



# COLLEGE OF VOCATIONAL SCIENCE AND TECHNOLOGY OF NIGERIA

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# NATIONAL INNOVATIVE DIPLOMA SYLLABUS





**COLLEGE OF VOCATIONAL SCIENCE  
AND TECHNOLOGY OF NIGERIA**

**NATIONAL INNOVATIVE DIPLOMA**

**ACADEMIC**

**SYLLABUS**

## **MEANING OF SYLLABUS**

Syllabus is a programme of study or a list of the subject taught in school like maths, handwriting, history, geography, civic and moral instruction etc. It is a list of subjects to be studied by the learners.

Syllabus represents programme of study at the level for which it is designed. It represents aspects of accumulated human experience. Syllabus is not curriculum; it's only a segment or part of the curriculum. It might be a course of study. Formally, a syllabus was regarded as a curriculum; it is a traditional orientation and lost its popularity with curriculum workers. It is a course of study more than a curriculum it is a table of content, it looks like the STATUS plan.

## **STATUS PLANNING**

STATUS planning is a projected plan for carrying out learning activities and also the provision of student's activities. In the Unit plan the course is divided into small workable sections which include related topics or theme (i.e. the topic you teach are related). The contents are closely related. The Unit plan will last for four to six weeks. A Unit plan that last for one week is not a Unit plan. A Unit plan has a central theme or concern.

## **CHARACTERISTICS OF A UNIT PLAN**

### **(1) ENTERING BEHAVIOUR:**

Unit plan is like a lesson plan one of the characteristics of the Unit plan is Entering Behaviour. You should know something about the background of the students as well as the individual student that will affect the plan. This is because you want to know their capabilities and you should know their background whether he knows the background of his community before that of

his local government. You should know the level of their understanding. In attention span, you are not supposed to teach more than 30 minutes. Entering behaviour is usually identity in the Unit plan.

(2) **THE OBJECTIVE OF THE UNIT PLAN:**

Unit plan last from 4 – 6 weeks, its objective is general in outline and when it is spelled out it becomes specific objectives.

(3) **CONTENT:**

In the content, the plan should be clearly indicated and those things indicated are what is required in the course, it includes principles, skills, attitude, situations (i.e. the content of the Unit).

(4) **THE METHOD AND THE ACTIVITIES:**

The method and activities

- i. May involve a demonstration
- ii. It may involves experiments
- iii. It may be a discussion class or discussion situation
- iv. It may involve film viewing or project

(5) **MATERIALS:**

What are the materials needed in the Unit plan? When you studied the content, the content will indicate the materials needed for the lesson e.g. In history lesson of exploration of the Nigeria, map is needed. The material for the content may be in form of the reading material, laboratory apparatus, charts etc.

(6) **EVALUATION**

The Unit plan needed to be evaluated. Why do you want to evaluate it? This is to identify the weakness or strength of the student. To test the grasp on the lesson

taught. To know how far they have understood the lesson taught. Evaluation may be a test, a take home exam, a final exam, a quiz in the class etc.

### **SOURCE UNIT**

The links between the curriculum process and the teaching/learning situation are the classroom work Units and source Units from which they derive or which are derived from them.

Little time needs to be spent on the source or resource Units. It is enough to say that volumes of source are collections of possible problems, materials and activities which may be used in planning classroom work Units, either around subject cores or with reference to any of the general organizational categories listed earlier.

Source Units are concerned with the characteristics of experiences suitable for meeting needs with problems, basic concepts and ideas involved in the appropriate subject matter, and with possible –learning outcomes which may be expected to eventuate. They indicate a variety of procedures which are useful in planning and developing a Unit and make suggestion about suitable individual and group activities as well as evaluation of outcomes.

They provide suitable reference materials for students and teachers, suggestions about equipment and aids of various kinds and parts to related Units. They are prepared by teachers for teachers and because much of the materials included has been used and found to be valued, these Units are rich and practical reservoir of activities, techniques and plans of organization.

### **CLASS WORK UNIT**

The basic educational Unit is the classroom work Unit, which is often the pilot Unit, from which source or resource Units are developed. Though, the major concern at the level classroom work Unit is with the members of a particular class or group, it does not follow that work Units necessarily remain specific to a class. Their close relationship to source Units means that while teachers and curriculum consultants, are setting outlines to work Unit for particular children, they are also outlining an educational sequence which may well be of use to other teachers in this or that schools, areas or systems who are seeking to attain the same goals. One way of setting up source Units is to combine successful work Units.

### **THE SOURCE UNIT**

This may be defined as a work Unit for a particular educational stage, which indicate broad lines of approach to specific proximate goals. Within Units, it offers alternatives in experience.

Content and organization of materials and these alternatives indicate useful, but different means for attaining goals. Source Units offer guidelines to the development of individual work Units for particular groups.

### **NATIONAL INNOVATIVE DIPLOMA AND HIGHER NATIONAL INNOVATIVE DIPLOMA PROGRAMMES**

As part of its objectives CVST is involved in training young school leavers and low skilled. Ordinarily like equipping them with the requisite skills and knowledge towards Diploma examinations, practice and the enhancement of entrepreneurial capacity.

### **PROGRAMME DURATION**

These Programmes are run basically on full-time (Monday – Friday) and also accommodate part-time basis usually during the weekends as follows:

Fridays:- 3.00p.m – 7.00p.m

Saturdays: 8.00a.m – 7.00p.m

Sundays: 12.00noon – 7.00p.m

Both the National Innovative Diploma and Higher National Innovative Diploma last for four (4) Semesters. i.e. 2 Academic Sessions, each.

