NATIONAL BOARD FOR TECHNICAL EDUCATION

NATIONAL DIPLOMA

IN

DENTAL TECHNOLOGY PROGRAMME

CURRICULUM AND COURSE SPECIFICATIONS

PLOT 'B' BIDA ROAD,

P.M.B. 2239, KADUNA.

2020

NATIONAL DIPLOMA

1.0 PROGRAMME NOMENCLATURE

National Diploma in Dental Technology

2.0 GOAL

This programme is designed to prepare prospective students/candidates for admission into Higher National Diploma in Dental Technology or direct entry into any relevant area of study.

3.0 OBJECTIVES OF THE PROGRAMME

A diplomate of this programme should be able to:

i. Assist in carrying out infection control measures in a Dental Laboratory.
ii. Receive, treat and cast impressions.
iii. Trim models Prosthodontically, Orthodontocally etc.
iv. Prepare Special Trays.
v. Prepare Bite Registration Blocks.

4.0 LEVEL OF PROGRAMME

National Diploma

5.0 DURATION

The duration of the programme shall be two academic sessions of four semesters, including supervised clinical work experience (or SIWES].

6.0 ENTRY REQUIREMENTS

Applicants with the following qualifications may be considered for admission into the National Diploma programme.

A minimum of 5 credit passes in the relevant subjects, at not more than two (2) sittings at the SSCE, WASC or their equivalent. The subjects must include;

1. Mathematics,
2. English language,
3. Biology or Health Science

4. Physics or Chemistry and
5. Chemistry

7.0 STAFFING REQUIREMENTS

7.1 Core Teaching Staff

A minimum of four (4) lecturers are required for one stream (40 students). Core teaching staff should possess at least a BSc. in Dental Technology or related discipline while Instructors shall possess HND in Dental Technology plus PGD in related discipline.

7.2 Technical Staff

Technical staff should possess ND/HND in Technology or related discipline.

7.3 Headship of the Department

The Head of Department shall;

- Possess not less than a Master's degree in Dental Technology or related discipline.
- Have at least 10 years industrial/teaching experience
- Be a Member of relevant professional body
- Be of the rank of Senior Lecturer or above

7.4 Carrier/Academic Prospects

The diplomats would work as Dental Technologist Assistants, under the supervision of a Registered Dental Technologist. They can also proceed for HND or BSc in Dental Technology or related discipline.

8.0 DURATION

The duration of the programme shall be two academic sessions of four semesters, including supervised clinical work experience (or SIWES).

9.0 CURRICULUM STRUCTURE

The curriculum of all ND programmes consists of five main components. These are:

i. General Studies/Education
ii. Basic/Foundation Courses
iii. Professional/Specialized Courses
iv. Electives
v. Supervised Industrial Work Experiences Scheme (SIWES)

10.0 STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

A six week SIWES shall be undertaken by the students at the end of the 1st Year, second semester of the ND programme.

11.0 CERTIFICATION

A graduand of this programme will be awarded ND in Dental Technology [subject to Dental Technologists Registration Board of Nigeria guidelines].

12.0 CONDITIONS FOR THE AWARD OF ND CERTIFICATE

Institutions offering accredited programmes will award the National Diploma to candidates who successfully completed the programme after passing the prescribed course work, examinations, diploma project, supervised work experience scheme (SIWES) and attendance.

13.0 INDEXING OF STUDENTS

All newly admitted students must be indexed by the DTRBN within the first semester of the programme.

CURRICULUM TABLE
ND PROGRAMME IN DENTAL TECHNOLOGY

LEVEL: ND I **1ST SEMESTER**

COURSE CODE	COURSE TITLE	L	P	CU	CH	CH/SEM
STB 112	Morphology & Physiology of Living Things	2	1	3	3	45
STC 111	General Principles of Chemistry	2	1	3	3	45
STP 111	Mechanics and Properties of Matter & Heat Energy	2	1	3	3	45
STA 111	Introduction to Statistics	2	0	2	2	30
MTH 111	Logic & Linear Algebra	2	0	2	2	30
DTE 111	Introduction to Dental Technology	2	0	2	2	30
CHO 112	Primary Health Care	1	0	1	1	15
GNS 111	Citizenship Education I	2	0	2	2	30
COM 111	Introduction to Computer Science	1	1	2	2	30
DTE 112	Tooth Morphology	1	1	2	2	30
DTE 114	Human Anatomy & Physiology I	2	1	3	3	45
DTE 113	Dental Material Science I	1	0	1	1	15
	TOTAL	**20**	**6**	**26**	**26**	**390**

ND PROGRAMME IN DENTAL TECHNOLOGY

LEVEL: ND I **2ND SEMESTER**

COURSE CODE	COURSE TITLE	L	P	CU	CH	CH/SEM
PTD 111	Technical Drawing	0	1	1	1	15
EED 126	Entrepreneurship Studies	2	1	3	3	45
GNS 102	Communication in English	2	0	2	2	30
DTE 121	Dental Prosthesis I	2	1	3	3	45
DTE 122	Dental Materials Science II	2	0	2	2	45
DTE 123	Intro. To Orthodontics Technology I	1	1	2	2	30
GNS 124	Medical Sociology	2	0	2	2	30
DTE 124	Human Anatomy and Physiology II	2	1	3	3	45
	TOTAL					**315**

ND PROGRAMME IN DENTAL TECHNOLOGY

LEVEL: ND II **1ST SEMESTER**

COURSE CODE	COURSE TITLE	L	P	CU	CH	CH/SEM
DTE 224	Dental Prosthodontics	2	1	3	3	45
GNS 228	Research Methodology	1	0	1	1	15
EED 216	Practice of Entrepreneurship	1	1	2	2	30
DTE 213	Dental Material Science III	2	0	2	2	30
DTE 211	Oral Physiology, Histology and Embryology	1	0	1	1	15
DTE 212	Dental Anatomy and Physiology I	1	1	2	2	30
DTS 211	Pharmacology I	2	0	2	2	30
DTS 212	Clinical Oral Hygiene	2	0	2	2	30
HIM 111	Health Information System I	1	1	2	2	30
DTE 214	Human Anatomy and Physiology III	1	1	2	2	30
DTE 215	Oral Pathology	1	1	2	2	30
DTE 216	General Pathology	2	0	2	2	30
	TOTAL					**345**

ND PROGRAMME IN DENTAL TECHNOLOGY

LEVEL: ND II **2ND SEMESTER**

COURSE CODE	COURSE TITLE	L	P	CU	CH	CH/SEM
DTE 226	Human Anatomy and Physiology II	2	2	4	4	60
DTE 228	Project/Seminar Writing	0	6	6	6	90
DTE 225	Dental Prosthodontics III	1	2	3	3	45
DTE 224	Introduction to Orthodontics	1	1	2	2	30
DTE 222	Complete Dentures	1	2	3	3	45
DTE 223	Science of Dental Technology	1	2	3	3	45
DTE 227	SIWES Report Writing	0	3	3	3	45
	TOTAL					**360**

COURSE BY COURSE BREAKDOWN

YEAR 1 SEMESTER I

	Department/ Programme: Science Lab.	**Course Code:**		**Credit Hours:**
	Subject/Course: Morphology and Physiology of			**Theoretical:** 1 **hours/week**
	Year: **Semester:**	**Pre-requisite:**		**Practical:** 3 **hours /week**

General Objectives

1.0 Know the morphology, life cycles and economic importance of selected examples of the following divisions (1) Thallopyta including lichens (2) Bryophta (3) Pteridophyta (4) Spermatophyte (5) Gymnosperms (6) Angiosperms.

2.0 Know the morphology, life cycles and economic importance of selected examples of the following examples of the following Phyta (1), Protozoa (2) Coelenterate (3) Pahtyhelminthes (4) Nernatodes (5) Annelida (6) Anthropoda (7) Mollusca.

3.0 Know the morphology evolutionary relationship and economic importance of selected examples of phylum Chorda Protochordata and Euchordata (a) Protecttorate (b) Euchordata (1) Pisces (Fishes) (2) Amphibian (3) Reptile (4) Aves Mammalian.

4.0 Know the morphology and physiology of valves organs and systems in the animal kingdom.

	Course: Morphology and Physiology of Living	**Course Code: STB 112**		**Credit Hours:**		
				Theoretical: 1 **hours/week**		
	Year: **Semester:**	**Pre-requisite:**		**Practical**: 3 **hours /week**		
	Theoretical Content			**Practical Content**		
	General Objective 1.0: Know the morphology, life cycles and economic importance of selected examples of the following divisions (1) Thallopyta					
Week/s	**Specific Learning Outcomes**	**Teacher's activities**	**Resources**	**Specific Learning**	**Teacher's activities**	**Resources**
1 2	1.1 Describe the general characteristics, and classification of the algae. 1.2 Describe the morphology of diatoms, euglena, spirogyra, ferns. 1.3 Describe the life cycles of the examples diatoms, euglena, spiragyra, ferns. 1.4 List and explain the economic importance of algae. 1.5 Describe the general characteristics and classification of fungi. 1.6 Describe the structure and life cycle of a saprophytic fungus e.g. mucor and a parasitic fungus pythium. 1.7 List and explain the economic importance of fungi	Lecture	Classroom resources	Collect samples of each group in 1.1. to 1.22 above for classification and preservation and conduct practical grades drawing Continue to collect samples of each group in 1.1. to 1.22 above for classification and preservation and conduct practical grades drawing	Conduct field trips and guide students in collection and preservation of collected samples.	Tools for Herbarium collection and camera for snapping rear specimens. Magnifying glasses

	Bryophyta.			grades drawing		
4	1.13 Explain the general characteristics, and classification of pteridophytes 1.14 Describe the morphology and life of a club moss e.g. selaginella and a fern 1.15 Explain alternation of generation in pteridophyta compare it with that of the bryophyta. 1.16 Explain the concept of heterospory as illustrated by selaginella. 1.17 Explain the adaptive features of pteriodphytes to plant and its evolutionary significance			Continue to collect samples of each group in 1.1. to 1.22 above for classification and preservation and conduct practical grades drawing Compare and contrast the characteristics of mosses. Continue to collect samples of each group in 1.1. to 1.22 above for classification and preservation and	Conduct field trips Conduct practical grades drawing	Chart and Visual aids. Microscope Plants Preservation materials. Magnifying glasses
	General Objective 2.0: Know the morphology, life cycles and economic importance of selected examples of the following examples of the following					
	2.1 List the general characteristics of the major classes of protozoa. 2.2 Describe the structure and life cycles of	Demonstrate and describe the various life cycles, morphology and economics importance of amoeba, protozoa	Video films, monographs	Prepare cultures of protozoan e.g. amoeba, hydra and examine by using hanging	Assist students to carry out labelled	Laboratory reagent.

	classes of the phylum coelenterata to illustrate diploblastic organization. 2.5 Describe the structure and life cycles of hydra and obelia. 2.6 List the differences between hydra and obelia. 2.7 List the economics importance of coelenterates.					Laboratory apparatus.
7	2.8 List the general characteristics of the major classes of the playhelminthes. 2.9 Describe the structure and life cycles of planaria, fasciola and schistosoma. 2.10 Describe the parasitic adaptations of fasciola and schistosoma. 2.11 List the economic importance of the phylum, plathyhelminthes. 2.12 Describe the general characteristics of the major classes of the phylum nematoda. 2,13 Describe the structure and life cycles of ascaris,	Describe the general characteristics of the organism.	Classroom	Identify by using microscope the differences of the species	.	

	2.21 Describe the structure and life cycles of gastropods and bivalves. 2.22 List the economics importance of mollusca generally.			identification and classification		
11	2.24 List the classes of the phylum Arthropoda. 2.25 List the common orders of the phylum Arthropda and give examples e.g. diptera orthoptera, coleoptera, hemipters, leidoptera hymenoptera, odonata, isoptera, dictyoptera and nenroptera. 2.26 List and explain the economic importance of insects of the phylum arthropoda. 2.27 List the characteristics and classify the phylumic chinodermata into its major classes with some examples			Conduct field trips and collect samples to identify, classify and preserve. Draw label		Magnifying glass, Microscope Preservative materials. Slow moving stream, dropping pipettes petral dishes.
	General Objective 3.0: Know the morphology evolutionary relationship and economic importance of selected examples of phylum chorda					
	3.1 Compare the morphological features of representatives of (a) protochordates and (b) euchordates, of the phylum chordata. 3.2 Relate the features of these organisms to their modes of life. 3.3 Outline the evolutionary relationship between (a) protochordates and euchordates and (b) within			Examine protochordate e.g. amphioxus and identify different features of evolutionary interest.	Demonstrations and drawings. Practical examination	Magnifying glass. Models of the specimens

	General Objective 4.0: Know the morphology and Physiology of Valves organs and systems in the animal kingdom					
14	4.1 Distinguish between morphology and physiology 4.2 Describe the morphology of the following mammalian organs and systems; nervous system, circulatory system, digestive system, excretory system, regulatory system, reproductive system. 4.3 Explain the physiological processes of the organs and systems in 4.2 above. 4.4 Compare and contrast the physiological processes as seen in the different phyla of the animal kingdom. 4.5 Relate the structures of the various organs in 4.2 above to their functions	Lectures	Lecture notes chalkboard	Draw and label the various organs and systems mentioned in 4.2 above.	Observe under microscope and draw.	Dissention guides on the various specimens available and dissenting kit..

