution. Waste water treatment. Composition of domestic wastes. Water chemistry and analysis. Physical andchemicalinstrumentation in environmental sciences.

CHM 461: ADVANCED PHYSICAL CHEMISTRY: 3 CREDITS

Quantum mechanics and the covalent bond. Combination of atoms - the formation of diatomic molecules.Application of molecular arbital theory to the homonu5tear, diatomic molecules of the first shout period elements. Hybridization of atomic orbitals: molecular orbital theory on heteronuclear diatomic molecules. Binding in polyatomic molecules. Review of molecule summetry operations. Molecular symmetry groups. Group representations. General symmetry applications. Character table. Kinetics of enzymatic reactions, photochemical and electrochemical reactions. Catalysis and heterogeneous reactions.

CHM 452: ADVANCED ELECTROCHEMISTRY AND KINETTCS: 2 CREDITS

Electrochemistry: Behaviour and activities of ion in solutions, the nature of, electrolyses and the significance of ion-ion interactions: Debye-Hucked theory of ion-ion intersection, the triumph and limitation of this theory. The role of electrodes; the electrochemical potential, interfacial phenomenon and the significance of interface between conducting phases, the electric potential at interfaces. Electrochemical cells and their uses electrochemical processes as sources of energy. Advanced Kinetics: Experimental methods in gas kinetics and for fast reactions in solution. Theoretical interpretation *of*reaction states; applications.

CHM 453: MOLECULAR SPECTROSCOPY: 2 CREDITS

I.R. Raman-Spec., Microware, vibration, rotation, interaction aspectra. Absorption spectroscopy: nuclearmagnetic resonance, ESR, mass aspectra.

CHM 471: ORGANIC CHEMISTRY III:3 CREDITS

Chemistryofcarbocyclic and heterocyclic compounds and related natural products: Organic preparations. Fused heterocycles containing one, heteroatom e.g. indole, guinoline, isoquinoline, etc. 6-Membered rings with two nitrogen atoms ego Pyridazine, pyrimidine, pyrazine etc.

CHM 472: PHYSICAL ORGANIC CHEMISTRY: 2 CREDITS

Survey of selected reaction mechanisms: substitution, elimination, addition and re-arrangement reactions. Walden Inversion; Mechanisms of substitution: SN 1 and SN 2. Wagner-Meerwein Re-arrangements'. Beckmann, Hoffmann, Loss and Curt re-arrangements. Steric orientation in nucleophilic re-arrangements.Aromatic substitution: Electrophilic and undeophilic, elimination and addition reactions. Rates of reactions and steric factors; catalytic hydrogenation; anchimeric assistance and nature ofsubstitutents; free-radical reactions and their detection.

CHM 473: ORGANIC METHODS AND SYNTHESIS: 2 CREDITS

Oxidation and reduction reactions, synthesis and reactions of acetylenes. Formation of carbon -carbon bonds: Aldol condensations, Reformatsky reaction, wiling ethylenic bond synthesis, Mannich and Di ls-Alder reactions, Alkylation of simply carbonyl systems. Photochemical reactions.

CHM 474: NATURAL PROJECT CHEMISTRY II:2 CREDITS

The chemistry of the alkaloids: general characteristics isolation and structure determination. Classification of alkaloids. The chemistry of higher biological molecules; vitamins, hemoglobin and chlorophyll.

B.SC. COMPUTER SCIENCE

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
CSC 102	Programming in Basic Language	2

200 LEVEL

Course Code	Course Title	Credit Units
CSC 200	Introduction to Computing	2
CSC 201	Data Structure	3
CSC 202	Introduction to File processing	3
CSC 203	Computer Programming	3
CSC 204	Digital Computer System	3
	Numerical Method	3

300 LEVEL

Course Code	Course Title	Credit Units
CSC 300	Application of Computer.	3
CSC 301	Introduction to Computer System (including low level Language)	3
CSC 302	Operating Systems and Design	3
CSC 303	Computer Architecture	3
CSC 304	Theoretical Computer. Science	3
CSC 305	Systems Analysis and Design	3
CSC 306	Introduction to Database Design and Management	3
CSC 307	Microprocessors/Micro-Computers	2
CSC 308	Computer Installation and Management	2
CSC 310	Operations Research	3

400 LEVEL

Course Code	Course Title	Credit Units
CSC 401	Introduction to Artificial Intelligence	3
CSC 402	Organization of Programming Language	3
CSC 403	Software Design and Management	3
CSC 404	Compiler Construction	3
CSC 405	Computer and Society	3
CSC 406	System modeling and Simulation	2
CSC 407	Data Communication/Networks	2

COURSE DESCRIPTION

100 LEVEL

CSC 102: PROGRAMMING IN BASIC: 2 CREDITS

computer structure, machine language; assembly language; addressing techniques macrose, file I/O; assembler segmentation and linkage; assembler construction;interpretive, routines; the flow-chart language; arrays, input-output, control statements, statement junction, function and sub-routine segments, common, equivalent statements.

200 LEVEL

CSC 200: INTRODUCTION TO COMPUTING: 2 CREDITS

History and types of computers; computer hardware and softwares; functional units of a digital computer; number system;punching of cards; used of punch cards; low-level and high-level languages; source and object programmes; translators (assemble, compiler and interpreters); storage, manipulation and retrieval of data; algorithms and flow-chart; fixed and floating point numbers; file editing and use of soft/merge soft-ware facilities; use of statistical packages.

CSC 201: DATA STRUCTURE AND ALGORITHM: 3 CREDITS

Review of relevant basic mathematical concepts; basic definitions, relationships between algorithms and datastructures, linear data structure, arrays, linear linked lists, stacks, queues and dequeues; nonlinear data structure applications; data structure implementation scheme; data type correct; data handling facilities in programming languages.

CSC 202: INTRODUCTION TO FILE PROCESSING: 3 CREDITS

Introduction to data management files; and job control language application; an over-view of I/O (input/output)system architecture; logical file organisations; mapping logical organisation on to physical storage; back-upprocedure; file recovery; higher level language data management facilities, file attribute, STREAM files. Recordfiles, GET and PUT, OPEN and CLOSE.

CSC 203: COMPUTER PROGRAMMING: 3 CREDITS

Introduction to problem solving methods and algorithm developments, designing, coding, debugging and documenting programmes using techniques of a good programming language style; computer organisation. programming languages and programming algorithm development, testing, string processing; internal searching and sorting; data structure, recursion, various programming languages should be applied in teaching all of the above mentioned concepts.

CSC 204: DIGITAL COMPUTER SYSTEM: 3 CREDITS

Combinatorial logic, sequential logic micro processors and microcomputers, logic of arithmetic circuitry, machine instructions; general registers, the unconditional branch, logical instructions.

CSC 205: NUMERICAL METHODS: 3 CREDITS

Floating point arithmetic, use of mathematical subroutine packages; interpolation; approximation; numericalintegration and differentiation. solution ofnon-linear equations, solution ofordinary differential equations.

300 LEVEL

CSC 300: APPLICATION OF COMPUTER: 3 CREDITS

Introduction to Basic Programming: Problem solving methods and algorithms developments, Data types;constant and variables, coding, debugging and documenting programmes using techniques of a good programming language style. Statement types; assignment statements; input and output statements; ControlStatements.

computer organisation; Programming Languages relevant to humanity (non scientific). Introduction to data management files.

CSC 301: INTRODUCTION TO COMPUTER SYSTEMS (INCLUDING LOW LEVEL LANGUAGE): 3 CREDITS

Pre-requisites: CSC 102

Computer Structure, Machine Language, Assembly Language; addressing techniques macrose, file I/O; assembler segmentation and linkage assembler construction; interpretive routines; the flow-chart language arrays, input-output, control statements, statement junction, function and sub-routine segments, common, equivalent statements.

CSC 302: OPERATING SYSTEMS AND DESIGN: 3 CREDITS

Definition of operating systems, types of operating system real time (single-user/multi-user) sharing; classification of operating system interface with the hardware, operating system interface with other systems softwares; fi1es system; memory management job management and mathematical theory or job scheduling operating systems implementation techniques; modular and abstraction; performance evaluation, critical regions, deadlocks, mutual exclusion synchronization, study of time sharing operating systems e.g. UNIX, AOS, VS.

CSC 303: COMPUTER ARCHITECTURE: 3 CREDITS

Level of machine design, register and processor levels- Number system and computer arithmetic. CPU design; instruction set, instrument mix, von Neumann architecture, Multiplication and division algorithms and implementation. Basic logic design, data representation. instruction formats.

CSC 304: THEORETICAL COMPUTER SCIENCE: 3 CREDITS

Historical background of information theory; models of computation system, coding theory. Information and coding, basic concepts of interactive computing, interactive terminals, devices protocols, direct links, communication channels, telecommunication links, simplex halfduplex, duplex multiplexer, concentrators computer networks, operating system for online processing scheduling.

CSC 305: SYSTEMS ANALYSIS AND DESIGN: 3 CREDITS

General system concepts, system projects team organisation; overview of systems development process; project identification and selections; systems requirement analysis and feasibility study; fact finding techniques; systems design; business system design, computer system design, system implementation; system procurement, site preparation, system installation, system testing, system conversion; system projects report writing and presentation; system documentation, post-installation, evaluation, completion of real-life system.

CSC 306: INTRODUCTION TO DATABASE DESIGN AND MANAGEMENT: 3 CREDITS

Basic concept of data bases, history of DBMS, types of data bases, specific problems of data independence' data reliability, integrity, etc, data management, database generation, new data, data definitions data structure, storage structure,data base logical and physical organisation, interrogation, data model, network, hierarchy relational, security policies, privacy quality and integrity protection mechanism.

CSC 307: MICROPROCESSORS/MICRO-COMPUTERS: 2 CREDITS

Review of basic concepts in digital electronics; microprocessors functions, operations and architecture; compaction of current microprocessors; multi-chip and single-chip; I/O organisation; assembler language; compaction of instruction sets; address modes stack operation; subroutines, I/O data transfers; bus control; daisy chaining, handshaking etc; interrupt structures; programmed transfer; DMA micro-computer systems; types of micro-processors;micro-computer networking; interfacing micro-computer real-time control; laboratory exercises using and assembly language.

CSC 308: COMPUTER INSTALLATION AND MANAGEMENT: 2 CREDITS

The role of computer centre; general operating procedures; data preparation; the magnetic tape library; operation procedure; job processing procedure; security procedures; performance statistics.

CSC 309: OPERATIONS RESEARCH: 3 CREDITS

Brief survey of optimization problems, linear programming; graphical solution of two-variable problems. Simplex mothod sensitivity analysis. Transportation and assignment problem. Critical path, maximal flow; shortest path, minimum network cost. Game theory - Zero sum, two person games alternatives and normal forms, saddle points randomized strategies. Linear programming representation.

400 LEVEL

CSC 401: INTRODUCTION TO ARTIFICIAL INTELLIGENCE: 3 CREDITS

Basic AI issues, attention, search, control, game trees, knowledge representation. Application of AI techniques in natural language, science analysis, expert system, robot planning. Laboratory exercises in an AI Language e.g. LISP or PROLONG.

CSC 402: ORGANISATION OF PROGRAMMING LANGUAGES:3 CREDITS

Pre-requisites: CSC 302, 303, 305

Language definition structure, data types and structures; review of basic data types; including lists and trees, control structure and data flow, run-line consideration, interpretative language, lexical analysis and parsing.

CSC 403: SOFTWARE DESIGN AND MANAGEMENT: 3 CREDITS

Principles of good programming style, expression and documentation; structured programming concepts, debugging, testing, verifying, code inspection, semantics analysis, string processing, data structure, recursion, efficiency of algorithms.

B.SC. GEOLOGY

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
GEOL 101	Earth History	3

200 LEVEL

Course Code	Course Title	Credit Units
GEOL 201	Physical Geology	2
GEOL 202	Crystallography and Mineralogy	2
GEOL 203	Optical Mineralogy	2
GEOL 204	Field Geology an Map Interpretation	2
GEOL 205	Systematic paleontology	2
GEOL 206	Igneous and metamorphic petrology	2
GEOL 207	Elementary Surveying	2
GEOL 208	Mineral Resources and Environmental Geology	2

300 LEVEL

Course Code	Course Title	Credit Units
GEOL 301	Sedimentology	3
GEOL 302	Geochemistry	3
GEOL 303	Paleobiology	2
GEOL 304	Stratigraphy	2
GEOL 305	Igneous Petrology	2
GEOL 306	Metamorphic petrology	3
GEOL 307	Structural Geology	3
GEOL 308	Photogeology and Remote Sensing	2
GEOL 309	Principles of Geophysics	2
GEOL 310	Regional Geology of Africa	2
GEOL 309	Student Work Experience	3

400 LEVEL

Course Code	Course Title	Credit Units
GEOL 401	Research Project	6
GEOL 402	Petroleum Geology	3
GEOL 403	Regional Structural Geology and Global Tectonic	3
GEOL 404	Micropaleontology or Polynology	3
GEOL 405	Economic Geology	3
GEOL 406	Marine Geology	3
GEOL 407	Hydrogeology	3
GEOL 408	Applied Geophisics	3
GEOL 409	Engineering Geology	3

COURSE DESCRIPTIONS

100 LEVEL

GEOL 101: EARTH HISTORY: 3 CREDITS

The geological time-scale and its methods of measurement. Origin and chemical evolution of the atmosphere, hydrosphere and biosphere - the history of life from bacteria to man. Concepts of paleoclimate, paleography, placeonography, paleomagnetism. Basic principles of stratigraphy. Practical identification of common fossils.

200 LEVEL

GEOL 201: PHYSICAL GEOLOGY: 2 CREDITS

Planet Earth: its composition from core to crust. Minerals; rocks and weathering, surface processes and land major earth structures. Practical identification of common rock forming minerals and rocks; interpretation of topographic and simple geologic maps.

GEOL 202: CRYSTALLOGRAPHY AND MINERALOGY: 2 CREDITS

Morphological crystallography stereographic projections; crystal chemistry; systematic description of common rock forming minerals; the polarizing microscope; physical and optical identification of common rock forming minerals.

GEOL 204: FIELD GEOLOGY MAP INTERPRETATION: 2 CREDITS

A field course involving the fundamentals of structural geology; descriptions of deformational structures; field mapping techniques and detailed interpretation of topographic and geologic maps.

GEOL 205: SYSTEMATIC PALEONTOLOGY: 2 CREDITS

Morphology, evolution and identification of major animal phyla viz.: Protozoa, Coelenterates Dryozoa, Orchiopodda, Mollusca, Arthropoda, echimodermata, graptolithina; their stratigraphic and Paleocologic distributions: Vertebrates and plant fossils; trace fossils.

GEOL 206: IGNEOUS AND METAMORPHIC PETROLOGY: 2 CREDITS

Origin, occurrence, Geologic setting and systematic description of igneous rocks. Metamorphism and description of metamorphic rocks, metamorphic minerals and textures of metamorphic rocks.

GEOL 207: ELEMENTARY SURVEYING: 2 CREDITS

Surveying instruments and their uses e.g. the chain, steel measuring tape, ranging poles, land chain arrows dumpy levels, theodolite, planimeter, linear surveying, leveling area measurements, volume of earthwork, curve ranging and technometry, Barometric heighting.

GEOL 208: MINERAL RESOURCES AND ENVIRONMENTAL GEOLOGY: 2 CREDITS

Metallic and non-metallic mineral resources - their composition, distribution and utilization. Fossil fuels; surface and underground water hydrology. Pollution and its sources, hazards and control. Prediction and control of geologic hazards.

300 LEVEL

GEOL 301: SEDIMENTOLOGY: 3 CREDITS

Origin of sediments and sedimentary rocks; sedimentary processes, quantitative and statistical study of texture, structure and composition of sedimentary rocks, description of sedimentary rocks, study of diagenetic processes, recognition of sedimentary environments from rock records.

GEOL 303: PALEOBIOLOGY: 2 CREDITS

Paleontogova, sampling, paleonlogic principles and paleobiologic models, macro-and micro-evolution, statistical data analysis of paleontological data.

GEOL 302: GEOCHEMISTRY: 3 CREDITS

Abundance classification and distribution of elements in the cosmic system, meteorites, lithosphere, hydroshere and atmosphere, geochemistry of different rock types and mineral deposits, weathering and soil formation; principles and methods of exploration geochemistry and geochemical analysis.

GEOL 304: STRATIGRAPHY:2CREDITS

Concept of chrono-litho-bio-stratigraphy, magnetostratigraphy and stratotypes. Principles of stratigraphic classification, terminology and correlation. Facies analysis, origin evolution of sedimentary basins; geohistory analysis.

GEOL 306: IGNEOUS TEPROLOGY: 2 CREDITS

Extrusive and intrusive igneous processes; associations of igneous rocks in space and time; phase equilibria and the genesis of selected igneous rocks.

GEOL 309: PRINCIPLES OF GEOPHYSICS: 2 CREDITS

Gravity and magnetic methods and data interpretation, spontaneous potential and electrical resistivity methods, concepts of electrical potential, current density and conductivity of frocks potential distribution in a homogenous earth and apparent resistivity; ER field equipment, its use and data interpretation.

GEOL 310: REGIONAL GEOLOGY OFAFRICA:2 CREDITS

Geology, structure and evolution of African Precambrian domains and their radiometric ages: development of phanerozoic interior and coastal basins in Africa with emphasis on Nigeria.

400 LEVEL

GEOL 401: RESEARCH PROJECT: 6 CREDITS

Geologic mapping and independent study of an assigned area followed by laboratory analysis, data interpretation and the preparation ofa geologic report.

GEOL 402: PETROLEUM GEOLOGY: 3 CREDITS

The origin of migration and accumulation of petroleum; source rock characteristics, maturation and destruction of petroleum' Hydrocarbon traps; abnormal pressures; evaluation of petroleum potential; exploration and appraisal methods; reserve estimation and classification.

GEOL 403: REGIONAL STRUCTURAL GEOLOGY: 3 CREDITS

Analysis of large-scale regional structures; continental drift. Sea-floor spreading and plate tectonics, plate tectonic regimes in the geologic record; palinspastic reconstructions of fold belts.

GEOL 404: MICROPALEONTOLOGY: 3 CREDITS

Morphologic and biostratigraphic study of major groups of microfossils especially forminifera.

GEOL 405: PALYNOLLOGY: 3 CREDITS

Morphology and classification of pollen and spores; their stratigraphic and paleo-environmental applications.

GEOL 406: ECONOMIC GEOLOGY: 3 CREDITS

Principles and processes of formation of mineral deposit regional distributions; prospecting mine development and mineral treatment, area reverse calculation and mineral economics.

GEOL 407: MARINE GEOLOGY:3 CREDITS

Elements of physical, chemical and biological oceanography; methods of ocean floor sampling and probing structure and physiography of ocean basins; distribution of marine sediments and mineralresources beach erosion and costal management.

GEOL 408: HYDROGEOLOGY:3CREDITS

The hydrologic cycle, hydrologic properties of rocks, occurrence and movement of groundwater types of aquifers, physical and chemical properties of water fundamental hydrodynamic laws, groundwater and well hydraulics, development, of groundwater resources, groundwater inventory.

GEOL 409: APPLIED GEOGRAPHYSICS: 3 CREDITS

Induced polarization and electromagnetic methods seismic exploration - data acquisition, processing and interpretation.

GEOL 410: ENGINEERING GEOLOGY:3CREDITS

Engineering properties of rocks, concrete aggregates and quarrying techniques, elements of soil mechanics, geological site investigations, foundations, dams, influence of groundwater on engineering structures.

B.SC. INDUSTRIAL CHEMISTRY

YEAR I

100 LEVEL COURSES

Course No	Course Title	Units
CHM 101	General Chemistry I	3
CHM 107	Practical Chemistry I	1
MTH 101	General Mathematics I	3
PHY 101	General Physics I	3
PHY 107	Practical Physics I	1
BIO 101	Introductory Biology I	3
BIO 107	Practical Biology I	1
GES 101	Use of English Language I	2
CSC 101	Computer Science	2
LIB 101	Library Studies	1
CHM 102	Foundation Chemistry II	3
CHM 108	Practical Chemistry II	1
MTH 102	General Mathematics II	3
PHY 102	General Physics II	3
PHY 108	Practical Physics II	1
BIO 102	Introductory Biology II	3
BIO 108	Practical Biology II	1
		35 Units

YEAR II

200 LEVEL COURSES

Course No	Course Title	Units
CHM 201	Introductory Chemistry	4
CHM 241	Physical Chemistry I	4
PHY 222	Heat and Thermodynamics	3
CSC 201	Introductory Computer Science	3
STA 271	Statistics and Elementary probability	4
EPS 201	Entrepreneurial Studies I	2
GST 201	Communication Skill	2
CHM 221	Inorganic Chemistry I	3
CHM 231	Organic Chemistry I	3
CHM 232	Spectroscopy	3
CHM 242	Physical Chemistry II	3
PHY 242	Atomic Physics I	3
GST 202	African History & Culture	2
CHM 233	Biochemistry	3
CHM 234	Biophysical Chemistry	2
		44 Units

YEAR III
300 LEVEL COURSES

Course No	Course Title	Units
CHM 301	Chemical Literature	1
CHM 311	Analytical Chemistry I	3
CHM 321	Inorganic Chemistry II	3
CHM 331	Organic Chemistry II	3
CHM 351	Process Science I	3
CHM 353	Macromolecular Chemistry I	3
CHM 355	Introductory Material Science	2
EPS 301	Entrepreneurial Studies II	2
CHM 322	Inorganic Chemistry III	3
CHM 332	Orlanic Chemistry III	3
CHM 342	Electrochemistry	2
CHM 352	Process Science II	3
CHM 354	Management and Chemical Industry I	2
CHM 356	Colour and Textile Chemistry	3
CHM 358	Management and Chemical Industry II	2
CHM 357	Petroleum Chemistry	3
CHM 359	Glass Blowing Practical	1
		42 Units

YEAR IV
400 LEVEL COURSES
7th and 8th Semester
Industrial Attachment for 9 Months.
Maximum 8 Credit Units

YEAR V
500 LEVEL COURSES

Course No	Course Title	Units
CHM 511	Instrumental Analytical Methods	3
CHM 522	Structure & Coordination Chemistry	3
CHM 532	Physical Organic-chemistry	3
CHM 551	Chemistry of Industrial Processes	3
CHM 556	Macromolecular Chemistry II	3
CHM 561	Research Project I	3
CHM 533	Organic Synthesis	3
CHM 543	Reaction Kinetics	3
CHM 554	Environmental Chemistry	3
CHM 561	Research Project II	3
CHM 571	Seminar in Chemistry	2
		32Units

Elective Courses (one only)

Course No	Course Title	Units
CHM 521	Nuclear & Radiation Chemistry	3
CHM 531	Medicinal Chemistry	3
CHM 553	Chemical Processes Technology	3
CHM 557	Polymer Technology	3
CHM 535	Natural Product Chemistry	3
CHM 540	Photochemistry	3
CHM 542	X-ray Crystallography	3
CHM 555	Mineral Processing	3
		24 Units

Optional Courses (one only)

Course No	Course Title	Units
CHM 534	Organometallic Chemistry	3
CHM 541	Solid State Chemistry	3
CHM. 536	Food Chemistry	3

CHM 501	Special Laboratory Methods	3
CHM 537	Agrochem & Chemotherapeutic Agents	3
CHM 544	Chemical Physics	3
CHM 552	Geochemistry	3
		21 Units

COURSE DESCRIPTIONS

CHM 101: FOUNDATION CHEMISTRY I 2+1+0 (3 Credits)

Physical Qualities and units: The physical qualities understood as consisting of numerical magnitude and unit. International system units: Base units, mass length, time, current, amount or substance. Other units expressed as products or quotients of base units.
Relative Masses of Atoms and Molecules: Relative atomic, isotopic, molecular and the Avogadro and formula masses, The mole concepts and the Avogadro constant. Determination of relative masses. Calculation of empirical and molecular formulae. Chemical stoichiometry.
Atomic and Nuclear Basis: Evidence for atomic constituents: Electrons, protons and neutrons - their relative charges and masses. The nucleus, atomic number, mass isotopes and mass spectra. The electronic structure of the atom. Radioactivity; x-ray radiation and detection. Nuclear transformation and binding energy. Nuclear reaction and stability.Application of radionuclides, electromagnetic radiation, wavelength and frequency. Radiation as energy, the plank relation, region of electromagnetic spectrum absorption and emissionof radiation. Wave particle dualism and the Broglie equation treated symbolically. Heisenberg uncertainty principle. Energy levels in atomic hydrogen and their quantum numbers. Ionization energy. The size, shape and orientation of atomic orbitals. Radical and polar diagrams and polar diagrams and the effect of nuclear charge. Electron and nuclear spin-the sterm- Gerlach experiment. Many electron atoms, electron configuration and pauli principle. Hund's rule.
Chemical Bonding: Dependence of properties of solids, liquids and gases on type of chemical bonding. Electrovalent bond between ions. Covalent bonds. The shapes of simple molecules including CO_2 (Linear), CH_4 (Tetrahedral), NH_3 (Pyramidal), HO (non-linear), SO (trigonal), SF, (octahedral). Metallic bonds. Intermolecular bonds. Hydrogen bonding and its influence on properties.
CHM 102: FOUNDTION CHEMISTRY II 2+1+0 (3 CREDITS)

Gases, Liquids and Solids.

Derivation of ideal gas equation leading to Boyle'sLaw and Avogadro's Hypothesis. The Avogadro constant. A simplified treatment (e.g. particle in a box).The assumption for ideal behavior and their limitation for real gases at high pressure and low temperature. Boltzmann distribution and molecule speed. Boltzmann constant. Liquids: the kinetic concept of the liquid state and simple kinetic-molecular description of melting, vapourization and vapor pressure saturated and unsaturated vapors. Phase equilibria involving one, two and three components. Solids: Lattice structure and spacing. NaCl as ionic lattice. Cu as a cubic close-packed metal lattice. Graphite and Diamond -their properties as micromolecular structures. Lattice energy and forces between the particles in atomic molecular and ioniclattice.
Electrolysis: The factors affecting the mass of substance liberated during electrolysis. Relationship between faraday and the Avogadro constant and the charge of electron.
Equilibria:Chemical equilibria: Reversible, reactions and dynamic equilibrium, factors effecting chemical equilibria: Le Chatelier's principle. Equilibriumconstraints: their definition and calculation in terms of concentrations. Effects of temperature equilibrium constants. Ionic equilibria: Bronsted-lowry theory of acids and bases. Strong and weak acids interm of conductivity. Strong and weak electrolytes. Degree of dissociation. The ionic productof water Kw. pH and calculation, pH indicators; choice of indicators, Buffer solutions.
Chemical Kinetics:Simple rate equations; order of reactions; rate constants. Rate = K(A) reactions, simple calculations on half –life. Qualitative effects of temperature on rate constants. Catalysis.
Thermo-chemistry and chemical Energetics: Standard enthalpy changes of reaction, formation, combustion and neutralization: Hess Law. Lattice energy for simple ionic crystals. A treatment ofthe Born-Haber cycle is not required.

CHM 201: INTRODUCTORY CHEMISTRY 3+1+3 (4 CREDITS)

General Inorganic Chemistry: Periodicity of Physical Properties: The variation in physical properties with atomic number across the 2nd and 3rd periods (lithium to neon, sodium to argon). Variation in first ionization energies, atomic radii, melting points and explanation in terms of structure and bonding in elements. The relevance of ionization energy and electronic configuration.
Group II elements: Reactive metals similar to each other with only gradual changes as their atomic numbers increases - the elements magnesium, calcium, strontium and barium. The uncreative nitrogen. Group VII elements - a group of unreactive non-metals. An introduction to the chemistry of some d-block (transition) elements-chromium, manganese, iron, nickel and copper. Crystal field theory and the chemistry of complex ions.
Elementary and general comparison of elements of the 2nd and 3rd transition series with the elements of the first series; Study of the following elements and their important compounds: (Zr, Hf), (Nb, Ta), (Mg, W), (Te, Re), (The platinum metals), and (Ag, Au).

Introductory Analytical Chemistry: Introduction to theory of sampling and errors: statistical treatment of data; chemical methods of analysis including volumetric, gravimetric and other physio-chemical methods. Fundamental laws and theories. Chromatography: Practical experience. Thin layer, paper and column chromatography. The use ofRfvalues.
General Organic Chemistry: General introductory nomenclature of alkanes, alkenes alkynes. The shape of ethane, ethane, acetylene and benzene molecules. Structural isomerism in aliphatic and aromatic compounds. Cis-trans isomerism in alkenes. The nature of C-H, C-Br, C=C and C=O bonds in terms of electron density distribution. General preparations ofalkanes alkenes and alkynes; they types ofreactions - addition, substitutionelimination. Free radical reactions of alkanes. Alkenes characterized by electrophilic addition and electrophilic substitution for arenas. Halogen derivatives, Hydroxyl compounds; carboxyl compounds, carboxylic acids and Hydroxyl compounds; carboxyl compounds, carboxylic acids and derivatives, amines – their structureand derivatives preparations and quantitative and qualitative tests.