### **GRADING AND CLASSIFICATION**

The course grading adopts the cumulative grade point average CGPA system, the scoring system is by percentage and the marks obtained in examinations are graded as follows:-

70% and above	A	5 points
60% to 69%	B	4 points
50% to 59%	C	3 points
45% to 49%	D	2 points
40% to 44%	E	1 points
0% to 39%	F	0 point

Whereas the overall grading after CGPA has been computed is:

<b>CGPA</b>	<b>GRADE</b>
4.50 and above	Distinction
3.50 to 4.49	Upper Credits
2.49 to 3.49	Lower Credit
1.50 to 2.39	Pass
0.00 to 1.49	Fail

### **ACADEMIC CALENDAR**

The Rain (first) Semester shall run between July and December, while the Harmarttan (second) Semester shall run between January and June, making a full academic

session. Whereas, students convocation/Matriculation shall hold every July, the matriculation ceremony shall be slated as at when due.

### **CODE OF CONDUCT FOR ALL STUDENTS**

The responsibility to create a congenial atmosphere for the smooth development of skills and acquisition of requisite knowledge is that of the CVST through its partners. To this effect:

- a. The College of Vocational Science and Technology of Nigeria expects the students to comport themselves decently and responsibly in public.
- b. No student shall insult, assault, or engage anyone in physical combat at the lecture centers, and in public places.
- c. The possession and/or consumption of any dangerous drugs are prohibited at any of the lecture centers, any student found contravening this regulation shall be summarily dismissed.

The Rights of students enrolled for any programme in collaboration with the College of Vocational Science and Technology of Nigeria includes:

- i. The right to receive tuition in the courses for which due payment and registration have been made.
- ii. The right to be examined in accordance with the approved rules and regulations governing the award of certificates.
- iii. The right to be heard in accordance with the rules governing the fundamental right of freedom of speech and natural justice. However, this right ceases to exist if the proper channel of communication is not followed, that is, student to the center coordinator, before channeling same if not satisfied to the Registry of College of Vocational Science and Technology of Nigeria.

It is however the obligation of each student to:

- i. Observe the rules and regulations governing academic programme such as payment of fees as at when due, registration for courses as well as for examinations at the appropriate time.
- ii. Respect and obey constituted authorities.
- iii. Abstain from involving in anything whatsoever that can bring the name of the College of Vocational Science and Technology of Nigeria into disrepute or cause embarrassments to its and its partners authorities.

### **ADMISSION REQUIREMENTS**

Any candidate seeking admission into the ordinary diploma must obtain a minimum of three (3) credit passes at the S.S.C.E/G.C.E/N.E.C.O 'O' level in relevant subjects and compulsory credit passes in English Language and Mathematics before the award of the diploma certificate. Any candidate seeking admission into the higher diploma must obtain a minimum of three (3) credit passes at the S.S.C.E/G.C.E/N.E.C.O 'O' Level in relevant subjects and compulsory credit passes in English Language and Mathematics, with a diploma certificate from any University, or Ordinary National Diploma certificate from any recognized Polytechnic, or National Certificate of Education from any recognized College of Education or any other similar qualifications.

No candidate will however be allowed to combine more than two results for the purpose of admission.

### **REGULATIONS GOVERNING COURSES LEADING TO THE AWARD OF NATIONAL INNOVATIVE DIPLOMA AND HIGHER NATIONAL INNOVATIVE DIPLOMA**

1. A programme of study shall be provided leading to an ordinary diploma or higher diploma in such discipline or options available as the College of Vocational Science and Technology of Nigeria may from time to time recommend.

2. A course system in two semester The Rain (first) Semester shall run between July and December, while the Harmarttan (second) Semester shall run between January and June, making a full academic session.
3. Courses shall be evaluated in terms course Units. A course Unit is defined as one lecture/tutorial contact hour per week, or a one three hour practical/demonstration class per week throughout a semester or an equivalent amount of other assigned duty or practical experience or any combination of these.
4. No course shall be made up of or have fractions of Units, neither shall any course have up to six Units except the final year project which shall only be applicable to Higher National Innovative Diploma.
5. The following standard terminologies shall be used for the different categories of courses:
  - (a) Compulsory (c); courses which a student must take and pass;
  - (b) Required (R); courses which a student must take;
  - (c) Elective (E); courses which a student can take in order to make up the required additional Units for the award certificate;
  - (d) Pre-requisite (p); courses whose knowledge is essential prior to taking another specified course;
  - (e) Concurrent (N); specified courses
6. Students shall be advised by their respective coordinators to register for and pass all compulsory and required courses. Students may also choose from the prescribed elective courses or from any other, provided the maximum number of Units for the semester is not exceeded.
7. Students shall normally be required to register for not less than 18 and not more than 24 Units in each semester. Students shall however not normally be permitted to register for more than 36 Units in any one academic session.
8. All courses taught during each semester shall be examined at the end of that semester and candidates will be credited with the number of course Units

assigned to the course for which they have passed the examinations. The pass mark for a course shall be 40%.

9. All courses shall be examined by continuous assessment through assignments and/or periodic tests, the marks obtainable through which shall not constitute more than 30% of the total marks for the course.
10. A student who fails to obtain 10 Units at the end of the first semester, 20 Units at the end of the first session shall be required to withdraw from the programme.
11. National Innovative Diploma or Higher National Innovative Diploma shall be categorized as Distinction, Upper Credit, Lower Credit, Pass and Fail.
12. The Cumulative Grade Point Average (CGPA) system shall be used for the determination of the student's general performance from semester to semester and the final grade of National Innovative Diploma or Higher National Innovative Diploma. In order to obtain the Grade Point Average of a candidate, the approximate index (Grade point) assigned to each range of numerical marks is multiplied by the Units of the course and the product is added up for all courses. The total is divided by the total number of Units of the courses. However, in the determination of the final grade, only courses prescribed for graduation are relevant. For the computation of the results, all the courses offered by the student during the programme shall be taken into consideration, with the cumulative result derived from the average of the previous and the current (semesters) results.
14. The number of course Units required for the award of National Innovative Diploma or Higher National Innovative Diploma shall be 72 Units.