	Programme: National Diploma Dental Tech.	**Course Code:**		**Credit Hours:**
	Course: General Principles of Chemistry	STC 111		**Theoretical: hours/week 2**
	Year: **Semester:**	**Pre-requisite:**		**Practical: hours/week 3**

General Objectives

1. Understand atoms molecules, composition and structure

2.Understand the arrangement of elements in the periodic table

3.Understand chemical thermodynamics

4. Understand the properties and reactions of acids, bases and salts

5.Understand the fundamental concept of oxidation and reduction reactions

6. Understand surface phenomena and colloidal systems
7. Understand chemical equilibrium

	Course: Insurance National Diploma	**Course Code:** STC 111			**Credit Hours:**	
	General Principles of Chemistry				**Theoretical: 2 hours/week**	
	Year: **Semester:**	**Pre-requisite:**			**Practical: 3 hours /week**	
	Theoretical Content				**Practical Content**	
	General Objective 1: Understand atoms molecules, composition and structure					
Week /s	**Specific Learning Outcomes**	**Teacher's activities**	**Resources**	**Specific Learning**	**Teacher's activities**	**Resources**
1	On completion of this course, the student should be able to: 1.1 Explain the experimental basis of atomic theory using the Bohr's theory of hydrogen atom and many electron atoms. 1.2 Describe atomic spectra particularly the H atom emission spectrum 1.3 Discuss, qualitatively, the Energy States of the hydrogen atom in the Bohr model 1.4 Relate these Energy States to the observed emission spectra 1.5 Explain the limitations of the Bohr model	Lectures	Blackboard Chalk Molecular models	View the visible emission spectra of several metals in some of their compounds	Guide and supervise lab technicians, technologists and students	direct vision spectroscope Bunsen burner, nichrome wire fixed to a cork handle, concHCl, solid chlorides of : barium, calcium,

	1.11 Explain 1.10 above in relation to the concept of orbitals including subsidiary energy levels (s,p,d,f orbitals). 1.12 Explain the significance e of the four quantum numbers					
3	1.14 Describe the determination of relative atomic and molecular masses. 1.15 Explain isotopes and their use Describe the use of mass spectrometer as a means of proving the existence of isotopes. 1.16 Define the following:: (i) Atomic number, (ii) Mass number, (iii) Atomic mass, Based on 12C 1.17 Explain valency and chemical bonding. 1.18 Explain the octet and duplet rules	Lecture	classroom resources	Separate a mixture of sand and salt and relate the results to the different types of bonding in each Prepare iron sulphide from iron and sulphur	Provide spectra and guide students through their interpretation Guide	Workshop resources and representati v e mass spectra
	General Objectives: 2. 0 Understand the arrangement of elements in the periodic table					
5	2.1 Discuss the development of the periodic table 2.2 Describe building up periods I and II 2.3 Describe building up period III 2.4 Describe electron configurations within groups 2.5 Describe the first d-orbital transition series; building	Lecture	classroom resources	Investigate the reactivity of group 2 metals (i) Mg. Ca, Sr, and Ba with water	Guide students	Mg, Ca, Sr, Ba, water, dilute hydrochloric acid test tubes etc

6	twenty elements of the periodic table. 2.9 Relate electron configuration to the position in the periodic table. 2.10 Describe trends in the Periodic Table such as atomic size, ionisation energy, electron affinity			The Copper Envelope		Copper foil, tongs, Bunsen
	General Objective 3: Understand chemical Thermodynamics					
	3.1 Describe thermodynamic systems e.g. open system, closed system, isolated system. 3.2 Explain thermodynamic functions enthalpy, entropy, free energy. 3.3 Explain the first and second laws of thermodynamics and their significance	Lecture	classroom resources	Measure heat of reaction by simple experiments e.g. heat of neutralization NaOH, HCl of a acid and strong base.	Teacher supervises and guides students in the laboratory	Chemicals calorimeter Glassware etc.
	General Objective 4: Understand the properties and reactions of acid, bases and salts.					
8	4.1 Define an acid and a base according to Arrhenius, Bronsted – Lowry and Lewis concepts. 4.2 Identify acids and bases in chemistry equations. 4.3 Explain the meaning of the terms conjugates acid and conjugate base 4.4 Distinguish between a strong and weak acid or base. 4.5 Write the expression for the dissociation constant for an acid HA (aq) 4.6 Give the equation for the degree of dissociation and concentration. M. (mole dm^3)	Define acid, bases and salts and teach to identify them in equations Explain dissociation constant and derive		Carry out acid base titration by using conductance meter	Guide students	Chemicals Conductance meters pH meters colour charts indicators burettes glassware

9	4.10 Explain the concept of hydrogen on concentration and pH 4.11 Calculate the pH value of an acid or base given the hydrogen ion concentration 4.15 Identify various types of indicators and the use in the measurement of pH.			Measure the pH of solutions by using colour charts, indicators and pH meter Determine experimentally the strengths of acids and bases in relation to structure e.g. in		
10	4.16 Define the terms, pka and pkb 4.17 State the Henderson Hasslebach equation 4.18 Use the Henderson Hassleback equation 4.19 Understand that, for a weak acid in a solution where the pH = of the acid , the acid is 50% ionised. 4.20 Define the terms, buffer solution and buffer capacity 4.21 Explain the effectiveness of a buffer solution. 4.22 Describe buffers in Biochemistry and Medicine (e.g. blood, and biochemical experiments)	Lectures		Measure pKa of a weak acid via titration Titrate a weak acid by using a strong base. Plot the results and observe the region of buffering and the end point.	Teacher supervises students	

				sodium nitrate.		
	General Objectives: 5.0 Understand the fundamental concept of oxidation and reduction reactions.					
12	5.1 Explain: (a) Oxidation reaction (b) Reduction reaction 5.2 Explain the oxidation and reduction reactions in terms of electron transfer 5.3 List some oxidizing and reducing agents.	Explain redox reactions and interims of electron transfer State half ionic equation in oxidation and		Carry out redox titration's by using potassium permanganate	Supervise students in the laboratory	Titration apparatus and chemicals
	General Objective 6: Understand surface phenomena and colloidal systems					
13	6.1 Surface Phenomena and Colloidal Systems. 6.2 Explain the following surface phenomena (a) colloidal gels (b) surface tension © absorption, (d) emulsion (e) gels	Lecture	classroom resources	Chromatography of leaves	Guide students	finely cut leaves, chromatography paper, propanone, beaker, lid, glass rod or
14	6.4 Define Ion-Exchange 6.3 Distinguish between cation and anion			Purify hard water using ion-exchange	Guide students in the	Ion-exchange chromatogra
	General Objective 7.0 Understand chemical equilibrium					
	7.1 Explain chemical equilibrium 7.2 State the factors affecting chemical equilibrium	Lecture		Investigation of the effect of concentration	Guide students	test tubes, gloves, potassium

	7.4 Explain Le Chatellier's principle 7.5 Define equilibrium constant 7.6 Explain the law of mass action 7.7 Calculate concentrations present in equilibrium mixture at given temperature starting from any given amounts of reactants and products.			chemical equilibria		sulphuric acid, NaOH, potassium or ammonium thiocyanate, iron III chloride ammonium

	Programme: ND Dental Tech.	**Course Code:** STP 111		**Credit Hours:**
	Subject/Course: Mechanics			**Theoretical:** 2 **hours/week**
	Year: 1 **Semester:** 1	**Pre-requisite:**		**Practical:** 3 **hours /week**

General Objectives

1.0 Understand rotational motion of rigid bodies.

2.0 Understand the phenomenon of surface tension.

3.0 Understand periodic motion.

4.0 Understand the behaviour of fluids in motion.

	Course: Mechanics	Course Code: STP 111		Credit Hours:
				Theoretical: 2 hours/week
	Year: 1 Semester: First	Pre-requisite:		Practical: 3 hours /week
	Theoretical Content			Practical Content
	General Objective 1.0: Understand rotational motion of rigid bodies.			

Week/s	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
1 – 3	**Rotational Motion** 1.1 Explain the concept of the moment of inertia about an axis 1.2 State and Explain the expression for moment of inertia of the following: i) a rod ii) rectangular plate iii) ring iv) circular disc v) solid and hollow cylinders vi) a sphere 1.3 Explain radius of gyration 1.4 Calculate the radius of gyration for each of the bodies 1.5 Define Torque of a body about an axis. 1.6 Define angular momentum of a body about an axis. 1.7 Establish the relationship between torque (τ) and angular momentum (L) i.e. $t = \frac{dl}{dt}$ where t is time. 1.8 State the law of conservation of angular	Solve numerical problems using the expressions stated in 1.2.	Lecture notes Rods, rectangular plate, ring, circular disc, solid cylinder, hollow cylinder, sphere.	Determine experimentally the moment of inertia of a flywheel. Determine the moment of inertia of a uniform rod using bifilar suspension.	Perform experiment to determine the moment of inertia of a flywheel. Perform an experiment to determine the moment of inertia of	Flywheel of standard pattern with wall support. Mass attached to a length of cord. Vernier calliper Stop clock/watch Metre rule. Two heavy stands and clamps, two threaded corks, metre rule, brass rod, stop clock/watch

	1.9 Explain the reduction in speed of a rotating body when struck by a small mass applying the law of conservation of angular momentum. 1.10 Write and explain the expression for the kinetic energy of rotation of a rigid body. 1.11 Calculate moments of inertia about some axes of interest of the following, using the appropriate formulae e.g. - Uniform rod - Ring - Circular disc - Solid cylinder - Hollow cylinder - Sphere - Rectangular plate.	Lecture and apply the expression in the calculation of kinetic energy and acceleration of rolling and sliding rigid bodies e.g. cylinder sphere, disc, ring etc. Solve some numerical problems and give assignment.	Lecture notes Reference texts Inclined plane Cylinder, sphere, disc Ring, uniform rod rectangular plate.			
	General Objective 2.0: Understand the phenomenon of surface tension					
4 - 6	2.1 Explain the phenomenon of surface tension 2.2 Explain the origin of surface tension using the molecular theory. 2.3 Define the coefficient of surface tension (stating its units). 2.4 Explain adhesive and cohesive forces. 2.5 Define angle of contact 2.6 Explain capillary action giving examples of everyday situation. 2.7 Explain the variation of surface tension with temperature. 2.8 Explain surface tension in terms of surface energy. 2.9 Relate surface tension to specific latent heat. 2.10 Calculate the surface tension of soap solution and soap bubble using the appropriate equations.	Lecture Use examples e.g. water and mercury etc to illustrate adhesive and cohesive forces. Lecture Solve numerical problems and give assignment.	Water, mercury etc., Glass dish, chalk and board.	Demonstrate the existence of surface tension	Use examples such as water from tap, floating of needle on surface of water etc to demonstrate the existence of surface tension.	Needle Tissue paper Beaker Water Water Tap

				Determine experimentally the surface tension of a liquid by capillary rise method using travelling microscope. Determine experimentally the surface tension of a liquid using a torsion balance. Demonstrate the variation of surface tension with temperature using Jaeger's method.	Explain the use of travelling microscope and torsion balance before allowing the students to carry out experiments on surface tension. Students should determine experimental l y the surface tension of a liquid by capillary rise method using travelling microscope. Demonstrate the variation of surface tension with temperature using Jaeger's	Lecture Note Laboratory travelling Microscope set of glass capillary, beaker dilute nitric acid caustic soda solution distilled-water stand with clamp Torsion balance. Beaker containing a liquid, large bottle filled with dropping funnel, on outlet tube bent twice at right angles/ To the end of the tube is forced a

						depth in the liquid. A manometer filled with xylol, a travelling microscope
	General Objective 3.0: Understand periodic motion.					
7 - 9	**Periodic Motion** 3.1 Explain the following:- (i) periodic motion (ii) simple Harmonic motion 3.2 List examples of systems performing simple Harmonic motion 3.3 Define the parameters associated with simple Harmonic motion (amplitude ; period T; angular velocity w etc) 3.4 State and explain the expression for the period of oscillation of the following :- i) a simple pendulum ii) compound pendulum iii) loaded elastic spring etc 3.5 Draw and explain the graphs of Potential Energy, Kinetic Energy and Total Energy against distance from equilibrium position. 3.6 Calculate velocities of bodies in periodic and simple harmonic motion when other parameters are known.	Lecture Apply the formula for the period of oscillation in 3.4 to solve some simple numerical problems.		Determine 'g' (acceleration due to gravity) experimentally using: i) compound pendulum ii)loaded spiral spring iii)loaded cantilever	Demonstrate and allow the students to carry out the practicals on how to determine g using compound pendulum, loaded spiral spring and loaded cantilever.	For 4.6 (i) Knitting needle, metre rule with holes drilled at equal interval Stop clock/watch. For 4.6 (ii) Spiral spring slotted weights stop clock/watch. Retort stand. For 4.6 (iii) Loaded metre rule,
	General Objective 4.0: Understand the behaviour of fluids in motion.					
10 -12	**Fluids in Motion** 4.1 Explain viscosity applying molecular theory	Lecture	Classroom Resources.			

	4.2 Define velocity gradient in a fluid 4.3 Distinguish between streamline and turbulent flow. 4.4 State and explain Newton's formula for viscosity:- F = C A x velocity gradient where F = frictional force in a liquid S = coefficient of viscosity A = the area of liquid surface 4.5 Define coefficient of viscosity S stating the units. 4.6 State the expression for the steady flow of liquid through a ~~pipe i.e~~. Poiseulle's formula: Vol per sec = πPa^4 where $8 \eta L$ Π = a constant (3.14) P = pressure difference A= radius of tube L = length of tube η = coefficient of viscosity 4.7 Describe and explain the motion of a small spherical body falling through a viscous fluid. 4.8 Explain terminal velocity 4.9 State and explain stoke's law – $F=6\Pi\eta a v$ where F is frictional force in liquid v. is terminal velocity; a = radius of spherical ball. 4.10 Write the expression for the terminal velocity of a small ~~spherical~~ ball i.e. falling through a liquid column: Vo = $2ga^2$ P-6 where 6 is density of 9η liquid P is the density of the bearing's material; a is radius of the bearing and g acceleration due to gravitation. 4.11 4.12 Explain the importance of viscosity in lubrication			Determine experimentally the coefficient of viscosity of a low density liquid using porseuille's formula. Determine experimentally the terminal velocity of small ball bearings.	Students should be allowed to determine experimentally the coefficient of viscosity of a low density liquid using porseuille's formula. Students should be made to perform the experiment to determine the terminal velocity of small ball bearings .	Measuring cylinder with marks for distance, stop clock/watch. Steel sphere of different diameters, micrometer screw gauge, etc.. Set of long tubes of different diameters, short inlet tubes, outer jackets for tubes, number of small steel ball bearings of different

	4.14 Derive Bernoulli's equation. 4.15 List some applications of Bernouli's principles e.g. action of filter pumps and carburettors etc. 4..16 State the dimensions of coefficient of viscosity. 4.17 Calculate the terminal velocity of steel balls or other bodies falling under gravity in liquids.			Demonstrate experimentally the variation of viscosity with temperature. Determine experimentally the value of the coefficient of viscosity of a liquid based on the equation. $V = \frac{\Pi P a^4}{8 \eta}$ where η is	Students should be made to perform the experiment to investigate the variation of viscosity with temperature. Students should perform the experiment to determine the value of coefficient of viscosity a liquid based on the equation. $V = \frac{\Pi P a^4}{8 \eta}$ where η	tubes of different diameters, short inlet tubes, outer jackets for tube and stir, thermometer , number of small still ball bearings of different diameters, vernier callipers, stop clock/watch.

				is Pressure difference. Use stoke's theorem to measure the viscosity of a liquid of high density.	velocity, a is radius of the tube, t stands for time and P is Pressure difference. Student should perform an experiment to determine the viscosity of a high density liquid.	Cylindrical cylinder marked at different intervals, ball bearing, stop clock/watch,

Programme: ND Dental Technology	**Course Code: STA 111**	**Total Hours: 45**
Course: Descriptive Statistics I		**Theoretical: 3 hours /week**
Year: 1 Semester: 1	**Pre-requisite:**	**Practical:**

Goal: This course is designed to enable students to acquire a basic knowledge of descriptive statistics.