CHM 221: INORGANIC CHEMISTRY I 2+0+3 (3 Credit)

Pre-requisite: CHM 201

Solid state structures of simple AB and AB_2 type compounds of the s, p and d block elements. Periodicity of the elements illustrated by a study of their simple compounds, the hydride acids and halides. The solution properties of the compounds including solvation, solute/solvent interaction and redox reactions.

CHM 23l: ORGANIC CHEMISTRY I 2+0+3 (3 Credits)

Pre-requisite: CHM 201

Molecular Structure and lsomerism: Empirical and molecular formulae. Molecular constitution and constitutional isomerism. Molecular configuration and configurationally isomerism. Molecular conformation and conformational isomerism. Influence of molecular structure on physical properties.

Mechanism and Reactivity: Modes of bond formation and fission. Types of reagent. Types of reactions. Electronic and steric effects. Kinetic and thermodynamic control of reaction. Elementary concepts of acidity and acidity.

Chemistry of hydrocarbons: Nomenclature, structure, physical properties, reactions and industrial importance of typical alkanes and Cycloalkanes, alkenes and cycloalkene, alkynes and cycloalkynes. Practical work will illustrate physical properties and reactions of representative hydrocarbons.

CHM 232: SPECTROSCOPY 2+0+3 (3 Credits)

Pre-requisites: (CHM 101 &CHM 102

Existence of characteristic energy levels; Bohr-Einstein frequency relationship selection rules; characteristic spectra; factors determining relative intensities; Boltzmann distribution effects of temperatures; characteristicline width; absorption and emission spectra and their determination; absolute intensity; Beer-Lambert Law.

Survey: Spectral transactions and their main uses.

Vibrational spectrosocopy: Harmonic oscillators and the effects of anharmonicity; normal modes of vibration criteria for infra-red activity; Raman activity; group frequencies.

Ultra-violet and visible Specroscopy: Types or transitions; consideration or intensities d/d transitions; aromatic systems; woodwards rules.

Resonance Specroscopy: Resonance condition, chemical shifts; intensities; coupling constants.

MassSpectrometry: Generation of positive ions; characteristic fragmentation patterns; isotope effects.

Practical Work:

Example are as follows: determination of meaningful aspectra (sample preparation and instrumental parameters); determination of simple n.m.r. and mass spectra; investigation of carbonyl stretching frequencies; study of the effects of conjugation in the ultra violet region; Lambert Law as applied to mixture; determination of pKa of methyl red; the investigation of an unknown compound using the integrated approach.

CHM 233: BIOCHEMISTRY 2+0+3 (3 Credits)

Pre-requisite: CHM 231

Amino acids as units of protein structure; the peptide; bond; primary, secondary, tertiary and quaternary levels of structure and the forces maintaining them. The biologically active state of proteins; protein denaturation. Enzymes as protein and as biological catalysts; the active centre; enzymes binding and catalysis: enzyme specificity.

Michealis - Menten treatment for one - substrate reaction, including inhibition and the use of graphical directed and enzyme - catalyzed reactions. Dissimliation and biosynthesis. Glyxolysis as anexample of metabolic pathway, its reactions, enzymes and yield of ATP.

Advantages and disadvantages of in vitro experiments with tissue/cell rupture and homogenization;the isolation of organelles. The purification of proteins with emphasis on enzymes. Elementary theory and practice of solubility methods based on chromatographic, electrophoric centrifugation and bio-affinity techniques.

CHM 234: BIOPHYSICAL CHEMISTRY 1+0+3 (2 Credits)

Pre-requisite: CHM 233

Introduction:

The anatomy and physiology of the human body.

Excitable Tissue:

Anatomy of the nervous system, smooth and voluntary muscles. Introduction to autonomic pharmacology. The endocrine glands – its function and roles. Components of blood and coagulation. Ventilation. The gastrointestinal system. Excretory organs and their functions. Homeostasis, urine formation, acid-base balance, role in the maintenance of blood volume and pressure. Introduction on pharmacology.Origins and classification of drugs administration to drug receptor theories, dose response curves antagonism, principles of drug metabolism and excretion. Drug screening, bioassay, drug toxicity.

CHM 241: PHYSICAL CHEMISTRY I 2+0 +3 (3 Credits)

Pre-requisite: CHM 201

Energetics: Bond dissociationenergies. Energy cycles, including the Born Haber cycle, applied to both covalent and ironic bonds. Limited accuracy of dissociation energies.Heats of formation and their determinations. Laws of thermodynamics. The concepts of reversibility. The possibility of endothermic processes, and the concept of entropy – with calculations based on the simple models. Standard entropy values. Free energy as criterion for chemical reaction and equilibrium. Kinetic and thermodynamic control. Derivation of the isotherm.

Chemical Kinetics: Factors affecting the rates of chemical reactions. Rate laws. Order of reaction and molecularity of elementary processes. Relationship of order to mechanism. Rate equation for zero, first and secondorder reactions. Half lives.Experimental investigation of reaction rates. Sampling and physical methods of following reactions. Determination or order. Effect of temperature on reaction rate. The Arrhenius equation. Presentation of collision and transition state theories. Catalysis, simultaneous reactions, opposing, consecutive, side and chain reactions. Methods for studying fast reactions.

CHM 242 PHYSICAL CHEMISTRY II 2 +0+3 (3 Credits)
Pre-requisite: CHM 201

Ions in Solutions: Bronsted and generalized acid-based concepts; application to aqueous and non aqueous solvents. Equilibria; strength of acids bases, pH hydrolysis of salts, buffer actions, acid base indicators, titrations, Concepts of activity, Debye Huckel theory. Conductance measurements. Interactions in electrolyte solutions.

Surface Chemistry: Interfacial relationships. Criteria for spreading monomolecular films on water, Adsorption form solution, at gas - solid interface; adsorption isotherms. Classification of colloidal systems. Preparation and properties of lyophilic and lyorhobic sols. Ideal solids, glasses and polymers. Colloidal systems, surface energies, wetting, adhesion and contact angles. Insoluble –surfacefilms. Micelle formation, Lyophobic and lyophilic properties.

CHM 301: CHEMICAL LITERATURE 1+0+0 (1 Credit)

Use of Internet in literature searching; chemical literature; the scientific journal; Synthetic reaction Search, Structural and sub structural searches; the patent Literature; outline searching.

CHM 311: ANALYTICAL CHEMISTRY 2+0+3 (3 Credits)
Pre-requisite: CHM 201

Process in analytical Chemistry: Safety in the Laboratory. Sources and nature of errors. Standardization of units, Volumetric analysis, Gravimetric analysis. Qualitative inorganic analysis. Sampling techniques. Principles of solvent extraction. Introduction to separation methods.

CHM 321: INORGANIC CHEMISTRY II 2+0+3 (3 Credits)
Pre-requisite: CHM 221

Chemistry of s-and p-block elements: Relations between electronic structure, size and reactions of compounds.

Chemistry of d-and f-block elements: Detection, nomenclature and isomerism of complex compounds. Crystalfield theory, d-d spectra detection, nomenclature and isomerism of complex compounds. Crystal field theory, d-spectra, molecular orbital and valence bond theories. Comparative study of the chemistry of the transition elements and there compounds Lanthanides and actinides.

CHM 322: INORGANIC CHEMISTRY III 2+0+3 (3 Credits)
Pre-requisite: CHM 321

Compounds having metal-carbon bonds: sigma - and pi bonded compounds, Their structure, properties and uses. Energy considerations applied to extraction of elements and thermal stability of compounds in aqueous and non-aqueous solvents. Inorganic reactions in solution: Types of reaction, effects of solvent. Oxidation-reduction and substitution reactions. Kinetics of fast reactions, methods of study of SN^1, SN and ion-pair mechanisms.

CHM 331: ORGANIC CHEMISTRY II 2+0+3 (3 Credits)
Pre-requisite: CHM 231

Review of General organic chemistry, aromatic chemistry: preparation and reactions of benzene derivatives. Electrophilic and nucleophilic substitution in the benzene ring. Carbonyl chemistry and synthetic applications. Stereochemistry: Stereochemistry of organic compounds and optical isomerism of compounds with one or more asymmetric centres. Concept of chirality and absolute configuration. The synthesis of alicyclic compounds and their stereochemistry. Introduction to mechanistic organic chemistry.

CHM 332: ORGANIC CHEMISTRY III 2+0+3 (3 Credits)
Pre-requisite CHM 331

Heterocyclic Chemistry: The chemistry of five - and six - membered ring. Heterocyclic compounds containingnitrogen, oxygen and sulphur. Fusedhetelocycles. Substitution reactions in monocyclic/heterocylic compoundsandthe benzol - derivatives. Brief treatment of heterocylcic compounds containing more than one hetero-atom. Reactive intermediates: formation and reactions of arynes, carbenes, nitrenes and free radicals. Photochemical generation of reactive species and its use in organic synthesis. Polyfunctional molecules: The interaction of functional groups within a molecules, synthesis and reaction of amino acid. Formation of peptide bond;recemization. Chemistry of hydroxy-acids, hydroxy-ketones and hydloxy-aldehydes. Lactone and lactam formation, Properties of bicarbonyl compounds.

CHM 342: ELECTROCHEMISTRY 1+0+3 (2 Credits)
Pre-requisite: CHNI 241 & CHM 242

Chemical Equilibria: Ionic equilibria, Conductance, theory and measurement, interpretation of data for strong and weak electrolytes, Conductance and transport processes. Thermodynamics and galvanic cells. Standard electrode potentials. Practical electrode. Molecular forces in solids and liquids: Dipole moments. Interactionpotentials and forces. Reversible galvanic cells, measurement of e.m.f. Electrode potentials and theelectrochemical series. Standard state and the Nernst equation.Applications of e.m.f. measurements (excluding thermodynamic

relationships). Potentiometric titration including measurement of pH. Redox reactions. The electrical double layer and its applications.

CHM 35l: PROCESS SCIENCE I 2 + 0 + 3 (3 Credits)
Pre-requisite: CHM 201:

Commercial process, problems of scale and cost. Process flow sheet and stiochiometry. Handling of fluids;conservation laws and dimensional analysis applied to a moving fluid. Process heat transfer, mechanisms of heat transfer coefficients in batch and continuous processes. Use of mean temperature difference. Change ofphase correlation of heat transfer data.Distillation differential, bath fractional and continous t\fractional distillation; number of stages; effects of operating variables.

CHM 352: PROCESS SCIENCE II 2 + 0 + 3 (3 Credits)
Pre-requisite: CHM 351:

Mass transfer, processes, single phase and interphase, mass transfer drying as a heat-mass transfer process. Extraction and Absorption; solvent extraction in mixer settlers and columns; number of ideal stages; number of stages in gas absorption by HTU method; gas film and liquid film rate determining steps. Solid-liquid separation by filtration and sedimentation. Stoichiometry for systems involving recycles.

CHM 353: MACROMOLECULAR CHEMISTRY I 2 + 0 + 3 (3 Credits)
Pre-requisite: CHM 201:

Classification of macromolecules; polymers and copolymers as natural, modified natural or synthetic substances. Polymer formation processes; methods, kinetics and mechanisms. The characterization of macromolecules; molar mass and distribution, molecular size and shapes, stereochemistry. Crystallinity andmethods of determination. Structural classification in natural macromolecules. Bulk structure, crystalline,amorphous, glassy and rubbery states. Inter-relation ofstructure and properties.

CHM 354: MANAGEMENT AND CHEMICAL INDUSTRY I 2 + 0 + 0 (2 Credits)

ManagementProcess and Methods: The nature of management and the role with the chemical industry:management theory. Managerialassociation and specialization. Line and staff structure: functions and relationship. The manager role. Organization structure and management structure. Authority and organization. Corporate policy and organizational constraints on management process. The decision process, managerialtechniques supportive information system.
Managerial Economics: Risk and uncertainty in decision making. The theory of production, Cost and Demand analyses and sales forecasting. Pricing. Investment decision: product diversifications. Theory of businessbehavior.

CHM 335: INTRODUCTORY MATERIAL SCIENCE 2+0+0+ (2 Credits)
Pre-requisite: CHM 22l

Classification and properties of industrial materials. Type of bonding and its-influence on both structure and of properties materials. Manufacture and properties of solid solutions (alloys). Structure of crystalline materials, coordination number, Crystallography.

Stress-strain relationship in materials, elastic an inelastic regions, mechanical, thermal and electrical properties of materials.

Crystal growth and imperfections (defects). Material transformation-deformation, strengthening' electroplating and corrosion.

CHM 356: COLOUR AND TEXTILE CHEMISTRY 2+0+1+ (3 Credits)
Pre-requisite: CHM 353.

Classification of dyes and textile fibres. Natural Regenerated and Synthetic fibers. Physical and structural properties of fibers. Preparatory process, Singein, desizing, scouring bleaching, mercerization.and optical brightening. Color and constitution. Theory of dyeing. Dyeing preparation, structure, and application of dyes. After treatments and quality control: Colour fastness.

CHM 357: PETROCHEMISTRY 2+0+3 (3 Credits)
Pre-requisite: CHM 231& CHM 242

Nature, classification and composition of crude petroleum. Characteristic and scope of petroleum industry, physical and chemical outlay of refinery operations. Oil refining. Crude oils and- separation processes' Steam reforming and major reforming reactions. Catalytic cracking and desulfurization. Petrochemicals and the production.

CHM 358: MANAGEMENT AND CHEMICAL INDUSTRY II 2+0+0 (2 Credits)

Pre-requisite: CHM 354

An introduction to the anatomy of management; Industrial Relation: Public Relations; Industrial Psychology; Organizational Design: Management of Personnel; An introduction to the production functions; planning for productivity; General Problem solving processes and creative thinking; Analytical methods of investigation.

CHM 359: GLASSBLOWING PRACTICAL 0+0+3 (1 Credit)

Properties of glass in general use. Manufacturers symbol and what they represent. Types of glass used for laboratory wares. Identification methods, working temperatures. Coefficient of expansion, annealing, thermal resistance, correlation of these factors. Identification of basic tools, Gas supplies, safety measures, Cutting, Rotation techniques, drawing simple butt joining bulb blowing and bending, rounding off end of tube, taper drawing and reaming, ring seal and side grinding and polishing.

CHM 450: INDUSTRIAL ATTACHMENT (9 MONTHS) 0+0+0 (8 Credits)

Pre-requisite: Students must have passed all required curses up to the end of 6* semester and carry over load must be below 15 units.

All candidates enrolled in the B. Sc or B. Tech. Industrial Chemistry Programme and who have successfully completed all specified required courses for this degree option are required to proceed on industrial attachmentnormally during their 7th & 8th semesters of residence. The minimum duration of industrial attachment is nine months. All students enrolled in this course would be required to submits a report and give presentation at theend of their period of attachment. The grading will normally be based on the reports, seminars and assessment of the industry base supervisor.

CHM 501: SPECIAL LABORATORY METHODS 1+0+6 (3 Credits)
Pre-requisite: CHM 231

Selected advanced chemistry laboratory exercises to enhance students' knowledge and manipulative skills in modern laboratory techniques and methods - viz. Ozonolysis, hydrogenation, hydroboration - oxidation,

functional groups protection and de-protection, high vacuum distillation and other separation methods. Advanced qualitative organic and inorganic analysis.

CHM 511: INSTRUMENTAL ANALYTICAL METHODS 2+0+3 (3 Credits)
Pre-requisite: CHM 351 & CHM 311

Radiochemical methods; fluorescence and phosphorescence; Electroanalytical methods; voltametry; spectroscopy; Theory and practices of gas chromatography; Thermal methods of analysis; High performance liquid chromatography; Automated analytical methods; Enzymatic methods.

CHM 521: NUCLEAR AND RADIATION CHEMISTRY 3+0+0 (Credits)

Revision of proton-neutron nucleus, neutron excess, shell model and nuclear spin. Alpha, megatron, position, electron .capture, gamma and internal conversion decay modes of the properties of particles produced – annihilation, range, shielding etc. Health effects, permissible dose level, risk estimates, kinetics of decay, half life and decay curve. Detection systems, solid and liquid scintillation counting. Quenching and channels ratio correction. Natural radioactivity. Induced radioactivity - mass and energy balance including recoil. Binding energy. Fission and fusion. Reactor types classified by fuel, moderator coolant. Introduction to activation analysis. The use of isotopes in reaction mechanism and analysis.

CHM 522: STRUCTURE AND COORDINATION CHEMISTRY 2+0+0 (3 Credits)
Pre-requisite: CHM 221 & CHM 322

Nomenclature, coordination number. Isomerism and stability of complex compounds. Theories of structures i.e. valence bond theory, crystal field theory, molecular orbital and ligand field theories and their relations to bonding in coordination compounds. Kinetics and mechanism of complex formation. Electronic spectra of transition metal complexes as well as their magnetic properties. Preparations, reactions and structure of complexes with - acceptor ligands such as CN, CO and NO. Applications of infrared and nmr spectroscopy to problems of coordination chemistry. Introduction to non-aqueous solvent systems; classification of solvents. Solute-solvent interactions.

CHM 531: MEDICINAL CHEMISTRY 2+0+3 (3 Credits)
P-re-requisite: CHM 233 and CHM 234

Biochemical pharmacology: Introduction. Absorption and distribution. The blood-brain barrier; placental transfer of drugs. Biotransformation of drugs their conjugation and excretion. Factors affecting metabolism. The micosomal enzymes system. Drug-receptor interactions. Bioassay of drugs, pharmacokinetils, the importance of plasma levels of a drug. Drug discovery, design and development. Drug Action: Neurohumoral transmission: Neuromuscular and ganglionic blockade sympathominetics; adrenaline receptors; adrenergic neuron antagonists. Autocoids; Histamine; Selotomin; polypeptides; prostaglandins and related substances; antiallergic, antinflamatory and antipyretic agents. Generally-acting drugs. Opiates, receptors and antagonists; Dopamine receptors and antipsychotic drugs; antidepressants; anti-anxiety drugs. Selective toxicity; The basis of selective toxicity. Survey of host defense mechanisms and the use of chemotherapy. The bacterial cell membrane, effect on its permeability - role of antifungals. Folic acid and the role of antimetabolities. Drug resistance, protein synthesis and its interference. Protozoology - parasites, life cycle of material parasite - other example of protozoal infestations. Viruses, their definition and classification. The biochemistry of viral replication. The role of interferon and other antivirals. Neoplasia - role of anticancer agents.

CHM 532 PHYSICAL ORGANIC CHEMISTRY 2+0+3 (3 Credits)
Pre-requisite: CHM 331 & CHM 332

Stepwise and concerted reaction mechanism. Kinetic studies, non-kinetic studies, Nucleophilic displacement reactions. The mechanisms of SN^1, SN^2, SN^i processes. The effects of structure, environment, nature of the nucleophile, solvation factors, added salt etc on the course and rates of reactions, stereochemical concepts. Ester hydrolysis - unimolecular and bimolecular processes. Linear free energy relationships. The Hammet equation; determination of constituent and reaction constants; significance and use of the signs and symbols to + 6m/p+0+6+m/o application to evaluation of mechanistic pathways. Review of reaction intermediates viz. benzyne, carbenes, nitrenes, carbonium ions. Orbital symmetry in Pericyclic reactions. Electrocyclic reactions. Sigmatropic rearrangements. Woodward Hoffman Rule. Huckel Rule and aromaticity.

CHM 533: ORGANIC SYNTHESIS 2+0+3 (3 Credits)
Pre-requisite: CHM 331 & CHM 332

Reduction methods. Catalytic hydrogenation. Reduction with boron and aluminum hydrides and their analogues and derivatives. Metal reductions. Selective reduction in polyfunctional compounds. Oxidation methods. Epoxidation, hydration and Hydroxylation of alkenes, oxidative cleavage of glycol. Peroxyacids and couplingand relevance to biosynthesis survey of synthetic applications of Organometallic Organoboranes. Hydroboration oxidation to ketones. Carboxylation reactions and protonolysis phosphorus halides and their applications. Enamines: synthesis and applications. Formation of polycyclic compounds. Aldoltype reactivity and reaction of minimum salts with nucleophile. Synthesis of complex molecules. Pericyclic reaction.. Methodology for theconstruction synthetic routes.

CHM 534: ORGANOMETALLIC CHEMISTRY 2+0+3 (3 Credits)
Pre-requisites: CHM 231, CHM 33I & CHM 332

Classification of donor-bonding types. Substitution in square planar compounds, Physical measurements and their interpretation. Preparation and reaction of model compounds. Catalytic systems. Oxidation, reduction, hydroformulation, polymerization.

CHM535: NATURAL PRODUCTS 2+0+3 (3 Credits)
Pre-requisite: CHM 231, CHM 331 & CHM 332

Organic natural products, including terpenes, steroids, alkaloids vitamins, antibiotics: synthesis, degradation and biological functions. Pheromone - a review. Conformational effects and interactions in polyfunctionalmolecules.

CHM536: FOOD CHEMISTRY 2+0+3 (3 Credits)
Pre-requisite: CHM 231 & CHM 233

Thenatureof food; vitamins,additivesandadulterants:chemistryandmicrobiologyofproductionprocesses and control; food preservation and spoilage; processing and preservation of local food stuffs; formulation and practiceof food standards.

CHM 537: AGROCHEMICAL & CHEMOTHERAPEUTIC AGENTS 2+0+3 (3 Credits)
Pre-requisite; CHM 331 & CHM 332

Pesticides, fungicides, and insect sex attractants. Survey of modern approaches to pest and fungal growth control.Naturally occurring pesticides - retenoids, pyrethroids. Survey of synthetic chlorinated hydrocarbon insecticides. Insect pheromones - techniques of identification, isolation and structural determination and configuration - some synthetic analogues. Herbicides and growth regulation substances. Review of chemical groups used in growth control. Plant growth regulators. Some nitrogen containing herbicides - a review. Synthesis of selected nitrogen containing-herbicides.

Chemotherapeutic Agents: General antibiotic types. Their mode of activity. The tetracyclines or B-lactam antibiotics will be discussed with regard to source, synthetic routes, synthetic analogues, biosynthesis and mode of action Prostaglandins. Biosynthesis of prostanoic acid, derivatives of E,.F.A. and B series of prostaglanding. synthetic approaches. Cyclophexane analogues.

CHM540: PHOTOCHEMISTRY 2+0+3 (3 credit)
Pre-requisite: CHM 331 & CHM 242

Energy levels. Absorption and emission of light. Interaction of radiation with matter. Spin conservation rules. Electronic excitation: Excitation of atoms in the phase, excitation of diatomic molecules, polyatomic molecules, complex polyatomic molecules and other complexes. Selection rules, deactivation routes, energy transfer, simple reactions of stable singlet and tripletstates. Reactions ofspecies produced photochemical. Reactions of species produced photochemically. Sensitization and quenching. Conventional photolysis procedure. Flash photolysis. Photosynthesis. Chemiluminescence, vision and the photographic process

CHM 541: SOLID STATE CHEMISTRY 2+0+3 (3 Credits)
Pre-requisite: CHM 242 & 322

Brand structure of solids. Electrical. optical and magnetic properties of defects solids. Atom movement and diffusion processes. Surfaces of solids. Reactions of solids, types, kinetic characteristics and parameters. Gas-solid

and solid-solid reactions. Application to pigments. semi-conductors and catalysis. Corrosion: Mechanism factors and method of monitoring, prevention and control or corrosion in petroleum and chemical industries. Introduction to stress corrosion concepts.

CHM 542: X-RAY CRYSTALLOGRAPHY 2+0+3 (3 Credits)

The nature of the crystalline state. Principles and uses of x-ray diffraction from single crystals, powders, and polycrystalline materials. X-ray fluorescence spectrometry - principles and industrial applications. Electronprobe. Microanalysis. Electro diffraction and the electro microscope. Neutron diffraction.

CHM 543 REACTION KINETICS 2+0+3 (3 Credits)

Second and third order rate equations - review. Rate constant and equilibrium constants - derivation state theory, reaction coordinates. unimolecular reactions theory, bimolecular reaction mechanism; chain reaction mechanisms. Photochemical and electrochemical reactions; complex reaction systems; concurrent, consecutive and chain reactions. Catalysis and heterogeneous reactions.

CHM 544: CHEMICAL PHYSICS 3+0+0 (3 Credits)
Pre-requisite: PHY 321, MTH 281 & CHM 242

Theory of bonding in H_2^+ and H_2: Molecular Hamiltonian, exact solution for H2, Linear combination of atomic orbitals method. valence bond theory, comparison of valence bond and molecular orbital theory, resonance. Coulomb and exchange integrals, evaluation of total energy. Rotation and Vibration of molecules: Rigid rotor, harmonic oscillator, morse potential, inharmonic oscillator, fundamental overtone for harmonic and inharmonic oscillators.
Heat capacities of crystals: Monatomic crystals, Einstein's model, Einstein's characteristic temperatures, Debyetheory of crystals and heat capacity, complicated crystal structures.

CHM 545: GROUP THEORY AND SYMMETRY 2+0+3 (3 Credits)
Pre-requisite: CHM 443

A review of molecular symmetry operations; definition of groups; molecular symmetry groups, revision of linear algebra. Group representations; character tables, irreducible representations. point groups, and fullrotation group. Applications; hybrid orbitals, symmetry orbitals; ligand field theory, normal mode of vibrations,
selection rules and electronic spectra - General symmetry applications; dipole moments optical activity;
Woodward - Hoffman rules. Symmetry of crystal lattice.

CHM 551: CHEMISTRY OF INDUSTRIAL PROCESSES 2+0+3 (3 Credits)
Pre-requisite: CHM 351 & CHM 352

Overview of chemical processes and products with emphasis on the nature, origin and application of theproducts of the chemical and allied industries. Raw materials; availability, location, energy, primary chemicalproducts: Industrial reactions, chemical plant, process costing. Consumer and Secondary products: main uses of primary products. Legal aspects; Factory Acts. Etc. Case studies based on industries and/or chemical networks e.g. Industries: Oil, fertilizer. plastics, Detergents etc. chemical networks; Alkali. Chlorine, Fluorine, Coal/Oiletc.

CHM 552: GEOCHEMISTRY 2+0+3 (3 Credits)

Elements and its abundance. Geochemical classification of elements. Some aspects of isotope geochemistry. Introductory mineralogy and mode of occurrence of selected ores with reference to Nigeria. Physical andchemical analysis of ore. Some aspects of organic geochemistry mineral processing: practice of crushing. Sizingand concentration of mine products. Introduction to water. Chemistry.

CHM 553: CHEMICAL PROCESS TECHNOLOGY 2+0+3(3Credits)
Pre-requisite: CHM 352

Mixing and agitation: liquid-liquid, solid-liquid and gas-liquid systems. Scale up. Residence distribution functions for continuous flow systems. Correlation of heat transfer data. Use of effectiveness number of transfer

units applied to heat exchangers. Solvent extraction with partially mixable liquids, selection of suitableextracting agents. Column height and cross section in gas washing. Multicomponent vapor- liquid equilibria, bubble points and dew points; key components partial material balance.

The approximate design of Multicomponent distillation columns. Minimum reflux ration, minimum number of theoretical stages; feed point location. Rigorous simulation procedure; multicomponent composition profiles. Small refinery configurations. Optimization. Case studies covering fluid mechanics, heat and mass transferprocesses. Lineal Progamming. The need for process control. Types of control; open loop, feed forward, feed-back, cascade fee-back and adaptive control. Primary elements, final elements. Nature of offset; one. two and three terms algorithms. Response to disturbances. Controller optimization. Control of systems with non-linear response characteristics. Direct digital control. Programmed control regimes.

CHM 554: ENVIRONMENTAL CHEMISTRY 2+0+3 (3 Credits)

Thewater cycle. Heavy metal and pesticides as pollutants. Mutagenic and other effects of pollutants. Recovery of water by sewage treatment etc. Modern and unusual methods of pollution analysis. Biodegradable macromolecules including detergents. Polymers, biodegradable and photodegradable, and polymer additivesphotochemical aspects.

CHM 555: MINERAL PROCESSING 2+0+3 (3 Credits)

Physical processing of minerals and their classification. Mineral concentration. Liquid-solid separation and aggregation. Chemical processing of minerals - unit operations, hydrometallurgical processes. Halogen processes and metallurgy; high temperature processes and metallurgical thermochemistry.