## **COLLEGE OF VOCATIONAL SCIENCE AND TECHNOLOGY SCHOOLS AND DEPARTMENTS**

- 1. School of Vocational Science & Technology**
  - i. Dept. of Networking and System Security
  - ii. Dept. of Computer Hardware Engineering

- iii. Dept. of Electrical and Electronic Engineering
- iv. Dept. of Construction Technology
- v. Dept. of Engine and Mechanical Devices
- vi. Dept. of Community Health Science
- vii. Dept. of Agricultural Science
- viii. Dept. of Marine Engineering Technology
- ix. Dept. of Welding and Fabrication
- x. Dept. of Petroleum Geoscience
- xi. Dept. of Computer Software Engineering

**2. School of Vocational Hospitality & Tourism**

- i. Dept. of Catering and Hotel Management
- ii. Dept. of Tourism, Transport and Logistics

**3. School of Business Vocation and Entrepreneurship**

- i. Dept. of Business Management
- ii. Dept. of Textile and Fashion Design
- iii. Dept. of Sport Management and Administration (PROPOSED)
- iv. Dept. of Book keeping and Accounting
- v. Dept. of Banking Operations
- vi. Dept. of Cosmetology and Beauty Therapy

**4. School of Vocational Information and Communication Technology**

- i. Dept. of Public Relations and Advertising
- ii. Dept. of Journalism
- iii. Dept. of Multimedia Technology
- iv. Dept. of Arabic and Islamic Science
- v. Dept. of Performing and Media Arts
- vi. Dept. of Film and TV Production

## **5. School of Vocational Safety and Security**

- i. Dept. of Criminology
- ii. Dept. of Security Management & Technology

# **NATIONAL INNOVATIVE DIPLOMA**

## **GENERAL COURSES**

### **GNS 101 USE OF ENGLISH:**

The words, structure of lexical verbs, uses of modal Auxiliary, verbs and grammatical functions/ structure of clauses and phrases, homonyms, synonyms and antonyms : Types of Communication (verbal and non-verbal; written and oral, their uses, advantages and limitations in business); principles of effective communication in business; factors influencing and barriers to effective communication; the nature of language in communication, means of communications (formal and informal); The sentence (elements, structure, types, clarity, correctness, concord; Tenses; Present (simple, progressive, perfect), Past (simple, progressive, perfect), Past participle; The Paragraph: Nature, Unity, Cohesion, Emphasis, Completeness (Introductory, Transitional, Concluding); The Essay; Expository, Narrative, Descriptive, Argumentative, Summary.

### **GNS 102 INTRODUCTION TO STATISTICS:**

The definition and types of statistics; Sources and Methods of Data collection, Presentation and Tabulation of Data (Tabulation, Types of Tables, Presentation of AZ Table, Ratios and Percentages, Diagrams, Charts and Graphs); Frequency Distribution (Classification of Data, Histogram, Frequency Polygon, Cumulative Frequency); Measures of Central Tendencies (Average, Mode, Median, Mean, Quartile); Measures of Dispersion (Range, Mean Deviation, Standard Deviation, Analysis of Variation, coefficient of variation); Normal Distribution/Skewed Distribution, Simple Significance Tests.

### **GNS 103 INTRODUCTION TO PSYCHOLOGY**

Origins of modern psychology (the Structuralists, the psychoanalysts, the gestaltists, the behaviourists, the humanistic approach); Psychology in Nigeria; Contribution of psychology to national development in Nigeria; definition and scope of psychology; Psychology as a science, research method in Psychology, motivation and basic concepts of motivation, motivation in organization, human development, learning process, social psychology, leadership (position power and personal power), theories of leadership.

#### **GNS 104 COMPUTER APPRECIATION**

Computer structure, machine language, assembly language, addressing techniques, micro file I/O, assembler segmentation and linkage, assembler construction, interactive routine

#### **GNS 105 CITIZENSHIP**

Definition and meaning of government, basic concepts of government, types and characteristics of government, organs of government, types of constitutions, the principles of separation of power, delegated legislation, the rule of law, the duties, rights and obligations of citizen, party system, pressure group, electoral system.

#### **GNS 106 INTRODUCTION TO PHILOSOPHY:**

The subject matter and definition of philosophy; methods and value of philosophy; branches of philosophy (epistemology, ethics, aesthetics, logic); logical reasoning (the nature of arguments, inference, reasoning), types of arguments (deductive and inductive); evaluation of arguments (truth, validity and soundness); logic, fallacies and syllogisms; introduction to formal logic.

#### **GNS 107 BUSINESS MATHEMATICS:**

Concept of sets (operation e.g. union, intersection, difference, complements, number of elements in the union of sets, venn diagrams); application of set theory to solve business related problems, functional relationships (definition of functions, types of functions e.g. linear, quadratic, exponential and their solutions including graphical treatment; applications involving cost, revenue and profit functions; Break-even analysis (determination of break-even points in quantity and value, significance of breakeven point); Matrix Algebra (meaning of matrix, types of matrices, basic operations with matrices, meaning and determination of determinants, transpose of a matrix, inverse of a matrix limited to 3 by 3 square matrix); application of matrices to solving business related problems; Sequence and series (Arithmetic and Geometric progressions); Simple and Compound Interests; Annuities; Calculus.