General Objectives: On completion of this course the diplomate, should be able to:

1. Understand the nature of statistical data, their types and uses
2. Understand the procedures for collection of statistical data.
3. Understand the difference between total coverage and partial coverage in data collection
4. Understand the methods of data compilation
5. Understand the methods of data presentation

	Theoretical Content			Practical Content		
	General Objective 1 (STA 111): Understand the nature of statistical data, their types and uses					
Week	**Specific Learning Outcomes**	**Teacher's activities**	**Resources**	**Specific Learning**	**Teacher's activities**	**Resources**
1	1.2 Identify various sources of statistical data 1.3 State important uses of statistics	statistics Introduce various sources and discuss how they are used (e.g. social, economic, health, biological, demographic and industrial)	recorded statistics Internet	statistical data Identify sources for specific needs	investigating sources Encourage use of Internet	recorded statistics Internet Text books
2	1.4 State uses of statistical data 1.5 Explain quantitative data	Explain uses of data Explain nature of quantitative data Discuss various scales	Books of recorded statistics Interne	Decide on use of data found Determine scale of measurement	Encourage investigating sources Encourage use of	Books of recorded statistics Internet
	General Objective 2 (STA 111): Understand the procedures for collection of statistical data					
3	2.1 Describe basic sampling techniques; 2.2 Distinguish between the following methods of	Discuss simple random sampling, Discuss stratified sampling	Textbooks Lecture notes	Determine the concept of random sampling using simple data	Discuss simple random sampling,	Textbooks Lecture

4	2.3 Design questionnaires and formats for data collection	Explain and discuss the process of carrying out field work to collect data.	Textbooks	Identify types of errors in data collection	Encourage students to carry out field work to collect data	Textbooks
5	2.5 Collect data on various sources listed in 1.2 above.	Explain and discuss the process of carrying out field work to collect data.	Textbooks	Identify types of errors in data collection	Encourage students to carry out field work to	Textbooks
6	2.7 Collect primary and secondary data	Explain and discuss the process of carrying out field work to collect data.	Textbooks Field trip Random number table	Classify data into primary/secondary	Encourage students to carry out field work to	Textbooks
	General Objective 3 (STA 111): Understand the difference between total coverage and partial coverage in data collection					
7	3.1 Distinguish between census and sampling surveys. 3.2 Explain the meaning and purpose of pilot enquires.	Explain and discuss the process of undertaking a statistical sample	Field trip	Use examples to illustrate theoretical contents	Encourage students to collect astatistical sample	Field trip
8	3.4 Distinguish between probability and non-probability methods	Explain and discuss the concepts covered	Field trip	Use examples to illustrate theoretical contents	Encourage students to collect astatistical sample	Field trip

9	3.6 Explain the various non-probability sampling method purpose, judgement and quota) 3.7 Explain the use of post enumeration surveys.	Explain and discuss the concepts covered	Random number table	Use examples to illustrate theoretical contents	Encourage students to collect statistical sample	Random number table
	General Objective 4 (STA 111): Understand methods of data compilation					
10	4.1 Identify the different categories of collected data 4.2 Classify the data into the various categories	Explain and discuss the concepts covered	Statistical kits	Show ability to categorise various data collected	Explain and supervise student exercises and assess	Statistical kits
11	4.3 Verify the sorted data 4.4 Identify the different data storage methods	Explain and discuss the concepts covered	Statistical kits	Use examples to illustrate theoretical contents	Explain and supervise student exercises and assess student work	Statistical kits
12	4.5 Compile of discrete and continuous data	Explain and discuss the concepts covered	Textbooks	Use examples to illustrate theoretical contents	Explain and supervise student exercises	Textbooks
	General Objective 5 (STA 111): Understand the methods of data presentation					

13	• Identify the various types of statistical table (frequency and contingency tables, simple informative tables, table for reference, complex tables)	Explain and discuss the concepts covered	Textbooks Statistical tables	Demonstrate, using examples, various methods of data presentation	Explain and supervise student exercises and assess	Textbooks Statistical tables
14	1.13Construct scatter diagrams frequency tables, and graphs.	Explain and discuss the concepts covered	Statistical tables	Demonstrate by examples, charts and tables	Explain and supervise student exercises	Statistical tables
15	5.5 Present life data	Explain and discuss the concepts covered	Drawing materials	Demonstrate by examples, charts and tables	Explain and supervise student exercises	Drawing materials

Programme: ND Dental Technology.	**Course Code: MTH 111**	**Total Hours: 5**
Course: Logic and Linear Algebra		**Theoretical: 2 hours /week**
Year: 1 Semester: 1	**Pre-requisite:**	**Practical: 3 hours /week**

Goal: This course is designed to provide the student with basic knowledge of logic linear algebra

General Objectives: On completion of this course, the diplomate will be able to:

1. Understand the concept of logic and abstract thinking.
2. Understand the concept of permutations and combinations
3. Undertake binomial expansion of algebraic expressions.
4. Understand the algebraic operations of matrixes and determinants

	Theoretical Content			Practical Content		
	General Objective 1 (MTH 111): Understand the concept of logic and abstract thinking.					
Week	**Specific Learning Outcomes**	**Teacher's activities**	**Resources**	**Specific Learning**	**Teacher's activities**	**Resources**
1	1.1 Define the essential connectives, negation, conjunction, disjunction, implication and bi-implication. 1.2 Illustrate the essential connectives define in 1.1 above	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
2	1.6 Illustrate types of tautology. 1.7 Define universal quantifier and existential quantifier	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student	Textbooks Lecture Notes
3	1.8 Translate sentences into symbolic form using quantifiers. E.g. "some freshmen are intelligent" can be stated as "for some x,x is a freshman and x is intelligent" can be translated in symbols as	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises	Textbooks Lecture Notes

	1.9 Define the scope of a quantifier. eg R=Gauss was a contemporary of Napoleon S=Napoleon was a contemporary of Julius Caesar (Thus P, Q and R are true, and S is false Then find the truth value of sentences: (a) (P and Q) = R (b) (P – Q) (c) PAND Q = R - S					
4	1.11 Define term and formula. 1.12 Explain the validity of formulae	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student	Textbooks Lecture Notes
	General Objective 2 (MTH 111): Understand the concept of permutations and combinations					
5	2.1 Define permutation's and Combination 2.2 Give illustrative examples of each of 2.1 above 2.3 State and prove the fundamental principle of permutations.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

6	2.6 Prove that nPr= (n-r+1) *nP_{r-1} 2.7 Solve problems of permutations with restrictions on some of. the objects	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
7	2.11 Establish the formula nCr = n! r!(n-r)! 2.12 State and prove the theorem $nCr_{-1}+ {}^{n}Cr = {}^{n+1}Cr$	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
	General Objective 3 (MTH 111): Undertake the binomial expansion of algebraic expressions.					
8	3.1 Explain with illustrative examples the method of mathematical induction.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises	Textbooks Lecture Notes

9	3.3 Describe, with examples, the properties of binomial expansion.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by	Explain and supervise student exercises	Textbooks Lecture Notes
10	3.4 State the binomial theorem for a rational number.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by	Explain and supervise student exercises	Textbooks Lecture Notes
11	3.6 Apply binomial expansion in approximations (simple examples only).	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by	Explain and supervise student exercises	Textbooks Lecture Notes
	General Objective 4 (MTH 111): Understand the algebraic operations of matrixes and determinants					
12	4.1 Define Matrix 4.2 Define the special matrixes of zero matrixes e.g.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess	Textbooks Lecture Notes
13	4.3 State examples for each of the matrixes in 4.2 above	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by	Explain and supervise student exercises	Textbooks Lecture Notes

	4.5 Illustrate the commutative, associative and distributive nature of the laws stated in 4.4 above. 4.6 Define the transpose of a matrix.					
14	4.7 Define the minors and cofactors of a determinant.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises	Textbooks Lecture Notes
15	4.9 State and prove the theorem "two rows or two columns of a matrix are identical, then the value of its determinant is zero". 4.11 State and prove the theorem "if two rows or two columns of a matrix are interchanged, the sign of	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

PROGRAMME: ND Dental Technology				
COURSE TITLE: Introduction To Dental Technology				
COURSE CODE: DTE 111				
DURATION	**Lecture:- 2 Hrs**	**Tutorial:-**	**Practical:-**	**Total:- 2Hrs/Wk (30Hrs/Sem)**
CREDIT UNITS: 2 CU				
GOAL: This course is designed to provide the students with background knowledge history of dentistry and understanding of human need for dental technology services				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				
1.0 Understand the history of dentistry 2.0 Understand the scope of dentistry 3.0 Know the basic tools and equipment used in dental technology practice 4.0 Know manual dexterity in the practice of dental technology				

PROGRAMME: ND Dental Technology						
COURSE TITLE: Introduction To Dental Technology		Course Code: DTE 111		Contact Hours: 2Hrs/Wk (30Hrs/Sem)		
COURSE SPECIFICATION: Theoretical content			Practical Content:			
General Objective: 1: Understand the History of Dentistry						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Define Dentistry 1.2 Trace the origin of dentistry abroad and in Nigeria 1.3 Trace the history of dental technology practice abroad and in Nigeria 1.4 Trace the history of dental technologists' associations and their objectives in Nigeria 1.5 Outline the importance of dental technology in Medical practice.	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

General Objective: 2: Understand the Scope of Dentistry						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 State the various professional groups in dentistry (i.e. Dentists, Dental Technologists, Dental Therapist, Dental Nurses and Dental Surgery Assistants). 2.2 Define the role of professional groups as above. 2.3 Explain the specialties in dental technology (i.e. Maxillofacial prosthetics, Conservation Technology, Prosthodontic Technology and Orthodontic Technology) 2.4 Define and explain the function of each specialty in 2.3	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

General Objective: 3: Know the basic tools and equipment used in dental technology practice							
Specific Learning Objectives		**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1	List hand tools used in dental technology practice (e.g. Lecron carvers, Wax Knives, Tweezers, Dental Pliers, Spatulas, etc.)	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	Identify various hand tools used in Dental technology practice	Show students the various hand tools used in Dental technology practice	Pictures, sketches, diagrams of hand tools	Quiz Tests Assignment Examination
3.2	Sketch and label various hand tools in 3.1 above						
3.3	Explain the functions and working principles of the hand tools in 3.1 above						
3.4	List various light equipment used in dental technology (e.g. Articulators, Hand piece, Laboratory Trimmers, Grinders, Polishing Lathes, Tensometer, etc).						
3.5	Explain the functions and working principles of the equipment in 3.4 above						

3.6 List the heavy duty equipment used in dental technology practice (e.g Casting Machines, Furnaces and Blasters, etc). 3.7 Explain functions and working principles of heavy duty equipment listed in 3.6 above.						

General Objective: 4: Know manual dexterity in the practice of dental technology						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1. Explain dexterity 4.2. Explain the various techniques of forming plaster blocks 4.3. Shape different tooth morphology using plaster 4.4. Explain the various techniques in waxing 4.5. Shape different tooth	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	Know to form plaster blocks	Show students how to form plaster blocks	Plaster (P.O.P.), mixing bowl, spatula, plaster knife, pencil, wax knife	Quiz Tests Assignment Examination

morphology using wax.						

PROGRAMME: ND Dental Technology				
COURSE TITLE: Primary Health Care				
COURSE CODE: CHO 112				
DURATION	**Lecture:- 2 Hrs**	**Tutorial:-**	**Practical:-**	**Total:- 1Hr/Wk (15Hrs/Sem)**
CREDIT UNITS: 1 CU				
GOAL: This course is designed to introduce the students to the concept of primary health care delivery system				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				

1.0 Understand the concept of Primary Health Care (PHC), its components and objectives

2.0 Know health care systems and team work

3.0 Know the prevention and control of prevailing health problems

PROGRAMME: ND Dental Technology							
COURSE TITLE: Primary Health Care			Course Code: CHO 112		Contact Hours: 1Hr/Wk (15Hrs/Sem)		
COURSE SPECIFICATION: Theoretical content				Practical Content:			
General Objective: 1: Understand the concept of Primary Health Care (PHC), its components and objectives							
Specific Learning Objectives		**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1	Define Health	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
1.2	Define the concept of Primary Health Care (PHC)						
1.3	Trace the history of Primary Health Care						
1.4	Describe the development of health services in the country before the new concept						
1.5	State the objectives of PHC.						
1.6	List the components of PHC						
1.7	Explain the basic principles of PHC						

General Objective: 2: Know health care systems and team work

Specific Learning Objectives	Teachers Activities	Learning Resources	Specific Learning Objectives	Teachers Activities	Learning Resources	Evaluation
2.1 List the various health care systems in the country e.g PHC, SHC, THC 2.2 State the functions of each system listed in 2.1 above 2.3 State the compositions of health teams for each of the systems in 2.1 above 2.4 List the function of each health worker in each team in 2.3 above 2.5 State the principles of inter-sectorial approach 2.6 State the importance of inter-sectorial principles	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

General Objective: 3: Know the prevention and control of prevailing health problems.

Specific Learning Objectives	Teachers Activities	Learning Resources	Specific Learning Objectives	Teachers Activities	Learning Resources	Evaluation
3.1 Define the following terms: – Communicable diseases; non-communicable diseases – Endemic disease – Pandemic disease – Epidemic disease 3.2 Identify endemic diseases in Nigeria 3.3 State the causative agents, mode of transmission and spread of endemic diseases listed in 3.2 above 3.4 Describe the general methods of prevention and control of endemic diseases e.g. promotion of food supply, water supply, maternal and child health care, communication, etc. 3.5 Identify some non-communicable diseases in the community e.g. diabetes, hypertension, sickle cell anemia, cancer, etc.	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

3.6	Explain the significance of non-communicable diseases in PHC.						

PROGRAMME: ND Dental Technology				
COURSE TITLE: Human Anatomy and Physiology I				
COURSE CODE: DTE 114				
DURATION	**Lecture:- 1 Hr**	**Tutorial:-**	**Practical:- 2 Hrs**	**Total:- 3Hrs/Wk (45Hrs/Sem)**
CREDIT UNITS: 2 CU				
GOAL: This course is designed to enable the student know the organization, structure and functions of the systems of the human body				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				

1.0 Understand the structure of the human body

2.0 Understand the human cell structure and its functions

3.0 Know the different types of human tissues and their functions

4.0 Understand the different systems of the body, their structures and functions

5.0 Know body fluids, electrolytes and acid-base balance

6.0 Understand the homeostatic mechanism of the body

PROGRAMME: ND Dental Technology		
COURSE TITLE: Human Anatomy and Physiology I	**Course Code: DTE 114**	**Contact Hours: 3Hrs/Wk (45Hrs/Sem)**
COURSE SPECIFICATION: Theoretical content		**Practical Content:**