CHM 556: MACROMOLECULAR CHEMISTRY II 2+0+3 (3 Credits)
Pre-requisite: CHM 353

Polymerization processes; mechanism and kinetics of free radical, ionic and stereo-specific polymerization.Additions of polymerization in bulk, solution, suspension and emulsion. Ring opening polycondensationprocesses. Gelation Theory. Copolymerization: Addition copolymerization, reactivity ratios, the copolymer-equation. Prediction of reactivity ratios. Degradation of polymers: by thermal, oxidative, photochemical and chemical environments. Kinetics and mechanism of degradation. Inhibitors and retarders. Biopolymers: Organization in protein and nucleic acid structures, super-cooling. Inorganic macromolecules; condensed oxyanion structures, silicates; silicon. Solution properties of macromolecules: Thermodynamics of polymerssolutions. Morphology, Crystallinity and Orientation.

CHM 557: POLYMER TECHNOLOGY 2+0+3 (3 Credits)

Polymer characterization, criteria for polymer solubility, chain conformation, thermodynamics and phase equilibrium. Molecular weight size and distribution; Rheology of polymers: Mechanical properties andviscoelasticity, structure property relationships. Polymer types: thermosetting elastomers. plasticizers. resins and extrusion: spinning, vulcanization and reinforcement. Blow and injection moulding. Casting, testing and quality control: Chemical analysis. Birefringence measurement physical testing.

CHM 561: RESEARCH PROJECT 0+2+6 (3 Credits)

A selection of topics will be organized and made available to students at the beginning of the 9th semester. The project topics may involve research in the laboratory, library search or an industrially based topic discoveredduring the period of attachment. If laboratory work is not involved, the topic will be centered on a particularaspect of the main subject discipline in a wider context e.g. industrial, social, economical, political historical andphilosophical. Each student will be supervised by one member of the academic staff. The results of the project are to be presented in a typed bound dissertation which will be orally examined at the end of the 10th semesterby the external examiner, one academic staff as internal examiner, the supervisor and the Head of Department.A final glade would be determined after consultation among the panelists. The external may moderate the overall grade accordingly.

CHM 511: SEMINAR IN CHEMISTRY 2+0+0 (2 Credits)
Restricted Special topics to be covered include the following:-

(1) **Mining and Metallurgy:** Mineral Processing: performance and separation criteria. Crystalline andnon-crystalline structures. Metal solidification and heat treatment. Phase transformation and microstructure. Fabrication and uses of materials.

(2) **Ceramics and Glasses:** The crystal structure of ceramic materials including silicates, phosphates andnitrides, crystallization of glass formation, glass forming materials. Forming process of glass andceramic. Chemotherapeutic agents.

(3) **Chemistry of Paints and Adhesives:** Classification of paints in terms of use and constitution. Themanufacturing process and principles of formulation. The paints and their physical properties.Composition and classification of adhesives. Physical properties, formulation and application of paintsand adhesives.

(4) **Cement Chemistry:** Classification of cements, cement raw materials and process of manufacture. Structure of cements. Physical and chemical properties of cement. Cement production processes.

(5) **Leather Chemistry:** Chemistry of animal skin. Theory of tanning. Pretanning processes. Vegetable tanning process. Materials, their properties and chemistry. Synthetic tanning materials: Chrome and other tonnages, Leather/Tanning.

(6) Chemistry of Brewing: Bio-organic chemistry of malting and mashing. Chemistry of hop constituents, wart boiling and hop extraction. Techniques in the brewing process. Fermentation.Additive and preservatives. Quality control in Brewing.

(7) **Soaps and Non-Soap Detergents:** Introduction to surface chemistry. Micelle formation and the detergency process. The manufacturing processes of soaps and detergents. Synthetic surfactantsAnionic, cationic and non-ionic surfactants. Synthetic surfactants. Soaps and Detergents

(8) **Writing Research Proposals:** Methodology and process

*****Topics may be chosen from any three of the above in addition to (8) above, during the 10th semester.

B. SC. MATHEMATICS

COURSE OUTLINE

100 LEVEL

Course No	Course Title	Units
MTH 101	Elementary Set Theory and Algebra	2
MTH 102	Differential Culture and Applications	3
MTH 103	Trigonometry	1
MTH 104	Vectors	2
MTH 105	Coordinate Geometry	1
MTH 106	Conics	2

200 LEVEL

Course No	Course Title	Units
MTH 202	Real Analysis I	1
MTH 203	Linear Algebra I	3
MTH 204	Linear Algebra II	3
MTH 205	Elementary Differential Equations I	3
MTH 206	Introduction to Numerical Analysis	3
MTH 207	Introduction to Abstract Algebra	3
MTH 208	Complex Analysis I	3

300 LEVEL

Course No	Course Title	Units
MTH 301	Abstract Algebra I	3
MTH 302	Abstract Algebra II	3
MTH 303	Elementary Differential Equations II	3
MTH 304	Vector and Tensor Analysis	3
MTH 305	Metric Space Topology	3
MTH 306	Differential Geometry	3
MTH 307	Dynamics of Rigid Body	3
MTH 308	Complex Analysis II	3
MTH 309	Real Analysis II	3
MTH 310	Discrete Mathematics	3
MTH 311	Optimization Theory	3
MTH 312	Geometry	3

Course No	Course Title	Units
MTH 401	Partial Differential Equations	3
MTH 402	Functional Analysis	3
MTH 403	General Topology	3
MTH 404	Fluid Dynamics	3
MTH 405	Lebesque Measure and Integration	3
MTH 406	Quantum Mechanics	3
MTH 407	Analytical Dynamics	3
MTH 409	General Relativity	3
MTH 408	Electromagnetism	3
MTH 410	Filed Theory	3
MTH 412	Elasticity	3

COURSE DESCRIPTION

100 LEVEL

MTH: 101 ELEMENTARY SET THEORY AND ALGEBRA: 2 CREDITS

Definition of a set; finite and infinite sets. subsets, union, intersection, complements, universal set, empty set, Venn diagrams. Relations, mappings, functions (including domain and range). Binary operations.commutativity, associativity, distributivity, identity and inverses (simple cases only); structure of number systems, principle of mathematical inductions; linear, quadratic and other polynomial functions; theory ofindices and logarithms, surds, partial fractions and their applications to sequences and summation of series,sequences and series. Permutation and combinations, complex numbers algebra of complex numbers, theArgand diagram, De Moivres theorem, both root of unity.

MTH 102: DIFFERENTIAL CALCULUS AND APPLICATIONS: 3 CREDITS

Odd, even and periodic functions and their symmetries; limit and continuity of functions; Differentiation from firstprinciples using the definition LT f{x + h) - f (x); differentiation of elementary functions – algebraicand transcendental functions; sum; difference, product and quotient rules, implicit differentiation; integration ofelementary functions; Techniques ofintegration including partial fractions, substitution and integration by parts method. Definite integral and its representation as an area. Derivative as a rate of change curve sketching, turning points and their classification, small increments approximations and errors; Newton's approximation;Areas and volumes of solids of revolution. Differential equations (first order only).

MTH 103: TRIGONOMETRY: 1 CREDIT

Trigonometric ratios of angles of any magnitude; inverses of trigonometric functions; addition formulas for trigonometric functions and their proofs: by geometric and vector methods; applications as multiple or half angles; solutions of simple trigonometric equations; the factor formulae; sine and cosine formulas and theirapplications to solutions of triangles including 3 -dimensional problems involving heights and distances.

MTH 104: VECTORS: 2 CREDITS

Definition of avector quantity (position vector, modulus of a vector; equality of vectors, scalar multiplication of vectors, position vector of a point dividing a line in a given ration. Addition, parallelogram law, triangle lineresultant of coplanar localized vectors. Vector equation of a line. Scale and vector products. Application of scalar product for finding angles between lines. (Equations of planes not required). Differentiation and integration of vectors (simple cases only).

MTH 105: COORDINATE GEOMETRY: 1 CREDIT

Rectangular Cartesian coordinates in a plane applied to points, lines and circles. Gradient: Distance between two points. Division of a line in a given ratio; Mid-points: equation of a straight line (including the gradientintercept form). Point of intersection of two lines. Equation of a line through the paint of intersection of twogiven lines.Angle between two parallel and perpendicular lines. Distance of a point from a given lines.Equation of a circle with given centre and radius or with a given diameter. Tangent to a circle. Condition fortangency (Emphasis should be on concept rather than formula).

MTH 106: CONICS: 2 CREDITS

Definition of parabula, ellipse, hyperbola and rectangular hyperbola in time of the focus-dielectric point of view;conics as examples of parametric representations; simple problems involving elimination of parameters to determine the locus of a point. Equations of tangents and normals to conics.

200 LEVEL

MTH 201 : MATHEMATICAL METHODS I : 3 CREDITS

Real-valued function of a variable ; Review of differentiation and integration and their applications; mean-value theorem; Taylor's series expansion Real-valued function of two or three variable ;partial derivatives, chain rule, extreme languages multipliers; evaluation of linear integrals; multiple integrals; second order ordinary linear differential equation with constant coefficients, auxiliary equation; applications of differential equations on problems of particle dynamic including those on projectiles.

MTH 202: REAL ANALYSIS 1:3 CREDITS

Properties of number, strong and weak inequalities, minimum element, greatest lower bound, upper bounds, maximum element, lest upper bounds,bounndless, unboundness, Absolute value of a real number; Domain and range of function, composition of function; surjection, injection, bijection, inverse functions, restriction of function to subses of domain. Geometrical interpretation of graphs of real function of single variable and of the two variables; monotonic function; sequence, real number, sub sequence. Bound under sequence and unbounded sequence, Limit of sequence, accumulation points; lim sup and lim inf ; improper limits, Existence of accumolation point for bounded sequence; Theorems pertaining to sequence ; connection between lim an =co and Lim 1= 0;

Partial sum; series of real number ; convergence; and absolute convergence; Cauchy, ration and, comparative test, Cauchy condition for series.

MTH 203: LINER ALGEBRA 1:3 CREDITS

General system of linear equation in an unknowns; a solution to the system of an order n-turple of real number; Gaussian elimination by pivot method; metric representation of the system; algebra of matrices, equality, addition and multiplication; Element operation and echelon form of a metric; vector space over a real field; subspace; linear dependence and independence; Basis and dimension; linear transformation and their representation by matrices.

MTH 204: LINER ALGEBRA II : 3 CREDITS

System of linear equation, change of basis, eigenvalue; and similarity; minimum and characteristic polynomials of a linear transformation (matrix); cayley-Hamilton theorem; Bilinear and quadratic form orthogonal diagonalization ; canomical forms.

MTH 205: ELEMENTARY DIFERENTIAL EQUATION 1: 3 CREDIT

Fist order ordinary differential equations. Existence and uniqueness. Second order ordinary differential equation with Constance coefficients. General theory of nth order linear equations. Laplace transform, solution of initial-value problems by laplace transform method. Simple, treatment of partial differential equation in two independent variables. Application of O.D.E. and P.D.E to physical, life and social sciences.

MTH 206: INTRODUCTION TO NUMERICAL ANALYSIS: 3 CREDIT

Solution of algebraic and transcendental equation; curve fitting ; Error analysis; interpolation and approximation ; Zeroes of linear equation; of one variable; system of linear equation; Numerical differentiation and integral equation; initial-value problems of ordinary differential equations.

MTH 207: INTRODUCTION TO ABSTRECT ALGEBRA : 3 CREDITS

Topic include; Basic Se theory, mapping relation, equivalence ad relation, Cartesian product, Binary operation; groups, Homomorphism kernel and image homeomorphisms, epimorphism, isomorphism's, isomorphic group, the first isomorphism theorem; Lagrange, Fermat and cayley theorems; Abelian group, symmetric group on a non-empty set D, symmetric group of degree n, permutation and permutation group, symmetric group of a regular polygon, quarternon group; rings and field (elements, properties only)

MTH 208: COMPLEX ANALYSIS 1: 3 CREDIT

Revision of complex numbers; sequences and series of complex numbers; limit of sequence of complex number, algebraic operation on sequence and their limits; convergence and absolute convergence of series of number;

power series, radius of convergence; function of complex variable; contour in the complex plance Limit, continuity and diffarability of complex functions; elementary function;
(e.g. sinz, cosz, powers of complex function ; logarithmic function; analytic and entire function; contour integration; Cauchy theorems and integral formally.)

300 LEVEL

MTH 301: ABSTRECT ALGEBRA 1: 3 CREDITS

Group definition examples including permutation group, subgroup , and cyclic groups. Rings definition, example including Z, zn, rings of polynomials and integral domains , field, polynomial ring, factorization. Euclidean algorithm for polynomials , H.C.F. and L.C.M. Polynomials. Normal groups, subgroups and quotient rings. Centre of group, centralize, normalize of a subgroup; conjugacy; class equation cayley theorem, isomorphism theorem, psylow subgroup; sylow theorems.

MTH 302: ABSTRECT ALGEBRA II: 3 CREDITS

Basis definition and properties of vector space subgroups, linear dependence and independence, basis, dimension direct sum of vector space linear mapping and matrices; Homomorphism and quotient space; dual system of homogeneous equations; inner. Product basic definition of modules; Abelian group as a module over ring of integers, sub module of R-module, direct sum of sum-modules, homomorphism of modules.

MTH 303: ELEMENTARY DIFERENTIAL EQUATION II:3 CREDITS

Series solution of second order linear-equation , Bessel, legendre and hypergeometric equation and function gamma and beta function, sturm liouville problem ; orthogonal polynomials and function , fourier, legendre series; transform solution of laplace; wave and heat equation by fourier method.

MTH 304: VECTOR AND TENSOR ANALYSIS: 3CREDITS

Vector algebra vector , dot and cross product; equating curves and surfaces, vector differentiation and application. Gradient, divergence and curl. Vector integration ,line surface and volume integrals. Green and stoke's divergence theorems tensor products of vector spaces. Tensor algebra. Symmetry. Cartesian tensors.

MTH 305: METRIC SPACE TOPOLOGY:3 CREDITS

Sets, matrices and example; open spheres (or ball); open sets and neighbourhoods, closed sets; interior, frontier (boundary),limit point and closure of a set; dense set or subset, separable space; continuity and compactness; connectedness; convergence in metric space homomorphisms.

MTH 306: DIFERENTIAL GEOMETRY :3 CREDITS

Vector function of a real variable ; boundedness; limit ;countinuit and diferentiability; function of class cm; Taylor's formula; analytic function ,curves regular curvature and torsion , tangent line and normal plane , vector function of a vector variable ; Directional function of class cm; taylor's theorem and inverse function theorem , concep of a surface ; parametric presentation ; topological properties of simple surfaces.

MTH 307: DYNAMICS OF RINGID BODY:3 CREDITS

Kinematics of a particle; components or velocity and acceleration of a particle moving in a place-force, momentum, law of motion under gravity , projectiles, resisted vertical motion , electic string, simple pendulum impulse. Impact to two smooth spheres –direct and oblique; general motion of a rigid body as a translation plus a rotation .moment and product of inertia in to two or three dimension ; parallel and perpendicular axis theorem .principal axea, angular momentum kinetic energy of a rigid body . impulsive motion . example involving one and two dimensional motion of a simple systems. Euler's dynamical equation of motion of a rigid body.

MTH 308: COMPLEX ANALYSIS II:3 CREDITS

Series expention of analytical function; taylor's series,liouville,s theorem; fundamental therorem of algebra; laurent series; classification of singularities; region of analycity; maximum module therorem; residue .residue

therorem and applications; conformal transformation ; elementary function , mobuis or linear fractional transformation, schwarz-christofell transformation, applications of conformal transformations.

MTH 309: REAL ANALYSIS II: CREDITS

Convergence and uniform Convergenceof sequences and series of real function of one several variable; limit of sequence of continuous function ; power series differentiation and intergration of sequences series of function term by term. Taylor's expension of c-functions. Riemann-stieltjes integral for function of one variable. The Riemann-stieltjes integral. The fundamental formula; (d/dt)t f (x) dxxxx =f(t) linear properties of integral. Integration 0 by parts, change of variable in the Riemann-stieltjes integrals. Differentiation under the integral sings the measure of a bounded cube in Rn. Evaluation of a multiple integral by interacted integration. Mean-value theorem for multiple integrals of the form fdxdy, fdxdy and similarly.

400 LEVEL

MTH 401: PARTIAL DIFFERENTIAL EQUATION: 3 CREDITS

The wave equation, equation, some important equation, Types of equation. Euler's equation, boundary condition s laplace equation, and the dirich problem; superposition orthonormal function, expension of function in a series orthonormal function; the stum-liouville problem coordinate system and separability, homogenous equation, non-homogenous, boundary condition, in homogenous equation, simple solution of laplace equation; the dirichlet problem for a circle, special function; legendre, boundary value problem involving special function; continuous eigen values and fouries integrals, application of fourier integral to boundary value problem green's function, laplace transform, invers laplace transform, solution of ordinary differential equations.

MTH 402: FUNCTIONAL ANALYSIS: 3 CREDIT

Metric spaces; separability; completeness, completeness,contract mapping theorem, arzela-ascoli lemma; stone – weicrstras theorem, banach spaces mahn-banach theorem, uniform boundedness; open mapping theorem and closed graph theorem in banach spaces, dual of LP spaces; compact operation; The Riesz-schauder theorem; hilter space; riesez representation theorem operator's theory; banach algebra cumulative banach algebras; maximal ideals; gelfund representation for banach algebras with identity.

MTH 403: GENERAL TOPOLOGY:3 CREDITS

Topological space-definition, open and neighbourhoods; coarser and finer topologies; bases and subbases; separation axioms, compactness and related theorems local compactness; connection of new topological space from given ones; sub-space continuous function homeomorphism; topological in variants; positwise and uniform continuity and convergence; lindeloff space; finite intersection property. bolzano-weier-strass property, sequential, countable and local compactness, relatively compact sets and space urysohn lemma urysohn metrization theorem. Product space defining sub-base and defining base, topologies general by product spaces.

MTH 404: FLUID DYNAMIC:3 CREDITS

Rear and ideal field; differentiation following the motion of fluid particles, equation of motion and continuity for incompressible invicid fluids; velocity potantials and stok's steam function ; bernou lli's equation with application to flow along curved path's kinetic energy; sources, sinks doubles in 2 and3 dimension; limiting steam line; images and rigid plances.

MTH 405: LEBESQUE MEASURE AND INTEGRATION: 3 CREDITS

Lebesque measure on the line outer measure measurable sets; open sets are measurable; properties of lebesque measure, construction of measurable sets; cantor sets; measurable functions; lebesque theorem for a bounded convergence; egeroffs theorem; extension of definition of lebesque integral, to an unbounded measurable function, lebesque dominated convergence theorem; fatou's lemma, monotone convergence theorem; the analogues for infinite series; integral over an unbounded set; LP spaces; the inequalities of Schwarz-holder and minkowski; the completeness of LP space; vitalis theorem; generalization of lebesque measure.

MTH 406: ANALYTICAL DYNAMIC: 3CREDITS

The principle of virtual displaciment and virtual work, D' Alembers principle; constaints; Homonic and nonholomic constraints; hamilton's lagrange equation; jacobi integral, noetherian form and moment integral; definition of variational equation; indirect and direct method of lypunou; it's apllications; celestial problems; Apsidal; the n-body problem, the 3-body problem; impulsive motion theorem; granges of impulsive motion.

B.SC MICROBIOLOGY

COURSE OUTLINE

200 LEVEL

Course Code	Course Tittle	Credit Units
MOB 201	General Microbiology	3
MOG 202	General Microbiology	3

300 LEVEL

Course Code	Course Tittle	Credit Units
MOB 302	Microbial Genetic & Molecular Biology	4
MOB 302	Pathogenic Bacteriology	3
MOB 30	Immunology & Immunochemistry	4
MOB 304	Environmental microbiology (sewage, water, pollution)	2
MOB 306	Microbial physiology & Metabolism	3
MOB 309	Food microbiology	2
MOB 307	Soil microbiology	2

Elective

A.	MEDICAL MICROBIOLOGY	
MOB 308	Pathogenic mycology	2
B.	INDUSTRIAL ICROBIOLOGY	
MOB 399	SIWES	3

400 LEVEL

Course Code	Course Title	Credit Units
MOB 401	Seminar microbiology & biotechnology	2
MOB 402	Pharmaceutical microbiology	2
MOB 403	Analytical microbiology	2
MOB 499	Research project in microbiology Biotechnology	6

Elective

A. MEDICAL MICROBIOLOGY

MOB 404	Principle of Epidemiology & Pubic Health	3
MOB 405	Medical Virology	3

B. INDUSTRIAL MICROBIOLOGY

MOB 406	Industrial Microbiology	4
MOB 407	Microbial Ecology	2

COURSE DESCRIPTION

200 LEVEL

MCB 201: GENERAL MICROBIOLOGY I

Historical aspect: Scope of Microbiology, general characteristics of micro-organism, growth and reproduction; sterilization and disinfect ion; brief survey of microbes and friend and foes.

MCB 202: GENERAL MICROBIOLOGY II

Systematic of classification of bacteria, fungi viruses etc, microbial variation and hereditaty, biological and biochemical reaction of micro –organism; cycles of elements in nature fixation. Pre-requisite- MCB 201.

300 LEVEL

MCB 301: MICROBIAL GENETICS AND MOLECULAR BIOLOGY

A Survey of the current status of microbial genetics (Bacteria, viruses, protozoa and fungi) cluding discussion of mehod and finding in the ares of mustagenesis, inductio, isolated and biochmical characterization of mutants; adaptation, transformation , transduction, conversion and conjection. General and specialized method and techniques in microbial genetics. Experiment with virulent phages, temperate phages and iysogenic bacteria. Fungal and other lower curayotic genetics. Pre-requisite – BCH 201, BIO 201, MCB210/202.

MCB 302: PATHOGENIC BACTERIOLOGY

Host- parasite relatioship. Pathogenic micro-organisms and diseaese. Virulence , spectrum and symptoms of infection, treatment and control, koch's postulate, method of isolation of pathogens, bacterial infection. Pre-requisite-MCN and 202.

MCB 303: IMMUNOLOGY AND IMMUNOCHEMISTRY

Bases concepts of immunology, stracture of antigens,antigenic determinants, cellular response, genetics of response to antigenic stimulation tracture and classification of immunoglobulins and antibodies. Mechanismsen and theorise of antibody formation. Antigen and antibody interaction. Role of lymboid tissuses. And thymuds in immuno respones. Hypersensivity, immuno-pathology, tumor and transplantation immunology. Immunoprophydaxis and serotheraphy. The pacticals will include laboratory exercise in modern teachinques in immunology and immunochemistry. Pre –requisite –BCH 201,BIO 201.

MCB 304: ENVIRONMENTAL MICROBIOLOGY

Micro-organisms and other organism important in aquatic system and disposals. Ecology of micro-organisms in fresh water. Pollution and self purification of water. Brief studies of marine microbiology. Disease transmission y water, micro-biology of water disposal, Biological oxygen demand and chemical oxygen demand, tests for sewage and water. Pre-requisite- MCB 201/202.

MCB 306: MICROBIAL PHYSIOLOGY AND METABOLIS

Aspects of microbial physiology, a review of cell structure and function, growth and death of micro-organisms. The nutritional types of different bacteria in relation to their energy metabolism and biosynthetic activity. Pre-requisite –BCH201,MCB 201.

MCB 307: SOIL MICROBIOLOGY

The characteristics of soil environment, microbial flora growth and fauna of soil, microbial activities in soil, nitrogen cycle, carbon cycle mineral transformation by micro-effects of pesticides on soil micro-organism. Bio-degradation and bio-fuels generation . pre-quipster-MCB 201 AND 202.

MCB 308: PATHOGENIC MYCOLOGY

Structure, reproduction and classification of pathogenic fungi; Laboratory methods of study; pathology and immunology superficial systematic mycoses and actionmycoses. Pre-requisite- MCB 201/202.

MCB309: FOOD MICROBIOLOGY

The distribution, role and significance of micro-organisms in food; intrinsic and extrinsic parameters of foods that affect microbial growth, food spoilage and food borne diseases. Micro-organisms. Indices of food sanitary, growth and food microbiological standards, Disease of animal transmission to man via animal food products. Pre-requisite-MCB 201/202. BCH 20.

MCB 399: INDUSTRIAL ATTACHMENT

Industrial attachment in Medical/Public Heath or Industrial establishments during the long vacation.

400 Levels

MCB 401: SEMINAR IN MICROBIOLOGY AND BIOTECHNOLOGY

Under the supervision of staff, the student is expected to select a seminar topic for detailed study, using library methods. The emphasis should be on recent advances in the chosen field. The course is expected to give the student the opportunity for independent though and expression. The study will result in a seminars and symposia.

MCB 402: PHARMACEUTICAL MICROBIOLOGY

The chemistry of synthetic chemotherapeutic agents and antibiotics. Production and synthesis of antibiotics and anti-microbial agents. Quality control of pharmaceutical products. Concepts of growth and death in micro-organisms. The mode of action and essay of anti-microbial agents. Concepts of antibiotics sensitivity and resistance as related to microbial physiology. Pre-requisite- BIO 101/202 BCH 201.

MCB 403: ANALYTICAL MICROBIOLOGY AND QUALITY CONTROL

Micro-organisms as reagents in quantitative analysis. Selected of test organisms, for essays (antibiotics, amino acids, vitamins e.t.c). Responses of micro-organisms used in essays. Obtaining and measuring responses. Preparation of essay samples, methods of essays. Interpretation of results. Aspects of quality control. Plant and equipments sanitation. Microbiology standards and specifications. Pre-requisite- MCB 201/202; BCH 201.

MCB 404: PRINCIPLES OF EPIDEMI OLOGY AND PUBLIC HEALTH

Statistical applications to epidemiology, Nature of epidemiological investigations. Spectrum of infection, Hard Immunity Latency of infections. Multi-factorial systems in epidemics. Zoo noses. Antigenic drifts. Biological products for immunization – Recommended immunization schedules. International control of infectious diseases. Pre-requisite-MCB 201/203, MCB 302.

MCB 405: MEDICAL VIROLOGY

Attention will be given to the viruses pathognic for man and animal with emphasis on viruses, type of disease produced, methods of control. The bacteriophasge will be used in some of the laboratory practicals, to demonstrate the characteristics of the viruses. Representatives animal viruses will also be studied in the laboratory to demonstratethe nature of viral virulence. Method of viral cultivation and identification with special reference to tissue culture techniquess will also be introduced. Pre-requisite-MCB 101/102.

MCB 406: INDDUSTRIAL MICROBIOLOGY

Nature of industrial microbiology, Micro-organisms of industria importance, Aspect of the biology of pulds. Yeasts, bacteria, actinomycetes and viruses of importance in various fermentations. Culture techniques and maintennance of selected culture. Mutation ,strain selection and development, hybrization, media formulation and economics.optimization for fermentation media at laboratory scale.perimeter design operation. Antifoams. Aspect of biochemical engineering.patents and patent low. Pre-requisite-MCB 101/102: MCB 306 BCH 201.

MCB 407: MICROBIAL ECOLOGY

Microbis and ecological theory, physiological morphological and genetic adaptation of micro-organisms to their enviroment. Microbial interaction,micro-organisms in ecosystem,microbial bio-conversion.MCB 304;BIO 202.

MCB 499: RESEARCH PROJECT IN MICROBIOLOGY AND BIOTECHNOLOGY

A student will be expected to carry out a field detailed research investigation under supervision of a staff in any special area of microbiology and biotechnology,write it up as a project and be examined for his/her knowledge of the work be fore a panel of external and internal examiners in an oral examination.