### **GNS 108 TECHNICAL DRAWING**

- Know the use and care of different drawing instruments, equipment and materials used in technical drawing.
- Understand the essentials in graphical communication.
- Know the Construction of simple geometric figures and shapes.
- Know the construction of Isometric and obloquies projects
- Know the principles of orthographic projections
- Understand the intersections of regular solids.

### **GNS 109 GENERAL METAL WORK**

- Understand the basic principles and processes of heat treatment of metal in the workshop;
- Produce simple engineering components by forging; and
- Understand the basic principles and techniques of gas and metal arc welding and apply them in fabricating simple metal components.
- For practical competence, students will be able to achieve the following at the end of the module:
- Carry out heat treatment of metal in the workshop;

- Produce simple engineering components by forging; and
- Carry out gas/arc welding and apply them in fabricating simple engineering components.

### **GNS 111    MECHANICAL SCIENCE**

- Understand workshop safety rules and its application in a machine shop
- Know the physical properties, manufacturing processes and applications of ferrous and non-ferrous metals in common use
- Understand the selection and use of common measuring. Marking out, cutting and striking tools
- Understand the working principles of a drilling machine, use it to drill and ream holes on metals and other engineering materials
- Understand the applications of various types of screw threads, rivet and cut screw thread by hand.
- Understand the ISO system of tolerances and fits and its application in engineering production.
- Produce simple Engineering components on the work bench.
- Understand the essential features and working principles of the centre lathe and use it to carry out basic operations such as plain turning, stepped turning, facing taper turning, chamfering, and under-cutting.

### **GNS 112    INDUSTRIAL SAFTY**

Control of substances hazardous to health, protective clothing, washing facilities, disposal of waste material segregation of wastes, precautions against fire, fire emergency measures, Hoses, water and sand buckets, fire blankets, fire extinguishers, foam type, soda-acid type, carbon dioxide type, storage of chemical, first Aid box facility, Hazard labels, checks on nacked wires, protective gagets for (eyes, nose, ears, head)

### **GNS 113    INTRODUCTION TO ECONOMICS**

The concept and tools of economic analysis, micro economic analysis, the theories of consumer behaviour, Theory of Cost, National Income Accounting, Money and Banking, Public Finance and General Price level

#### **GNS 114 BUSINESS LAW**

Definition of Nigerian law; services of Nigerian law, Classification of Nigerian courts, Definition of contract: Offer, acceptance, consideration, intention to create legal relationships, capacity to contract, terms of contract, exemption clauses, illegal contracts, privity of contract, discharge of contract, damages, specific performances, precision, quanton, merit, extinction of right of action.

#### **GNS 115 FUNDAMENTAL OF MARKETING**

Definition of marketing, evolution of marketing, the marketing environment and its element and adaptation; market research/marketing research hypothesis, the product; meaning of product, innovation, new products development, product mix policies and strategies, brands packaging and other product features; price determination and pricing objectives, method of setting prices, pricing policies and strategies, the retail market and retailing institution, the wholesale market and wholesaling middleman, channel management, physical distribution management, the promotional programme management of personal selling, meaning of advertising, effects/relevance of advertising to products, etc, public relations, publicity and sales promotion.

#### **GNS 201 COMMUNICATION SKILLS**

- Understand the rudiments of communication.
- Understand the rules of grammar.
- Know how to write good essay.
- Understand the difference between denotative and connotative uses of words.
- Understand the techniques of comprehension and summary writing.
- Appreciating Literature in English.

## **GNS 202    ENTREPRENEURSHIP**

- Understand the basic concepts of entrepreneurship
- Understand the historical perspective of entrepreneurship development
- Know how to plan a business enterprise/project.
- Know how to operate simple stock keeping records
- Know how to prepare and operate cash flow on spreadsheets
- Understand employment issues
- Understand the Nigerian Legal System
- Comprehend the nature of contract and tort
- Understand Agency and Partnership
- Understand Financial Management
- Know how to prepare simple accounts.
- Know simple cost preparation
- Know product and job costing
- Understand the Laws relating to formation of Companies of Companies
- Comprehend Labour and Industrial Law
- Understand Copyright and patent laws
- Comprehend the nature of sale of goods

## **GNS 204    WORKSHOP PRACTICES**

- Know workshop safety rules and regulations and understand the meaning and the purpose of workshop
- Know how to use and maintain various bench tools.
- Demonstrate skills in the use of simple measuring and testing instruments.
- Know and demonstrate skills in drilling operations
- Know and demonstrate skills in tapping and metal joining operations
- Know the various wood working tools and operations
- Demonstrate skills in reaming operations
- Understand the importance of heat processes
- Know the properties and functions of steel tools

- Understand the various metal cutting processes of metals observing safety precautions
- Know various types of lathes and their functions
- Understand the features, functions and uses of milling machines
- Understand the features and functions of shaping machines
- Understand the features and functions of a grinding machine.

### **GNS 205 RESEARCH METHODOLOGY:**

Types of research; Sampling and sampling techniques; Scales of measurement in a scientific research; Quantity of research; Data collection; steps in questionnaire development; Organization and presentation of research work; Data Analysis and interpretation; Hypothesis formulation and testing.

## **BIOLOGY**

### **BIO 101 INTRODUCTION TO BIOLOGY**

The Science of Life- Characteristics of living and non-living things, Distinction between plants and animals. The Cell as the basic Unit of meiosis. Tissues and organs – sensory organs (structure, function and care) Unicellular organisms – simple plants & animal their characteristic features e.g. Amoeba, Euglena, Bacteria, Fungi, Yeast, etc. Multi-cellular Animals – Humans physiology and study of different systems, e.g. Alimentary canals, digestive system, Respiratory. life history and economic importance of (mosquito, cockroach, housefly, termite, butterfly) structure, characteristics and adaptations of environment of (bony, fish, toad, lizard, bird, small mammal)

### **BIO 102 REPRODUCTION**

Sexual and asexual reproduction, vegetative reproduction, mammalian reproductive organs and fertilization (a general outline of the development, nutrition, and respiration of mammalian embryo, birth and parental care), meaning of growth, germination of seed, fertilization and the development of fruits, heredity, sex determination and sex-linked.