General Objective: 1: Understand the structure of the human body

Specific Learning Objectives	Teachers Activities	Learning Resources	Specific Learning Objectives	Teachers Activities	Learning Resources	Evaluation
1.1 Explain the following terms associated with anatomical description. Anterior, Posterior, median, lateral, superior, inferior, plantar, proximal, distal, internal, external, prone, supine, sagittal, coronal 1.2 List the terms associated with body movement: extension, flexion, abduction, pronation, supination, protrusion, intrusion, rotation, circumduction, protraction,	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

retraction 1.3 Describe the external parts of the human body 1.4 Describe the human body curvatures						
General Objective: 2: Understand the human cell structure and its functions						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Describe the human cell 2.2 Draw a well diagram of the cell and its components (constituents) 2.3 Describe the different components of the cell 2.4 Identify a typical human cell under the microscope	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	Know the different components of Human cell Know how to observe human cells under microscope	Draw and label the Human cell Show students human cell under the microscope	Blood samples, microscope, diagrams, pictures, charts	Quiz Tests Assignment Examination
General Objective: 3.0: Know the different types of human tissues and their functions						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Define a tissue 3.2 Describe the types of tissues:	Lecture Explain the	Textbooks, Charts and Forms, Reading	Identify types of tissues	Draw and label the tissues		Quiz Tests

	epithelial, connective nervous and muscular tissues 3.3 Identify each of the tissues mentioned in 3.1 above 3.4 Draw and label the types of tissues in 3.1 above 3.5 Identify the locations of tissues in the human body 3.6 Classify each of four major types of tissues 3.7 State the components of blood namely: cells and plasma 3.8 List the types of blood cells; Red Blood Cells, White Blood Cells and Platelets 3.9 List the composition of plasma: plasma protein (globulin, albumin); fibrinogen, salts (electrolytes); urea; glucose water and other substances	concepts covered	materials.				Assignment Examination

such as prothrombin, vitamins, enzymes. 3.10 List the functions of blood plasma 3.11 State the functions of the different types of tissues 3.12 List the calcified (skeletal system) tissues of the body 3.13 Define the functions of calcified tissues of the body						
General Objective: 4: Understand the different systems of the body, their structures and functions						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 Define the systems of the body 4.2 Enumerate the different systems of the body e.g. skeletal, muscular, nervous, digestive, respiratory, etc. 4.3 Identify the two major groups of bones of the	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	4.1 Identify the main bones of the skeletal system 4.2 Identify the major joints of the skeletal system 4.3 Identify the different types of muscular systems 4.4 Identify the heart	Demonstrate to students the main bones in the skeletal system by drawings with labeling Demonstrate to students the major joints of the skeletal	diagrams, pictures, charts	Quiz Tests Assignment Examination

	skeletal system Axial and Appendicular 4.4 Identify the major bones in each group 4.5 State the functions of the skeletal system 4.6 Draw and label the main bones of the skeletal system 4.7 Identify the different types of joints in the skeletal system 4.8 List the examples of the different joint in the skeletal system 4.9 Draw and label the major joints of the skeletal system 4.10 List the different types of muscles that make up the muscular system 4.11 Draw and label the different types of muscles in 4.10 above			and its components 4.5 Identify the major components of the respiratory system 4.6 Identify the major components of the digestive system	system by drawings with labeling Identify the different types of muscular systems Draw and label the major components of the following: - Heart - Respiratory system - Digestive system		

4.12 State the structural differences in the muscles in 4.10 above 4.13 Describe the main skeletal muscles according to origin, insertion and nerve supply 4.14 State the functions of the different types of muscles in 4.10 above. 4.15 Identify the following group of muscles - Muscles of facial expression - Muscles of mastication - Muscles that move the head - Muscles that move the arms - Muscles that move the limbs, etc 4.16 List the composition of the cardiovascular system 4.17 Draw and label the major						

	components of the heart 4.18 Describe the function of the heart 4.19 List the composition of the respiratory system 4.20 Draw and label the major components of the respiratory system 4.21 Describe the mechanics of respiration 4.22 Describe the digestive system 4.23 List the composition of the digestive system 4.24 Draw and label the major components of the digestive system (elastro-futestinal tract) 4.25 Describe the process of food digestion and absorption						

General Objective: 5: Know body fluids, electrolytes and acid-base balance						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 Explain body fluid 5.2 State the location of body fluid 5.3 Define the following; acid, base, electrolytes and acid-base balance 5.4 List examples of each in 5.3 above 5.5 Describe the different composition of body fluids 5.6 List the electrolyte composition of body fluids 5.7 Explain the functions of 5.3 and 5.4 above 5.8 Explain the hormonal control of body fluids and electrolytes	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

General Objective: 6: Understand the homeostatic mechanism of the body						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
6.1 Define homeostasis 6.2 Explain the maintenance of the internal environment	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

YEAR 1 SEMESTER 2

PROGRAMME: ND Dental Technology				
COURSE TITLE: Dental Prosthetics I				
COURSE CODE: DTE 121				
DURATION	**Lecture:- 1 Hr**	**Tutorial:-**	**Practical:- 2 Hrs**	**Total:- 3Hrs/Wk (45Hrs/Sem)**
CREDIT UNITS: 3 CU				
GOAL: This course is designed to introduce the students to the principles of impressions, casting of models and dental surveying of models				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				

1.0 Understand the composition and properties of materials required for making impressions

2.0 Know how to cast models, construct special impression trays, and bite registration blocks

3.0 Know the basic principles of dental surveying

4.0 Know the various types of articulators and their functions

PROGRAMME: ND Dental Technology						
COURSE TITLE: Dental Prosthetics I		Course Code: DTE 121		Contact Hours: 3Hrs/Wk (45Hrs/Sem)		
COURSE SPECIFICATION: Theoretical content				Practical Content:		
General Objective: 1: Understand the composition and properties of materials required for making impressions						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Classify the impression materials groups e.g elastic and non-elastic 1.2 Identify elastic and non-elastic materials e.g. agar, alginates, plaster of paris, etc. 1.3 State the chemical composition of the materials in 1.2 above 1.4 Take impressions applying the necessary manipulative skills 1.5 List the properties required of an ideal impression material e.g. accuracy, non-toxic, non-irritant, dimensional, stability, etc.	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

General Objective: 2: Know how to cast models, construct special impression trays, and bite registration blocks

Specific Learning Objectives	Teachers Activities	Learning Resources	Specific Learning Objectives	Teachers Activities	Learning Resources	Evaluation
2.1 Define the following: i. Casts/model ii. Special impression trays iii. Record rims 2.2 List the various materials in the construction of 2.1 above 2.3 Describe the various procedures/precautions employed in the construction of 2.1 above 2.4 List the uses of 2.1 above 2.5 Produce casts from impressions using various materials in 2.2 above	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	2.1 Know how to receive and handle impressions 2.2 Know how to outline the model for special impression tray constructions 2.3 Know how to outline models for bite registration blocks	Show students how to cast impressions Demonstrate special impression tray construction Demonstration Bite registration block construction		Quiz Tests Assignment Examination

General Objective: 3: Know the basic principles of dental surveying.						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Define dental surveying 3.2 State the significance of dental surveying 3.3 Identify various dental surveyors and their components 3.4 State the functions of the various components in 3.3 above 3.5 Survey given model applying the basic principles	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	3.1 Identify dental surveyors 3.2 Identify models for surveying	Show students dental surveyors Demonstrate surveying		Quiz Tests Assignment Examination
General Objective: 4: Know the various types of articulators and their functions						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 Define articulators 4.2 State the functions of articulators 4.3 List various types of	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	4.1 Identify types of articulators 4.2 Identify models with bite registration	Show students the different types of articulators		Quiz Tests Assignment Examination

	articulators in the practice of dental technology e.g simple hinge, average movement, fully adjustable articulators				Demonstrate how to mount on simple hinge articulators		
4.4	List the components of articulators and their importance						
4.5	Mount the model casts on simple hinge articulators						

PROGRAMME:	**NURSING PROGRAMME (NATIONAL DIPLOMA)**		
COURSE:	**INTRODUCTION TO ENTREPRENEURSHIP**		
CODE:	**EED 126**		
DURATION (Hours/Week) **Lecture: 1hrs**	**Tutorial: 0**	**Practical: - 2**	**Total: 3 (45hrs/semester)**
UNITS:	3		
GOAL:	This course is designed to create an entrepreneurial mindset and awareness to the student.		
GENERAL OBJECTIVES:	On completion of this course, the student should be able to:		
1	Understand the meaning and scope of Enterprise and Entrepreneurship		
2	Understand the history and Government Policy measures at promoting Entrepreneurship in Nigeria		
3	Understand the types, characteristics and rationale of Entrepreneurship		
4	Understand the role of Entrepreneurship in economic development		
5	Understand Entrepreneurial characteristics and attitude		

6	Understand the key competencies and determining factors for success in Entrepreneurship
7	Know the motivational pattern of Entrepreneurs.

PROGRAMME: NATIONAL DIPLOMA DENTAL TECHNOLOGY						
COURSE: Entrepreneurship			**Course Code:** EED 126		**Contact Hours:** 45	
COURSE SPECIFICATION:	Theoretical Content: 1			Practical Content: 2		
General Objective:	1: Understand the meaning and scope of Enterprise and Entrepreneurship					
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Define an Enterprise in its narrower and wider contexts. 1.2 Explain different forms of Enterprises 1.3 Classify the different forms of Enterprises into small, medium and large enterprises 1.4 Explain the terms: Entrepreneur, Entrepreneurship, Wage Employment, and self-employment, explain clearly the business	I. Explain the terms: Enterprise, Entrepreneur Entrepreneurship II. List the different types of enterprises and group them into small, medium and large enterprise III. Compare and contrast wage employment and self-employment. IV. Explain clearly the business terrain	Text Books	1.5 Identify features of the types of enterprises identified 1.6 Identify the facilities and opportunities available for self-employment. 1.7 Identify successful entrepreneurs in Nigeria. 1.8 Evaluate the role of	Guide students to research into different forms of enterprises. Guide students to research and identify criteria for successful entrepreneurship. Establish competitive groups. Students to make formal presentations of their findings.	Successful Entrepreneur to speak on the role and importance of Entrepreneurship. Use of internet and relevant video clips.	Quiz Test Assignment

terrain in Nigeria.	in Nigeria.		entrepreneurship in wealth creation.	Students to undertake enquiry learning on selected entrepreneur and enterprise.		
General Objective:	2: Understand the history and Government Policy measures at promoting Entrepreneurship in Nigeria					
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Trace the evolution of entrepreneurship development. 2.2 Compare Entrepreneurship in Nigeria with Japan, India, China, Malaysia, South Korea, etc 2.3 Explain Nigeria's values in relation to Entrepreneurship. 2.4 Describe the role of Entrepreneurship In the development of enterprises.	I. Explain the historical development and role of entrepreneurship in the development of enterprises in Nigeria. II. Compare Entrepreneurship in Nigeria with other countries of the world. Japan, India, China, Malaysia, South Korea. III. Show students video film on Entrepreneurship	Text Books Journals Publications Video Film TV & VCR	Obtain the required information from the net.	Guide students to search the web for historical evolution of entrepreneurship in other parts of the world. Research and list various Government Measures on SME's and Industrial Development from 1960 to date.	Internet.	Quiz Test Assignment

	development in any of the countries mentioned above. IV. Explain Nigeria's values and Entrepreneurship.					
General Objective:	3: Understand the types, characteristics and rationale of Entrepreneurship					
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Explain types of Entrepreneurs and their characteristics. 3.2 Compare and contrast Technological and Social Entrepreneurship. 3.3 Identify the different types of Entrepreneurs: self-employed, opportunistic, Inventors, Pattern multipliers etc. 3.4 Identify the role	I. Explain types of Entrepreneurs. II. Explain types of Entrepreneurship. III. Explain features of Entrepreneurship in business. IV. Explain the rewards and efforts Entrepreneurship in business.	Text Books. K.A.B. Journals Publications Video Film	3.5 Analyze life situations people may find themselves in. 3.6 Enumerate the benefits to be derived from the above situation.	Guide students to identify opportunities from the environment.	Internet. Textbooks Journals	Quiz Test Assignment

of Entrepreneurship in business, society and in self-employment.	V. Describe the different types of Entrepreneurs VI. Describe the role of entrepreneurship in business, society employment generation and wealth creation. VII. Explain the benefits of self employment.	TV & VCR				
General Objective: 4: Understand the role of Entrepreneurship in economic development						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 Identify resources and constraints of Entrepreneurship. 4.2 Explain how Entrepreneurship leads to import substitution and utilization of local resources. 4.3 Explain how Entrepreneurship	I. Explain resources and constraints of Entrepreneur. II. Relate import substitution to utilization of local resources.dd	Text Books. Journals Publications	4.5 Classify the resources into economic, human, knowledge and time. 4.6 Distinguish between economic	Show transparency of resources needed by an entrepreneur. Guide students to visit selected enterprise/community projects.	Computer or Overhead Projector SME's	Quiz Test Assignment

leads to socio-economic development. 4.4 Explain the role of an entrepreneur in grassroot/local economic development.	III. Explain equitable distribution of industries and the role of entrepreneurship. IV. Explain how entrepreneurship leads to job creation.	Video Film TV & VCR	development and growth.	Guide students on the use of local raw materials for value addition.		
General Objective: 5: Understand Entrepreneurial characteristics and attitude						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 Explain the philosophy, values, scope, need and characteristic of Entrepreneurship. 5.2 Explain the profiles of local Entrepreneurs. 5.3 Demonstrate high sense of innovation, creativity and independence. 5.4 Explain the	I. Using slide or PowerPoint explain personal characteristics and attitude of an Entrepreneur II. List Entrepreneurial traits citing relevant cases. III. Explain the aspiration, determination	Textbooks Journals Computer Projector	5.9 Evaluate the opportunities identifying corresponding self-employment opportunities. 5.10 Evaluate a project considering its resources:	Guide students to identify as many job/employment opportunities as possible. Guide students to visit a successful enterprise, and evaluate its resources to identify its contribution to economy, its internal and external constraints and available problem	Computer Projector Guest Speakers (Female/Male) Internet search.	Quiz Test Assignment

	process of acquiring high sense of information seeking and ability in operating an enterprise. 5.5 Identify various risks and remedies involved in operating an enterprise. 5.6 Evaluate pilot project considering resources, time, personnel, equipment, money, materials etc. 5.7 Demonstrate leadership and leadership skills by mobilizing resources for establishing an enterprise. 5.8 Demonstrate high level problem solving techniques in overcoming	and efficiency of an Entrepreneur. IV. Explain how to demonstrate high sense of innovation creativity and independence. V. Describe how to evaluate a private project. VI. Describe how to mobilize resources for establishing an enterprise. VII. Describe how to solve problems involving internal and external constraints.			managem ent of time, personnel, equipment and money. 5.11 Explain constraints and problem solving techniques .	solving techniques. Group students to survey and interview Entrepreneurs. Evaluate a sample project with the students, then give them assignment to assess one.		

internal and external constraints.						
General Objective: 6: Understand the key competencies and determining factors for success in Entrepreneurship						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
6.1 Identify the key competencies required in setting up a successful small business; knowledge, skill and Traits. 6.2 Identify key success factors in setting a small business: Resources, Ability, Motivation and Determination, Idea and Market etc. 6.3 Define individual life goal and link it to Entrepreneurship. 6.4 Identify the strengths and weaknesses in	I. Explain major competencies required for successful Entrepreneurship II. Explain key success factors in setting up small business. III. Explain individual life goal of an Entrepreneur IV. Explain relevant business games and their	Text Books. Journals Publications Video Film TV & VCR	6.7 Describe: Data collection about self, who am I (personal efficacy). Rating of concept, self-knowledge. 6.8 Play a relevant business game and observe the behavioral pattern in relation to moderate risk taking, goal setting etc. 6.9 Identify	Guide students to demonstrate knowledge of themselves, goals, Entrepreneurship strengths and weaknesses. Give practical assignment to students on personal efficacy, goal and link to Entrepreneurship strength and weaknesses. Demonstrate how to play business game.	Computer and accessories, internet and visitations. Blocks Rings Papers	Quiz Test Assignment

6.3 above. 6.5 Explain business games. 6.6 Explain the behavioral pattern observed in 6.5 above on: Moderate risk taking, goal setting, Learning from feedback. Taking personal responsibility. Confidence and self reliance.	behavioral patterns.		core skills, competencies, and success factors required for entrepreneurship.	Visit a small business enterprise.		
General Objective: 7: Know the motivational pattern of Entrepreneurs.						
Specific Learning Objectives	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives**	**Teachers Activities**	**Learning Resources**	**Evaluation**
7.1 Define motivation. 7.2 List the objectives of motivation. 7.3 Identify barriers to motivation and achievement. 7.4 Explain Thematic Appreciation Test (TAT) scores.	I. Explain motivation, objectives, merit and demerit. II. Explain TAT scores. III. Explain how to carryout analysis on motive strength from TAT scores.	Text Books Journals Publications	7.7 Analyze motive strength from TAT score using a given case.	Illustrate how to carryout analysis on motive strength from TAT scores using related case studies.	Computer And Internet facilities	Quiz Test Assignment

7.5 Explain how to analyze motive strength from TAT score 7.6 Explain the spirit of Achievement Motivation Test (AMT)	IV. Explain spirit of AMT.					