B.SC. INFORMATION SCIENCE

COURSE OUTLINE

100 LEVEL

Course Code	Course Tittle	Credit Units
IFS 111	Elements of Insurance	3
IFS131	Scientific Computing	3
IFS 133	Managerial Economics	3
IFS 132	Management Process & organisation Theore	2
IFS 142	Object oriated Programming & c++	3
IFS 142	Basics Information Technology	3

200 LEVEL

Course Code	Course Tittle	Credit Units
IFS 221	Business Correspondence	2
IFS 231	Organisational Behaviour	2
IFS 233	Financial & Management Accounting	3
IFS 232	Marketing Management	3
IFS 242	Principal of Communication System	3
IFS 242	Programing Laboratory-1(MS-Office,DTP,C++)	3

300 LEVEL

Course Code	Course Tittle	Credit Units
IFS 331	Human Resource Management	2
IFS 333	Production And Material Management	2
IFS 341	Internet and Java Programming	3
IFS 332	Business Finance	3
IFS 334	Money, International trade & International Institutions	2
IFS 342	Computer Networks	3

400 LEVEL

Course Code	Course Tittle	Credit Units
IFS 441	Data Stracture	3
IFS 443	Data Base Management System	3
IFS 445	Web Design	3
IFS 442	Information Coding Techniques	3
IFS 444	E-Comerce	3
IFS 446	Programming, Laboratory II (Oracle, Java &web design)	3
IFS 490	Project	6

B.SC. MANAGEMENT INFORMATION SYSTEM

COURSE OUTLINE

100 LEVEL

Course Code	Course Tittle	Credit Units
MIS 111	Method of statistics II	3
MIS 112	Principal of Management	3
MIS 113	Strategic Management	3
MIS 121	Skills in Accounting	3
MIS 122	Principal of finance	3
MIS 123	Introduction to Management information system	3

200 LEVEL

Course Code	Course Title	Credit Units
MIS 211	Data Structure	3
MIS 212	Organizational Development and Behavior	3
MIS 213	Operations Management	3
MIS 221	Database Management and Application	3
MIS 222	Business Communications	3

300 LEVEL

Course Code	Course Title	Credit Units
MIS 311	Security of information technology system	3
MIS 312	Quality Assur.Model & Standards for software Development	3
MIS 313	Business Networking And Telecommunication Technology	3
MIS 321	System Analysis	3
MIS 322	Visual Programming	3
MIS 323	Advanced Databases Application	3
MIS 314	International Business	3
MIS 315	Finance Management	3
MIS 324	Topic in information Technology	3
MIS 325	Multimedia Technology	3

400 LEVELS

Course Code	Course Title	Credit Units
MIS 411	Expert System and Decision Support System	3
MIS 412	Project Management	3
MIS 413	Internship in MIS	3
MIS 499	MIS Project	6
MIS 421	Operation Research	3
MIS 422	Web Programming II	3
MIS 414	Marketing Management Information System	3
MIS 415	E-Commerce	3
MIS416	Decision Analysis	3
MIS 423	Information Technology Infrastructure	3
MIS 424	Object-Oriented Analysis and Design	3
MIS 425	Business Technology Ethics	3

COURSE DESCRIPTION

100 LEVELS

MIS 123: INTRODUCTION OF MANAGEMENT INFORMATION SYSTEM

The course is an introduction to management information system and information technology. It provides a foundation for the intelligent use of cumputer as management tools.this course will assit business students in learning how to use and manage information technology to suppord business operation and objectives, to improve managerial decision – making and gain competitive advantage.

200 LEVEL

MIS 212:ORGANIZATIONAL DEVELOPMENT AND BEHAVIOR

The course introduction the basic concepts of organizational development include human resources development, institutional development tools, strealimlining of individual and organizational objectives, and leadership and motivation.

MIS 213: OPERATIONAL MANAGEMENT

Several important aspect of operations management will be addressed in this course. These include forecasting, business planning, master scheduling, material planning, capacity planning, inventory and purchasing systems, sales and supply chain systems, just-in-time production and related topics. Emphasis will be placed on computer – use for solving large scale problems.

MIS 221: DATABASE MANAGEMENT AND APPLICATION

The course provides basic coverage of data modeling (entity-relationship diagrams, recursive relationship and binary relationships), The relation data mode, the data dictionary,normalization (up to 3NF), and implementation of using a relation DBMS such as oracle, My SQL, Informix of Sybase.

MIS 222: BUSINESS COMMUNICATIONS

In the course, the basic skills of communication will be presented includeing listening and comprehension, speech presentation, barries to communications, technical writing skills including report writing, commercial corresponndence, and use of computer for the production of high quality presentation materials.

300 LEVEL

MIS 311: SECURITY OF INFORMATION TECHNOLOGY SYSTEM

The course explores the security, privacy and ethic of information, examining viruses to data privacy, hackers and firewalls. The trade –off between security and accessibility will also be investigated.

MIS 312: QUALITY ASSURANCE MODEL AND STANDARDS FOR SOFTWARE DEVELOPMENT

This course will address topic in quality concepts such as quality control and quality assurance with application to software production. Certain models such as capability maturity models (CMM) and software process improvement (SPI) will be presented, as well as management standard such as ISO/IEC 12209. The implication of these system in organizations will also be presented.

MIS 313: BUSINESS NETWORKING AND TELECOMMUNICATIONS

This is adetailed coverage of system administration in both centralized and distributed I.S. installation, including operation and maintenance of software resources. Technology and management of computer networks. Covering type of networks, protocols and topologies will also be covered. Unix system or MS-Windows system for servers and workstation will be used to set up administer a small network.

MIS 321: SYSTEM ANALYSIS

After higlighting information system analysis and local system design in organizations, the course moves to cover application development strategies, life cycle phases and analysis, gathering techniques, requirement for determination and analysis of an existing program using CASE tool (Oracle's Designer 2000 or others).

MIS 322: VISUAL PROGRAMMING

This covers new programming concepts, such as visual programming ,that become increasingly the principal tool for business programming, event-driven programming, user interface programming and interface with database environments.

MIS 323: ADVENCE DATABASE APPLICATIONS

The course focuses on the code concepts, methodologies and skills that enable students to develop a database management system for a business case. Through tutorials, student will work on modern database system and development tools.

MIS 324: TOPIC IN INFORMATION TECHNOLGY

Advanced topic selected in different area of information Technology are chooses by the department.

MIS 325: MULTIMEDIA TECHNOLGY

This course will look at aspect of hardware and software in utilizing and developing multi-media application and devices. These including standard and specialized devices. As well as format used in recording, modifying, combining, and playing digital video and audio materials.

400 LEVEL

MIS 425: BUSINESS TECHNOLOGY ETHICS

The purpose of this is to harmonize business decision with legal and ethical concerns and forecost result of ethical and legal decisions. Student will encouter a variety of 'crossroad ' choices involving situation in which they will have to decide when to allow the law to guide decisions and when to rely upon their understanding of business ethics to channel their actions. Taking decision and forecast the consequences of those decisions.

MIS 411: EXPERT SYSTEMS AND DECISION SUPPORT SYSTEM

This course will look at the concepts of modern knowledge base systems, the technology required to use these systems, the introduction of method in artificial intelligence application in business, the different types of smart system such as decision support system and expert systems,the specifications for systems knowledge representation and reasoning method and tools to develop expert system.

MIS 412: PROJECT MANAGEMENT

This course provides an introduction to project development and control. Topics covered include estimating. Proposing, scheduling, quality, cost control and reporting of a project through the use of management information systems.

MIS 499: MIS PROJECT

This course will give the student the opportunity to solve a real MIS problem related to the business community in palestine. All problem aspect will be included in the project including project management, hardware and software requirements, performance evaluation of the MIS system and comparison among MIS alternatives.

MIS 414 MARKETING MANAGEMENT INFORMATION SYSTEMS

The course will address management aspects of the marketing functions in the organization, with respect to automating these functions using a computerized environment. Personnel training and data requirements will be emphasized.

MIS 413: INTERNSHIP IN MIS

During the period of internship, the students rvill be employed and supervised by firms and are expected to participate in various types of I.T. work in accordance with a plan approved by the Department and the Faculty. The stuaent must complete a four-week period of training during the regular working hours of the firm. This course can be taken in the summer between the student's junior or senior years.

MIS 416: DECISION ANALYSIS

This is an introductory course in decision analysis. It is intended to provide basic knowledge of the main elements involved in decision making, decision making under certainty, decision trees and value informatio, the Bayesian approach, game theory, integer linear programming, dynamic programiming and other reevant topics.

MIS 415: E-COMMERCE

The course plovides coverage of the various categories of e-comtnerce, the various e-commerce malkets, their limitations and their benefits. Various models and infractructures that enable e-commerce, its challenges such as legal issues, fraud and security regarding electronic payments will also be discussed. The course also covers the valious supplier-buyers models, such as B2B & B2C.

B.SC. SOFTWARE DEVELOPMENT

COURSE OUTLINE

100 LEVEL

Course Code	Course Tittle	Credit Units
CSC 200	Programming in Basic Languege	2

200 LEVEL

Course Code	Course Tittle	Credit Units
CSC 200	Introduction to computing	2
CSC 201	Data Structure	3
CSC 202	Introduction to File Processing	3
CSC 203	Computer Programming	3
CSC204	Digital Computer System	3
CSC205	Nummerical Method	3

300 LEVEL

Course Code	Course Tittle	Credit Units
SWD 311	Computer Project	3
SWD 312	Disrtibuted Computing	3
SWD 313	Management and the Business Enviroment	3
SWD 314	Software Design Patters	3
SWD 315	Software Project Managemen	3
SWD 316	Artificial Intelligence	3
SWD 321	Artificial Neural Networks	3
SWD 322	Computer Security	3
SWD 323	Computer Seminer Series	3
SWD 324	Digital Image Processing	3
SWD 325	ERP Systems	3
SWD 326	Games Middleware	3

400 LEVEL

Course Code	Course Tittle	Credit Units
SWD 411	Mobile Technology	3
SWD 412	Parallel Computing	3
SWD 413	e-Business	3
SWD 414	Computing Project	3
SWD 415	Software Quality Management	3
SWD 421	Work Placement/Application to Practice	3
SWD 422	Curriculum Design	3
SWD 423	Enterprise Finance	3
SWD 424	Entrepreneurship- Growing Business	3
SWD 425	Introduction to TEFL	3
SWD 426	Lifestyle Solutons	3

COURSE DESCRIPTIONS

100 LEVEL

PROGRAMMING IN BASIC: 2 CREDITS

Computer structure, machine language, assembly language; addressing techniques macros, file I/O; assembler segmentation and linkage; assembler construction; interpretive, routines; the flow-char1 language; arrays, input-output, control statements, statement junction, function and sub-routine segments, common, equivalent statements.

200 LEVEL

INTRODUCTION TO COMPUTING: 2 CREDITS

History and types of computers; computer hardware and softwares; functional units of a digital computer; number system; punching of card; use punched cards; low-level and high-level languages; source and object programmers; translators (assembler, compiler and interpreters); storage. manipulation and retrieval of data;
algorithms and flow-chart; fixed and floating point numbers; file editing and use of soft/merge soft-ware facilities; use of statistical packages.

CSC 201: DATA STRUCTURE AND ALGORITHN: 3 CREDITS

Review of relevant basic mathematical concepts; basic definitions, relationships between algorithms and data structures, linear data structure, arrays, linear linked lists, stacks, queues and dequeues; nonlinear data structure applications; data structure implementation scheme; data type correct; data handling facilities in programming languages.

CSC 202: INTRODUCTION TO FILE PROCESSING: 3 CREDITS

Introduction to data management files; and job control language application; an over-view of l/O (input/output) system architecture; Logical file organizations; mapping logical olganisation on to physical storage; back-up procedure; file recovery; higher level language data management facilities, file attribute, STREAM files, record files, GET and PUT, OPEN and CLOSE.

CSC 203: COMPUTER PROGRAMMING: 3 CREDITS

Introduction to problem solving methods and algorithm developments, designing, coding, debugging and documenting programmers using techniques of a good prograrnrning language style: computer organisation. programrning language and programming algorithm development, testing, string processing; internal searching and sorting; data structure, recursion; various prograrnming languages should be applied in teaching all of the above mentioned concepts.

DIGITAL COMPUTER SYSTEM: 3 CREDITS

Combinatorial logic, sequential logic micro processors and microcomputers, logic of arithmetic circuitry, machine instructions; general registers, the unconditional branch, logical instructions.

CSC 205: NUMERICAL METHODS: 3 CREDITS

Floating point arithmetic, use of mathematical subroutine packages; interpolation; approximation; numerical integration and differentiation, solution of non-linear equations, solution of ordinary differential equations.

300 LEVEL

SWD 3II COMPUTING PROJECT 3

The aim of this course is to provide an environment in which the student can experience the challenge of applying the principles learned from his/her specialisation as relevant and can use his/her initiative and Judgment for making decisions that will determine the course of the project. A structured project support
element will be integrated in to this course and will run in parallel with the project.

SWD 312 DISTRIBUTED COMPUTING 3

To provide the student with a comprehensive understanding of the theories, concepts and methods of Distributed Computing.

SWD 313M ANAGEMENT AND THE BUSINESS ENVIRONMENT 3

This course aims to equip students with the awareness of how Information Technology can help in achieving an organisations business strategy and objectives.
SWD 314 SOFTWARE DESIGN PATTERNS 3
The Bash Shell
Shell Programming
Sed
Awk
Grep

SWD 3I5 SOFTWARE PROJECT MANAGEMENT 3

To introduce the students to the principles and practice of project management with a particular emphasis in the ICT and the Games industry.

SWD 316 ARTIFICIAL INTELLIGENCE 3

This course introduces the foundations, principals and techniques of Artificial Intelligence, covering how these concepts are applied to practical problems, such as game playing, expert systems, planning, language understanding and pattern recognition.

SWD 321 ARTIFICIAL NEURAL NETWORKS 3

This course provides an introduction to basic neurobiology, discusses the main neural network architectures and learning algorithms. and presents a number of neural network applications. Particular models covered include McCulioch Pitts Neurons, Single Layer Perceptrons, Multi-Layer Perceptrons, Radial Basis Function Networks, committee Machines, Kohonen Self-organising Maps, and Learning vector quantization.

SWD 322: COMPUTER SECURITY 3

This course covers the theory and practice of computer security including cryptography and the application of security at program, operating system and network levels.

SWD 323 COMPUTING SEMINAR SERIES 3

To gain a broad appreciation of emerging technologies and business concepts.

SWD 324 DIGITAL IMAGE PROCESSING 3
The aim of this course is to provide the student with a solid foundation in the theory and the practical application of Digital Image processing techniques.

SWD 325 ERP SYSTEMS 3

This course introduces students to ERP systems and provides an overview ofthe managerial and technical issues in planning. designing. implementing. and extending enterprise systems and technologies. It investigates how such systems manage information, and decision support across an organisation's various business functions.

SWD 326 GAMES MIDDLEWARE

Produce a programmer who can use and produce game middleware.

400 LEVEL

SWD 41I MOBILE TECHNOLOGY 3

This course cover's the fundamental of wireless communications. broadband platforms and application development for In mobile technologies.

SWD 412 PARALLEL COMPUTING 3

This course introduces parallel computing from a software and hardware perspective, covering parallel systems, programming models and tools.

SWD 413 E-BUSINESS 3

Aims to provide the learner with an appreciation and understanding of:
(a) the importance of knowledge of information systems for business professionals;
(b) how information systems can support a firms business processes, managerial decision making and strategies for competitive advantage;
(c) the challenges that a business manager might face in managing the successful. Ethical development and use of information technology; and
(d) e-commerce and the factors that contribute to a successful e-commerce business.

SWD 414 COMPUTING PROJECT 6

The aim of this course is to enable students to realise the engineering principles associated with computer based system development. The course will also enable the student to extend his/her knowledge and experience in a specialised area of interest.

SWD 415 SOFTWARE QUALITY MANAGEMENT 3

The aim of this course is to provide the learner with an understanding of the importance of software quality and an appreciation of low Software Quality Management impacts the Software Enterpise.

SWD 421 WORK PLACEMENT/APPLICATION To PRACTICE 3

This course represents a structured work placement in which students will be placed for a 4 day working week in industry with the fifth day available for work on their project.
The aim of this course is to grant students an opportunity to relate and apply academic theory to professional practice. The institute also gains an opportunity to strengthen links with industry and to showcase the quality of students education and skills.

Every effort will be made to provide a work placement experience that meets the learners interests and the learning outcomes of the programme and the course. However, where a student cannot undertake work placement, the institute will identify an appropriate alternative solution.

SWD 422 CURRICULUM DESIGN 3

This course aims to prepare students to design developmentally appropriate curricula by a comprehensive study of theory of curriculum design from planning stage to implementation and evaluation and researching the cultural, social and political influences on curriculum.

SWD 423 ENTERPRISE FINANCE 3

The aim of this course is to introduce the financial tools and theory to the student with particular emphasis on the small to medium enterprise.

SWD 424 ENTREPRENEURSHIP-GROWING BUSINESS 3

Entrepreneurship in the 2 lst century is evolving. Because of global changes in technology, communications, and capital markets, today's innovative startups are building successful companies in countries around the globe, in many instances with investors, vendors, customers, and employees located thousands of miles away.

Business Development is both a course and a collaboration: a partnership between the student and entrept-eneurial companies facing real challenges throughout the world. The course aims to help develop the students' managerial skills as they relate to glowing the business. Students will participate in a business incubation environment which will enhance their strategic decision making and team working skills. The students will be required to reflect on their input and team decisions and to present a written rationale for same.

SWD 425 INTRODUCTION TO TEFL 3

This course aims to equip students with the knowledge and skills for the effective teaching of English as a foreign language. Students will gain an insight into the theories and principles of language learning and teaching and will acquire a range of practical skills which they will learn to apply in a real teaching context.

SWD 426 LIFESTYLE SOLUTIONS 3

This course is designed for students interested in bringing about positive health enhancing changes to theil orvn iives, and to introduce effective behaviours for helping other change. The knowledge, skills and competence necessary to make positive changes to lifestyle are explored. It combines measures ofbehaviour change theory applied io self change interventions with requirernents to develop self efficacy in relation a l'ange of health reiated lifestyle factors. A range of health lelated lifestyle variables are examined, as al'e influences on our behaviouls stemrning from within ourself and our environment.

B.SC. STATISTICS

COURSE DESCRIPTIONS

100 LEVEL

Course Code	Course Title	Credit Units
STA 101	Introduction Statistics	2

200LEVEL

Course Code	Course Title	Credit Units
STA 200	Statistics for Agriculture and Biology Science	4
STA 201	Probability I	3
STA 202	Test of Hypothesis	2
STA 203	Distribution Theory	2

300 LEVEL

Course Code	Course Title	Credit Units
STA 301	Probability II	3
STA 302	Test of Hypothesis I	3
STA 303	Regression Analysis I	3
STA 304	Sampling Distribution	3
STA 305	Analysis of Variance I	3
STA 306	Statistical Inference	3
STA 307	Sampling Theory and Survey Methods	3
STA 308	Field Work	2
STA 309	Biometry	3
STA 310	Demography	2
STA 311	Operations Research	3

400 LEVEL

Course Code	Course Title	Credit Units
STA 401	Stochastic Processes	3
STA 409	Design and Analysis of Experiment	3
STA 403	Time series	3
STA 402	Non-parametric Inference	3
STA 404	Analysis of Variance II	3
STA 405	Regression Analysis II	3
STA 406	Decision Theory	3
STA 408	Multivariate Analysis	3

200 LEVEL

STA 200: INTRODUCTORY STATISTICS: 2 CREDITS

Measures of location and dispersion in simple and grouped data exponentials. Elements of probability and probability distribution conditional probability, independent events; Tree diagrams. Discrete and continuous randorn variables. Probability density function; cumulative frequency distribution function; Expectation and standard deviation. Binomial, Poisson and Normal distribution Bivariate data; scatter diagrams and regression lines and their applications, coefficient of correlation, product moment correlation coefficient, rank correlation; spearman's rho.

200 LEVEL

STA 200: STATISTICS FOR AGRICULTURAL AND BIOLOGICAL SCIENCE: 4 CREDITS

Use of Statistical methods in biology and agriculture. Frequency distributions. Laws of probability. The Binomial, Poisson and normal probability distributions, Estimation of tests of hypotheses of variance and covariance, simple regression and correlation, contingency tables. Some non-parameter tests.

STA 201: PROBABILITY I: 3 CREDITS

Algebra of sets; axiomatic definition of probability counting rules; marginal and conditional probability; Bernoulli trials, independence; probability function (both discrete & continuous e.g. Binomial, Poisson, exponential, normal, hypergeometlic, games functions, expectation, expectations of functions of random variable, lacobian.

STA 202: TEST OF HYPOTHESIS I: 2 CREDITS

Statistical Data: their sources, collection and preliminary analysis by table and graphs. Time series, demographic measures and index numbers; testing of statistical hypothesis; null and alternative hypothesis. The Neyman Pearson Lemma. Best critical region, UMP tests, unbiased tests. Likelihood ratio tests in univariate and multivariate distributions. Distribution of likelihood ration criteria. Regression and conrrelation of data.

STA 203: DISTRIBUTION THEORY: 2 CREDITS

Distlibution functions, probability densities and their relations. Standard distribution function e.g. normal, uniform, binomial, Poisson, beta, galnma, x2 etc. Joint marginal and conditional distributions, Bivariate normal distributions Sample transformation Central limit theorerns, strong and weak law of large numbers.

300 LEVEL

STA 301: PROBABILITY II: 3 CREDITS

Combinatorial analysis, probability models for the study of random phenomena in finite sample spaces. Chebyshev's inequality. Convolution of two distlibutions. Probability generating functions. univariate and bivariate moment genelating functions, univariate chalacteristic function formula. Various models of convergence. Random walk and markov chains. Introduction to Poisson processes.

STA 302: TEST OF HYPOTHESIS II: 3 CREDITS

Sequential probability ratio tests. Region of acceptance, rejections and of indecisions; operating characteristics. Expected sample size. Efficiency; examples from binomia Poisson, and normal distributions. Point and internal estimation. Contingency tables. Goodness of fit tests.

STA 303: REGRESSION ANALYSIS I: 3 CREDITS

Regression function -linear and non-linear, polynomials; regression, orthogonal polynomials. Measule of non-Iinearity. The product moment coefficient of correlation, correlation ratio; interclass correlation coefficient, partial and multiple col'relation involving at leasy!'3 variables; r'eduction formula for partial correlation and regression coefficients and standard error; sampling distribution of total, partial and multiple correlation coefficients. Use of dummy variables.

STA 304: SAMPLING DISTRIBUTION: 3 CREDITS

Population and sample; sample moments, sampling distributions; standard errors of sample mean and median, Standard deviation, coefficient of variation, qualities etc. Joint distribution of sample mean and sample variance from a normal population. Students t. x^2, F, Z distributions. Sum of independent X2 variables, Cochran's theorem. Sampling distribution of mean from binomial, Poisson. normal or Cauchy populations. Approximation of binomial. Poisson distributions.

STA 305: ANALYSIS OF VARIANCE I: 3 CREDITS

Analysis of simple, double and multiple classification of balanced data in crosses and nested arrangements. Analysis of two ways, three ways contingency tables of homogeneity, independence and interactions. Analysis involving incomplete tables, missing values; analysis of covariance.

STA 306: STATISTICAL IN FERENCE: 3 CREDITS

Cliteria for good estimators; unbiasedness of dress sufficiency, consistency; relative and asymototic efficiency, cotnpleteness and maximum variance. Point estimation of one or more parameters. Methods of estimation: maximum likelihood, maxirnum x^2; method of memonts and least squares; simple properlies of maximum likelihood estimators, interval estimation, confidence interval for mean, proportion, ration of variance. differences of means and of proportions. ration of variance. Confidence region for mean and variance of a normal population. Rao Blackwell theorem.

STA 307: SAMPLING THEORY AND SURVEY METHODS:3 CREDITS

Basic sampling methods; statification, use of auxiliary infolrnation. Multi-state sampling. Non-sampling errors. Estimation of population mean and a total in simple and in stratified random sampling method of social investigation. Planning surveys. problems, design of surveys, errors and bias, metliod of collection of data, processing, analysis and interpretation. Nigeria's experience in sampling surveys.

STA 308: FIELD WORK: 2 CREDITS

Field and Laboratory, appraisal of some of the techniques and problems in sample surveys.

STA 309: BIOMETRY:3 CREDITS

Purpose, histoly and stlucture of biological assays, international standards; statistical science and biological assays. Terminology and notations; types of biological assays. Nature of direct assays. Application to strophanthus. Precision of estimates.

STA 3IO: DEMOGRAPH: 2 CREDITS

Demographic data; source, assessment of and use in construction of life tables. Definition of basic concepts. Estimation of population parameters from collective data; stable and quasi table population. Population projections.

STA 3II: OPERATIONS RESEARCH: 3 CREDITS

Classical method of optirnization, maxima and minimal. LaGrange's multipliers; linear proglamming; convex sets and functions, simple and revised simplex methods, duality theory, applications; games theory, two persons' zero-sum games, saddle point. dominance, strategies, linear programming applications.

400 LEVEL

STA 401: STOCHASTIC PROCESSES: 3 CREDITS

Random walk, simple and general walk and absorbing and collecting barriers, markovian processes with finite chains, lami theorem; Poisson, branching, birth and death processes; queuing processes, M/M/I, M/M/S, M/G/I queues and their waiting time distribution; relevant applications; transition matrix, Chapman kolmogorov equations; geometric holding times; stationary distributions (no limits).

STA 402: DESIGN AND ANALYSIS OF EXPERIMENT: 3 CREDITS

Application of statistical methods to the efficient design of experiments. One factor and multifactor experiments in randomized block, incomplete blocks, Latin squares, split-plots etc, 2n factorial experiment with confounding and fractional replications; problem in experiments; missing values, heterogeneous data etc; cross-over design, factorial experiments; rampose surfaces.

STA 403: TIME SERIES: 3 CREDITS

Components of time series, measurement of trends, the seasonal index, the cyclical component and random fluctuations, serial correlation, correlogram; stationary time series, estimation.

B. SC. APPLIED PHYSICS

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
APS 104	Electricity and Magnetism	3
APS 105	Thermal & Physical Properties of Matter	3
APS 108	The Universe	3
APS 128	Physics I	4
APS 151	Physics Laboratory I	3
APS 154	Introduction of Computing	3

200 LEVEL

Course Code	Course Title	Credit Units
APS 201	Quantum Physics I	3
APS 202	Electromagnetism	3
APS 204	Solid State Physics I	3
APS 207	Relativity, Nuclear and Particle Physics	3
APS 217	Vibrations and Waves	3
APS 218	Physics of Renewable Energy	3
APS 251	Laboratory General Physics	4

300 LEVEL

Course Code	Course Title	Credit Units
APS 301	Quantum Physics II	3
APS 302	Statistical Physics	3
APS 307	Wave Optics	3
APS 351	Physics Laboratory V	3
APS 305	Semiconductor Physics I	3
APS 311	Stellar Physics	3

400 LEVEL

Course Code	Course Title	Credit Units
APS 407	Quantum Electronics	3
APS 412	Electrodynamics	3
APS 415	Applied Spectroscopy	3
APS 427	Professional Development	3
APS 451	Final Year Project	6
APS 403	Digital Signal Processing	3
APS 406	Plasma Science and Technology	3
APS 417	Biophotonics	3
APS 426	High Energy Astrophysics	3

COURSE DESCRIPTIONS

100 LEVEL

APS 104 ELECTRICITY AND MAGNETISM 3 CREDITS

Aims: To give students a broad, rigorous introduction to electricity and magnetism treated as distinct phenomena in the statistics approximation.

APS 105 THERMAL AND PHYSICAL PROPERTIES OF MATTER 3 CREDITS

This aims to provide a comprehensive introduction to the topics of heat, thermodynamics and statistical mechanics. The subjects taught and the method of approach will be chosen to give students a full and thorough knowledge of the topics. The course aims to develop students appreciation of thermal physics and to be able to confidently handle problems. Students will be able to see the relationship between the classroom material and their real-life experiences and observations.

APS 108 THE UNIVERSE 3 CREDITS

A general introduction to astronomy & astrophysics assuming no prior knowledge. Including the solar system, stars, galaxies and an introduction to cosmology.

APS 128 PHYSICS I 4 CREDITS

This course is designed to give students an introduction into the fundamentals of (Newtonian) mechanics and the fundamentals of thermal physics in semester 1. in semester 2 the students will be introduced to the fundamentals of wave propagation, simple acoustics and optical phenomena. These topics are the bedrock of further studies in a wide range of areas of physics. The course is predominantly knowledge-based. The main learning activities are attending lectures and tutorials and the related learning activity of solving numerical and other problems related to other topics covered. Students are expected to attend lectures and tutorials and to prepare for both by appropriate study (including the use of on-line moodle resources provided and textbooks) and thus be able to engage fully in discussions and other interactions in lectures and tutorials. Students are further expected to prepare for in-class and other tests and end of course examinations via study and, as needed, discussion with the lecturer.

APS 151 PHYSICS LABORATORY I 3 CREDITS

The purpose of this course is to ensure that first year physics students have basic laboratory and data analysis skills to equip them for subsequent laboratory courses. In the course, the students will also learn to relate the relevant theory to the experimental manifestation of the theory or principle. The students will participate in a variety of learning activities, for example dealing with error analysis, using instrumentation, constructing simple experiments, writing laboratory reports, group project work and oral presentation.

APS 154 INTRODUCTION TO COMPUTING 3 CREDITS

To achieve competency in basic computer skills, such as file management, virus scan, scanners, printers, digital camera, Email and Internet Browsers. To introduce students to packages such as Word, Excel, PowerPoint and Publisher.