### **BIO 105    DISEASES AND PREVENTION**

Control of malaria, bilharzia, river blindness etc. The causative organisms, mode of transmission, symptoms, treatment and cure, control and prevention of the following diseases: poliomyelitis, cholera, tuberculosis, venereal diseases (gonorrhoea and syphilis) and tinia (ringworm)

### **BIO 106    ECOLOGY**

ORGANISMS and their environment (habit, population, community and eco-system), factors affecting the distribution of organisms – abiotic and biotic, the interaction of plants and animals with one another and with their environment, natural habits (An aquatic habitat, a terrestrial habitat, an arboreal habits, man and his environment, pollution (air, water and land and methods of control)

### **BIO 107    HEREDITARY AND VARIATION**

The importance of chromosomes, mendelian inheritance (concept of dominant and recessive characters) genotype and phenotype, inheritance of a single pair of contrasting characteristics up to the second filial generation, variation (the simple observations on men-measurement of lengths, heights and weights) sex-link characters (baldness, haemophilia and colour blindness).

## **CHEMISTRY**

### **CHM 101    INTRODUCTION TO CHEMISTRY**

Separation of mixtures and purification of chemical substances (pure substance-elements and compounds), chemical and physical changes, separation process-evaporation simple and frictional distillation, sublimation, filtration, crystallization, precipitation and chromatography. Chemical combination-stoichiometry- Dalton's atomic theory, law of definite and multiple proportions, Law of conservation of matter, Gay Lussac's law, Avogadro's law, chemical formulae, chemical equations and their uses,

relative atomic mass based on  $^{12}\text{C} = 12$ , the mole concepts and Avogadro's constant. Gas laws – Boyle, Charles, Graham gas laws, molar volume, atomicity of gases.

### **CHM 102 KINETIC THEORY OF MATTER**

Application of the theory to the nature and the diffusion of gases. Limitation of the theory in respect of the condensed state (solids and liquids)

### **CHM 103 ATOMIC STRUCTURE AND BONDING**

The concepts of atoms and molecules, atomic structure, electronic configuration, atomic number, mass number and isotopes. The periodic table and periodicity of elements, presentation of the periodic table with a view to recognizing families of elements e.g. alkali metals, halogens, the rare gases and transition elements. Chemical bonding, electrovalency and covalency, concepts of electronegativity, ionization, energy and electron affinity.

### **CHM 104 ENVIRONMENTAL POLLUTION**

Air pollution, water pollution, Pollution by oil, waste disposal.

### **CHM 105 SOLUBILITY**

Saturated and super-saturated solutions, solubility curves and simple deductions from solubility products. Solvent for fats, oils and plants and the use of such solvents for the removal of stains, suspensions and colloids.

### **CHM 106 ACIDS, BASES AND SALTS**

General characteristics and properties of acids, bases and salts. Acid/base indicators, basicity of acids, normal salts, acidic salts and double salts. Qualitative comparison of the conductance of molar solutions of strong and weak acids and bases. pH as a scale for acidity and alkalinity. Acid/bases titrations.

### **CHM 107 ELECTROLYSIS**

Electrolytes and non-electrolytes, simple study of electrolysis, electrolysis of acidified water (dilute  $\text{H}_2\text{SO}_4$ ) and of simple salt solution e.g. copper (II) chloride selective discharge of ions. Electrolysis of copper (II) tetraoxosulphate (IV) solution using copper, platinum or carbon electrodes, the uses of electrolysis. Relation between current, ionic charge and mass (or volume) of substance liberated electrodes.

### **CHM 108 ENERGY CHANGES**

Energy changes accompanying physical and chemical changes, simple measurements and calculations involving heat of reaction and heat of solution. Activation energy, electrochemical cells, redox series (K, Ca, Na, Mg, N, Zn, Fe, Pb, H, Cu, Hg, Au). Redox reaction, half-cell reactions, electrode potentials. Corrosion as an electrolytic process and cathodic protection of metals.

### **CHM 109 NON-METALS AND THEIR COMPOUNDS**

Hydrogen (commercial production, laboratory preparation, properties and uses). Chlorine (laboratory preparation, industrial preparation by electrolysis of brine, properties and uses. Uses of bleaching power and sodium oxochlorate (I) hydrochloric acid properties. Chloride, oxygen and sulphur (Oxygen, laboratory preparation, properties and uses, commercial production from liquid air, oxides-acidic, basic, amphoteric, and neutral. Ozone as an allotrope.

### **CHM 110 CHEMICAL EQUILIBRIUM**

Equilibria in chemistry- reversible reactions and factors governing the equilibrium position. Dynamic equilibrium. Le Chatelier's principle.

### **CHM 111 ORGANIC CHEMISTRY**

- Understand the classification of organic compounds
- Understand Bonding Reactions and Application of Aliphatic Hydrocarbons
- Know the chemical properties, preparations and uses of monosubstituted aliphatic

- Understand general methods of petroleum refining

## **PHYSICS**

### **PHY 101 INTRODUCTION TO PHYSICS**

Measurements and units length, mass, time, fundamental and derivative units, limitations of experimental measurements. Scalars and Vectors. Motion-types of motion, linear motion, newton's law of motion, motion in a circle. Equilibrium-equilibrium of a particle, principle of moments. Work, energy and power. Friction, simple machines, elasticity.