PROGRAMME: NATIONAL DIPLOMA IN DENTAL TECHNOLOGY			
COURSE: INTRODUCTION TO MEDICAL SOCIOLOGY			
CODE: GNS 124			
DURATION: (Hours/Week) Lecture: 2	Tutorial: -	Practical : -	Total: 2hrs.
UNITS:2 CU			
GOAL: This course is designed to introduce students to the relationship between Sociology and Medicine and applicationof Sociological concepts in the health care delivery system of Nigeria.			
GENERAL OBJECTIVE: On completion of the course, the student should be able to:-			
1.0 Understand the socio-cultural aspects of medicine 2.0 Understand family/societal response to health and illness 3.0 Understand the relationship between the social class and illness 4.0 Understand the complementary nature of the practice of modern and traditional medicine 5.0 Understand the roles and relationship between health care practitioners and their clients 6.0 Understand the general principles of social planning as it affects health care delivery system in Nigeria 7.0 Understand the present socio-cultural /medical problems in relation to orthopaedic conditions.			

PROGRAMME: NATIONAL DIPLOMA IN DENTAL TECHNOLOGY		
COURSE: Introduction to Medical Sociology	**Course Code: GNS 124**	**Contact Hours:2**hrs
COURSE SPECIFICATION: Theory		
GENERAL OBJECTIVE: 1.0 Understand the socio-cultural aspects of Medicine		
Specific Learning Objective (Theory)	**Teacher's Activities**	**Resources**
1.1 Define Sociology and Culture 1.2 Explain the nature and scope of medical sociology 1.3 Explain the concepts of health and illness 1.4 Analyze the socio -cultural implications of ill-health	- Lecture - Discussion - Assignments	- Charts - Projectors - White board/ marker
General objectives: 2.0: Understand the family/societal response to Health and Illness		
Specific Learning Objective (Theory)	**Teacher's Activities**	**Resources**
2.1 Identify the causes of the following tropical diseases e.g bilharzia, chronic malaria, sleeping sickness, river blindness, poliomyelitis, sickle cell anaemia,conjuctivities, worm infestation, kwashiorkor, hepatitis,cardiovascular diseases, diabetes, hypertension, mental illness etc. 2.2 Outline the family and societal response to each disease listed in 2.1 above.	- Lectures - Discussions - Assignments	- Posters showing the diseases - Projector - Chart showing family

General objectives: 3.0: Understand the relationship between social class and illness		
Specific Learning Objective (Theory)	**Teacher 's Activities**	**Resources**
3.1 Categorize diseases into those of affluence and those of poverty e.g. hypertension, cardio-vascular disease, diabetes, stroke, obesity, kwashiorkor, hypertension,tuberculoses, kidney diseases etc. 3.2 Explain the relationship between social class and the various diseases listed in 3.1 above.	- Lectures - Discussions - Assignment	- Chart showing affluence and poverty related diseases

GENERAL OBJECTIVE: 4.0 Understand the complementary nature of the practice of modern and traditional medicine		
Specific Learning Objective (Theory)	**Teacher's Activities**	**Resources**
4.1 Describe the socio-cultural setting of modern health institution 4.2 Describe the characteristic features unique to traditional health institutions	- Lecture - Discussion - Assignments	- Chart showing modern and traditional medicine
Course Specification: PRACTICAL	**Teacher's Activities**	**Resources**
4.3 Evaluate the best method of health care delivery	-Teacher assists students in	- Chart showing the Nigerian

using modern hospitals, health centers, dispensaries as points of reference.	evaluation of health care delivery system.	health care delivery system -Visit to health care facilities -Developed Questionnaires

General objectives: 5.0 - Understand the roles and relationship between practitioners and their clients		
Specific Learning Objective (Theory)	**Teacher's Activities**	**Resources**
5.1 Analyze the doctor-patient relationship 5.2 Identify the roles of the hospital administrator and health practitioner.	- Lecture - Discussion - Assignments	- Organogram of hospital/ leadership roles
Course Specification: PRACTICAL	**Teacher's Activities**	**Resources**
5.3 Evaluate the doctor-nurse relationship and nurse-patient relationship	-assists students in evaluation of doctor-nurse roles/ relationship and nurse-patient relationship	-Chart with outline of various relationships within the hospital setting. -Visit to health care facilities -Developed Questionnaires

General objectives: 6.0: Understand the general principles of social planning as it affects health care delivery system in Nigeria		
Specific Learning Objective (Theory)	**Teacher's Activities**	**Resources**

6.1 Describe the pattern of health care delivery in Nigeria 6.2 Explain the Federal Government policies on health, education, family planning, housing, water supply, water disposal, disease prevention, curative medicine, rehabilitation.	- Lectures - Discussions - Assignments	-Chart with outline of Nigerian health care delivery system

GENERAL OBJECTIVE: 7.0: Understand the present socio-cultural /medical problems in relation to orthopaedic conditions		
Specific Learning Objective (Theory)	**Teacher's Activities**	**Resources**
7.1. Describe the present health pattern in Nigeria utilizing current WHO reports and newspaper articles. 7.2 Analyze the current health problems and their solutions, per available current sources. 7.3 Identify the problems associated with the over emphasis on curative rather than preventive medicine 7.4 Analyze the prospects of the Expanded Programme on Immunization (EPI) and Oral Rehydration Therapy (ORT) programmes in Nigeria.	- Lectures - Discussions - Assignment	-Sample of WHO report -Sample of EPI chart from FMOH -Sample of ORT chart from FMOH -Projector -White board/Marker -Flip chart

PROGRAMMES: GENERAL STUDIES

COURSE TITLE: COMMUNICATION IN ENGLISH I

CODE: GNS 102

PREREQUISITE: GNS 101

DURATION: 2 HOURS PER WEEK (30 HOURS PER SEMESTER)

CREDIT UNITS: 2.0

SCHEDULE: 2ND SEMSTER

GOALS: This course is designed to enable students acquire the necessary communication skills, know the techniques of correspondence and comprehend written materials.

GENRAL OBJECTIVES:

On completion of the course the student should:

1.0 Understand the concept of communication.

2.0 Know how to make oral presentations.

3.0 Know the essential elements of correspondence.

4.0 Know the rules of comprehension and interpretation.

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN GENERAL STUDIES						
COURSE:COMMUNICATION IN ENGLISH		**COURSE CODE: GNS 102**		**CONTACT HOURS:2 hrs**		
GOAL: This course is designed to enable students acquire the necessary communication skills, know the techniques of correspondence and comprehend written materials.						
COURSE SPECIFICATION: Theoretical Contents:				**Practical Contents:**.		
	General Objective: 1.0 **Understand the concept of communication.**					
WEEK	**Specific Learning Objective** Theory	**Teachers Activities**	**Learning Resources**	**Specific Learning Objective**	**Teachers Activities**	**Learning Resources**
1	1.1 Define communication. 1.2 Analyze the process of communication.	• Define communication. • Analyze the process of communication.	•	•	•	
2	1.3 Analyse the purposes of communication. 1.4 Explain the relationship between communication and language.	• Analyse the purposes of communication. • Explain the relationship between communication and language.	•	•	•	
3	1.5 Explain the impact of interference on communication at various levels, e.g. phonological, syntactic, etc. 1.6 Explain code-mixing,	• Explain the impact of interference on communication at various levels, e.g. phonological, syntactic, etc.	•	•	•	

	code-switching and dissonance in communication.	• Explain code-mixing, code-switching and dissonance in communication.				
	General Objectives: 2.0 Know how to make oral presentations.					
WEEK	**Specific Learning Objective** Theory	**Teachers Activities**	**Learning Resources**	**Specific Learning Objective**	**Teachers Activities**	
4	Oral Presentations 2.1 Label a diagram of the organs of speech. 2.2 Describe the functions of the organs in 2.1 above in speech production.	• Label a diagram of the organs of speech. • Describe the functions of the organs in 2.1 above in speech production.				
5	2.3 List the phonemes of English.	• List the phonemes of English.				

	2.4 Produce correctly each of the phoneme listed in 2.3 above.	• Produce correctly each of the phoneme listed in 2.3 above.				
6	2.5 Pronounce correctly by making distinctions between the different sound contrast in the consonantal and vowel systems of English.	• Pronounce correctly by making distinctions between the different sound contrast in the consonantal and vowel systems of English.				
7	2.6 Explain the principles of effective speaking, viz, correct use of stress, rhythm, and intonation patterns. 2.7 Read fluently.	• Explain the principles of effective speaking, viz, correct use of stress, rhythm, and intonation patterns. • Read fluently.				
	General Objectives: 3.0 Know the essential elements of correspondence.				**General Objectives:**	

WEEK	Specific Learning Objective Theory	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
8	Correspondence 3.1 List the various type of correspondence, e.g. letter, memo, circular, etc. 3.2 Explain the various parts of a letter.	• List the various type of correspondence, e.g. letter, memo, circular, etc. • Explain the various parts of a letter.				-
9	3.3 Differentiate between formal and informal letter formats. 3.4 Explain the characteristics of styles suitable for formal and informal letters.	• Differentiate between formal and informal letter formats. • Explain the characteristics of styles suitable for formal and informal letters.				
10	3.5 Explain the functions of the first, middle and last paragraph. 3.6 Write a formal and an informal letter.	• Explain the functions of the first, middle and last paragraph. • Write a formal and an informal letter.				
	General Objectives: 4.0 Know the rules of comprehension and interpretation.				**General Objectives:**	
WEEK	**Specific Learning Objective** Theory	**Teachers Activities**	**Learning Resources**	**Specific Learning Objective**	**Teachers Activities**	**Learning Resources**

11	4.1 Identify main ideas in a given passage. 4.2 Differentiate the main ideas from the details in a passage.	• Identify main ideas in a given passage. • Differentiate the main ideas from the details in a passage.	•			
12	4.3 Use the main idea to anticipate specific details in a passage. 4.4 Use context clues to aid comprehension.	• Use the main idea to anticipate specific details in a passage. • Use context clues to aid comprehension.	•			
13	4.5 Identify relationship patterns of ideas in a passage. 4.6 Use context clues such as definitions, restatements and examples to derive meaning.	• Identify relationship patterns of ideas in a passage. • Use context clues such as definitions, restatements and examples to derive meaning.	•			
14	4.7 Explain how affixes modify meanings. 4.8 Interpret figurative language in a passage.	• Explain how affixes modify meanings. • Interpret figurative language in a passage.	•			
15	4.9 Draw conclusions from available information.	• Draw conclusions from available information.	•			

YEAR 2 SEMESTER 1

PROGRAMME: ND Dental Technology				
COURSE TITLE: Dental Anatomy and Physiology I				
COURSE CODE: DTE 211				
DURATION	**Lecture:- 1 Hr**	**Tutorial:-**	**Practical:-**	**Total:- 1Hr/Wk (15Hrs/Sem)**
CREDIT UNITS: 1 CU				
GOAL: This course is designed to enable the student understand the physiology of human head and the associated musculature relevant to dental technology				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				

1.0	Know deciduous and permanent dentation
2.0	Understand the morphology of the teeth
3.0	Know the classification of the teeth
4.0	Understand tooth movement and associated tissue changes
5.0	Understand the function of deciduous and permanent teeth
6.0	Know the structure and functions of periodical membrane and alveolar bone
7.0	Understand the functions of periodontium
8.0	Understand the development of temporomandibular joint and its functions
9.0	Know the denture bearing areas and principal landmarks
10.0	Know the origin and insertion of facial muscles of mastication and expression
11.0	Know the principal nerves on the face.