200 LEVEL

APS 201 QUANTUM PHYSICS I 3 CREDITS

This course begins with a discussion of the experiments on Black Body Radiation, the Photoelectric Effect, the Compton Effect, line spectra, X-rays and electron diffraction that led to the birth of Modern Physics and the introduction of Quantum Mechanics. The introduction to quantum mechanics takes as its starting point ideas about wave-particle duality, the Heisenberg Uncertainty Principle and early models of the atom leading to the Bohr Theory. The time independent Schrödinger equation is introduced and applied to the solution of several one-dimensional problems, beginning with the simple particle in an infinite well and increasing in difficulty to cover the finite well and quantum tunneling.

APS 202 ELECTROMAGNETISM 3 CREDITS

Maxwell's equation are introduced through conceptual development of electromagnetism and vector calculus.

APS 204 SOLID STATE PHYSICS I 3 CREDITS

To introduce the students to the structure of crystalline solids and diffraction techniques for structures determination. To provide an understanding of bonding in solids. To introduce the student to the concept of band structure. To provide a basic grounding in thermal, electrical and optical and magnetic properties of solids.

APS 207 RELATIVITY, NUCLEAR AND PARTICLE PHYSICS 3 CREDITS

The course introduces the central ideas of the theory of relativity and shows how these ideas lead to radical changes in our view of basic physical concepts, including space, time, energy and mass. We will see how a consistent relativistic approach leads to surprising results such as time dilation and the equivalence of mass and energy. In the second part of the course, we examine the influence of relativistic concepts in modern physics, ranging from the structure of the universe to nuclear physics.

APS 217 VIBRATIONS AND WAVES 3 CREDITS

The overall aim of this course is to explore the detailed behaviour of oscillating/vibrating systems and waves from fundamental concepts to real examples in physics and technology.

APS 218 PHYSICS OF RENEWABLE ENERGY 3 CREDITS

Students will be introduced to the concepts of energy and the fundamental physics around it through a range of lectures. These demonstrations will also introduce the concepts of energy storage, efficiency, conversion and sustainability. An overview is given of issues surrounding sustainable energy for future generations. In particular, emphasis of the background physics is given of solar cells, wind power and fuel cell technology and their applications as well.

APS 251 LABORATORY GENERAL PHYSICS 4 CREDITS

General Physics laboratory course for Physics majors which includes project work.

300 LEVEL

APS 301 QUANTUM PHYSICS II 3 CREDITS

To introduce the students to introductory topics in quantum mechanics. The formal rules of quantum mechanics are introduced. It is shown how observable quantities such as position, momentum and angular momentum are represented by operators. The properties of these operators are studied. The angular momentum operators are studied in detail leading to a series of applications of the wave equation to 1-, 2- and 3- dimensional physical systems. Emphasis is placed on the central potential and the energy and angular momentum properties of the Hydrogen atom are studied. Simple perturbation methods for solving non-trivial problems are introduced and applications of these methods to atomic and molecular systems are examined.

APS 302 STATISTICAL PHYSICS 3 CREDITS

The aims of the course are to analyze the behaviour of large number of quantum particles using statistical methods and show how these can be used to calculate the structure and properties of solids, liquids, gases and light.

APS 307 WAVE OPTICS 3 CREDITS

This course is designed to: (I) To provide an appreciation of the fundamental concepts of wave optics. (ii) To illustrate the relevance of these concepts in modern applications of optics. (iii) To develop numerical problem solving skills in wave optics. The course is predominantly knowledge-based. The main learning activities are attending lectures and tutorials and the related learning activity of solving numerical and other problems related to the topics covered. Students are expected to attend lectures and tutorials and to prepare for both by appropriate study (including the use of on-line moodle resources provided and textbooks) and thus to be able to engage fully in discussions and other interactions in lectures and tutorials. Students are further expected to prepare for in-class tests and end of course examinations via study and as needed, discussion with the lecturer.

APS 351 PHYSICS LABORATORY V 3 CREDITS

To introduce the students to advanced experimental techniques in the areas of Optics, Solid State Physics, Instrumentation, Process Control and Computational Physics. To enhance the students understanding of concepts

presented in lectures. To provide the students with training in; good laboratory practice, data analysis; data presentation and report writing.

APS 305 SEMICONDUCTOR PHYSICS I 3 CREDITS

This course introduces the students to the basic physics of semiconductor devices as well to key applications such diodes, transistors and optoelectronic devices. The Intel-delivered part of the course gives the students an overview of semiconductor processing which is based on current Intel processes. The course is largely knowledge-based. The Intel element will impart some know-how with regard to semiconductor fabrication processes that will benefit students who either pursue postgraduate education in this area or who obtain employment in the sector.

APS 311 STELLAR PHYSICS 3 CREDITS

Aims to treat the physics of the stellar interior and the underlying fundamental processes and parameters. To introduce the topics of star formation and stellar atmosphere physics. To introduce different models developed for the explanation of the stability, dynamics and evolution of the stars.

400 LEVEL

APS 407 QUANTUM ELECTRONICS 3 CREDITS

The purpose of this course is to give students a working knowledge of (1) the theory and operation of lasers and (2) some optical phenomena related to and made possible by laser radiation. In particular, non-linear optical effects and effects employed in the modulation of optical radiation are treated.

APS 412 ELECTRODYNAMICS 3 CREDITS

The aim of the course is to develop a knowledge and understanding of a wide range of electromagnetic wave phenomena by solving, with appropriate physical insight, Maxwell's equations in particular circumstances, e.g. dielectrics, conducting media, waveguides, antenna behaviour. The course will also introduce radiation and radiating systems and study the dynamics of charged particles in electromagnetic fields.

APS 415 APPLIED SPECTROSCOPY 3 CREDITS

This course provides an overview of a number of spectroscopic techniques used in research and industry to determine the electronic, chemical and structural properties of matter through its interaction with electromagnetic radiation. The approach used is descriptive and operational. A solid understanding of the basic principles of quantum mechanics, mechanics, thermodynamics and optics is required.

APS 427 PROFESSIONAL DEVELOPMENT 3 CREDITS

APS 451 FINAL YEAR PROJECT 6 CREDITS

The final year project is a major two semester project undertaken during the final year. Project titles are suggested and projects are supervised by staff members and usually reflect the research interests of staff. Project titles may also originate from the INTRA industrial placement. The aim of the project is to develop the students' ability to plan and implement a project under the guidance of a staff member. Project areas include computation, construction, theory, measurement and analysis. The course is delivered mainly via consultation with academic and other staff in terms of project planning and other background research work and the actual project work is performed during compulsory laboratory periods. The course is both skills and knowledge-based, in roughly equal measure, as it involves the use of previous knowledge and learning of new knowledge in planning and executing the project in addition to the development of skills via the practical implementation of the project. The students will participate in a variety of learning activities, for example planning the project, using experimental or computational instrumentation, constructing experiments, writing reports, and delivering final oral presentation. Students are expected to plan and execute a 24 week project in physics or a suitably related discipline. This will involve constant review of the plan, regular interaction and discussion with their project supervisor, setting and meeting deadlines and dealing with changes to the project plan as they arise. They are also expected to undertake a literature review on a topic of relevance to the overall project and to perform a risk assessment of the project. Finally they must deliver a final report and oral presentation of their project work and outcomes at the end of semester two. All these activities must be supported by suitable study of the scientific and technical topics related

to the project and students must draw on their prior knowledge in these areas also. Students are expected to use on-line moodle resources provided for appropriate aspects of the project.

APS 403 DIGITAL SIGNAL PROCESSING 3 CREDITS

The overarching objective of the course is to develop in the participants practical time-invariant digital signal system design skills. The course focuses on prototypical linear time invariant systems and aims to be the stepping off point for more advanced courses in adaptive, non-linear and time varying systems.

APS 406 PLASMA SCIENCE AND TECHNOLOGY 3 CREDITS

The purpose of this course is to provide students an overview of the fundamental principles that govern low pressure plasma discharges and a broad awareness of the current applications of plasma processing and surface analysis techniques in industry.

APS 417 BIOPHOTONICS 3 CREDITS

This course serves as an introduction to the area of biophotonics. The approach is multidisciplinary but is aimed particularly at final year physics majors. The course is mainly knowledge-based but students will benefit from the skills learned by carrying out problem solving and by completing the assignment.

APS 426 HIGH ENERGY ASTROPHYSICS 3 CREDITS

Aims to treat emission processes, observing facilities and characteristic object categories in high energy astrophysics. To introduce gamma-ray and TeV observations. To discuss the physics of Neutron Stars and Black Holes.

B. SC. PHYSICS

COURSE OUTLINE

100 LEVEL

Course Code	Course Title		Credit Units
PHY 101	Mechanics and Properties of Matter		3
PHY 102	Introductory Heat and Thermodynamics		2
PHY 103	Optics, Waves, Sound and Modern Physics		3
PHY 104	Electricity and Magnetism		2
PHY 108/109	Basic Experimental Physics I & II	2	

200 LEVEL

Course Code	Course Title		Credit Units
PHY 201	Analytical Mechanics I		3
PHY 202	Thermal Physics		3
PHY 203	Waves and Optics		3
PHY 204	Electrical Circuits and Electronics	3	
PHY 205	Elementary and Modern Physics		3
PHY 208	Basic Experimental Physics III		3
PHY 208	Basic Experimental Physics IV		3

300 LEVEL

Course Code	Course Title	Credit Units
PHY 301	Analytical Mechanics II	3
PHY 302	Statistical and Thermal Physics	3
PHY 303	Electromagnetic Waves and Optics	3
PHY 304	Electronics I	3
PHY 305	Electricity and Magnetism	3
PHY 306	Solid State Physics I	4
PHY 307	Mechanical Methods in Physics I	3
PHY 308/309	Experimental Physics V & VI	2
PHY 312	Optics I	3
PHY 311	Introductory Quantum Physics	3

400 LEVEL

Course Code	Course Title	Credit Units
PHY 401	Quantum Mechanics I	3
PHY 411	Quantum Mechanics II	3
PHY 405	Electrodynamics	3
PHY 412	Computational Physics	3
PHY 407	Solid State Physics II	3
PHY 408	Advanced Experimental Physics	1
PHY 409	Research Project	6
PHY 406	Mathematics Methods in Physics II	3
PHY 414	Nuclear and Particle Physics I	3
PHY 415	Nuclear and Particle Physics II	3
PHY 416	Atomic and Molecular Spectroscopy	3
PHY 417	Applied Geophysics	3
PHY 418	Atmospheric Physics	2
PHY 420	Biophysics	2

COURSE DESCRIPTIONS

100 LEVEL

PHY 101: MECHANICS AND PROPERTIES OF MATTER: 3 CREDITS

Units: Basic S. I. Units, derived units, dimensional analysis. Scalar and Vectors. Statics, concurrent forces in equilibrium, non-concurrent forces. Moments of a force. Frictional forces. Elastic forces in static structures. Kinematics: Speed, velocity and acceleration; equation of motion for bodies moving with uniform acceleration and variable acceleration. Displacement and velocity-time graphs. Free fall and vertical projection. Projectiles in two dimension and trajectory. Dynamics of particles: Forces and linear motion conservation of momentum. Work, energy, power and efficiency. Elastic and inelastic collision. Rotational dynamics and gravitation. Motion of a rigid bodies. Fluids at rest and fluids in motion.

PHY 102: INTRODUCTORY HEAT AND THERMODYNAMICS: 2 CREDITS

Thermometry: Thermometers and scales of temperatures, linear expansion, volumetric expansion. Heat energy; specific heat capacity, latent heat. Thermodynamics: First and second laws of thermodynamics, isovolumetric adiabatic, isothermal processes. The carnot cycle, cryogenics. Thermal properties of gases: Boyles' and Charles' laws, the ideal gas law, the two principal specific heat capacities of gas. Kinetic theory of gases: Assumption of the kinetic theory. Maxwellian distribution. Deduction from the kinetic theory of gases, Avogadro's law. Graham's law of Diffusion, Dalton's law of partial pressures. Transfer of heat: Conduction. The ideal radiator, intensity distribution in black body radiation. Provost theory, Kirchoff's law. Wien's displacement law.

PHY 103: OPTICS, WAVES, SOUND AND MODERN PHYSICS: 3 CREDITS

Elements of Geometric optics – Ray optics, reflection by plane mirrors, spherical mirrors, refraction at plane surfaces, refraction through thin lenses, Defects of lenses and correction, optical instruments. Elementary treatment of wave properties: Propagation, interference, diffraction, polarization, wave motion, Transverse and longitudinal, forced vibrations, resonance, interference and beats. Sound: Motion at supersonic. Speeds, intensity of sound, the resonance tube, frequency response of the ear, high fidelity. Ultrasonic, simple harmonic motion (s.h.m.), photoelectric effect, spectroscopy and atomic physics; continuous and line emission and absorption spectra. X-rays. Wave, mechanics: Qualitative treatment of the wave particle duality. The atomic nucleus and radioactivity.

PHY 104: ELECTRICITY AND MAGNETISM: 2 CREDITS

Coulomb's law, the electric field, the electric potential, capacitors, dielectrics, the electric circuits. Magnetic effect of currents: The current balance measurements of the elm ration mass spectrograph and isotopes. The cyclotron chemical effects of electric current, magnetic properties of materials, theory of magnetism, electromagnetic induction: AC and D.C. generators, electric motors, Eddy Currents. The transformer, alternating current circuit, radiation of em waves (qualitatively). The full electromagnetic spectrum.

PHY 108/109: BASIC EXPERIMENTAL PHYSICS I & II

A 3 hour/week laboratory course covering basic experiments illustrative of the 1st and 2nd semester, 100 level Physics syllabus respectively.

200 LEVEL

PHY 201: ANALYTICAL MECHANICS I: 3 CREDITS

Newtonian Mechanics: Motion of a particle in one, two and three dimensions: systems of particles and collision theory. Newtonian gravitation; conservative forces and potentials, oscillations: central force problems, accelerated frames of reference; rigid body dynamics; generalized motion; mechanics of continuous media.

PHY 202: THERMAL PHYSICS: 3 CREDITS

The foundations of classical thermodynamics including the zeroth and definition of temperatures; the first law work, heat and internal energy, Carnot cycle and a second law; entropy and irreversibility; thermodynamic potentials and the Maxwell relations. Application: Qualitative discussion of phase transitions. Third law of thermodynamics. Ideal and real gases. Elementary kinetic theory of gases including Boltzman counting. Maxwell-Boltzman law of distribution of velocities. Simple application of the distribution law. Application of thermodynamics.

PHY 203: WAVES AND OPTICS: 3 CREDITS

Wave phenomena; Acoustical wave: the harmonic oscillator; wave on a sting; energy in wave motion; longitudinal waves standing waves; group and phase velocity, Dippier effects physical optics, spherical waves, interference and diffraction, thin films; crystal diffraction holography; dispersion and scattering. Geometrical optics; waves and rays; reflection at a spherical surface, thin lenses, mirrors and prisms.

PHY 204: ELECTRICAL CIRCUITS AND ELECTRONICS: 3 CREDITS

DC circuits: Kirchoff's law, network analysis and circuit theorems. AC circuits. Inductance, capacitance, the transformer, sinusoidal wave forms, rims and peak values, power, impedance and admittance series RLC circuit, Q factor, resonance. Network analysis and circuit theorems, filters. Electronic semiconductors, the pry-junction, field effect transistors, bipolar transistors characteristics and equivalent circuits, amplifiers, feedback, oscillators.

PHY 205: ELEMENTARY MODERN PHYSICS: 3 CREDITS

Special relativity: defects in Newton mechanics; the speed of light; the Lorentz transformation; transformation of velocities. Experimental basis of quantum theory. Black body radiation; electrons and quanta, Bohr's theory of atomic structure. De Broghe's hypothesis, the uncertainty principle; Schrödinger's equation and simple applications.

PHY 208: BASIC EXPERIMENTAL PHYSICS III

A 3 hour/week laboratory course covering basic experiments illustrative of the first semester. 200 level Physics syllabus.

PHY 209: BASIC EXPERIMENTAL PHYSICS IV

A 3 hour/week laboratory course covering basic experiments illustrative of the second semester. 200 level Physics syllabus.

300 LEVEL

PHY 301: ANALYTICAL MECHANICS II: 3 CREDITS

Degree of freedom; generalized co-ordinates. Languages formulation of mechanics. The calculus of variations and action principle. Hamilton's formulation of mechanics. Applications. Invariance and conservation laws. Oscillatory systems, including damped, forced and coupled oscillations. Normal modes.

PHY 302: STATISTICAL AND THERMAL PHYSISCS: 3 CREDITS

Basic concepts of statistical mechanics. Microscopic basis – of thermodynamics and applications to microscopic systems. Condensed states: Phased transformations, quantum distribution. Elementary kinetic theory of transport processes. Fluctuations phenomena. Applications.

PHY 303: ELECTROMAGNETIC WAVES AND OPTICS: 3 CREDITS

Maxwell's equation and electromagnetic potentials. The wave equation. Propagation of place waves. Reflection and refraction. Transmission lines, wave guides and resonance cavities. Radiation, geometrical optics. Interference wave diffraction.

PHY 304: ELECTRONICS I: 3 CREDITS

Thermonic emission, vacuum tubes. Diodes and transistors. Semi conductors. P-n junctions, Characteristics of P-n junction; uses of diodes. Unipolar transistor and properties as amplifier. The junction transistor and characteristics. Transistor as an amplifier, classification of amplifiers. Transistor switch, amplification of step voltages and pulses. Transistor circuit cascade amplifier, negative and positive feedback. Delay time, power supplies. Cathode ray oscilloscope (CRC).

PHY 305: ELECTRICITY AND MAGNETISM: 3 CREDITS

Electrostatics and magnetostatics. Laplace equation and boundary value problems. Multiple expansions, deictic and magnetic materials. Faraday's law. A.C. Circuits. Lorentz covariance and special relativity.

PHY 306: SOLID STATE PHYSICS I: 4 CREDITS

Atomic packing and crystal structure: periodic array of atoms, symmetry of crystals, fundamental types of lattice, different atomic packing, position and orientation of planes, Hitler indices, simple crystal structure.

Crystal diffraction and reciprocal lattice: Bragg's law, X-ray, neutron and electron diffraction in crystal, lane method, rotating crystal method and power method, applications. Crystal binding and classification of solids: Crystal inert types, ionic crystal, covalent crystals.

Free electronics and theory, free electron model, free electron gas in three dimensions, Summerfield's theory of metallic conductors. Fermi electron gas, electrical conductivity and Ohm's law, thermal conductivity of metals. Dimagnetism and paramagnetism of solids.

PHY 307: MATHEMATICAL METHODS IN PHYSICS I: 3 CREDITS

Linear Algebra and function analysis. Transformations in linear sector space and metric theory. Hilbert space and complete sets of arthogenal functions. Special functions of Mathematical Physics: The gamma function, hypergometric functions, hermite and language function. The Dirac Delta function.

PHY 308/309: EXPERIMENTAL PHYSICS V & VI: 2 CREDITS

A 3 hour/week laboratory course covering experiments illustrative of the 1st and 2nd semesters respectively of the 300 level Physics syllabus.

PHY 312: OPTICS I: 3 CREDITS

Maxwell's equation and solutions. Interference, multiple beam interferometry. Fresnel and Fraun hofer diffraction, Slits, gratings, Aerial arrays. Production of polariseal light, double refracting crystals. Transmission ad interference of polarized light, analysis of polarized light. Polarizing microscope. Optical activity, rotary dispersion, Faraday effect. Photo electricity and applications.

PHY 311: INTRODUCTORY QUANTUM PHYSICS: 3 CREDITS

Wave – particle duality and uncertainty principle. Basic principles of the quantum theory, energy levels in potential walls; reflections and transmissions of potential barriers; atomic and molecular structure and spectra; nuclear structure and reactions, fission and fusion; magnetic resonance; elementary particles.

400 LEVEL

PHY 401: QUANTUM MECHANICS I: 3 CREDITS

The formulation of quantum mechanics in terms of state vectors and linear operators. Three dimensional spherically symmetric potentials. The theory of angular momentum and spin. Identical particles and exclusion principle. Methods of approximation. Multielectron atoms.

PHY 411: QUANTUM MECHANICS II: CREDITS

Time-independent and time-dependent perturbation theory. Scattering theory, elastic potential scattering; Green's function and partial wave methods. Selected phenomena from each of atomic physics, molecular physics; solid state physics and nuclear physics are described and interpreted using quantum mechanical models.

PHY 405: ELECTRODYNAMICS: 3 CREDITS

Poisson's and Lepalces' equations and their methods of solution. Maxwell's equations applied to free space and dielectric plane waves in dielectric and homogeneous conductors. Rate of energy flow in electro-magnetic field, poyntings vector. Electron theory of dielectric motion of electrons. Dispersion over wide frequency range. Electromagnetic waves in electron layers.

PHY 412: COMPUTATIONAL PHYSICS: 3 CREDITS

Use of numerical methods in physics; various methods of numerical integration, differentiation, numerical solutions of some differential equations in Physics. Statistical analysis of experimental data.

PHY 407: SOLID STATE PHYSICS II: 3 CREDITS

Dielectric properties. Magnetism: Paramagnetism and Diamagnetics; ferromagnetism and auto-ferromagnetism, magnetic resonance. Imperfections in solids.

PHY 408: ADVANCED EXPERIMENTAL PHYSICS: 1 CREDIT

A 3 hour/week laboratory course covering experiment illustrative of the 1st semester 400-level Physics syllabus respectively.

PHY 409: RESEARCH PROJECT: 6 CREDITS

Each student is assigned a project. Seminar based on the project (1 Unit). Continuous assessment of the project by the supervisor (1 Unit).

Final write-up of the project assessed by the Department (Physics) and the external examiner (4 Credit Units).

PHY 406: MATHEMATICAL METHODS IN PHYSICS II: 3 CREDITS

Integral transforms and Fourier series; Fourier series and Fourier transforms; laplace transform. Application of transform methods to solutions of elementary differential equations of interest in Physics and engineering. Partial differential equations. Solution of boundary value problems of partial differential equations by various methods which include: separation of variables, methods of integral transforms. Sturm-plouville theory; uniqueness solutions. Calculus of residues and applications to evaluation of integrals and summation of series. Applications of various Physical situations which, may include electro-magnetic theory, quantum theory and diffusion phenomena.

PHY 414: NUCLEAR PARTICLE PHYSICS I: 3 CREDITS

Nuclear structure: nuclear properties, nuclear site, nuclear mass; nuclear forces, nuclear-nucleon scattering and deuteron. Nuclear models. Radio-active decay: alpha, beta and gamma decays. Nuclear reactions.

PHY 415: NUCLEAR AND PARTICLE PHYSICS II: 3 CREDITS

Nuclear instrumentations and radiation techniques; detectors. Nuclear spectroscopy. Neutron physics: production, detection of neutrons. Fission and fusion. Nuclear reactor and nuclear energy. Elementary particles: conservation laws; particle classification. Strong electro-magnetic and weak interactions. Resonances.

PHY 416: ATOMIC AND MOLECULAR SPECTROSCOPY: 3 CREDITS

The hydrogen atom; relativistic effects and spin. Identical particles and symmetry. Many electron atoms. Coupling schemes and vector model. Seeman effect. Hyperfine structure. The diatomic molecule, the Frank-condom principle. X-ray diffraction. Microwave methods. Resonance phenomena, ESR, MMR and optical pumping and Mossbauer scattering.

PHY 417: APPLIED GEOPHYSICS: 3 CREDITS

Gravity surveying: The Bouguer anomaly, instrument, survey and interpretations. Magnetic properties of rocks, the Earth's Magnetic field, the instrument, magnetic surveying on the ground, aeromagnetic surveying, interpretations and applications. Electrical and Resistivity Surveying: the theory of current flow, the four electrode system of measurement, survey and interpretations.

Seismic Surveying: Outline of the method generation and propagation of elastic pulses, relationship between seismic velocities and elastic properties of rocks. Seismic measurement and their interpretation: Instruments, the reflection method, determination of velocities, the reflection method, determination of velocities, the refraction method, choice between Seismic and resistivity methods, application of nuclear physics, electromagnetic prospecting, borehole measurements, electrical transient methods.

PHY 418: ATMOSPHERIC PHYSICS: 2 CREDITS

Physical properties of the atmosphere. Atmospheric dynamics and thermodynamics. Relative transfer processes. Particles in the atmosphere. Cloud Physics.

PHY 420: BIOPHYSICS: 2 CREDITS

The basic structure of the cell. Nerve conduction. The behaviour of striated muscle. Conducting tissues, electrodes, cell membranes, artificial membranes, Ion transportation in tissues. Neurotransmitters, covering all sense organs. Models of physiological systems.

FACULTY OF PHARMACEUTICAL SCIENCES

B. PHARMACY

100 LEVEL

Course Code	Course Title	Credit Units
PHA 101	Introduction to Pharmacy	3

200 LEVEL

Course Code	Course Title	Credit Units
PHA 201	Pharmacognosy I	3
PHA 202	Pharmaceutics I – Preparation and Formulations of Medicines I (Dispension)	5
PHA 203	Pharmaceutical Microbiology I	3
PHA 204	Pharmaceutical Chemistry I	5
PHA 205	Anatomy and Histology	4
PHA 206	Physiology	5
PHA 208	Biochemistry	4

300 LEVEL

Course Code	Course Title	Credit Units
PHA 301	Pharmacognosy II	5
PHA 302	Pharmaceutical Microbiology II (Applied Microbiology)	3
PHA 303	Pharmaceutical Chemistry II	7
PHA 304	Pharmacy Administration/Management I (Economics)	2
PHA 305	Pharmacology I	6
PHA 306	Clinical Pharmaceutics-Principles of Disease & Pathology	2
PHA 307	Pharmaceutical Technology I	4

400 LEVEL

Course Code	Course Title	Credit Units
PHA 401	Clinical Pharmacy I	3
PHA 402	Pharmaceutical Analysis I	3
PHA 403	Pharmacognosy III	2
PHA 404	Pharmaceutics II	2
PHA 405	Pharmaceutical Microbiology III	4
PHA 406	Pharmaceutical Chemistry III (Medical Chemistry I)	5
PHA 407	Pharmacy Administration II (Forensic Pharmacy and Pharmacy Ethics)	2
PHA 408	Pharmacy Administration III (Pharmacy Management)	3
PHA 409	Pharmacology II (Systematic Pharmacology I)	4
PHA 410	Pharmaceutical Technology III	4

500 LEVEL

Course Code	Course Title	Credit Units
PHA 501	Clinical Pharmacy II	8
PHA 502	Pharmaceutical Analysis II	2
PHA 503	Pharmacognosy IV	2
PHA 504	Pharmaceutical Microbiology IV (Applied Microbiology III)	3
PHA 505	Pharmaceutical Chemistry IV	3
PHA 506	Pharmacology III	4
PHA 507	Pharmaceutical Technology IV	4

COURSE DESCRIPTIONS

100 LEVEL

PHA 101: INTRODUCTION TO PHARMACY

Orientation to Pharmacy (the role of a Pharmacist in the health services; opportunities in pharmacy, history of pharmacy, evolution of profession of pharmacy, various disciplines of pharmacy) Stages in the development of a new drug. Present trends in sterile and non-sterile products; concepts of dosage forms; the prescription, weights, measures and pharmaceutical calculations.

200 LEVEL

PHA 201: PHARMACOGNOSY I

Introduction to Pharmacognosy, Organized (Cellular) drugs-macroscopy, microscopy, biological and geographic sources, collection and preparation, cultivation, constituent, substitution, adulteration, dose (where applicable). Simple chemical tests, Unorganized (Cellular) drugs- to be treated as for organized drugs.

PHA 202: PHARMACEUTICS I – PREPARATION AND FORMULATION OF MEDICINES I (DISPENSION)

(a) Physico-chemical characteristics of drugs and additives.

(b) Dosage Forms; Principles involved in the various process followed in the preparation of the following: Solutions, Gargles, Lotions, Douches, Ear/Nose Drops, Elixirs, Syrups, Tinctures, Infusions, Suspensions, Creams, Pastes, Ointments, Powders, Capsules.

(c) Preparation of types of medicines state in (b) above

(d) Incompatibilities of materials

(e) Doses and calculations

PHA 203: PHARMACEUTICAL MICROBIOLOGY I

Introductory Pharmaceutical Microbiology, Historical Development of microbiology and the effects of health. Morphology of bacteria and fungi. Nutritional needs of microorganisms, cultivation and isolation, methods for microorganisms, Diagnostic techniques in relation to culture determination. Bacteria growth in culture and respective phases including health, Formation of colonies, metabolism in microbial systems, Genetics – (Introductory) vises and Systematics, Introductory Parasitology, Laboratory exposure for handing, identification and growing of microorganism. Experiments to bring out salient parts of course.