### **PHY 102 ELECTROSTATICS**

Existence of positive and negative charges in matter. Charging a body by friction and by induction. Electric forces, electric field and electric potential. Electroscopes, electric discharge and lightning conductors.

### **PHY 103 MAGNETIC AND MAGNETIC FIELDS**

Permanent magnet. Magnetic properties of iron and steel. Magnetic field due to a permanent magnet. Magnetic field around a current carrying straight conductor, circular wire, and a solenoid. Properties of earth's magnetic field. North and south poles. Angles of dip and declination; variations of field intensity over the earth's surface. Application to navigation.

### **PHY 104 ELECTRIC CELLS**

Simple voltaic cell and its defects. Cell in series and paracell. Daniel cells in series leclanche cell (wet and dry), lead-acid accumulator and Nickel-iron (NIFE) accumulator.

### **PHY 105 ELECTROMAGNETIC INDUCTION**

Laws of electromagnetic induction. Factors affecting induced e.m.f Lenz's law as an illustration of the principles on conservation of energy. A.C generator (alternator) and d.c generator. Transmission of electrical energy-transformer. The induction coil.

### **PHY 106    ELEMENTARY MODERN PHYSICS**

Elementary structure of the atom. Thermionic emission, photo-electric emission. Application-diode, photocell and cathode ray (TV) tubes. Simple method of x-ray production. Elementary radioactivity, stable and unstable nuclei.

### **PHY 108    THERMODYNAMICS**

Know the concept of temperature and the principles of empirical thermometry.  
Understand thermal energy  
Determine specific heat capacities of substances.  
Understand heat transfer  
Understand work transfer  
Know the first law of thermodynamics as a statement of the principles of conservation of energy

## **MATHEMATICS**

### **MAT 101    NUMBER THEORY**

Basic arithmetic operations. Decimals and approximations. Ratio, percentage, proportions and averages. Indices, logarithm, surds and integers. Real numbers (square roots, the real number system), rational numbers (adding and subtracting like fractions, adding and subtracting unlike fractions, multiplying fractions, properties of rational numbers).

### **MAT 103    BASIC GENERAL MATHEMATICS**

Basic operations; S I system; Development of numbers system, large and small numbers, Factor and multiples, fractions and percentages, solids, properties, plane

shape perimeter and area, solid: volume, statistics, purpose and data collection, data presentation, simple equations, construction: parallel and perpendicular lines;  
Statistics: average, estimation and approximation, base two arithmetic, probability theory, matrices and determinant, permutation and combinations, indices, logarithm and surds, trigonometry, measure of central tendency, partition and dispersion, fibroaci sequence.

#### **MAT 104 AREA AND VOLUME**

Area of circles; Three-dimension figures; surface area of prisms; surface area of cylinders; volume of pyramids and cone; precision and significant digits.

#### **MAT 105 ENGINEERING MATHEMATICS**

Partial differentiation; multiple integral; differential equations; determinants and matrices; vectors; complex numbers; functions of complex variation; integral transforms; calculus of variations; tensor analysis; Z-transform; infinite series; Gamma, Beta Functions; Differentiation under the integral sign; Chebyshev Polynomials; Fuzzy Sets; Hankel Transform; Hilbert Transform; Empirical Laws and Curve Fitting (method of least squares); Linear Programming.

#### **MAT 106 TRIGONOMETRY AND ANALYTICAL GEOMETRY**

- Understand the manipulation of trigonometric equations
- Understand the concept of mensuration and its application to engineering problems
- Understand the concept of analytical geometry and their applications
- Understand the concept of parabola and related shapes.

#### **MAT 107 CALCULUS**

- Understand the basic concepts of differential calculus and their application in solving engineering problems.

- Know integration as the reverse of differentiation and its application to engineering problems
- Understand first order homogenous linear ordinary equations with constant coefficients as applied to simple engineering problems
- Understand the basic concepts of partial differentiation and apply same to engineering problems

### **MAT 108 LOGIC AND LINEAR ALGEBRA**

- Understand the basic rules of mathematical logic and their application to mathematical proofs.
- Know permutation and combination
- Know binomial theorem
- Know matrices and determinants

### **MAT 109 INTRODUCTION TO STATISTICS**

- Understand statistics and all that it stands for
- Understand the different methods of data collection and their limitations.
- Know the different forms of data presentation
- Understand the use and the importance of some measures of central tendency in summarizing data
- Understand the use and importance of measures of dispersion in summarizing data
- Know the different types of random variables
- Understand the basic principles of probability
- Understand some basic probability distributions and be able to identify each distribution
- Understand the principles of correlation of two variables and the regression of one variable

## SCHOOL OF VOCATIONAL HOSPITALITY & TOURISM

### Dept. of Catering and Hotel Management (CAH)

<b>NATIONAL INNOVATIVE DIPLOMA I</b>			
<b>COURSE CODE</b>	<b>DEPARTMENTAL COURSES</b>	<b>STATUS</b>	<b>UNIT</b>
CAH 101:	Intro to Home Management	C	3
CAH 102:	Intro to Catering and Hotel Management	C	3
CAH 103:	Principle of Food and Nutrition	C	3
CAH 104:	Fundamental of Food Chemistry	C	3
CAH 105:	Housing Design & Management	C	3
CAH 106:	Interior Decoration	C	3
CAH 107:	Event Planning & Management	C	3
CAH 108:	Environmental Hygiene	C	3
CAH 109:	Beverages, Drinks, Condiments & Flavoring (Herbs/Spices)	C	3
CAH 110:	Food Preservation	C	3
CAH 111:	Meal Preparation and Practice	C	3
<b>NATIONAL INNOVATIVE DIPLOMA II</b>			
<b>COURSE CODE</b>	<b>DEPARTMENTAL COURSES</b>	<b>STATUS</b>	<b>UNIT</b>
CAH 201:	Fundamentals of Nutrition	C	3
CAH 202:	Principle of Agriculture	C	3
CAH 203:	Food Laboratory equipment and tools	C	3
CAH 204:	Recipe Development & Food Preservation	C	3
CAH 205:	Applied Nutrition	C	3
CAH 206:	Hotel Food Preparation	C	3
CAH 207:	Personal and Community Health	C	3
CAH 208:	Project	C	3