PROGRAMME: ND Dental Technology						
COURSE TITLE: Oral Anatomy and Physiology I		**Course Code: DTE 211**		**Contact Hours: 1Hr/Wk (15Hrs/Sem)**		
COURSE SPECIFICATION: Theoretical content			**Practical Content:**			
General Objective: 1.0 Know deciduous and permanent dentation						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Explain deciduous dentition	Lecture	Textbooks, Charts and Forms, Reading				Quiz

1.2 Explain permanent dentition 1.3 Give the notation of 1.1 and 1.2 above 1.4 State the sequence of eruption 1.5 Signify the major difference between deciduous and permanent dentition	Explain the concepts covered	materials.				Tests Assignment Examination
General Objective: 2.0 Understand the morphology of the teeth						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Describe morphology of the Tooth 2.2 Name the different components of a tooth 2.3 Describe the physical features of different types of teeth 2.4 Identify the difference between the upper and lower sets of teeth	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 3.0 Know the classification of the teeth						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**

3.1 Classify the teeth into interior and posteriors 3.2 Identify the component of the two classes in 3.1 above	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 4.0 Understand tooth movement and associated tissue changes						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 Explain tooth movement in relation to vertical horizontal axis 4.2 State the causes of tooth movement 4.3 Explain how tooth movement affect the associated tissues	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 5.0 Understand the function of deciduous and permanent teeth						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 Explain the normal and abnormal formation of a tooth 5.2 State the major differences between the functions of deciduous and permanent	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

teeth 5.3 Explain the salient stages of development of the teeth						

General Objective: 6.0 Know the structure and functions of periodical membrane and alveolar bone						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
6.1 Explain the functions of the periodontium (i.e. periodontal membrane, cementum and alveolar bone). 6.2 Explain the fundamental structures of the components listed in 6.1 above 6.3 State the functions of the structures in 6.1 above 6.4 Explain the effect of trauma on the structures 6.5 Identify the effects of diseases on the structures	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

in 6.4 above						
General Objective: 7.0 Understand the functions of periodontium						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
7.1 Define the periodontium 7.2 State the components of periodontium 7.3 Explain the functions of the various components 7.4 State the possible causes of malformation of various components	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 8.0 Understand the development of temporomandibular joint and its functions						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
8.1 Define temporomandibular joint (TMJ) 8.2 State the classification of various joints and identify the class of TMJ 8.3 Describe the components of TMJ	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

8.4 State how movement is effected in the joint 8.5 Explain the primordial tissues from which TMJ arises 8.6 State the functions of the Joint 8.7 Explain causes of dysfunction						
General Objective: 9.0 Know the denture bearing areas and principal landmarks						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
9.1 Identify the denture bearing areas of both the maxilla and the mandible and the various landmarks 9.2 State the extent of the dentures in the identified areas 9.3 Explain the effects of the features on denture stability and retention 9.4 State the importance of the various landmarks in	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	Identify the denture bearing areas of Maxilla and Mandible on the models or phantom head	Draw and label the open mouth indicating the various landmarks	Diagrams, pictures, charts, phantom heads	Quiz Tests Assignment Examination

model casting handling and trimming						
General Objective: 10.0 Know the origin and insertion of facial muscles of mastication and expression						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
10.1 Identify the muscles of mastication and facial expression 10.2 Locate the positions of the muscles 10.3 Classify functions of each muscle into depressions and elevators 10.4 State the origin and insertion of the muscles 10.5 Explain effects of deficiency of muscles on facial profile and prostheses retention	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

General Objective: 11.0 Know the principal nerves on the face						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
11.1 Identify by drawing on models or on cadaver facial nerves e.g trigeminal nerve 11.2 State the positions of the nerves 11.3 Explain the functions of the nerves in relation to facial expression 11.4 Identify causes of damage to the nerves 11.5 Explain the effects of damage to the nerves 11.6 Describe principal arteries and veins in the facial region	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

PROGRAMME: ND Dental Technology
COURSE TITLE: Oral Physiology, Embryology and Histology
COURSE CODE: DTE 212

DURATION	Lecture:- 1 Hr	Tutorial:-	Practical:-	Total:- 1Hr/Wk (15Hrs/Sem)
CREDIT UNITS: 1 CU				
GOAL: This course is designed to enable the student understand the embryology, histology and physiology of oral and facial structures				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				
1.0 Understand the prenatal growth of the face 2.0 Understand the formation of the mandibular and facial processes 3.0 Know the development of the palatal processes with emphasis of clefts of the palate and lips 4.0 Understand the development of the tooth and its associated structures 5.0 Know the development of the tongue and its associated papillea 6.0 Understand the development of salivary glands and their functions				

PROGRAMME: ND Dental Technology						
COURSE TITLE: Oral Physiology, Embryology and Histology		**Course Code: DTE 212**		**Contact Hours: 1Hr/Wk (15Hrs/Sem)**		
COURSE SPECIFICATION: Theoretical content			**Practical Content:**			
General Objective: 1.0 Understand the prenatal growth of the face						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**

1.1 Define the following: - Embryology - Histology - Physiology 1.2 Describe the formation of embryo from the 3rd week of conception to the development of stromatosis and its related facial processes i.e. maxillary process, mandibular process, bronchial arteries, etc. 1.3 State the specific developmental stages of the mandibular and frontonasal processes including the maxillary process 1.4 Describe the formation of nasal septrum and palate 1.5 Observe slides and histological preparations of the stages of development of facial processes	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 2.0 Understand the formation of the mandibular and facial processes						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**

2.1 Explain the terms: a. Mandibular process b. Facial process c. Frontonasal process 2.2 Describe post-natal growth of the face i.e. a. Replacement of cartilages by bone b. Suture growth c. Nasal-septrum growth d. Condylar growth	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 3.0 Know the development of the palatal processes with emphasis of clefts of the palate and lips						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Describe the formation of clefts of the palate and lips 3.2 Differentiate between normal and abnormal palate and lips 3.3 Describe the development of palate process.	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 4.0 Understand the development of the tooth and its associated structures						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**

4.1 Describe the formation of the tooth with emphasis on the following: a. Tooth germs formation b. Amelogenesis c. Dentinogenesis d. Cementogenesis e. Periodontium formation with emphasis on the ligaments 4.2. Observe the developmental stages in 4.1 above under microscopes	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 5.0 Know the development of the tongue and its associated papillae						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 Describe the tongue 5.2 Describe the associated muscles of the tongue 5.4 Describe the formation of the dental papillae 5.5 Describe the functions of dental papillae	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

5.6 Explain the functions of the Tongue 5.7 Observe the structure of the tongue and papillae under the microscope						
General Objective: 6.0 Understand the development of salivary glands and their functions						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
6.1 Describe the development of the salivary glands 6.2 Explain the functions of saliva 6.3 State the causes of mal-function of salivary glands 6.4 Observe under the microscope a diseased salivary gland	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

PROGRAMME: ND Dental Technology
COURSE TITLE: Dental Laboratory Engineering Techniques

COURSE CODE: DTE 213				
DURATION	**Lecture:- 1 Hr**	**Tutorial:-**	**Practical:- 3 Hrs**	**Total:- 4Hrs/Wk (60Hrs/Sem)**
GOAL: This course is designed to provide the students with the knowledge and skill of dental laboratory safety practices as well as the use and care of basic tools and equipment				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				

1.0 Know safety precautions in the dental laboratory
2.0 Understand the use and maintenance of various bench tools
3.0 Know simple measuring and testing equipment
4.0 Know how to operate dental laboratory machine
5.0 Know sand-blasting technique
6.0 Know various metal joining operations
7.0 Know how to cut and join metals by gas welding
8.0 Know the various metal arc welding operations
9.0 Understand various techniques for controlling distortion in welding
10.0 Know simple operations on plastic
11.0 Know the various types of porcelain furnaces
12.0 Know the types of casting machines

PROGRAMME: ND Dental Technology						
COURSE TITLE: Dental Laboratory Engineering Techniques		**Course Code: DTE 213**		**Contact Hours: 4Hrs/Wk (60Hrs/Sem)**		
COURSE SPECIFICATION: Theoretical content			**Practical Content:**			
General Objective: 1.0 Know safety precautions in the dental laboratory						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**

1.1 Explain Safety Precautions	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	1.1 Operate safety equipment e.g. fire extinguisher, safety water hose etc. 1.2 Observe all safety rules and regulations in the laboratory	Demonstrate the use of protective wears in the dental laboratory	fire extinguisher, safety water hose, safety wears	Quiz Tests Assignment Examination
General Objective: 2.0 Understand the use and maintenance of various bench tools						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
		.	2.1 Use marking-out tools on bench correctly 2.2Produce simple objective using bench/hand tools such as files, chisels, scopars, saw, etc 2.3 Maintain	Lecture Explain and demonstrate the concepts covered	files, chisels, scopars, saws, dividers, gauges, Textbooks, Charts and Forms, Reading materials	Quiz Tests Assignment Examination

			files, dividers, saws, guages			
General Objective: 3.0 Know simple measuring and testing equipment						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
		Textbooks, Charts and Forms, Reading materials.	3.1 Carry out simple measuring exercise using rulers, calipers and micrometers 3.2 Set up jobs on the lather and test for roundness using dial indicators 3.3 Carryout exercise that involving flatness, squareness, straightness and surface finish test. 3.4 Carryout taper measurement on job using veneer protractor and	Lecture Explain and demonstrate the concepts covered Inspect jobs using simple comparators	rulers, calipers, micrometers, dial indicators	Quiz Tests Assignment Examination

			sine bars			
General Objective: 4.0 Know how to operate dental laboratory machine						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	4.1 Operate different types of drilling machines 4.2 Carryout drilling operation such as counter-bone and counter-sinking 4.3 Ground dill bits accurately 4.4 Select and correct drilling speeds	Lecture Explain and demonstrate the concepts covered		Quiz Tests Assignment Examination
General Objective: 5.0 Know sand-blasting technique						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 Explain operations of sandblasting techniques 5.2 Describe the pressure, size	Lecture Explain the concepts	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment

and shape of sandblasting media (fine and coarse)	covered					Examination
General Objective: 6.0 Know various metal joining operations						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	6.1 Fabricate metal container by knock up joining 6.2 Join metal by the grooving technique 6.3 Carry out soft soldering	Lecture Explain and demonstrate the concepts covered		Quiz Tests Assignment Examination
General Objective: 7.0 Know how to cut and join metals by gas welding						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	7.1 Assemble oxy/acetylene welding joint 7.2 Cut metals by gas welding 7.3 Joint metals by gas welding 7.4 Select various regulators, clips blow pipe and	Lecture Explain and demonstrate the concepts covered		Quiz Tests Assignment Examination

			nozzles 7.5 Carry out gas welding by various welding techniques 7.6 Cut by flame cutting technique			

General Objective: 8.0 Know the various metal arc welding operations						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	8.1 Regulate current and determine polarity for metal arc welding 8.2 Determine polarity and select current 8.3 Carry out various arc welding joints by down and up hand operations 8.4 Select and prepare metal edges for various thickness and techniques	Lecture Explain and demonstrate the concepts covered		Quiz Tests Assignment Examination

General Objective: 9.0 Understand various techniques for controlling distortion in welding						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	9.1 Control distortion by the stop back and skip method 9.2 Apply pre and post beating technique	Lecture Explain and demonstrate the concepts covered		Quiz Tests Assignment Examination
General Objective: 10.0 Know simple operations on plastic						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
10.1 Describe various types of plastics groups such as thermosetting and the thermoplastics	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	10.2 Apply conventional metal cutting tools to perform operations on each type in 10.1 10.3 Carry out joining operations using plastics in 10.1 above	Lecture Explain and demonstrate the concepts covered		Quiz Tests Assignment Examination

General Objective: 11.0 Know the various types of porcelain furnaces						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
11.1 Explain the use of air firing finance 11.2 Explain the use of vacuum firing furnace	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 12.0 Know types of casting machines						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
12.1 Describe the types of solbrig casting techniques 12.2 Describe types of centrifugal casting machines 12.3 Describe the use of induction current machine	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

PROGRAMME: ND Dental Technology				
COURSE TITLE: Introductory Dental Materials				
COURSE CODE: DTE 214				
DURATION	**Lecture:- 1 Hr**	**Tutorial:-**	**Practical:-**	**Total:- 1Hr/Wk (15Hrs/Sem)**
CREDIT UNITS: 2 CU				
GOAL: This course is designed to provide the students with the knowledge and skill of dental laboratory safety practices as well as the use and care of basic tools and equipment				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				

1.0 Know the basic materials most commonly used in the dental laboratory

2.0 Know the classification of various materials

3.0 Evaluate "fitness for purpose" of dental materials in relation to their molecular structures

4.0 Understand the various testing equipment used for each dental material

5.0 Know the production, composition and properties of dental materials

6.0 Know the economic handling of dental materials

PROGRAMME: ND Dental Technology						
COURSE TITLE: Introductory Dental Materials		**Course Code: DTE 214**		**Contact Hours: 1Hr/Wk (15Hrs/Sem)**		
COURSE SPECIFICATION: Theoretical content				**Practical Content:**		
General Objective: 1.0 Know the basic materials most commonly used in the dental laboratory						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Identify the materials used in the Dental Laboratory 1.2 Explain the properties of each material 1.3 Explain the relationship between the properties and uses of materials 1.4 State the shelf-lives of each of the materials used in the Dental Laboratories	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 2.0 Know the classification of various materials						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Identify the various classes of Dental Materials 2.2 Explain how each material in 2.1 above is assigned to the various	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

classes 2.3 Explain basis for classification of the materials use in the Dental Laboratory 2.4 Describe properties of each class of materials in 2.1 above						
General Objective: 3.0 Evaluate "fitness for purpose" of dental materials in relation to their molecular structures						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Explain the term "fitness for purpose" 3.2 Explain the molecular structure of each material used in the dental laboratory 3.4 Explain how the structures in 3.2 above affect the manipulation of materials	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

3.5 Observe reactions of material samples in various media e.g. water, acid						
General Objective: 4.0 Understand the various testing equipment used for each dental material						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 Identify and state the testing equipment used for various dental materials i. Vicant needles ii. Grilmore needles iii. Tensiometer, etc. 4.2 Explain the use of various materials in the dental laboratory 4.3 Use testing equipment in 4.1 above on various dental materials	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 5.0 Know the production, composition and properties of dental materials						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 Describe the uses of the various dental materials 5.2 Describe the production	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests

process of each dental material 5.3 State the composition of each dental material 5.4 Explain the properties of dental material 5.5 Identify the materials at each stage of production						Assignment Examination
General Objective: 6.0 Know the economic handling of dental materials						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
6.1 Explain the importance of material conservation 6.2 Explain the properties and ratios applicable to the uses of dental materials 6.3 Demonstrate correct handling procedure of dental materials	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

COURSE TITLE: PRACTICE OF ENTREPRENUERSHIP				
COURSE CODE: EED 216				
DURATION	**Lecture: 1**	**Tutorial: 0**	**Practical: 2**	**Total Contact Hours: 45 Hours**
CREDIT UNIT:				
GOAL: This course is designed to equip students with necessary entrepreneurial skills for self-employment.				