PHA 204: PHARMACEUTICAL CHEMISTRY I

General and Pharmaceutical inorganic Chemistry

(i) Atomic and Molecular Structure: Short review of electronic structure of atoms and molecules, co-ordination compounds, complexation complexes and chelating agents.”””

(ii) Pharmaceutical Inorganic Chemistry: A comparative study of the physico-chemical properties, preparations and uses of elements and compounds of pharmaceutical importance in Group 0 and Group I-IV including transitional elements.

(iii) Radiochemistry/Radiopharmacy: Introduction to Radiochemistry; types and sources of radio-active decay particles and their measurements. Biological effects of radiation. Pharmaceutical application of radio isotopes.

(iv) Physical Chemistry: Principles of thermodynamics, chemical and ionic equilibria and chemical kinetics relevant to pharmacy.

PHA 205: ANATOMY AND HISTOLOGY

(i) Gross Anatomy: The skeletal system and its functions. The circulatory system. Gastrointestinal tract and digestion. The respiratory system. The urinary system. The reproductive system.

(ii) Neuroanatomy: Origin and functions of the nervous system. Anatomy of the spinal cord and the peripheral nervous system. Anatomy of the brain. Motor system. Autonomic nervous system.

(iii) Histology: the Tissues. The lymphatic system. The alimentary system. The exocrine glands. The urinary glands. The reproductive system. Organs of special senses.

PHA 206: PHYSIOLOGY

Introductory Physiology – body fluids, cell physiology, regulatory processes, excitation processes, blood Cardiovascular physiology. Respiratory physiology, Gastrointestinal physiology. Endocrine physiology, Neurophysiology – central and autonomic nervous system, Special senses.

PHA 207: PHARMACEUTICAL TECHNOLOGY I

Introduction to pharmaceutical dosage forms and drug formulation. Types of dosage forms. Introduction to pharmaceutical technical methods-introduction to milling, mixing, clarification and filtration processes and centrifugation. The phase rule. Solution and solubility – solution as a dosage form. Stability of solutions, Surface and interfacial phenomena-surface active agents solubilization; Micelles, introduction to dispersed systems.

PHA 208: BIOCHEMISTRY

Introduction to Biochemistry -relevance to health sciences. Carbohydrates and their metabolism including role of hormones like glycogen, insulin in diabetes. Amino acid – general metabolism. Protein-metabolism and biosynthesis. Lipids-metabolism. Tricarboxylic acid cycle. Enzymes, Bio-energetics and high energy comounds. Nucleic acids. Microbial genetics. Biochemical and genetic variants, Liver functions Recent or current topics in Biochemistry.

300 LEVEL

PHA 301: PHARMACOGNOSY II

Separation techniques-principles and applications. Fibres and surgical dressings. Cultivation of medicinal plants. Collection and preparation of crude drugs-general consideration. Adulteration and substitution in crude drugs. Evaluation of crude drug (whole and powdered) and surgical dressing. Pharmacopocial requirements for crude drugs.

PHA 302: PHARMACEUTICAL MICROBIOLOGY II (APPLIED MICROBIOLOGY)

Factors affecting microbial death. Sterilization and asepsis. Sterility tests. Water as a vehicle. Production and storage. Quality determination. Parental Products. Pyrogens and pyrogen testing. Evaluation of microbial contents of pharmaceutical preparations and products.

PHA 303: PHARMACEUTICAL CHEMISTRY II

Pharmaceutical Organic Chemistry I

(a) Introduction: Fundamental concepts in organic chemistry – bonding and reactivity of organic compounds, hybridization, resonance theory, inductive, electronic and mesomeric effects, types of organic reaction mechanism.

(b) Survey of classes of organic compounds: Concepts of functional group and nomenclature of organic compounds. Physical properties of pharmaceutically important compounds with emphasis on their uses, stability, etc, in pharmacy.

Stereochemistry: Stereomerism in aliphatic compounds. Chiral and achiral molecules. Values of stero-chemistry studies-molecular conformation to drug receptor interaction.

Biological examples and scope. Geometrical isomers: Physical properties, determination of configuration, Spectroscopic methods, Biological examples. Chirality, enaniomers, disteroisomers, resolution, recemisation, physico-chemical properties, configuration, nomenclature (DC. RS) and elucidation by chemical and physical methods. Optical rotation dispersion, Biological examples.

Pharmaceutical Organic Chemistry II

General review of organic reactions and inter-conversion of functional group. Aliphatic and aromatic nucleophilic substitution: Elimination reactions; Addition and re-arrangement reactions. Synthetic methods in medicinal chemistry carbon-carbon bond forming reactions; Functional group reactions and applications to synthesis of organic compounds with examples from biologically active compounds, Functional group modification-reduction and oxidation reactions.

Chemistry of heterocyclic compounds: Nomenclature, properties, preparation, reactions of the following classes of compounds such as: Furan, Thiophen, Pyrole, Pyridine, isoquinoline and quinoline.

Organo-metallic compounds preparations and pharmaceutical uses.

Pharmaceutical Analysis I: Basic methods of analysis: Acid-base titration, oxidation – reduction titration: complexometric titration: gravimetric limit tests.

PHA 304: PHARMACY ADMINISTRATION/MANAGEMENT I (ECONOMICS)

Principles of Economics: (30 Hours) possibly a basic first year in Economics offered in the University.

PHA 305: PHARMACOLOGY I

General Pharmacology: Passage of drugs across cell membrane; route of drugs administration; factors affecting drug dosage and actions. Absorption, distribution, Bio-transformation and excretion of drugs, Dose-response relationships. Bioassays. Kinetics of absorption, distribution, metabolism and excretion of drugs and factors influencing them (See biopharmaceutics). Drugs acting at Synaptic & Neuroeffector Junction: Autonomic nervous system. Somatic I motor nervous system. Systemic Pharmacology-I: Respiratory pharmacology, Cardiovascular pharmacology.

PHA 306: CLINICAL PHARMACEUTICS-PRINCIPLES OF DISEASE AND PATHOLOGY

The normal cell and the adopted cell, inflammation and repair, Neoplasia and its clinical aspects, Diseases of immunity, Systematic diseases- Diabetes mellitus, Iron storage disorders; Goulndurate deposits in the Kidneys. Fluids and haemodynamic de- arrangements, infections diseases, Deficiency diseases-Protein-calorite malnutrition, Vitamins and minerals deficiency, Blood vessels and the heart, Lymph modes and spleen. All systems, skin, liver, gastrointestinal tract, pancreas, breast and biliary tract.

PHA 307: PHARMACEUTICAL TECHNOLOGY I

Dispersed Systems: Surface chemistry of dispersed systems, stability of dispersed systems, emulsions and emulsifying agents, creams and ointments. Rheology: Viscosities, flow pattern, formulation studies on suspension. Flocculates, production of floccules incompatibilities in dosage, form design. Tableting Technology Fundamentals: Formulation of tablets, standardization and control, production of tablets.

400 LEVEL

PHA 401: CLINICAL PHARMACY I

Bio-pharmaceutics: Fate of the drug after administration. Structure and properties of biological membrane models, PH-partition principles, blood-brain and blodd-CSF barriers, Physico-chemical properties and pharmaceutical (formulation) factors affecting the processes of absorption, distribution, metabolism and excretion of drugs. Routes of drugs administration and influence of route of administration on drug bio-availability. Drug-protein binding. Enzymology and enzyme kinetics, drug-receptor and bio-energetic. Consideration of the processes of drug disposition and fate.

Phamacokinetics I: Definition of terminology and symbols used in pharmacokinetics. Rates and orders of reactions. Compartment models: Single and Multiple Compartment models. Drug Absorption. Bio-availability and Bio-equivalence. Drug clearance. Hepatic elimination of drugs. Intravenous infusions. Multiple dosage regimens. Prolonged action dosage form administration. Non-linear pharmacokinetics. Relationships between pharmacokinetics parameters and pharmacologic response. Pharmacogenetics

PHA 402: PHARMACEUTICAL ANALYSIS I

Drug Quality control assurance systems. Monographs and specifications for drugs and drug products; Equivalence and bio-equivalence of drug products. Applications of chemical, bio-pharmaceutical and physicochemical

analytical methods in purity determinations. Identification and quantification of pharmaceuticals, radio-pharmaceuticals and medicinal products. Basic tests methodology for essential drugs. Instrumentation: Instrumental methods of Analysis of pharmaceutical – (a) Absorption spectrophotometry; (b) Infra-red spectroscopy; (c) Fluorometry; (d) Atomic Absorption Spectroscopy; (e) N.M.R. Spectrometry; (t) Gas-liquid chromatography; (g) HPLC Chromatography; (h) Other methods; e.g. Pology raphy, Potentiometry and Polarimetry.

PHA 403: PHARMACOGNOSY III

Phytochemistry and biosynthesis of drugs of natural origin.

PHA 404: PHARMACEUTICS II

Delivery Systems: Prescriptions – various types of dosage forms. Formulary system development and stock preparations.

PHA 405: PHARMACEUTICAL MICROBIOLOGY III

(Applied Microbiology II) Antimicrobial agents as preservatives, antibiotics disinfectants antiseptics, chemotherapeutic agents. The evaluation of antimicrovial activities and antibiotic assays. Industrial uses of microorganisms: Production of solvents, steroids etc: media and fermenters; yield of products: factors affecting production: bacterial genetics and drug resistances.

PHA 406: PHARMACEUTICAL CHEMISTRY III (MEDICAL CHEMISTRY I)

Drug Design: Physicochemical approaches to drug design. Historical, Free-Welson and Hansch approaches. The concept of isoterism. Bio-isoterism as a tool in drug design. The design of antihistamine. Sulphonamide and analgesic drugs. SAR in drug design. Anti-metabolite and pro-drug approach to design of new drugs. Introduction of the medicinal chemistry of some selected compounds. A study of the following classes of drugs in respect of their nomenclature, physical and chemical properties, structure, action, relationship, synthesis (where necessary), assay metabolism (where applicable) and uses.

(a) General and local anaesthetics: (b) Sedative and hypnotics including barbiturates; (c) Tranquilizers; (d) Anticonvulsants; (e) Analgesics -Antipyretic and Narcotic; (f) Cholinergic and Adrenergic agents; (g)Vitamins.

PHA 407: PHARMACY ADMINISTRATION II (FORENSIC PHARMACY AND PHARMACY ETHICS)

Study of various laws and regulations governing the practice of pharmacy, sale of drugs and pharmaceuticals. Need to explain the pharmacy laws in their relationship to the broad principles of public law and civil codes. Case histories can be relevant. History of pharmacy and Pharmacists Act. Professional Ethics.

PHA 408: PHARMACY ADMINISTRATION III (PHARMACY MANAGEMENT)

Principles and Methods of marketing. Fundamentals of marketing drugs in community, layout, design and modernization of pharmacies. Fundamentals of Accounting -specially adopted to pharmaceutical operations. Principles of Organization: Organization control and leadership, product selected and personnel selected. Patterns and methods of drugs distribution and advertising, pharmacy finance and administration, delegation and performance evaluation. Record systems -contemporary concepts in pharmacy practice e.g. computers, electronic data system.

PHA 409: PHARMACOLOGY II (SYSTEMATIC PHARMACOLOGY I)

Renal Pharmacology: Pharmacology of the GIT: Hypolipidemic drugs. Central Nervous System Pharmacology: Narcotic analgesics. Including drug abuse and drug dependence. Non-narcotic non-steroidal antipyretic and inflammatory analgesic drugs. Sedative-hypnotic, anti-conculsants central. Nervous systems stimulants. Local Anaesthetic drugs. General anaesthetics. Autocoids. Endocrine pharmacology. Haemopoietic Pharmacology.

PHA 410: PHARMACEUTICAL TECHNOLOGY III

Tabletting Continued: Coating -various types. Capsule Production: Hard, soft capsules. Drug Formation: Selection of Additives. Pre-formulation Studies. Controlled Drug Delivery System. Instrumented Tablet Press. Drug Stability: Physical, Chemical Factors, Assessment of formulation. Dissolution and absorption: In vitro, in-vivo correlation.

Biopharmaceutical Consideration in dosage form design, pharmacokinetic principles involved in drug design and evaluation. Parenteral Products: Production and presentation of injectables. Packaging Science: Materials, methods of selection presentation.

500 LEVEL

PHA 501: CLINICAL PHARMACY II

Pharmacokinetics:

Specific doses prescribing requirements/guidelines under certain conditions: (a) prescribing for the pediatric and elderly populations (b) prescribing for renal and liver impaired patients; (c) prescribing for pregnant and lactating mother. Pharmacokinetics in disease states modifying body perfusion. Phamacokinetics in disease state modifying protein binding. Consideration of the clinical pharmacokinetics of selected drugs used in various disease states.

Pharmacotherapeutics:

Clinical laboratory tests, used in monitoring various disease states, congestive heart failure, hypertension and stroke, arrhythonia, ischaemic, heart disease -angina & mycocardial infraction, thrombo-and pulmonary – embolism, iron deficiency, anaemia and sickle cell anaemia, peptic ulcer, dabetes mellitus, asthma, chronic obstructive pulmonary disease, constipation, cold cough and allergy, diarrhea, emesis, pain and headache, insomnia, obesity, acne, contraception, otitis, management of insect stings and bites, toxic chock syndrome and tampons, care of eye and care of the tooth, cancer, fever, pleuropulmonary and bronchial infections, urinary tract infection and pelvic inflammatory disease, sexually transmitted disease, meningitis, burns, fungal infections, hepatitis, malaria and other parasitic diseases.

Literature Evaluation and Communication Skill

(A) Drug Information Retrieval and Literature Evaluation:

A study of the methods and resources available for the rapid and efficient handling of factual drug information and its effective utilization in the promotion of safe, effective and rational drug therapy. Resources needed for the establishment of a drug information centre and the provision of drug information service. Development of the hospital formulary system and essential drugs list and publication of drug information bulletin.

(B) Pharmacists' Clinical Role:

Dispensing (in-and-out-patients). Organization of patients' medical charts and medication profiles. Medication dosages, posology and administration. Monitoring of drug interactions and adverse drug reactions. Patient counseling.

(C) Communication Skills:

Appearance as a mode of communication. The various styles and response. Applications of the various styles of listening and response to patient interview and education (pharmacist-patient-relationships). Factors affecting patient compliance with drug regimen. pharmacist's relationship with other health care professionals.

The Pharmacists in Primary Health Care

This course is aimed at preparing the students for rendering health services to the rural populace. It assumes the students knowledge of pharmaceutics, biopharmaceutics, pharmacokinetics, pharmacotherpeutics and communication skills.

Clinical Pharmacy Clerkship

(A) Pharmacy Supervised Experiences (Externship):

Dispensing in-and-out patients, scrutinizing, of prescriptions and dispensing: medication dosage and instructions, mode of administration, compatibility of drug combinations; alternative on prescribed drugs. Patients Counseling/Education: patient drug history and medication profiles; patient instruction cards;

patient compliance. Hospital or Community Pharmacy Environment: location: floor space: equipment, arrangements, Organization, etc. Drug Information Centre/Services.

(B) Clinical Clerkships:

This involves ward rotations, conferences and case studies. It is done within an affiliated University Teaching Hospital or Community Health Sector. Activities include:

Supervised experiences in hospital wards: wards rotations in the different departments: and participation in primary health care activities in selected communities.

PHA 502: PHARMACEUTICAL ANALYSIS II

Microbiological evaluations and assays of various preparation and antimicrobial agents. Biological tests for drugs and medicine. Quality controls, productions, handling of radio-

I nuclides. Analysis of drugs from biological samples.

PHA 503: PHARMACOGNOSY IV

Nigerian Medicinal plants in traditional medicine: detail study of prescribed number of such plants of pharmacological and toxicological interest. Herbicides, pesticides and molluscides.

PHA 504: PHARMACEUTICAL MICROBIOLOGY IV (APPLIED MICROBIOLOGY III)

Immunology and immunological products. Blood and blood products. Allergy and allergic reactions. Veterinary parasites and control systems.

PHA 505: PHARMACEUTICAL CHEMISTRY IV

Medical Chemistry II: The chemistry, nomenclature, physicochemical properties, stereo-chemistry, synthesis (where necessary), structure activity relationship, metabolism and uses of the following groups:

Group A: Anti-hypertensive, Diuretics, Steroids and Steroid hormones.

Group B: Chemotherapeutic agents. Sulphonamides. Anti-malaria: Antibiotics, Anti-hemintics: Trypanocides, Schisto-somicides, Anebicides, Anti-cancer and Antiviral agents. Select appropnate drugs to illustrate the above.

Photochemistry: General principles; characteristic of photochemical reactions and I application in Pharmacy.

PHA 506: PHARMACOLOGY III

Chemotherapy: Chemotherapy of bacterial infections, Chemotherapy of parasite infections. Antifungal and antiviral agents, Chemotherapy of neoplastic diseases.

Toxicology: Mechanism of drug toxicity, management of acute drug poisoning, plant, bacterial and animal poisoning, pesticides, herbicides and rodenticides. Toxicology of common veterinary pharmaceutical, heavy metals and chelating agents, food activities, solvent vapours and gases, toxicology of cosmetics, radiation and radioactive materials, food activities, Biochemical Pharmacology Biostatistics.

PHA 507: PHARMACEUTICAL TECHNOLOGY IV

Micrometritics: The science of small particles, particle size distribution, methods of measuring particles size, importance of particle size in formulation of dosage forms. Detailed Consideration of Specific Dosage Forms: Aerosols: Microcapsules: Film coated drugs: Multiple emulsions in drug, Preparations, Topical Preparations. Materials of Construction. The Pharmaceutical Industry, Plant design, Infrastructural facilities, Building specifications, Production management. Cosmetic Production: Equipment, Raw Materials, standards: Formulation: Quality Control.

FACULTY OF SOCIAL SCIENCES

B. SC. ECONOMICS

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
ECN 101	Principles of Economics I	3
ECN 103	Mathematics for Economics I	3
ECN 102	Principles of Economics II	3
ECN 104	Mathematics for Economics II	3

200 LEVEL

Course Code	Course Title	Credit Units
ECN 201	Microeconomics	3
ECN 203	History of Economics Thought I	2
ECN 205	Introduction to Statistics	3
ECN 207	History and Structure of the Nigerian Economy	2
ECN 209	Labour Economics I	3
ECN 211	Principles of Public Finance	3
ECN 202	Macroeconomics I	3
ECN 204	History of Economics Thought II	2
ECN 205	Introduction to Statistics II	3
ECN 208	History and Structure of the Nigerian Economy II	2
ECN 210	Labour Economics II	3
ECN 212	Urban and Regional Economics	2
ECN 214	Introduction to Management Accounting II	3
ECN 216	Labour and Human Resources II	3

300 LEVEL

Course Code	Course Title	Credit Units
ECN 301	Microeconomics II	3
ECN 303	Econometric I	2
ECN 305	Developing Economics	3
ECN 307	Project Evaluation I	2
ECN 309	International Trade	3
ECN 311	Operation Research I	3
ECN 313	Public Finance I	3
ECN 315	Industrial Economics	3
ECN 317	Monetary Theory and Policy	3
ECN 319	Economics of Mineral Resources I	2
ECN 302	Macroeconomics II	3
ECN 304	Econometrics II	2
ECN 306	Theories of Economic Growth and Development	3
ECN 308	Project Evaluation II	3
ECN 310	Political Economy	3

ECN 312	Operation Research II	3
ECN 314	Public Finance II	3
ECN 316	Financial System	3
ECN 318	Economic of Mineral Resources II	2
ECN 320	International Finance	2

100 LEVEL

Course Code	Course Title	Credit Units
ECN 401	Advanced Microeconomics	3
ECN 403	Comparative Economic System	3
ECN 405	Economic Planning	3
ECN 407	Topics in Economic Development	3
ECN 409	Advanced Mathematics Economy	3
ECN 411	Agricultural Economics	2
ECN 413	Industrial Relations	2
ECN 415	Advanced Political Economic	2
ECN 402	Advanced Macroeconomics	3
ECN 404	Research Project/Original Essay	6
ECN 406	Economics of Production	3
ECN 408	Taxation and Fiscal Policy	3
ECN 410	Topics in Econometrics	2
ECN 412	Population Economics	2
ECN 414	Regional Economics	2

B. SC. GEOGRAPHY

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
GEO 101	Introduction to Physical Geography	3
GEO 102	Introduction to Human Geography	3
GEO 103	Introduction to Map Work	3
GEO 104	Local Field Studies	3
GEO 105	Map Analysis	3
GEO 106	Geography of Jigawa State	3

200 LEVEL

Course Code	Course Title	Credit Units
GEO 201	Introduction to Geomorphology	2
GEO 202	Introduction to Soil Geography	2
GEO 203	Introductory to Climatology and Biogeography	2
GEO 204	Introduction to Population Geography	2
GEO 205	Introduction to Rural Geography	2
GEO 206	Introduction to Urban Geography	2
GEO 207	Land Surveying	3
GEO 208	Statistical Maps and Diagrams	2
GEO 209	Introduction to Cartography	3
GEO 210	Air Photo Interpretation	3

300 LEVEL

Course Code	Course Title	Credit Units
GEO 301	Introduction to Environmental Science	3
GEO 302	Geomorphology	3
GEO 303	Biogeography	3
GEO 304	Soil Geography	3
GEO 305	Climatology	3
GEO 306	Hydrology	3
GEO 307	Spatial Organization	3
GEO 308	Population Geography	3
GEO 309	Settlement Geography	3
GEO 310	Economic Geography	3
GEO 311	Geography of Africa	3
GEO 312	Methods of Geography Research	2
GEO 313	Statistics for Geographers	2
GEO 314	Cartography	2
GEO 315	Remote Sensing	3
GEO 316	Filed Work	2
GEO 317	Land Surveying	3

400 LEVEL

Course code	Course Title	Credit Units
GEO 401	Tropical Geomorphology	3
GEO 402	Fluvial Geomorphology	3
GEO 403	Applied Geomorphology	3
GEO 404	Tropical Climatology	2
GEO 405	Applied Climatology	3
GEO 406	Micro-Climatology	3
GEO 407	pedology	3
GEO 408	Vegetation and Ecosystem	3
GEO 409	Transport Geography	3
GEO 410	Industrual Geography	3
GEO 411	Agricultural Geography	3
GEO 412	Social Geography	3
GEO 413	political Geography	3
GEO 414	Medical Geography	3
GEO 415	Systematic Geography of Nigeria	3
GEO 416	The Developing world	3
GEO 417	The Developed world	3
GEO 418	Land Evaluation	3
GEO 419	Water Resource Management	3
GEO 420	Environmental Management	3
GEO 421	Urban Planning	3
GEO 422	Regional Planning	3
GEO 423	Geographical Information System	3
GEO 424	Contemporary Philosophy and Methodology in Geography	3
GEO 425	Demography	3
GEO 426	Quantitative Techniques in Geography	3
GEO 427	Advance Land Surveying	

COURSE DESCRIPTIONS

1OO LEVEL

MAN'S PHYSICAL ENVIRONMENT

The composition and structure of the lithosphere, atmosphere and hydrosphere. Nature, distribution, evolution and significance of the First Order Relief Forms of the earth. The earth's radiation atmosphelic and oceanic circulation systems. Introduction to the cycling of matter and energy in eco-systems.

MAN, LOCATION AND RESOURCES

The scope of human geography and its relation to physical geography. World Population: its distribution and patterns of growth/dernographic charactelistics of selected populations. Human settlements: evolution; patterns and functions. Inter- relationships between urban and rural settlements. Environmental resources; the concept of resources: types of resources and their global distribution; relationship between resources and tertiary activities; irnpact of human activities on the environment at varying level of technology and population densities. The role of movernent; flows of people, goods, energy and ideas.

INTRODUCTORY PRACTICAL GEOGRAPHY

Map reading: Location; map scale; conventional signs; representation of relief and recognition of relief forms; analysis and interpretation of relief forms on maps; analysis and interpretation of cultural features on maps. Graphical and map presentation of geographical data; isoline maps; chorepleth maps; dot maps flow maps; etc.

LOCAL FIELD STUDIES

Class field studies for familiarization of students with their local environments, and for practicalising classroom Lectures in both human and physical geography.

INTRODUCTION TO ENVIRONMENTAL SCIENCE

Energy systems in the atmosphere, biosphere. hydrosphere. and lithosphere. Current environmental issues, Including air pollution and other natural hazards; erosion, drought, earthquakes, hurricanes, floods, etc.

2OO LEVEL

SPATIAL ORGANISATION OF SOCIETY

Some basic concepts of spatial organisation: principles of classification of geographical phenomena; growth and special distribution of population. Production systems: typology and distribution; location, spacing and growth of settlements; movements over space and transport networks. Land-use; typology, patterns and interaction.

INTRODUCTION TO POPULATION GEOGRAPHY

Examination of population data sources. Population growth and components. Migration processes and consequences. The Nigerian population structure, distribution patterns and their implications.

INTRODUCTORY GEOMORPHOLOGY AND SOIL GEOGRAPHY

The meaning and scope of geomorphology, Rock types, their origins and characteristics. Nature and origin of Second Order Relief Forms of the contingency. Structural landforms. The meanings and scope of soil geography. Factors of soil formation. Zonal soils; Azona soils and intra zonal soils.

INTRODUCTORY CLIMATOLOGY AND BIOGEOGRAPHY

The general circulation of the atmosphere - scales and laws of motion. Forces that drive the atmosphere. Major features and models of the circulation, Weather-producing systems -air masses and fronts, frontal and non-frontal depressions: tropical systems. Climatic classification and global systems of climate. Man's influence on the atmosphere. Basic structure and dynamics of plant communities, factors influencing plant growth, Survey of characteristics, distribution and controlling factors of principal or zonal vegetation types. Man's influence on vegetation.

ELEMENTARY STATISTICS FOR GEOGRAPHERS

The place of statistics in research. Review of algebraic operations. Subscripts and summations. Data description and characteristics. Frequency distributions and graphic presentation. Measures of central tendency and variability. Methods of sampling. Introduction to computer programming.

INTRODUCTORY CARTOGRAPHY

History of map making. Techniques of map making, economic maps. Basic contour compilation, profiles, lettering techniques, Types of maps, design and construction of physical and flow maps, pie graphs, bar graphs. Many projection and lettering techniques.

GEOGRAPHICAL THOUGHT, THEORY AND METHOD

History of geographical thought in relation to the history of science. The role of theory in science and geography. Method in natural and social science. Nature of problems in geographic research.

3OO LEVEL

REGIONAL GEOGRAPHY OF AFRICA

Geography of Africa, dealing with the peoples. their cultule. history, systems of resource utilization population patterns and processes, and spatial aspects of development.

QUANTITATIVE METHODS IN GEOGRAPHY

Complises two parls: statistics; and spatial analysis. The statistical part will deal with: nature of raw data; calculation and use of deviations and variability. Probability tlieory and methods of sampling. Conrparison of samples: non-parametric and parametric tests. Regression and correlation. Time series analysis. The Spatial part, will, on the other hand consider methods of spatial sampling, description of point patterns, Chi- square analysis, nearest neighbour analysis, etc.

CARTOGRAPHIC AND RESEARCH METHODS

Basic draughtsmanship; conception. design a1d execution of map projections. Map interpretation. Air photo-interpretation. Elementary land surveying. introduction to research methods in geography.

FIELD COURSE

8-10 days intensive field studies designed to illustrate the application of techniques of geographical analysis.

ECONOMIC GEOGRAPHY

Supply and dernand; factors of production; comparative advantage; economies of scale; economic rent; etc.

POPULATION GEOGRAPHY

Population data as vital statistics. Procedure and problems of population data coliection including census. Historical outlines of world population grouth. Patterns of population distribution and trends of change. Theories and concepts of population. Determinants and spatial aspects of mortality, fertility and migration.

BIOGEOGRAPHY

Vegetation types. Factors affecting floral and fauna distribution at various scales. The concept of the ecosystem. The structure and functioning of terrestrial and aquatic ecosystems. Vegetation changes through time: adoption. succession and climax.

400 LEVEL

SYSTEMATIC GEOGRAPHY OF NIGERIA

A thematic approach to the geography of Nigeria focusing on a range of physical and human phenomena: spatial patterns: ecological zones; growth and distribution of population; natural resources base; agricultural production and marketing systems; industrialization: transport development; internal and external exchange. Concepts and models: river basins: city and community regions; migration flows, urban systems; modernization; development strategies.

CONTEMPORARY PHILOSOPHY AND METHODOLOGY IN GEOGRAPHY

Current methodology of geographical research, including: recent paradigm shifts within geography; scientific approach to geographical research, quantification in geography; classification in geography; theories and models in geography; systems analysis in geography.