<b>NATIONAL INNOVATIVE DIPLOMA I</b>			
<b>COURSE CODE</b>	<b>FIRST SEMESTER COURSES</b>	<b>STATUS</b>	<b>UNIT</b>
GNS 101:	Use of English	C	2
GNS 105:	Citizenship	C	2
GNS 104:	Computer Appreciation	C	2
CHM 101:	Intro to Chemistry	C	2
CAH 101:	Intro to Home Management	C	3
CAH 102:	Intro to Catering and Hotel Management	C	3
CAH 103:	Principle of Food and Nutrition	C	3
CAH 104:	Fundamental of Food Chemistry	C	3
CAH 105:	Housing Design & Management	C	3
GNS 107	Business Mathematics		
GNS 103	Intro to Psychology		
BIO 101	Intro to Biology		

PHY 101	Intro to Physics		
GNS 106	Intro to Philosophy		
GNS 102	Intro to Statistics		
<b>NATIONAL INNOVATIVE DIPLOMA I</b>			
<b>COURSE CODE</b>	<b>SECOND SEMESTER COURSES</b>	<b>STATUS</b>	<b>UNIT</b>
MAT 109:	Intro to Statistics	C	2
GNS 107:	Business Mathematics	C	2
GNS 103:	Intro to Psychology	C	2
BIO 101:	Introduction to Biology	C	2
CAH 106:	Housing Design & Management	C	3
CAH 107	Interior Decoration	C	3
CAH 108	Event Planning & Management	C	3
CAH 109	Environmental Hygiene	C	3

<b>NATIONAL INNOVATIVE DIPLOMA II</b>			
<b>COURSE CODE</b>	<b>FIRST SEMESTER COURSES</b>	<b>STATUS</b>	<b>UNIT</b>
CHA 200		C	20
<b>NATIONAL INNOVATIVE DIPLOMA II</b>			
<b>COURSE CODE</b>	<b>SECOND SEMESTER COURSES</b>	<b>STATUS</b>	<b>UNIT</b>
GNS 202	Entrepreneurship	C	2
CAH 201:	Fundamentals of Nutrition	C	3
CAH 202:	Principle of Agriculture	C	2
CAH 203:	Food Laboratory equipment and tools	C	3
CAH 204:	Recipe Development & Food Preservation	C	3
CAH 205:	Applied Nutrition	C	2
CAH 206:	Hotel Food Preparation	C	2
CAH 207:	Personal and Community Health	C	3
CAH 208:	Project	C	6

### **DETAILED COURSE CONTENT**

#### **CAH 101 INTRO TO HOME MANAGEMENT**

Definition of concept-management, home management, resources, goals, values and standards. Principles of Home Management, Planning, Implementing, Controlling, Evaluating and Decision Making in Family living to attain goals.

Resources: Human and Non-Human. Principles of selection and utilization of family resources, sanitation and Hygiene. Sanitary Condition and Drainage, Sewage systems and effective disposal of waste.

Household Chemicals and their uses. Home preparation of abrasives. Removal of stain from surface and household control and eradication of household pests.

### **CAH 102 INTRO TO CATERING AND HOTEL MANAGEMENT**

Basic principles of management as applied to hotel organizations. Dietary intake and nutrition's requirements for infants, children, adolescents and adults. Hotel administration and development. Hotel service segmentation.

### **CAH 103 PRINCIPLE OF FOOD AND NUTRITION**

Digestion absorption metabolism of foods nutrients, Fundamental principles of normal nutrition and application in the selection of adequate diets for individuals and families at different cost levels, Uses of recommended dietary allowances in assessing daily diet, Self dietary analysis and energy expenditure for 3 consecutive days. Energy needs of people at different age group, e.g, pregnant mothers and the elderly. Modification of diets to suit requirements.

### **CAH 104 FUNDAMENTAL OF FOOD CHEMISTRY**

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

### **CAH 105 HOUSING DESIGN & MANAGEMENT**

The concept and its uses, Factors affecting the choice of housing design, Social, religion, culture, climate, economic family size and type of materials used in housing

construction, Principles of organization of space for individual and family activities in personal and rented houses, Interior decoration and production of decorative items.

## **CAH 106 INTERIOR DECORATION**

### Introduction

- Architectural Drafting
  - Types of Drafting
    - Technical sketch
    - Mechanical drafting
    - Computer drafting
  - Drafting media
  - Drafting sheets sizes
  - Lines weights
    - Lines and line Quality
    - Line weights for letting
- Drafting Standards and Symbols
  - Line Types
  - Material symbols
  - Architectural Graphic symbols
  - Drawing symbols for cross-reference
- Types of plans
  - Typical scales for Drawings
  - Floors Plans
  - Interior elevation Drawings
  - Section Drawings
  - Interior detail Drawings
  - Schedules
    - Door Schedule
    - Window Schedule
    - Interior Finish Schedule