GENERAL OBJECTIVES: On completion of the course, the student should:

1.0 Know techniques for generating business ideas and the process of identifying and assessing business opportunities.

2.0 Know how to evaluate a business ideas and the process of identifying and assessing business opportunity.

3.0 Know method of product/service selection.

4.0 Understand the process and procedure for starting an Enterprise.

5.0 Know the operational techniques in managing an Enterprise

6.0 Understand the various existing industries and support agencies in Nigeria.

7.0 Appreciate the role of commercial and development banks in small and medium scale industries development.

8.0 Understand the role of personal savings and portfolio investment in National Economic Development.

PROGRAMME: NATIONAL DIPLOMA DISPENSING OPTICIANRY						
COURSE TITLE: PRACTICE OF ENTREPRENUERSHIP			**Course Code: EED 216**		**Total Contact Hours:**	
Course Specification:						
General Objective 1.0: know techniques for generating business ideas and the process of identifying and assessing business opportunities.						
Specific Learning	**Teachers' Activities**	**Resources**	**Specific Learning**	**Teachers' Activities**	**Resources**	**Evaluation**

Objectives (Theory)			**Objectives (Practical)**			
1.1 Define business opportunity. 1.2 State the process of Exploring opportunities. 1.3 Identify business opportunities (SWOT Analysis). 1.4 State the process of conducting a market survey in order to establish demand/supply gap. 1.5 State the process of business idea generation.	1. Explain business opportunities and process of exploring it. 2. Explain the process of product/service selection. 3. Explain SWOT Analysis and how to identify business opportunities. 4. Explain the process of conducting market survey and selecting a viable business venture. 5. Explain the process of business idea generation.	• Text books • Journals	identify business opportunities using SWOT Analysis. Conduct marker survey and select the most viable business venture. Set up a small business enterprise	Guide students to identify business opportunities using SWOT Analysis. Guide students to conduct market survey to enable them select the most viable business venture. Demonstrate …. Using appropriate application package, product selection, product tracking, order tracking etc. Set up student groups with the task of setting up a small business enterprise. Invite a successful entrepreneur to give a talk. Make the student/group generate his/their viable business idea		Assignment Test Examination

				which would further be subjected to feasible business plan.		
General Objective 0.2: Know how to evaluate a business idea for developing an enterprise						
Specific Learning Objectives (Theory)	**Teachers' Activities**	**Resources**	**Specific Learning Objectives (Practical)**	**Teachers' Activities**	**Resources**	**Evaluation**
2.1 Define the concept of business plan. 2.2 Explain the process of preparing preliminary project proposal. 2.3 Explain the process of preparing a detailed business plan. 2.4 Conduct a model of business plan on a selected venture.	1. Explain business idea. 2. Explain the concept of business plan and project proposal. 3. Relate Business idea to business plan and project proposal.	Textbooks. Journals. Multi-media Projector.	Prepare a preliminary project proposal. Students' group to set up a small business enterprise with an initial capital of ₦10,000.00 only at least. Conduct a modest business plan on a selected venture. Present the plan to a panel of successful entrepreneur for assessment. Explore Internet for company	Guide students in preparing preliminary project proposal. Using the on going business project guide students to complete a business plan and present it to a panel of successful entrepreneurs, the plan should consider sale forecast, time sheet analysis, employee tracking, loan amortization etc. Explain Internet	**C**omputer complete with accessories and D base. Internet connection. Textbooks.	

	4. Describe the steps in preparing a model business plan.		profile, product catalogue, product information URL management. Conduct a model business plan on a selected venture.	for company profile, products catalogue, product catalogue, product information URL management. The written business plan should be assess as part of continuous assessment.		
General Objective 3: know methods of product / service selection						
Specific Learning Objectives (Theory)	**Teachers' Activities**	**Resources**	**Specific Learning Objectives (Practical)**	**Teachers' Activities**	**Resources**	**Evaluation**

3.1 Define product/ service. 3.2 Explain the nature characteristics of product/ service. 3.3 Explain product selection criteria. 3.4 Identify key factors associated with product selection. • Infrastructure • Technology • Availability of raw material. • Government Policy/Regulation. • Legal aspect of business. 3.5 Explain venture idea generation.	1. Explain product selection, criteria and factors associated with selection. 2. Explain venture idea generation. 3. Explain steps involved in preliminary screening. 4. Explain steps in preparing pre-feasibility study. 5. Explain the adequacy of infrastructural facilities, relevant technology and adequacy of raw materials for the selected product. 6. Explain effects of government policy and regulation as well as legal aspects of business on the selected product.	Textbooks. Journals. Publications. Multi-media Projector.	Analyze a given case in product selection. Select a product Prepare a feasibility report on a modern business and evaluate the viability, methodology and CBA. (Cost Benefit Analysis). Generate venture idea on selected exportable product obtained from the web. Write a report on their visit.	Guide students to analyze a case in product selection. Invite an Entrepreneur to speak on venture idea generation and product selection. Guide students to prepare feasibility studies on a model institution based business and evaluate the viability, methodology and Cost Benefit Analysis (CBA). Guide students to use web based information to generate venture idea on an exportable product. Organize visit to		

3.6	Explain the steps involved in preliminary screening.				a small business outfit to understudy infrastructural facilities, available technology, sources and adequacy of raw materials, effect of government policy and regulation and legal aspects of business.		
3.7	Explain the different steps in preparing pre-feasibility study.						
3.8	Evaluate adequacy of infrastructural facilities for product selection.						
3.9	Identify the relevant technology available for the selected product.						
3.10	Evaluate sources and adequacy of raw materials for the selected product.						
3.11	Explain effects of government policy and regulations on the selected product.						

3.12 Identify legal aspects of business in product selection.						
General Objective 4: understand the process and procedure for starting an Enterprise						
Specific Learning Objectives (Theory)	**Teachers' Activities**	**Resources**	**Specific Learning Objectives (Practical)**	**Teachers' Activities**	**Resources**	**Evaluation**

4.1 Outline the main features of the Companies and Allied Matters Act (CAMA) 1990 and the subsequent amendments. 4.2 Explain the functions of the Corporate Affairs (CAC) under the Companies and Allied Matter Act1990. 4.3 Explain the legal structure of business. 4.4 State factors to consider in naming a business. 4.5 Explain the procedure and	1. Explain the main features of the CAMA with special reference to provisions relating to registration and incorporation of business. 2. Explain the functions of CAC. 3. Explain the different legal forms of business. 4. Explain reasons for and factors in naming a business. 5. Explain Memorandum and Articles of Association and the procedure for	Textbooks CAMA Articles and Memo of Association Certificate of Incorporation.	Prepare Memorandum and articles of Association for a hypothetical company. Identify documents required for incorporation.	Guide students to prepare memorandum and Articles of Association of a hypothetical company. Show students necessary Incorporation documents. Visit CAC office nearest to you to familiarize with its operation.	Text books CAMA Internet (CAC Website)	

requirements for registration of a business name. 4.6 Explain the procedure and requirements for incorporating a business. 4.7 Explain the reasons for the existence of registered business names and companies. 4.8 Identify various agencies responsible for issuance of licence and permits.	incorporation of companies in Nigeria. 6. Explain licenses and permits and their issuing Agencies.		Register a business name.	Guide students to register a hypothetical business name with the nearest CAC.		

General Objective 5: know the various operational techniques in managing an Enterprise						
Specific Learning Objectives (Theory)	**Teachers' Activities**	**Resources**	**Specific Learning outcomes**	**Teachers' Activities**	**Resources**	**Evaluation**
5.1 Define management and manager. 5.2 Explain the functions of management and a manager. 5.3 Explain management structure for an Enterprise. 5.4 Explain the communication process in the management of an enterprise. 5.5 Explain the techniques and skills of: i. Planning	1. Explain the functions, techniques and skills of management. 2. Draw a management structure to suit the viable project selected by students. 3. Explain the	Textbooks. Specimen of financial records. Cardboard Marker. Organogram	Draw appropriate organogram for a small scale enterprise. Identify communication process in the management of an enterprise. Explain the functional areas of business	Guide students to draw an organogram to suit the selected business venture. Demonstrate the techniques and skills of communication process in the management of the selected business ventures, using computer networking of not less than 3 computers. Demonstrate, using appropriate	Textbooks sample Record books Multi-media Projector organogram	

ii. Organizing iii. Staffing iv. Leading v. Controlling 5.6 Explain the basic techniques of marketing production and financial management I an enterprise. 5.7 Explain the principles of record keeping, auditing and taxation.	techniques of the functional areas of management. 4. Explain principles of record keeping, auditing and taxation.		management, planning, organizing etc	application packages, techniques and skills of: Business planning. Business positioning. Business scheduling. Staffing and staff. Tracking etc. explaining their importance to sustainable business venture.		
General Objective 6: know the various existing industries and support agencies in Nigeria						
Specific Learning Outcomes	**Teachers' Activities**	**Resources**	**Specific Learning outcomes**	**Teachers' Activities**	**Resources**	**Evaluation**
6.1 Explain various industry/support agencies. 6.2 Explain the types, and sources of materials used in both manufacturing and Service Industries. 6.3 Explain the types and sources of plants and machinery used in small scale Industries. 6.4 Explain the various	1. Explain industry, types and support agencies. 2. Explain the nature, types and sources of material, machineries	Textbooks Journals CD's/Film VCR	Identify types and sources of plants and machinery used in small scale industries nature and types of material inputs and information about market and financial assistance.	Guide students to visit websites to identify types and sources of machinery and plants, material inputs for small scale industries. Information and assistance for finance, market etc.	Computer and accessories with Internet connection. Textbooks and Journals.	

information and assistance for vital areas like finance, registration, project selection, training, marketing, research, quality control, raw materials, patent information etc. 6.5 Explain environmental factors associated with Industrial and economic development in Nigeria.			Prepare a report and share experience.	Form groups and assign them out of class. Visit/ experience in selected enterprise. Groups to share experiences on the visit.		
General Objective 7: Appreciate the role of commercial and development banks in small and medium scale industries development						
Specific Learning Outcomes	**Teachers' Activities**	**Resources**	**Specific Learning outcomes**	**Teachers' Activities**	**Resources**	**Evaluation**
7.1 Identify financial institutions involved in entrepreneurial development. 7.2 Explain the role of Banks and financial institutions in the creation and development of enterprises.	1. Explain the role of financial institutions in entrepreneurial development 2. Explain the role of commercial and development of SMEs.	Textbooks, Journals and other publications.	Identify sources of finance to SME's and how to access their funds.	Guide students to identify sources of finance for SME's Invite a Finance Expert to give a talk.	Multi-media Projector (16 mm) Computer Internet	

7.3 Explain government policy on financing small and medium enterprises. 7.4 Explain the role of microfinance (Formal and Informal) in financing enterprise. 7.5 Explain the role of capital markets in Financing enterprises	3. Examine government policies on financial SMEs. 4. List support agencies for SMEs in Nigeria- NEPC, IDCs, DB etc. 5. Explain government policy on financing SMEs			Guide students to develop healthy banking culture: • Good customer relation. • Regular lodgments. • Bank reconciliation.		
General Objective 8: Understand the role of personal savings and portifolio investment in National Economic Development						
Specific Learning Outcomes	**Teachers' Activities**	**Resources**	**Specific Learning outcomes**	**Teachers' Activities**	**Resources**	**Evaluation**
8.1 Define the following: Income, expenditure and savings 8.2 explain the role of savings in starting and sustaining businesses. 8.3 Explain personal Financial Planning and Management.	1. Explain savings 2. Explain how savings are channeled into productive venture. 3. Explain the benefits of interest. 4. Explain the role of budgeting in	Textbooks, Journals and other publications	Calculate interest rates. Develop personal budget for one month.	Show various methods of computing interest Guide students to develop a personal budget for one moth	Textbooks, Journals and other publications, computer	

8.4 Explain shopping habits. 8.5 Explain portfolio investment-shares, bonds, debentures.	personal economics. 5. Describe shopping habits. 6. Analyze portfolio investment. 7.Explain thrift societies and how they operate		Create a spreadsheet for a budget Learning to save and invest in portfolio.	Guide students to create a spreadsheet for a budget Invite a stock broker to give a talk.		

YEAR 2 SEMESTER 2

PROGRAMME: ND Dental Technology				
COURSE TITLE: Science of Dental Technology				
COURSE CODE: DTE 221				
DURATION	**Lecture:- 1 Hr**	**Tutorial:-**	**Practical:- 2 Hrs**	**Total:- 3Hrs/Wk (45Hrs/Sem)**
CREDIT UNITS: 2 CU				

GOAL: This course is designed to provide the students with the knowledge of scientific principles of dental laboratory processes and equipment
GENERAL OBJECTIVES: On completion of the course, the student should be able to:
1.0 Understand dental laboratory processes 2.0 Know the standard specification tests for dental materials and their applications 3.0 Understand the physics of electronic processes 4.0 Know the thermal principles of dental furnaces and pyrometers

PROGRAMME: ND Dental Technology						
COURSE TITLE: Science of Dental Technology		**Course Code: DTE 221**		**Contact Hours: 3Hrs/Wk (45Hrs/Sem)**		
COURSE SPECIFICATION: Theoretical content			**Practical Content:**			
General Objective: 1.0 Understand dental laboratory processes						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers**	**Learning**	**Evaluation**

				Activities	Resources	
1.1 Explain dental laboratory processes 1.2 Explain the procedure for operating dental laboratory equipment safely and effectively 1.3 State how to appraise laboratory procedures on scientific bases	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 2.0 Know the standard specification tests for dental materials and their applications						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Explain mechanical testing of dental materials	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	2.1 Carry-out the following tests on dental materials i. Tensile strength ii. Transverse strength iii. Compression strength iv. Various fatigues tests	Explain the application of each of the test in 2.1above		Quiz Tests Assignment Examination

General Objective: 3.0 Understand the physics of electronic processes						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Define electronic process 3.2 Explain the application of these tests in dental technology e.g. corrosion in dissimilar metals, excessive deposition on dies.	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.	3.1 Carry-out the following tests: i. Faraday's law of electrolysis ii. Galvanic shock iii. Copper and silver deposition iv. Electrolytic polishing v. Corrosion, etc.			Quiz Tests Assignment Examination
General Objective: 4.0 Know the thermal principles of dental furnaces and pyrometers						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 Define thermal principles	Lecture	Textbooks, Charts and Forms, Reading	4.1 Know the use of each of	Demonstrate the use of		Quiz

4.2 Explain the components of the following: i. Dental furnace ii. Pyrometers	Explain the concepts covered	materials.	the equipment's in 4.2	each of the equipment's in 4.2		Tests Assignment Examination

PROGRAMME: ND Dental Technology				
COURSE TITLE: Complete Dental Prosthetics I				
COURSE CODE: DTE 222				
DURATION	**Lecture:- 2 Hrs**	**Tutorial:-**	**Practical:- 3 Hrs**	**Total:- 5Hrs/Wk (75Hrs/Sem)**
CREDIT UNITS: 3 CU				
GOAL: This course is designed to provide the students with the proper understanding of the principles involved in construction of complete dentures				

GENERAL OBJECTIVES: On completion of the course, the student should be able to:

1.0 Understand the identification of classes of occlusal relationship

2.0 Understand and apply the principles of complete dentures in class I relationship

3.0 Understand how to obtain secondary casts from secondary impressions

4.0 Know how to construct registration blocks in

i. Modelling Wax

ii. Composition

iii. Plaster

5.0 Understand the manipulation of base materials in the construction of registration blocks

6.0 Know how to interpret prescription on the registration locks

7.0 Understand mounting procedures on plane line articulators

8.0 Understand the procedures for tooth-selection of setting up in class I relationship

PROGRAMME: ND Dental Technology		
COURSE TITLE: Complete Dental Prosthetics I	**Course Code: DTE 222**	**Contact Hours: 5Hrs/Wk (75Hrs/Sem)**
COURSE SPECIFICATION: Theoretical content		**Practical Content:**
General Objective: 1.0 Understand the identification of classes of occlusal relationship		