ADVANCE CARTOGRAPHIC METHODS

Scope and limitations of the visual presentation of statistics; sources and manipulation of statistics for visual presentation; criteria of significance and choice of technique; critical review of cartographic, .graphic and, diagrammatic techniques; scale and error factors; map design. The use of mechanical, optical and photographic aids in cartography. The logic of conceptional diagrams. including systems diagram.

ORIGINAL RESEARCH PROJECT

Approximately 10,000 -word research essay/dissertation based on field and/or library research.

THE DEVELOPING WORLD

Differentiation of the Development in the Third World. Poverty and income distribution. Production systems and links with the international economy. Geographical distribution of natural resources, human resources and technology. Development Strategies: agriculture; industrialization, education; and man- power development. The population problem. international trade and transfer of resources.

THE DEVELOPED WORLD

Differentiation of the Developed World from the Developing World. Distribution of incomes and standards of living. Social, economic and political frame-works of the capitalist and centrally planned states. The historical evolution of the developed economies. Geographical bases of the economics of Western Europe, U.S.A, and U.S.S.R. growth and performance of agriculture, manufacturing and services. International trade and implications on the world economy.

B. SC. MASS COMMUNICATION

COURSE OUTLINE

100 LEVEL

Course Code	Course Title	Credit Units
MAS 101	Introduction to Mass Communication	2
MAS 102	History of Nigeria Mass Media	2
MAS 103	Writing for the Mass Media	4
MAS 104	African Communication Systems	4
MAS 105	Typing	2

200 LEVEL

Course Code	Course Title	Credit Units
MAS 201	News Writing and Reporting	2
MAS 202	Critical and Reviewing Writing	2
MAS 203	Editing and Graphics of Communication	2
MAS 204	Editorial Writing	2
MAS 205	Theories of Mass Communication	2
MAS 206	Foundation of Communication Research	2
MAS 207	Principles of Public Relations	2
MAS 208	Reporting	2
MAS 209	Feature Writing	2
MAS 210	Advanced and Specialized Reporting	2
MAS 211	Introduction to Film, Cinema and Literature	2
MAS 212	Specialized Reporting	2

Electives

MAS 213	Foundation of Broadcasting	2
MAS 214	Radio Television Operation	2
MAS 215	Radio Programme Writing	2
MAS 216	Radio News Reporting and Production	2
MAS 217	Announcing Performance	2
MAS 218	Fundamentals of Media Relations	2
MAS 219	Consumers Affairs	2
MAS 220	Advertising in Nigeria	2
MAS 221	Marketing Foundation for Advertising & Public Relations	2
MAS 222	Introduction to Advertising	2
MAS 223	Film, Cinema and Literature	2

300 LEVEL

Course Code	Course Title	Credit Units
MAS 301	International Communication	3
MAS 302	Communication and Society	2
MAS 303	Issues in Nigerian Mass Communication Media History	3
MAS 304	Newspaper Management and Production	2
MAS 305	Science and Technology Reporting	2
MAS 306	Economics of Mass News Reporting	2
MAS 307	Screen Directive	2
MAS 308	Magazine Management and Production	2
MAS 309	Broadcasting Management and Programming	2
MAS 310	Foreign Correspondence	2
MAS 311	Rural Community Newspaper	2

Electives

MAS 312	Manuscript Assessment	2
MAS 313	University Press and Book publishing Industry	2
MAS 314	New Techniques in Book Industry	2
MAS 315	Book publishing and the Law	2
MAS 316	Photo Editing	2
MAS 317	Photo Journalism Management	2
MAS 318	Television Programme Writing and Production	2
MAS 319	Public Affairs Broadcasting	2
MAS 320	Community Relations	2
MAS 321	Financial Relations	2
MAS 322	Advertising and PR Research	2
MAS 323	Advertising Creative Strategies and Tactics	2
MAS 324	Film: Theory and Aesthetics	2
MAS 325	Film Production	2

400 LEVEL

Course Code	**Course Title**	**Credit Units**
MAS 401	Mass Media Laws of Ethics	2
MAS 402	Media Attachment	2
MAS 403	Data Analysis in Communication Research	2
MAS 404	Issues in Broadcasting	2
MAS 405	Drama and Documentary Production	2
MAS 406	Educational Broadcasting	2
MAS 407	Rural Broadcasting	2
MAS 408	Document Film Production	2
MAS 409	Station Management and Operations	2
MAS 410	Economic and Social Issues in Advertising and PR	2
MAS 411	International Public Relations	2
MAS 412	Organization & Management Advertising & PR Agencies	2
MAS 499	Original Essay/Projects	4

Electives

MAS 413	Manuscript Advertising	2
MAS 414	Special Topics in Advertising and PR	2
MAS 415	Film Criticism	2
MAS 416	Bindery and Finishing Operations	2
MAS 417	Film Production for Television	2
MAS 418	Marketing Publications	2
MAS 419	Issues & Case Studies in Book Publishing	2
MAS 420	Comedy Film Writing & Production	2
MAS 421	Film Animation	2
MAS 422	Broadcasting Commentary & Critical Writing	2
MAS 423	International & Foreign Broadcasting	2
MAS 424	Advanced Photo-Journalism	2

COURSE DESCRIPTIONS

100 LEVEL

MAS 101: INTRODUCTION TO MASS COMMUNICATION

Consideration of Mass Communication as a sub-type of human communication and overview of the progress, models, and elements of communication. Survey of the mass media, including their adjuncts. Examination of the characteristics, functions, contents, operations and impact of the mass media as well as national mass media systems and mass communication between/across nations.

MAS 102: HISTORY OF NIGERIA MASS MEDIA

This course traces the major trends in the development of the mass media in Nigeria; as well as their adaptation and contribution to the political, religious, economic and social development from 1959 till the present.

MAS 103: AFRICAN COMMUNICATION SYSTEMS

African oral traditional communication structure, form and content. Also survey of past and present modern mass media systems as influenced by African Political Culture.

MAS 104: WRITING FOR THE MASS MEDIA

Instruction and practice in writing for the mass communication media with the major emphasis on development of the journalistic style and proficiency6 in grammar and the use of language.

MAS 105: TYPING

Instruction and practice in typing aimed at enabling the students to acquire the basic knowledge and skills essential for beginning Journalists.

200 LEVEL

MAS 201: NEWS WRITING AND REPORTING

This is a practical course designed to enable students to become proficient in preparing publishable copy under deadline, Studies are assigned beats, primarily on campus, to develop stories for publication and encouraged to submit outstanding articles to the metropolitan news media.

MAS 202: CRITICAL AND REVIEWING WRITING

Pele-requisite: News Writing or Consent of Instructor. Theory and practice of reviewing the lively arts for a daily newspaper, students write reviews of plays, movies, television programmes, musical and dance events.

MAS 203: EDITING AND GRAPHICS OF COMMUNICATION

Students are taught how to write and edit copy in a style appropriate to the news media, Emphasis is placed on the preparation of articles and photographs in Photo-Editing for newspaper Publication. Editing symbols and not proof readers symbols will be used in this case.

MAS 204: EDITORIAL WRITING

Intensive work in the theory and practice of writing editorials and columns based on opinion with particular emphasis on analysis and interpretation of events.

MAS 205: THEORIES OF MASS COMMUNICATION

Exploration and analysis of major theories, which deal with the nature, uses and effect of mass communication. The relationship between theory and research and the relevance of the latter to the success of the former are discussed early in the course.

MAS 206: FOUNDATION OF COMMUNICATION RESEARCH

The primary aim of this course is to introduce students to data gathering methods in Journalism and Mass Communication; and enable students to analyze research data. and critically evaluate any piece of journalistic writing or social science research. Another objective is to help students to apply the learnt methods in carrying out research projects.

MAS 207: PRINCIPLES OF PUBLIC RELATIONS

The concepts, theories, and practices of Public Relation and Public Affairs; the importance of Public Relations in either profit or non-profit organization.

MAS 208: REPORTING

Instruction and practice in reporting and writing news stories with emphasis on the reporting of the neighborhood, accidents. fires. suicides, crime, business. press conference, etc.

MAS 209: FEATURE WRITING

Writing, analyzing and marketing factual articles for newspapers. general and specialized magazines. Subject research, investigation of editorial news, ethical and legal problems and manuscript preparation.

MAS 210: ADVANCED REPORTING

Advanced instruction and practice in writing news stories with emphasis on investigative and other in-depth reporting techniques.

MAS 211: INTRODUCTION TO FILM, CINEMA AND LITERATURE

Examination of film as a medium of communication and the cinema as a communication setting with particular reference to literature and its various forms - the short story novel, poem and drama.

MAS 212: SPECIALIZED REPORTING

This course is designed (i) to provide instruction in the techniques of reporting specialized subjects such as agriculture. medicine, religion, sports, labor. the courts, the arts and the like; (ii) to expose students to the basic literature as well as outstanding examples of reporting of these issues,

MAS 213: FOUNDATION OF BROADCASTING

Overview of the physical, technical and societal bases of radio and television broadcasting. Relates the laws of nature that make broadcasting possible. as well as the scientists who exploited them; describes the individual terns for equipment used in radio and television and surveys the diverse environment of broadcasting stations and networks.

MAS 214: RADIO TELEVISION OPERATIONS

Systematic analysis of radio and television studio/control room technology and the nature of sound. Practical exercise in studio set-up standard operating procedures and use of studio facilities.

MAS 215: RADIO PROGRAMME WRITING AND PRODUCTION

Examination of the elements and activities of the writing process with special attention to the nature of radio and its audience. Focus on the writing of talks. spot announcements. eye-witness accounts and magazines.

MAS 216: RADIO NEWS REPORTING AND PRODUCTION

Perusal of the broadcasting reportorial process, review of sources and elements of news. Gathering and writing news for radio examination of the broadcasting (news) copy and guidelines for its preparation. Production of news summaries and bulletins of various formats. Introduction to the radio new magazine.

MAS 217: ANNOUNCING AND PERFORMANCE

Examination of the fundamentals of voicing and the nature of speech. Review of performance techniques with regard to the microphone and the camera, as well as of performance types, viz., the actor, the straight announcer', the disc jockey, the news reporter, the interviewer, the master of ceremonies and the narrator. Practical exercises in the various roles.

MAS 219: CONSUMER AFFAIRS

Analysis of ways and means of establishing and maintaining rapport and credibility with media gatekeepers

MAS 220: ADVERTISING

A review of the historical development of advertising in Nigeria; the development of advertising agencies; and the indigenisation of advertising profession in Nigeria. Comparative analysis of advertising in different countries and its roles in modern societies.

MAS 221: MARKETING FOUNDATION FOR ADVERTISING AND PUBLIC RELATIONS

A study of advertising and PR as communication tools which can be used to market or promote a product, person, an organization or idea. The art and science of marketing will be reviewed as the bases for determining the need and type of communication solution, which can effectively deal with marketing problems in different situations.

MAS 222: INTRODUCTION TO ADVERTISING

A general review of the fundamental principles and 2the kinds of film-documentary (non-fiction), and avant-garde role of the cinema in urban and rural communities.

300 LEVEL

MAS 301: INTERNATIONAL COMMUNICATION

This course is an overview of world's press systems. The focus will be on the uni-directional flow of information between the industrialized and Third World nations; how ideology, culture, economy and international market structure have all contributed either in hindering or advancing international flow of news among nations. The scope, characteristics peculiarities and current issues in international communication will be exhaustively treated so as to acquaint the student with a thorough knowledge of the politics and manipulative nature of international communication.

MAS 302: COMMUNICATION AND SOCIETY

Examination of the mass media of communication as a social institution with particular attention to pertinent sociological concepts, themes and problems. The role and relationship of the mass media vis-ir-vis major social institutions. Focus on the sociology and professionalism of mass media communicators, mass media contents and the issue of cultural imperialism of media dependency; internal dynamics and control of mass media organizations and mass communication politics. The role of communication in development is critically examined.

MAS 303: ISSUES IN NIGERIAN MASS MEDIA HISTORY

Critical analysis of significant events and personalities that have featured in and characterized the Nigerian mass media from the political, social and economic points of view. Course underscores the dynamics of the mass media in Nigeria and their institutional role.

MAS 304: NEWSPAPER MANAGEMENT AND PRODUCTION

Basic management and economic theory and application of theory to the management process in the newspaper business.

MAS 305: SCIENCE AND TECHNOLOGY REPORTING

Instruction and practice in writing popular science articles fol newspaper and magazines. Emphasis translation of science language, familiarization with literature of science an d the interview of scientists,

MAS 306: ECONOMICS MASS NEWS REPORTING

Much of what passes for economics news reporting in the Nigeria news media is written is by economists for economists. The course aims at preparing students to write upon and analyse issues relating to the economy for a mass audience. A basic course in Economics is desirable but not essential. Students offering this course should have successfully completed Advanced Reporting.

MAS 307: SCREEN DIRECTING

Film Production. Theories of directing, dramatic form, and actions are examined through lectures, demonstrations and applied exercises to establish theoretical and practical foundation.

MAS 308: MANAGEMENT AND PRODUCTION

Application of theory economics and management to the management of general and specialized magazine. Students will process editorial materials and produce the MASSOCPE.

MAS 309: BROADCASTING MANAGEMENT AND PROGRAMMING

Analysis of the nature and process of management and organization, generally with particular reference to types of broadcasting organizations and their settings. Consideration of the primary operations of radio and television stations networks, particularly, programming and personnel and the skills required to manage them in the interest of society.

MAS 310: FOREIGN CORRESPONDENCE

The course emphasizes the need for the development of an elite press corps to survey the international scene for the country. It teaches the students, discusses the politics and economics of foreign correspondence and teaches skills that will enable the report to function effectively as a foreign correspondent.

MAS 311: RURAL COMMUNITY NEWSPAPER

Writhing, editing and publishing weekly or regular newspaper for the rural community, small municipalities and urban neighborhoods. Content analysis. Readership research and business and management procedures.

MAS 312: MANUSCRIPT ASSESSMENT

Survey of problems involved in prospecting for authors, motivating them, and working with them. Dreaming up projects. Finding writers for them. Screening and assisting authors. Criteria for assessing manuscripts, creating and working with members of the editorial board.

MAS 313: UNIVERSITY PRESS AND BOOK PUBLISHED INDUSTRY

Consideration of special problems by not-for-profit book publishing organizations. Managing University presses in the interest o scholarship.

MAS 314: NEW TECHNIQUES IN BOOK PUBLISHING

Survey of frontiers in book publishing technology, The advent of xerography and similar duplicating processes.

MAS 315: BOOK PUBLISHING AND THE LAW

An in-depth study of those aspects of the law basic to book publishing. With emphasis on libel, copyright, national security, privacy. Etc., Attention is given attendant ethical considerations.

MAS 316: PHOTO EDITING

A study of technical and aesthetic qualities of photographs an hw these factors affect editional decision concerning the use of pictures in publications. Practical work in layout and design and other duties of a newspaper or magazine picture editor.

MAS 3I7: PHOTO JOURNALISM MANAGEMENT

This course deals with general management of photo-laboratory. Coding and/or filling of photographs and presentation of photography chemical] Papers, Films. Etc. Photojournalism lab is differentiated form studio-photography in this course

MAS 318: TELEVISION PROGRAMME WRITHING AND PRODUCTION

Comprehensive analysis of the writing process as it pertains to television. Analysis and evaluation of television scripts, and production of talk, interview discussion ind magazine programmes. Intense writing exercises.

MAS 319: PUBLIC AFFAIRS BROADCASTING

Critical examination of the structure, internal dynamics and functions of the News and current/public affaires division of broadcasting organizations. Interpretative reporting of government and public institutions and agencies and production of current/public affairs discussions, news magazines and documentaries'

MAS 320: COMMUNITY RELATIONS

Examines today's trend in community relations and how effective community relations can be an essential element in the overall public relations Programme focuses on untraditional approaches and on case histories to demonstrate how to cope with crises situations.

MAS 321: FINANCIAL PUBLIC RELATIONS

A comprehensive review of techniques and measurement yardsticks for planning budgeting, designing, writhing and distributing corporate financial publications: a firm knowledge of the functions of financial institutions such as banks, insurance companies, investment houses and the Nigerian Stock Exchange' regulations; government financial institutions.

MAS 322: ADVERTISING AND PR RESEARCH

Application of quantitative and qualitative research methodologies in advertising and public relations contexts, Emphasis will be placed on budget, copy, and media research.

MAS 323: ADVERTISING CREATIVE STRATEGIES AND TACTICS

Theory and practice of writing effective advertising message, for print and broadcast media. The creative application consumer and market surveys copy testing methods. Advertising readership studies.

MAS 324: FILM THEORY AND AESTHETICS

prerequisite; Introduction to film, Cinema and Literature and Film Production. Exploration of film as extension photography. Systematic graphic approach affinities and art. Analysis of the properties of the film medium with regard to the realistic tendency and formative tendency, or realism (as exemplified by the lumiers brothers) and

expressionism (as exemplified by Melie). And the clashes/compromises between both. The issue of film/cinema as an art.

MAS 325: FILM PRODUCTION

Prerequisite: Elements of film production. Analysis of cinematography. Production phases and activities and film structuring. Intensive instruction in the production of short films and analysis of popular productions.

400 LEVEL

MAS 401: MASS MEDIA LAW AND ETHICS

Study of the legal frame work within which mass philosophy bearing upon the mass media. The development and constitutional growth of freedom of expression in Nigeria. The precludes and restrains affecting the mass media live. Sedition, privacy , contempt, obscenity, copyright, etc. and government regulation. Ethical and moral standards applicable to the mass media. Ethical responsibilities of individuals, groups and organisations engaged in message construction. Transmission or consumption, particularly in the field of news and public affairs.

MAS 402: MEDIA ATTACHMENT

Students understudy the operations of a particular media organisations under a careful monitored arrangement between the department of mass communications and that organisation, then give a comprehensive account of their experience in a written report and class presentation.

MAS 403: DATA ANALYSIS IN COMMUNICATION RESEARCH

Students are introduced to data analysis techniques, particularly the use of tables , graphs and measures of central tendency. They are taught how to present and interpret dat4 using these techniques.

MAS 404: ISSUES IN BROADCASTING

Survey of critical perennial and contemporary matters that generate debate and controversy in broadcasting such as sex, violence foreign programmes and cultural domination, political and economic control of news. In depth study of one or two isigerian broadcasting. Review research studies pertaining to the issues and consideration of the role of research in broadcasting.

MAS 405: DRAMA AND DOCUMENTARY PRODUCTION

Over view of special problems involved in producing drama and documentary for radio and television: Blocking: casting: budgeting: performance. Focus on only drama and documentary for both radio and television: or both drama and documentary for only radio or television.

MAS 406: EDUCATIONAL BROADCASTING

Assessment of the educational potentialities and limitations of radio and television . Evaluation of pedagogic approaches and production techniques: radio forums and club. Planning and production of educational programmes: production of supplementary materials and teaching aids .

MAS 407: RURAL BROADCASTING

Analysis of community needs and problems with regard to the role and qualities of radio and television. Planning of community development projects for implementations through special radio programmes. Programme production and evaluation research.

MAS 408: DOCUMENTARY FILM PRODUCTION

Prerequisite: Film and video Editing. Survey of the evolution and pioneers of the documentary form. Analysis of the creative political, anthropological and journalistic environment of the documentary. Design pre-production planning, intensive fieldwork. production and subsequent evaluation of individual documentary projects.

MAS 409: STATION MANAGEMENTS AND OPERATIONS

Practical daily management of (radio) stations involving programme planning/scheduling, traffic control personnel management. Planning and directing of special outside Broadcasts and simulated transmissions or live broadcast.

MAS 410: ECONOMIC AND SOCIAL ISSUE IN ADVERTISING AND PUBLIC RELATIONS

Study of Advertising and Public relations as an institution. The laws and ethics governing the professions in Nigeria as compared with developed countries like USA and Britain; self-regulation by practitioners and professional associations; consideration of social responsibility. Truth and deception. Consumerism. Etc.

MAS 411: INTERNATIONAL PUBLIC RELATIONS

Analysis of trends. Issues and problems confronting public relations departments in multinational corporations and other and other organisation involved in international trade and business.

MAS 412: ORGANIZATION AND MANAGEMENT OF ADVERTISING AND PRA AGENCIES

Establishment of effective guidelines for starting an enterprise in advertising or PR, The organisation and management of the various departments of a full-service agency.

MAS 413: MULTI-NATIONAL ADVERTISING

The behavior in sciences approach to international communications. A study of the exportation. Importation and adoption of foreign advertising programmes and their economic and social consequences.

MAS 414: SPECIAL TOPICS IN ADVERTISING AND PUBLIC RELATIONS

The study of current issues for which provision has not been made in established courses.

MAS 415: FILM CRITICISM

Pr-requisite: Film Theory and Aesthetics. Critical Analysis and evaluation of popular and feature films based on major cinematographic principles and criteria such as plot. Characterization. Special effects and thematic appeal.

MAS 416: BINDERY AND FINISHING OPERATIONS

Understanding the significance and reasons for binding. Traditional and modern materials and methos of binding. Paprus. Parchment. Papers and leather folding collating guarding and pairing: rounding and packing. Practical exercises.

MAS 417: FILM PRODUCTION FOR TELEVISION

Prerequisite: Cinema and Popular entertainment and Film and Video Editing. Overview of the television industry and the relationship of film to television. Establishing contact with televisions stations networks and arranging co-production meetings. Meeting the deadlines and resolving artistic conflicts.

MAS 418: MARKETING PUBLICATIONS

Study of the marketing mix, understanding sales representation direct mail, space advertising, and publicity as well as the selling of subsidiary rights. Guidelines for marketing to bookstores and other retail outlets. And to wholesales and jobbers approaching libraries.

MAS 419: ISSUES AND CASE STUDIES IN BOOK PUBLISHING

A case-method approach to solving book publishing problems e.g. those involving creative, media campaign and management strategies. Focuses on oral and written analysis of both actual and stimulated case problems in book publishing.

MAS 420: COMEDY FILM WRITING AND PRODUCTION

Prerequisite: Film production and basics of screen writing. Analysis of comedy as a form of drama and the ingredients of comedy. The nature of laughter and what makes people laugh. The comedy script and essence of punch lines. Techniques of comedy writing and production for the cinema.

MAS 421: FILM ANIMATION

Prerequisite : Film Production. Exploration to the history of animation: development of the cartoon film. Traditional techniques of animation (cell-animation) and recent technical innovation - automation and computerization. Preparation of the treatment and detailed verbal script; the story board; visual choreography. Uses of animation - its place in entertainment, public relations. Advertising and research.

MAS 422: BROADCASTING COMMENTARY AND CRITICAL WRITING

Examination of the opinion function of journalism and types of commentary programmes with particular attention to the editorial and emphasis on the application of principles derived from research in persuasive communication and attitude change, Distinction between commentary and critical writing; types of criticism and art review of radio and television.

MAS 423: INTERNATIONAL AND FOREIGN BROADCASTING

Comparative analysis of national systems of broadcasting worldwide in terms of types of ownership control. Programming purposes and effects or impact. Consideration of international organisations dealing with technical facilities and those dealing with programmes. Examination of the purposes and impact of external radio broadcasting stations.

MAS 424: ADVANCED PHOTOJOURNALISM

This is photo-reporting course. Emphasis on pictures that communicate with aesthetic as well as technical skills. Portfolios are required. Students are taught the techniques of photograms and photo-essay.

MAS 499: RESEARCH PROJECT

Students initiate and execute a project following the steps in the research process, or o a feature of some other place that is professional-oriented and publishable..

B. SC. PEACE STUDIES AND CONFLICT RESOLUTION

100 – LEVEL	**1st Semester**	**2nd Semester**	**Total**
Peace Thinking and Peace Making	2	-	2
Culture and Conflict Resolution	2	-	2
Ethics in Conflict Resolution	-	2	2
Religions in Conflict Resolution	2	-	2
Introduction to Psychology	-	2	2
Introduction to Statistics	-	-	-
Total General Studies	8	10	18
Required Electives			
Introduction to Human Geography			
Introduction to Political Science			
Introduction to Sociology			
Principles of Economics			
At least 4-units of electives in the 1st Semester & 6 units in the 2nd Semester	4	6	10
Total	**18**	**20**	**38**
200-LEVEL			
Fundamental Human Rights	2	-	2
Nationalism, Ethnicity and Conflicts	-	2	2
Strategic Studies	2	-	2
International Organizations and Conflict Resolution	-	2	2
Peace Keeping and Conflict Resolution	2	-	2
Social Alternatives	-	2	2
International Politics of the Environment	2	-	2
Globalisation and Equity	-	2	2
Culture, Values and Conflicts in Nigeria	-	2	2
General Studies	6	4	10
Electives At least Four units of electives in the 1st Semester and 2nd Semester from within and outside the Faculty	4	4	8
TOTAL	**18**	**18**	**36**
300-LEVEL			
The World Wars	2	2	4
The Cold War	2	-	2
Terrorism and Global Conflicts	-	2	2
The Media, Information Management and Conflicts	2	2	4
Energy Security: Oil and Conflicts	-	2	2
Research Methods	2	2	4
International Systems	2	-	2
Cultism, Drugs and Conflicts	2	2	4
General Studies	2	-	2

Electives At least 10 units of electives form the following:	4	6	10
Governance and Political Transition			
Arms Control and Disarmament			
Civil-Military Relations			
The Military and New Technologies			
Gender in War and Peace			
The Conflicts of the South			
TOTAL	**18**	**18**	**36**
400-LEVEL			
Negotiation	2	2	4
Conflict Modeling	2	2	4
Interpersonal Conflict and Resolution Skills	2	-	2
Original Project	3	3	6
Electives			
At least twenty unit of electives from the following:	9	11	20
History of the Modern Middle East			
Wars in Ancient Greece			
Wars of Liberation in Southern Africa			
Asia-Pacific Wars			
Israeli-Palestinian-Arab Conflict			
American Civil War			
Nigerian Civil War			
Contemporary Wars in the Middle East			
Contemporary Wars in West Africa			
Weapons Proliferation and Weapons of Mass Destruction			
TOTAL	**18**	**18**	**36**

COURSE DESCRIPTIONS

100 LEVEL

INTRODUCTION TO PEACE STUDIES

Elements of Peace Studies: the profile of world peace and conflict epochs; the causes, gestation, conflict duration and abatement; essential factors for peace. This course serves as an introduction to the study of war, peace, and peacemaking; different theories of peace and war from a variety of disciplinary perspectives. It covers definitions of peace and war, causes of conflict, and modes of conflict prevention and resolution. The concepts are applied to a range of historical and current conflicts, Students prepare analyses of specific conflicts or instances of peacemaking for class presentation.

INTRODUCTION TO CONFLICT RESOLUTION

Examines the nature of conflict and the potential for negotiated settlements; it provides a framework for understanding the dynamic nature of social conflict and peace-building processes; it also introduces basic requirements for developing successful negotiating strategies.

PEACE THINKING AND PEACE MAKING

This course covers the most significant developments in the history of peace thinking, peace theory and the development of the philosophies of peace. Based on this overview, the course then focuses on understanding how peace theory was converted into forms of peace practice through the development of processes of non-violent conflict resolution.

CULTURE AND CONFLICT RESOLUTION

This course provides a critical perspective on the field of conflict resolution by exploring the cultural dimensions of conflicts and the applicability of conflict resolution methods in a range of cultural contexts. Using case studies and perspectives from the field of anthropology, the limitations of current conflict resolution models are explored and new ways forward are considered.

ETHICS IN CONFLICT RESOLUTION

This course develops, extends and deepens understanding of a central dimension to conflict resolution and peace studies. Applied ethics is the application of ethical reasoning to specific areas of practical concern, examines difficult questions, dilemmas and controversies partly by analysis, evaluation and discussion of the relevant literature, but also by development and interchange of your personal responses and ideas.

RELIGIONS IN CONFLICT

This course introduces the role that religion plays in both fostering and resolving conflict, using case studies from the local, national and international levels, It analyses specific conflicts with a religious dimension, and examine broader relationships, for example between Islam and the West. The course includes case studies where religious differences have been successfully reconciled.

INTRODUCTION TO PSYCHOLOGY

Psycho-biological basis of behaviour. Survey of the major topics, theories, and research results of contemporary psychology.

INTRODUCTION TO HUMAN GEOGRAPHY

World population: Its distribution and patterns of growth/demographic characteristics of selected populations. Human settlements: evolution; patterns and functions. Inter-relationships between urban and rural settlements. Environmental resources; the concept of resources: types of resources and their global distribution; relationship between resources and tertiary activities; impact of human activities on the environment at varying levels of technology and population densities. The role of movement; flows of people, goods, energy and ideas.