- Furniture Schedule

### **CAH 107    EVENT PLANNING & MANAGEMENT**

- Introduction , Events Planning Models: Event Definition, Event Models and the Management of the Events Process, Key Points on Planning, Convention, Conference Organizing
- Successful Strategies: Process of Strategy Making, Strategy Contents, Targets of the Event
- Event Marketing: Marketing Environment, Event Marketing Mix, Marketing strategy
- Logistics: Logistics Definition, Logistics Model, Logistics Management, Logistic Organization, Coordination of Logistic Operations, Criteria for Logistic Decision Making Evaluation
- Financing: Introduction, Budget, Income and Financing
- Health, Safety and Risk Assessment: Risk Assessment - The 5 Steps, Hazard Categories, The Risk Assessment Form, Key Definitions, Organizing, Measuring Performance
- Monitoring and Evaluation: Event Evaluation Process, Hard and Soft Criteria

### **CAH 108    ENVIRONMENTAL HYGIENE**

- Hygiene and the Environment Inadequate routine cleaning of the environment has been implicated in the transmission of gastrointestinal and respiratory illnesses.
- Cleaning is essential in the prevention of infection.
- Explain Cleaning Methods and procedures
- Routine Cleaning – General Principles
- Cleaning Schedules
- Toilets and Wash Hand Basins and Showers
- Water system maintenance

## **CAH 109 BEVERAGES, DRINKS, CONDIMENTS & FLAVORING (HERBS/SPICES)**

Definition of terms, (beverages, drinks, condiments, flavouring, spices e.t.c), Making of fruit and soft drink, Choice and preparation of tea, coffee, cocoa, Nigerian beverages, e.g. cocoa drink, plantain drink, kunun zaki, e.t.c. Principles underlying the use of local herbs and spices, Presentation and serving of drinks, Use of traditional and foreign spices and herbs, Project – an album or a chart showing spices.

## **CAH 110 FOOD PRESERVATION**

Food microbiology, food spoilage, Food poisoning, Food preservation and conservation to ensure adequate security, Role of Government in quality control and food production, Students class project production and presentation of local foods.

## **CAH 111 MEAL PREPARATION AND PRACTICE**

Meal planning and management, Methods of purchasing food in quantity, Use of left over foods (reshuffle) and convenient food, The art of entertainment, Introduction to flour mixtures – batters a dough's, pastry and biscuits, cake, breads, chin-chin, sandwich and other snacks, Meal service, Table appointment and table laying, table manners and hostessing, Styles of table service – Buffet, cocktail e.t.c. Organization, preparation and service of various dishes for special occasions e.g. birthdays, end2 of the year get together, etc (appetizers, main meal and deserts), Commercial food preparation e.g. food for sale in restaurants, hotels and bukateria, Study of different food groups, Meat and poultry, Milk and milk products, Egg, Sea foods, Fruits and vegetables, Cereals, Meal preparation. Family meal, Meal preparation for special groups (pregnant, lactating, children), Snack-sandwiches, chin-chin, e.t.c

## **CAH 201 FUNDAMENTALS OF NUTRITION**

Food groups and food classes-Description, uses, nutrient composition etc, Staple foods cereal products, root and tubers, legumes, nuts and seeds, Fruit and vegetables, meat, Poultry and fish.

### **CAH 202 PRINCIPLE OF AGRICULTURE**

Ornamental plants – Definition, identification/classification, establishment and uses, Landscape Designing – steps and principles of Animal Production- Livestock problems and prospects, poultry production, Rabbitry production Basic Animal Nutrition Storage and preservation of agricultural produce, Practical-Active participation in poultry farming.

### **CAH 203 FOOD LABORATORY EQUIPMENT AND TOOLS**

Attributes of a standard food laboratory, Kitchen Geometry – Planning and sketching a standard kitchen, Major equipment, e.g. cookers, refrigerators, freezers, etc, Utensils/Traditional equipment, Weight and measurement, Preparation for practical.

### **CAH 204 RECIPE DEVELOPMENT & FOOD PRESERVATION**

Fundamental principles of food quality evaluation. Development of standard tastes, flavor shape, sizes, texture, colour and appearance. Principles of recipe formulation and preparation. Acceptability trials – selection of participants and analysis of result – with emphasis on the development and testing of more economical and nutritious foods from familiar and commonly used and acceptable ingredient and new varieties of food stuffs. Fundamentals of heat and cold preservation.

### **CAH 205 APPLIED NUTRITION**

Study of food and food habit of different groups knowledge of different customs, traditions and ceremonies to appreciate the historical background of some traditional Nigerian dishes. Disorder of malnutrition – protein-calorie-malnutrition, deficiency diseases as – Nutritional anemia, Obesity, Rickets and osteomalcia, Keratomalcia.

## **CAH 206 HOTEL FOOD PREPARATION**

Fundamental of meal planning and application of scientific principles of meal preparation, e.g. cooking vegetables etc, Methods and principles of cooking, Boiling eggs, yams, rice etc, Frying – Dry frying e.g. bacon, Shallow frying e.g. plantain, deep – frying e.g. yam, Talls, akara (bean cake), puff-puff. Baking cakes, bread, pastry sausage, Roasting chicken meat, Steaming moin-moin, Broiling: Plantain, meat kebab (meat on stick) bacon. Braising e.g. egg, potatoes, etc. Project on recipe album, The concept of food, Scientific principles of food preparation.

## **CAH 207 PERSONNEL AND COMMSTATUSY HEALTH**

Definition of health factor leading to good health – good grooming. Adequate nutrition, sleep, rest and exercise. Maintaining family health, safely in the home, preventive measures and adaptation of habits to break the cycles of diseases, Health management –Home nursing and simple first aid principles, Identifying practices that lead to ill health in the home, Health problems –Alcoholism, drug abuse, smoking e.t.c. Study of communicable diseases through the air, food water and contact diseases such as HIV/AID and other STDs.

## **CAH 208 PROJECT**