INTRODUCTION TO POLITICAL SCIENCE

This course introduces students to the nature of politics and how it is played. It emphasizes the issues of political discourse and practice. It also introduces students to the language and basic concepts of politics. The student is later introduced to methods of political science research.

INTRODUCTION TO STATISTICS

Definition and scope of statistics, use of statistics in everyday life. Levels of measurement in Social Science. Distributions and comparisons. Types and techniques of data presentation.. Sources and nature of published statistical data and their uses and limitations. Methods of collecting data - census and surveys. Population and sample. Measures of central tendency and dispersion. The Unit Normal Distribution. Simple tests of hypotheses, Simple regression analysis. Index numbers.

INTRODUCTION TO SOCIOLOGY

Introductory analysis and description of social structure and dynamics of human society. Fields of sociology; sociology and other Social Sciences. Basic concepts and principles of sociology.

PRINCIPLES OF ECONOMICS

An introduction to the various issues, the nature of economics as a science, the methodology of economics, major areas of specialization in economics, stressing historical development of ideas, major findings in the various areas of specialization, elementary principles of micro and macro-economics, current issues of interest and probable future developments.

200 LEVEL

HUMAN RIGHTS

This course develops understanding of the values and norms underlying the concept of universal human rights, and the issues raised in promoting human rights in contemporary society. It includes examination of instances where the rights of different individuals appear to clash, or where different rights appear to be in contradiction. It explores the limits of the 'rights' discourse (for example, the rights of the unborn, minority rights, animal rights), a review of the international discourse on human rights, and the effectiveness of international regimes set up to protect or promote human rights.

NATIONALISM, ETHNICITY AND CONFLICTS

This course introduces the rise of nationalism as a key form of political identity in the modern world. It examines competing theories of nationalism and ethnicity, conceptualizing the problems dealt with in case-study form; it also examines how extreme forms of nationalism are capable of generating destructive inter-group conflicts, illustrated by examples from the North and the South.

STRATEGIC STUDIES

This course examines the nature of security and the evolution of military technology and warfare, analyzing the dynamics of such phenomena as militarization and arms proliferation.

INTERNATIONAL ORGANIZATIONS

This course examines the role of law and organisations in international affairs, and in the promotion of a just and peaceful global society. It includes detailed examination of the work of institutions such as the International Court of Justice; and the role of regional organisations in peace and security issues.

PEACE KEEPING AND CONFLICT RESOLUTION

This course examines how the AU, ECOWAS, EU, UN, through peace keeping, contributes to international peace and security. It explores the extent to which UN intervention has become possible and desirable in the 'new world order'.

SOCIAL ALTERNATIVES

This course explores the history and significance of utopian thinking and the main ways in which it has been criticized. Case studies are used to illustrate attempts to establish utopian communities in different historical and geographical contexts. The case studies then provide the base for thematic comparison of communities on topics

such as the relationships between individuals and communities, and between communities and the wider society; education of children, decision-making processes, ideals and practices. The course concludes with an evaluation of the successes and failures of intentional communities as attempts to progress towards more peaceful ways of living.

INTERNATIONAL POLITICS OF THE ENVIRONMENT

This course concerns the international political processes that have developed in response to international environmental problems, It includes those that are intrinsically global (such as ozone depletion); those that arise throughout large areas of the world (such as pollution by toxic waste); and those that present problems in the international management of global commons (such as the high seas or Antarctica). It examines the emergence of the environment as an important issue in international politics, and the nature and effectiveness of international responses to key environmental issues.

GLOBALISATION AND EQUITY

The effects of globalisation are different for the poor South and the rich North. It examines the phenomenon of globalisation from competing perspectives, looking at the policies of governments which try to change or control it.

CULTURE, VALUES AND CONFLICTS IN NIGERIA

The course will examine the major cultural groups and their social values; compare and contrast them and areas of conflict.

300 LEVEL

THE WORLD WARS

The causes, theatres of engagements, the countries involved, the duration, their resolution and impacts.

THE COLD WAR

The Causes, the countries involved, the highlights, the issues, the resolution and impacts. This course uses three key issues in international relations to explore the major processes and trends shaping international affairs between 1945 and 1991. The components build upon and inform each other. Thus the history of the Cold War informs the discussion of both the development of nuclear weapons, and nuclear strategy and foreign policy; using historical examples to illustrate ideas and principles within the context of their evolution.

TERRORISM AND GLOBAL CONFLICT

Reviews and discusses issues concerning global development and its relationship to conflict and terrorism. It focuses on specific topics from empirical events and ways of Resolution, the course also seeks to examine the root causes of terrorism and ways that states can mitigate this threat.

THE MEDIA, INFORMATION MANAGEMENT AND CONFLICTS

The role of the media in peace and conflict situations; global networks, (CNN, BBC, Sky etc,) Ownership and Control, Internet and information dissemination, propaganda in war and peace time.

ENERGY SECURITY: OIL CONFLICTS

Describes the global energy security concerns by analyzing the current state of affairs with respect to supplies, access, and transportation, and reviewing anticipated trends. Examines the cultural, political, military, economic, and social implications, and explores the best responses to the challenges that exist.

THE INTERNATIONAL SYSTEM

Defines an international system, its components, processes, and structure; introduces key terms and concepts of international relations theory and links them together in a unified cognitive map. Two basic structural conditions of the international system - anarchy and hierarchy are analyzed. Explores the two major examples of structural change in the Asia-Pacific region: hegemonic change and globalization.

RESEARCH METHODS

Scientific research processes, proposal writing, data collection, presentation and analysis. Research designs, questionnaire designs, reference styles, report writing and documentation.

GOVERNANCE AND POLITICAL TRANSITIONS

Compares and contrasts the patterns of political transitions in China and Russia by examining political legitimacy, governance, political change, and regional security.

ARMS CONTROL AND DISARMAMENT

This course examines the theory and history of arms control and disarmament, and analyses the problems and opportunities of arms control following the end of the Cold War.

CIVIL-MILITARY RELATIONS

Examines the fundamental components of civil-military relations within the context of the modern nation-state. The course will address various aspects of civil and military authority including the subordination of the military to civilian authority and the role of civilian governments and military institutions in both external and internal security issues.

DRUGS, CULTISM AND CONFLICTS

Cultism (local and international) origins, growth, characteristics and activities. Global Narcotics trade: networks, regions, routes and causes, smuggling, foreign policy issues.

THE MILITARY AND NEW TECHNOLOGY

The course examines changes over time in the attitude of the military toward new technology and analyzes competing explanations, including concepts from Science Studies, for these changes' The course concludes with an analysis of the so-called "Revolution in Military Affairs." Readings include John Ellis, The Social History of the Machine Gun and Steven Rosen, Winning the Next War.

GENDER IN WAR AND PEACE

Gender issues and convention in wars; the relevance of gender to nationalism' conflict and war, association of hostility, aggression, and bloodshed with masculinity--and conciliation and peace-seeking with female attributes; images of motherhood; the course examines works in several disciplines and media and evaluates generalizations that link gender, nationalism, and war.

THE CONFLICTS IN THE SOUTH

Conflicts occur predominantly in the south, where levels of development are low. This course uses case studies from Africa and Latin and Central America to explore major themes of policy and analysis relating to the promotion of peace and development.

EVALUATING ALTERNATIVE DEVELOPMENT STRATEGIES

This course introduces a range of alternative thinking on development, from the United Nations Development Programme ideas on human development, through Oxfam's emphasis on grass-roots, human-centred development, to the post-developmentalists who reject the very concept of development. The role of non-governmental organisations in development is discussed through case studies.

DEVELOPMENT AND DEMOCRACY IN THE SOUTH

This course examines the relationship between development and democracy and the problematic history of democratization in Latin America and Africa. It also analyses the relationship between the economic marginalization of the South in the global economy, and the forms of government that have prevailed there. The colonial legacy continues to influence the distribution of power, and open politics provides new opportunities to challenge injustice.

REGIONAL SECURITY

This course begins with an introduction to the geopolitics of Western Europe in the post-Cold War era. It analyses history, institutions and ideology in the context of current issues and dynamics. Regional interactions between countries are explored, as are the interactions of military, political and economic factors in regional security across the Middle East and Africa.

INTERNATIONAL ECONOMICS AND COMPREHENSIVE SECURITY

Considers measures of economic performance and identifies factors underlying economic development in the Asia-Pacific region, It examines issues such as trade, investment, energy, and defense spending that reflect the economic aspects of regional security.

GOVERNANCE AND POLITICAL TRANSITIONS

Compares and contrasts the patterns of political transitions in China and Russia by examining political legitimacy, governance, political change, and regional security.

NEGOTIATIONS AND CONFLICT RESOLUTION

Examines the nature of conflict and the potential for negotiated settlements. It provides a framework for understanding the dynamic nature of social conflict and peace-building processes. The session also introduces basic requirements fol developing successful negotiating strategies. Interactive learning approach, using lecture, discussion, exercises and simulations, to build personal capacities for successful negotiation.

CONFLICT MODELLING

Students are expected to build a model of conflict from several empirical cases given.

INTERPERSONAL CONFLICT RESOLUTION SKILLS

Enhanced communication and rapport-building skills to interact more effectively and solve problems creatively. A foundational workshop that emphasizes reflective listening, problem solving, assertion and managing conflicts among needs and values. Includes theory, demonstrations, skill practice, and critique. Designed to have immediate and wide applicability in interpersonal and group settings.

HISTORY OF THE MODERN MIDDLE EAST, 18TH-20TH CENTURIES

This course surveys the history of the modern Maddie East. While moving chronologically through the past three centuries, the course emphasizes critical analytical themes of political, social, economic, and cultural history. Topics will include: the Ottoman imperial state and provincial history, the growing impact of the West, the historical transformation of economy and trade, ethnic and religious minorities, and internal reform in the 18th-19th centuries; European colonialism, the rise of nationalism, the emergence of the nation-state throughout the Middle East, and the ongoing struggle over its character in the 20th century. The course also discusses the Arab-Israeli conflict and the Middle East as an arena of geopolitics.

WAR AND PEACE IN GREECE AND ROME

In ancient Greece and Rome, government did little besides waging war and raising taxes, culture focused on war, warriors gloried in battle. and civilians tried to get out of the way. This course surveys the impact of war and the rarity of peace in the ancient world. Topics include: "why war?"; the face of battle; leadership; strategy, operations, and tactics; women and war; intelligence and information-gathering; diplomacy and peacemaking; militarism; war and slavery; the archeology of warfare.

WARS OF LIBERATION IN SOUTHERN AFRICA

This course surveys the various liberation movements and struggles in southern African countries such as South Africa, Zimbabwe. and Namibia; the history, the dimensions of the struggle, the actors, the role of the OAU. The frontline states, Nigeria and the international community.

THE ASIA-PACIFIC WAR

This course seeks to enhance students' familiarity, with the history of Wars in the Pacific; their understanding of the differences, tensions, and complicities between history and memory in contemporary global society; and their ability to formulate and express historical arguments.

THE HISTORY OF THE ISRAELI-PALESTINIAN CONFLICT

This course surveys the history of Palestine in the nineteenth and twentieth centuries, the emergence of the State of Israel in 1948, and the ongoing Israeli-Palestinian struggle over this territory. The course covers such themes as: society and economy; political, religious, and local identities; Western involvement in the Holy Land; the birth of the Zionist movement as well as of a local Palestinian-Arab movement; state building; the I948 war and the creation of the Palestinian refugee problem; the 1967 war: the Palestinian Intifada(s); the role of gender in the conflict; and the structure and culture of occupation.

CAUSES OF THE AMERICAN CIVIL WAR, I815-1860

A study of the simultaneous growth and growing-apart of the United States in the years from the end of the War of 1812 to the beginning of the Civil War. It examines the political, social, economic, and cultural history of this era in order to understand why the United States became a vast, successful" transcontinental republic. It studies the same history, to understand why it simultaneously split apart and prepared to launch a civil war that would ultimately cost more than 600,000 lives.

NIGERIA'S CIVIL WAR

The causes, the outbreak, the combat. role of international community and the resolution of the Nigerian Civil War of 1967 - 1970.

CONTEMPORARY WARS IN THE MIDDLE EAST

History of contemporary wars in the Middle East such as Iraq -lran; Iraq-Allied Forces, the issues, the role of international agencies and community, the impacts, etc.

CONTEMPORARY WARS IN WEST AFRICA

History of contemporary wars in West Africa such as the civil wars in Liberia, Sierra-Leone, Cote-Divoire and the role of ECOWAS and the international community.

WEAPONS PROLIFERATION: WEAPONS OF MASS DESTRUCTION.

Examines trends in the proliferation of weapons of mass destruction (nuclear', biological and chemical weapons) and subsequent policy issues. The status of the international nuclear non-proliferation regime will also be examined.

B. SC. TOURISM STUDIES

100 Level

100 Level **Compulsory Courses**	**1st Semester**	**2nd Semester**	**Total**
1. Fundamentals of Tourism I & II	2	2	4
2. Peoples and Culture Nigeria	2	2	2
3. The Earth Surface	-	2	2
4. Theories of Human Movements	-	2	2
5. Historical Evaluation and Dev.	2	-	2
6. Environment and Ecology	-	2	2
7. Total General Studies	8	10	18
Electives Two Electives from other Departments in the Faculty in the 1st semester and one in the 2nd	4	2	6
	18	**20**	**38**
200 Level **Compulsory Courses**	**1st Semester**	**2nd Semester**	**Total**
1. Tourism Dev. Case studies I & II			
2. World Natural Resources and Trade I & II			
3. Field Tours (local) I & II	2	2	4
4. Demography			
5. Spacial Organization of Society	2	2	4
6. Social and Environmental Statistics	2	2	4
	-	2	2
Total General Studies	-	2	2
Electives	2	-	2
Two electives per semester: One from within the Faculty and one outside the Faculty.	- 6	4	10
	4	4	8
	18	**18**	**36**

TOURISM STUDIES **300 Level** **Compulsory Courses**	**1st Semester**	**2nd Semester**	**Total**
1. World Time Zones and Seasons I & II	2	2	4
2. Map Reading and Interpretation I & II	2	2	4
3. Research Methods and Field Tours (National and International) I & II	4	4	8
4. Transport Modes and Logistics Planning	2	-	2
5. Accommodation Studies	2	-	2
6. Tourism Organizations and Regulations	2	-	2
7. Computer Fundamentals, Information Technology and Tourism	-	2	2
8. General Studies	4	4	8
At least two electives from below: 1. Worlds Major Relations and Mores 2. Geographical Information Systems 3. Economic Theory/Principles 4. Organization of Governments 5. Wildlife/Zoo Management 6. Coastal Zone Management 7. Landscape Planning	2	2	4
	20	**16**	**36**

TOURISM STUDIES **400 Level**	**1st Semester**	**2nd Semester**	**Total**
Compulsory Courses	2	2	4
1. Tourism Policies and Planning I & II	2	-	2
2. Global Contemporary Issues	-	2	2
3. World Cultural/Sports Festivals and Holidays	-	2	2
4. Site Surveying and Site Selection	2	-	2
5. Tourism Information Management and Marketing	3	3	6
6. Original Research Project			
ELECTIVES Up to four electives could be taken per semester 1. Tour and Guide operations 2. Parks, Gardens and Monuments Management 3. Hotel Management 4. Recreational/Hospitality Planning and Operations 5. Religion Tourism 6. Public Relations 7. Food & Catering Studies 8. Safety Issues and World Conflict Centres/Situations	8	8	16
	17	**17**	**34**
Total Units for the 4 Years: Year I Year II Year III Year IV	18 18 18 17	20 18 18 17	38 36 36 34
	71	73	144

COURSE DESCRIPTIONS

100 LEVEL

COMPULSORY COURSES

FUNDAMENTALS OF TOURISM

Components of Tourism and Types of Tourism. Economic. political and social roles of Tourism; Disadvantages, Dangers and Problems of tourism. Comparative analysis of local and global trends in the Industry. Problems of the Industry in developing economies. Future of Tourism and the Tourism of the future.

PEOPLES AND CULTURES

Survey of the world's major races and their associated cultures, with special attention to their distribution, linguistic classification, and traditional religions and world view.

THE EARTH SURFACE

The planet earth as part of the solar system. The types of landforms: Valleys, Mountains, Plateau, Capes, Undulating lands etc. Types of Water Bodies: Oceans, Seas, Lakes, Ponds, Rivers etc and the Atmosphere. Earth Motions and their effects.

THEORIES OF HUMAN MOVEMENTS

Push-Pull theory, Pullmans Theory of Bases of human movements: Complementarity, Lack of intervening variables and Transferability; Migration waves and patterns. Factors influencing human movements. Population concentration and dispersing factors.

HISTORICAL EVALUATION AND DEVELOPMENT

Tracing the early history of tourism; local and global; The early navigators and their objectives: economic, military, religious, adventure etc. The modern concept of tourism and its development.

ENVIRONMENT AND ECOLOGY

Elements of the physical environment: climate, landforms, atmosphere, hydrosphere, biosphere, lithosphere etc; Social environment : religion, race, economy, governments, education, culture and their various influences on man's decision making.

200 LEVEL

COMPULSORY COURSES

TOURISM DEVELOPMENT: CASE STUDIES I & II

Constructing the profiles of selected tourists destinations, local, national or international, evolution, growth and modes of operation.

WORLD NATURAL RESOURCES AND TRADE I & II

Meaning, nature and types of resources; Natural regions of the world; Equatorial, Tropical, Temperate, Polar; economic systems of the world, distribution of world's major mineral resources; World trade and Globalisation.

FIELD TOURS LOCAL I &II

Organizing a field tour of selected tourist destinations, data collection on its evolution and operations. Feasibility reports of similar outfits to be prepared by the students.

DEMOGRAPHY

Definition of terms and sources of data. Sources of demographic data: the field canvass, censuses and surveys, the record system, population register. vital registration systems, administrativerecords. Reliability of demographic data and the associated concepts of de facto, dejure population enumeration, the post enumeration survey (PES), types of census questionnaires and types of census errors. Fertility measures, trends and family planning. Mortality measures, trends, life table, migration, measures, internal and internationalmigration. Population composition, age, sex, and economic composition. Population growth; measurement, trends, and projections. population growth and economic development, positive and negative effects.

SPATIAL ORGANISATION OF SOCIETY

Some basic concepts of spatial organization: principles of classification of geographical phenomena; growth and spatial distribution of population. Production systems; typology and distribution; location, spacing and growth of settlements; movements over space and transport networks. Land-use; typology, patterns and interactions.

SOCIAL AND ENVIRONMENTAL STATISTICS

Role of statistics in Social and Environmental Science inquiry and nature of measurement. Presentation of data. Central values, Measures of deviation. Correlation. Nature of sampling, probabilities and normal distribution. Inference, Hypothesis testing; test of significance, etc.

300 LEVEL

COMPULSORY COURSES

WORLD TIME ZONES AND SEASONS I & II

Locating places on the earth surface, the grid system; Longitudes and time calculation; Local Time and Greenwich Meridian time differentials, the worlds' hour belts; International Dateline. The earth's movements and the seasons across the globe annually.

MAP READING AND INTERPRETATION I & II

Kinds of maps,characteristics and uses; Location on maps, bearings and directions; Types of scales and scale conversions: physical distancemeasurements; marginal information on maps; relief representation methods; map enlargement and reduction, identification of physical and cultural features on maps.

RESEARCH METHODS AND FIELD TOURS (NATIONAL AND INTERNATIONAL) I & II

Research processes, proposal writing; data collection, analysis and interpretation methods; Questionnaires designs: Research Designs: all this is done within practical field tours of selected tourist centres.

TRANSPORT MODES AND LOGISTICS PLANNING

Modes of transport; characteristics of each mode; linter -modal Coordination and freighting; Transport logistics and structures; Distribution logistics; Transportation modelling: Traffic Costing, tariffs and rates; traffic signal control.

ACCOMMODATION STUDIES

Management of Hotels. Guest Houses, lnns: Resorts; Beaches, Drive -ins, Camps; Farm/Yards etc.

TOURISMORGANIZATIONS AND REGULATIONS

Profiles of identified tourism organisations both public, private and non-governmental associations; their rules and regulations; modes of operation and target clients.

COMPUTER FUNDAMENTALS, INFORMATION TECHNOLOGY AND TOURISM

Computer literacy at least in word processing and e-mailing and Internet browsing.

WORLD MAJOR RELIGIONS AND MORES

Understanding the basic tenets of the major world religions as they relate to tourist's degree of freedom.

GEOGRAPHICAL INFORMATION SYSTEM

Remote Sensing systems, Image Acquisition, Image Restoration and Enhancement, Image Processing and Interpretations, Image Storage and Retrieval Formats. Applications in Environmental Resources Management and Tourism.

ECONOMIC THEORY/PRINCIPLES

An introduction to the various issues, the nature of economic science, the methodology of economics, major areas of specialization in economics, stressing their relevance to tourism.

GOVERNMENTS AND THE ECONOMY

The course attempts to examine the role of government in the Management of modern economy with special reference to relationship between government and private enterprise in tourism.

WILDLIFE/ZOO MANAGEMENT

This course will introduce students to the keeping and management of animals and plants in captivity and their

natural habitat.

COASTAL ZONE MANAGEMENT

Definitions of the coastal zone; determinants of the morphology of the coastal regions; coastal region dynamics; coastal erosion prevention and control; uses of coastal zones; landscaping the zone for recreational purposes

400 LEVEL

COMPULSORY COURSES

TOURISM POLICIES AND PLANNING I & II

Evaluation of tourism policies of selected countries across the globe; their philosophies; objectives; designs and emphasis.

GLOBAL CONTEMPORARY ISSUES

Exposes the students to contemporary topics that have direct impact on the tourism industry like HIV/AIDS; terrorism; globalisation; 9/l l;

WORLD CULTURAL/ SPORTS FESTIVALS AND HOLIDAYS

Calendar of major world cultural and sport events like world cup, Olympics; All-African games; Black Arts festival; Argungu fishing festival, Kano Durbar etc.

SITE SURVEYING AND SITE SELECTION

Site investigation analysis, analysis of geographical and technical factors; Land use planning; Simple compass traverse; Ievelling and plotting.

TOURISM INFORMATION MANAGEMENT AND MARKETING

This introduces the students to the Collection ofrelevant data. hotels, sites, national flyers, tourist destinations. trends, websites; publications and their disseminations.

TOUR AND GUIDE OPERATIONS

Ethics, basic sign language. recruitmentconsiderations, schedules, planning, site and event mixing, safety considerations.

PARK, GARDENS AND MONUMENTS MANAGEMENT

History and designs of selected parks and gardens like the Ancient and Current Egyptian/Greek/French/ Chinese/English,/Hausa./Yoruba/lgbo/ljaw designs and their management.

HOTEL MANAGEMENT

Location, designs, classification, operations, staffing, security ; infrastructures and management.

RECREATIONAL/HOSPITALITY PLANNING AND OPERATIONS

Designs: location considerations, operational strategies.

RELIGION TOURISM

Origins and destinations of Pilgrimages; Calendar. modality, transport modes, accommodation; duration.

PUBLIC RELATIONS

Modes of marketing: Modal splits: information and image packaging and management; staff orientation and Motivation.

FOOD & CATERING STUDIES

Foods laboratory equipment and tools; introduction to the kitchen: personal and kitchen hygiene, attire; modern

kitchen architecture; weight and measures: principles of foods and nutrition; beverages, culinary herbs, condiments and flavourings.

SAFETY ISSUES AND WORLD CONFLICT CENTRES/SITUATIONS

Identification of conflict epicenters of the world, themain issues/history and possible chain effects in some tourists destinations, required precautions and early warning system.

ORIGINAL RESEARCH PROJECT

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COURSE DESCRIPTIONS

GST 1I1: COMMUNICATION IN ENGLISH I (2 CREDITS)

Effective communication and writing in English. Language skills, Writing of essay, answers, Comprehension, Sentence construction, Outlines and paragraphs. Collection and organization of materials and logical presentation, Punctuation.

GST I12: PHILOSOPHY AND HUI\,IAN EXISTENCE (2 CREDITS)

A brief survey of the main blanches of Philosophy, Symbolic Logic Special symbols in symbolic Logic-conjunction. negation, affirmation. disjunction. equivalent and conditional statements law of tort. The method of deduction using rules of inference and bi-conditionals qualification theory. Types of discourse, Nature of arguments, Validity and soundness; Techniques for evaluating arguments, Distinction between inductive and deductive inferences. etc. (illustrations will be taken from familiar texts. Including literature materials, Novels. Law reports and newspaper publications).

GST I13: NIGERIAN PEOPLES AND CULTURE (2 CREDITS)

Study of Nigerian history, culture and arts in per-colonial times, Nigerian's perception of his world. Culture areas of Nigeria and their characteristics" Evolution of Nigeria as a political unit, Indigene/settler phenomenon, Concepts of trade, Economic self-reliance. Social justice, Individual and national development. Norms and values. Negative attitudes and conducts (cultism and related vices). Re-orientation of moral and national values, Moral obligations of citizens, Environmental problems.

GST I21: USE OF LIBRARY, STUDY SKILLS AND INFORMATION COMMUNICATION TECHNOLOGY (ICT) (2 CREDITS)

Brief history of libraries, Library and education, University libraries and other types of Libraries, Study skills (reference services), Types of Iiblary materials. using library resources including e-learning. e-materials, etc, Understanding library catalogues (card, OPAC, etc) and classification, Copyright and its implications, Database resources, Bibliographic citations and referencing.

Development of modern ICT. Hardware technology, Software technology, Input devices, Storage devices,

Output devices. Communication and Internet services, Word processing skills (typing, etc).

GST 21I: COMMUNICATION IN ENGLISH II (2 CREDITS)

Logical presentation of papers. Phonetics. Instruction on lexis. Art of public speaking and oral communication, Figures of speech, Precis. Report writing.

GST 22I: HISTORY AND PHILOSOPHY OF SCIENCE (2 CREDITS)

Man - his origin and nature, Man and his cosmic environment, Scientific methodology, Science and technology in the society and service of man, Renewable and non-renewable resources - man and his energy resources Environmental effects of chemical plastics, textiles, wastes and other material: chemical and radiochemical hazards. Introduction to the various areas of science and technology. Elements of environmental studies.

GST 122: COMMUNICATION IN FRENCH (2 CREDITS)

Introduction to French, alphabets and numeracy, for effective communication (written and oral). Conjugation and simple sentence construction based on communication approach. Sentence construction, Comprehension and reading of simple texts.

OR

GST I23: COMMUNICATION IN ARABIC (2 CREDITS)

Introduction to Arabic alphabet and writing systems, Elementary conversational drills, Basic reading skills' Sentence construction in Arabic.

GST 222: PEACE STUDIES AND CONFLICT RESOLUTION (2 CREDITS)

Basic Concepts in peace studies and conflict resolution, peace as vehicle of unity and development, Conflict issues, types of conflicts. e.g. ethnic/religious/political/economic conflicts, Root causes of conflicts 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, 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.

GST 223: INTRODUCTION TO ENTREPRENEURIAL SKILLS (2 CREDITS)

Introduction to entrepreneurship and new venture creation; Entrepreneurship in theory and practice; The opportunity, Forms of business, Staffing, Marketing and the new venture; Determining capital requirements, Raising capital; Financial planning and management; Starting a new business, Feasibility studies; Innovation; Legal Issues: Insurance and environmental considerations. Possible business opportunities in Nigeria.

GST 311: INTRODUCTION TO ENTREPRENEURIAL STUDIES (2 CREDITS)

Some of the ventures to be focused upon include the following:

1. Soap/Detergent, Tooth brushes and Tooth paste making
2. Photography
3. Brick, nails, screws making
4. Dyeing/Textile blocks paste making
5. Rope making
6. Plumbing
7. Vulcanizing
8. Brewing
9. Glassware production/Ceramic production
10. Paper production
11. Water treatment/Conditioning/Packaging
12. Food processing/packaging/preservation
13. Metal working/Fabrication - Steel and aluminum door and windows
14. Training industry
15. Vegetable oil/and Salt extractions
16. Fisheries/Aquaculture
17. Refrigeration/Air-conditioning

1 8. Plastic making

19. Farming (clop)
20. Domestic Electrical wiring
21. Radio/TV repairs
22. Carving
23. Weaving
24. Brick laying/making
25. Bakery
26. Tailoring
27. Iron welding
28. Building drawing
29. Carpentry

30. Leather tanning

3 1. Interior decoration

32. Printing

33. Animal husbandry (Poultry,. Piggery, Goat etc)

34. Metal Craft - Blacksmith. Tinsmiths etc

35. Sanitary wares

36. Vehicle maintenance

37. Bookkeeping