Specific Learning Objectives:	Teachers Activities	Learning Resources	Specific Learning Objectives:	Teachers Activities	Learning Resources	Evaluation
1.1 Explain the various occlusal relationship 1.2 Explain tooth positions in class I relationship 1.3 Explain associated skeletal structurers in the class 1.2 above 1.4 Position teeth in class I occlusal relationship following proper procedures 1.5 Demonstrate basic articulation procedure	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

General Objective: 2.0 Understand and apply the principles of complete dentures in class I relationship						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Explain handling of impression from the clinic with emphasis on hazards involved 2.2 Explain impression preparation prior to casting 2.3 Cast impression	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

2.4 State the various stages in the setting of plaster parts						
General Objective: 3.0 Understand how to obtain secondary casts from secondary impressions						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Explain the term secondary casts 3.2 Explain the need for secondary casts 3.3 Produce cast from secondary impression	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 4.0 Know how to construct registration blocks in: i. Modelling Wax ii. Composition iii. Plaster						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 Explain registration blocks 4.2 Explain why registration blocks are necessary in full denture construction 4.3 State indication for the use of various materials in registration block construction 4.4 Construct registration	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

blocks						
General Objective: 5.0 Understand the manipulation of base materials in the construction of registration blocks						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 List the materials used in the construction of registration blocks 5.2 Explain how each material is Manipulated 5.3 State the advantages and disadvantage of each material 5.4 Demonstrate the manipulation of each material	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 6.0 Know how to interpret prescription on the registration locks						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
6.1 Explain reasons for prescription on registration blocks 6.2 State various prescriptions expected from the clinic	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 7.0 Understand mounting procedures on plane line articulators						
Specific Learning Objectives:	**Teachers**	**Learning Resources**	**Specific**	**Teachers**	**Learning**	**Evaluation**

	Activities		Learning Objectives:	Activities	Resources	
7.1 Explain the process of mounting casts on plane line articulator 7.2 Mount models with registration blocks on plane line articulator	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 8.0 Understand the procedures for tooth-selection of setting up in class I relationship						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
8.1 Explain tooth selection for setting up 8.2 Construct full/full dentures in class I relationship	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

PROGRAMME: ND Dental Technology
COURSE TITLE: Science of Dental Materials I
COURSE CODE: DTE 223

DURATION	**Lecture:- 1 Hr**	**Tutorial:-**	**Practical:- 1 Hr**	**Total:- 2Hrs/Wk (30Hrs/Sem)**
CREDIT UNITS: 2 CU				
GOAL: This course is designed to enable the students understand the composition, properties and handling characteristics of materials				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				
1.0 Understand the classification of dental materials according to their molecular structures and physical properties 2.0 Understand the application of diagnostic techniques and types of impression techniques 3.0 Understand the physical and chemical properties of dental materials 4.0 Understand the composition of dental materials 5.0 Understand the uses of dental materials				

PROGRAMME: ND Dental Technology		
COURSE TITLE: Science of Dental Materials I	**Course Code: DTE 223**	**Contact Hours: 2Hrs/Wk (30Hrs/Sem)**
COURSE SPECIFICATION: Theoretical content		**Practical Content:**

General Objective: 1.0 Understand the classification of dental materials according to their molecular structures and physical properties						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Define dental materials 1.2 Identify samples of dental materials e.g. plaster of Paris, etc. 1.3 Classify dental materials according to their molecular structures and physical properties	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 2.0 Understand the application of diagnostic techniques and types of impression techniques						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Define diagnostic techniques 2.2 Identify diagnostic uses of dental laboratory materials e.g. stone plaster, plaster of Paris. 2.3 Define dental impression 2.4 Describe different types of impression 2.5 Describe different types of	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

impression techniques 2.6 Demonstrate the use of each of the techniques mentioned in 2.4 above						
General Objective: 3.0 Understand the physical and chemical properties of dental materials						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Identify the physical properties of dental materials e.g. i. Rigidity ii. Elasticity iii. Abrasion resistance etc 3.2 Identify the chemical properties of dental materials e.g. i. Solubility ii. Corrosion resistance 3.3 State the relationship between 3.1 and 3.2 above	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 4.0 Understand the composition of dental materials						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 State the composition of the following materials; i. Model and die materials	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment

ii. Waxes iii. Non-metallic dental base materials, etc 4.2 Explain how the composition in 4.1 above affects the physical properties 4.3 Describe stress-strain relation in dental materials 4.4 Demonstrate the use of the following equipment; i. Tensiometer ii. Vicant Needle iii. Gihone Needle						Examination
General Objective: 5.0 Understand the uses of dental materials						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 Identify materials used for the following processes i. Impression taking ii. Casting of models iii. Denture production 5.2 Describe the uses of dental materials	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

PROGRAMME: ND Dental Technology
COURSE TITLE: Dental Prosthetics and Technology I
COURSE CODE: DTE 224

DURATION	Lecture:- 1 Hr	Tutorial:-	Practical:- 3 Hrs	Total:- 4Hrs/Wk (60Hrs/Sem)
CREDIT UNITS: 2 CU				
GOAL: This course is designed to enable the student understand the principles of surveying and function and limitations of plane line and fixed condylar path articulators in denture construction				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				
1.0 Understand the construction of special trays 2.0 Know how to make casts 3.0 Understand the principles and uses of dental surveyor and its accessories 4.0 Know the function and limitations of plane line and fixed condylar path articulators 5.0 Know how to construct types of intermediate dentures				

PROGRAMME: ND Dental Technology		
COURSE TITLE: Dental Prosthetics and Technology I	**Course Code: DTE 224**	**Contact Hours: 4Hr/Wk (60Hrs/Sem)**
COURSE SPECIFICATION: Theoretical content	**Practical Content:**	

General Objective: 1.0 Understand the construction of special trays						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Define Special trays 1.2 Describe special trays 1.3 List the materials used in making special trays 1.4 Sketch the different types of special trays 1.5 Explain the reasons for making special trays	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 2.0 Understand the principles and uses of dental surveyor and its accessories						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Define casts in dental Technology 2.2 List the different types of casts used in dental laboratory 2.3 List the materials used in making casts 2.4 Explain the uses of casts	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

2.5 Make different types of casts						

General Objective: 3.0 Understand the principles and uses of dental surveyor and its accessories						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Define dental surveyor 3.2 Sketch and label a dental surveyor and its accessories 3.3 State the uses of dental surveyor 3.4 Survey a model using a dental surveyor	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 4.0 Know the function and limitations of plane line and fixed condylar path articulators						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 Define a plane line articulator 4.2 Define a fixed condylar path articulator 4.3 Sketch and label the parts of a fixed condylar path articulator 4.4 State the functions of	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

each of the parts labeled in 4.3 above 4.4 Mount cast models on the two types of articulators 4.5 State the limitations of the two types of articulators						
General Objective: 5.0 Know how to construct types of intermediate dentures						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 Explain the term immediate dentures 5.2 Explain the reasons for making immediate dentures 5.3 Describe different types of immediate dentures 5.4 Construct the three common types of immediate dentures (i.e. gun-fitted, socket-fitted and spoon denture)	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

PROGRAMME: ND Dental Technology				
COURSE TITLE: Partial Dental Prosthetics I				
COURSE CODE: DTE 225				
DURATION	**Lecture:- 2 Hrs**	**Tutorial:-**	**Practical:- 3 Hrs**	**Total:- 5Hrs/Wk (75Hrs/Sem)**
CREDIT UNITS: 3 CU				
GOAL: This course is designed to provide the students with an introduction to theory and practice of removable partial denture construction				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				
1.0 Know the need for provision of partial dentures 2.0 Understand the classification and casting of different types of partial dentures 3.0 Know the general principles of partial denture design and construction				

PROGRAMME: ND Dental Technology						
COURSE TITLE: Partial Dental Prosthetics I		**Course Code: DTE 225**		**Contact Hours: 5Hr/Wk (75Hrs/Sem)**		
COURSE SPECIFICATION: Theoretical content			**Practical Content:**			
General Objective: 1.0 Know the need for provision of partial dentures						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Describe partial denture construction 1.2 State the functions of partial dentures 1.3 Identify the different types of partial dentures e.g. issues borne, tooth borne, etc.	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 2.0 Understand the classification and casting of different types of partial dentures						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Explain the classification of dentures 2.2 Describe various classifications under the following: i. Kennedy and ii. Beckett 2.3 Cast models to show the	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

various classifications						
General Objective: 3.0 Know the general principles of partial denture design and construction						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Explain the purpose of design 3.2 Describe the factors affecting the designing of partial dentures 3.3 Survey models with dental surveyor 3.4 Design partial dentures on models 3.5 Prepare models and construction 3.6 Identify the various components needed for construction 3.7 Construct the various components identified in 3.6 above 3.8 Assemble the components in 3.7 above 3.9 Construct the partial dentures in acrylic resin	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

PROGRAMME: ND Dental Technology				
COURSE TITLE: Oral Pathology and Microbiology				
COURSE CODE: DTE 226				
DURATION	**Lecture:- 1 Hr**	**Tutorial:-**	**Practical:- 3 Hrs**	**Total:- 5Hrs/Wk (75Hrs/Sem)**
CREDIT UNITS: 2 CU				
GOAL: This course is designed to provide the students with a basic knowledge of disorders and diseases affecting the oral cavity				
GENERAL OBJECTIVES: On completion of the course, the student should be able to:				

1.0 Understand the nature and principles of pathology

2.0 Understand the process of inflammation and repairs

3.0 Understand the developmental abnormalities of the mouth

4.0 Know the type of microorganism associated with oral cavity

5.0 Know the classifications of microorganisms associated with the oral cavity

6.0 Understand the significance of the organisms of oral cavity in the aetiology of caries and periodontal diseases

7.0 Understand the pathology of oral mucous e.g. denture hyperplasia, herpetic stomatitis, alphethous ulcer, epulis, etc.

PROGRAMME: ND Dental Technology						
COURSE TITLE: Oral Pathology and Microbiology		**Course Code: DTE 226**		**Contact Hours: 2Hrs/Wk (30Hrs/Sem)**		
COURSE SPECIFICATION: Theoretical content			**Practical Content:**			
General Objective: 1.0 Understand the nature and principles of pathology						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
1.1 Define pathology and infection 1.2 State the main ways of transmission of infection e.g. direct and indirect 1.3 Describe the unit of cell and tissue and their content 1.4 Observe under microscope	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 2.0 Understand the process of inflammation and repairs						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
2.1 Define inflammation 2.2 State the causes of inflammation 2.3 State the components of the reaction to inflammation	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

2.4 Draw and label cells involved in inflammation 2.5 Define repair or wound healing 2.6 Explain the stages in 2.6 above with diagrams 2.7 Illustrate the stages in 2.6 above with diagrams						
General Objective: 3.0 Understand the developmental abnormalities of the mouth						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
3.1 Define developmental abnormalities 3.2 Describe soft tissues abnormalities of jaws e.g. cleft lips, palate and tongue 3.3 Describe the developmental abnormalities of jaws e.g. macrognathia, micrognatia transposition, Hypoplasia amelogensis, dental fluorosis, dentinogensis, severe attrition, etc.	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

3.4 Observe and identify conditions listed in 3.2 above on charts, projector slides and mal life.						

General Objective: 4.0 Know the type of microorganism associated with oral cavity						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
4.1 List the various types of micro-organism found in the oral cavity 4.2 Describe the various types in 4.1 above 4.3 Differentiate between each of the microorganism in 4.1 above 4.4 Explain the characteristics each of 4.1 above	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

General Objective: 5.0 Know the classifications of microorganisms associated with the oral cavity						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
5.1 List the major classification of bacteria found in the mouth 5.2 Describe each of the major classification in 5.1 above 5.3 List the various characteristics	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination

of bacteria listed in 5.1 above 5.4 Observe under microscope listed in 5.1 above						
General Objective: 6.0 Understand the significance of the organisms of oral cavity in the aetiology of caries and periodontal diseases						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
6.1 Define dental caries 6.2 State the role played by the bacteria listed in 5.1 above to dental caries 6.3 State the significance of these organisms listed in 5.1 above in periodontal diseases 6.4 Observe the stages of development of dental caries and periodontal leision on wall chart	Lecture Explain the concepts covered	Textbooks, Charts and Forms, Reading materials.				Quiz Tests Assignment Examination
General Objective: 7.0 Understand the pathology of oral mucous e.g. denture hyperplasia, herpetic stomatitis, alphethous ulcer, epulis, etc.						
Specific Learning Objectives:	**Teachers Activities**	**Learning Resources**	**Specific Learning Objectives:**	**Teachers Activities**	**Learning Resources**	**Evaluation**
7.1 List the constituents or oral mucous membrane	Lecture Explain the	Textbooks, Charts and Forms, Reading				Quiz Tests

7.2 Observe microscopic changes of the oral mucous under the microscope or slide projector 7.3 Define the terms, tumor and leision 7.4 State the types of soft tissues leissions in the oral mucous 7.5 Differentiate between viral and non-viral leision 7.6 Classify tumors 7.7 List the benign tumors found in the oral mucus 7.8 Observe under slide projector the types of leision stated in 7.4 above	concepts covered	materials.				Assignment Examination

LIST OF MINIMUM EQUIPMENT/TOOLS REQUIRED FOR DENTAL TECHNOLOGY PROGRAMMES (ND/HND)

(1) EQUIPMENT/TOOLS FOR THE BASIC SCIENCE LABORATORIES

I. General Biology Laboratory

II. General chemistry Laboratory

III. Physics Laboratory

IV. Photography and Audio visual studio

V. Wood and metal workshop

(2) EQUIPMENT/TOOLS FOR DENTAL TECHNOLOGY PROFESSIONAL LABORATORIES

I. **PROSTHETIC ROOM**

S/No.	Description	Quantity Required
1	Laboratory with fully equipped work benches with refractory top (1.5m x 0.8m) per student titled with following	
a.	Water tap and sink	
b.	Gas, Air, and Electric installation	
c.	Instrument Cabinet and two drawers	20
d.	Illumination Head lamp	20
e.	Single Vacuum Unit	20
f.	Pack Replacement Unit	20
g.	Laboratory Revolving Chair	20
h.	Bunsen Burner	20

i.	Standard Trimming Machine	20

II. **PLASTER ROOM**

S/No.	Description	Quantity Required
2.	Plaster room and titled desk or concrete slab should have a floor area of about 2.00 square metre per student. Other fittings in the plaster room room are:	
a.	Adequate water sinks titled to plaster room work benches	Depends on the size of laboratory
b.	Model trimmers	4
c.	Bench Presses	4
d.	Vacuum investor for crown and Bridge	2
e.	Vibrators	3
f.	Sell of flask (acrylic, Maxillo Facial and C and B)	Assorted
g.	Rubber Mallets	2
h.	Plaster shears and saw	10
i.	Turbine chisels for devesting and cutting models	10
j.	Plaster/Stone Dispensers	4
k.	Sand Blasting Machine	4

l.	Plaster shears and saw	4

ii. PROSTHETIC ROOM

S/No.	Description	Quantity Required
3.		
a.	Hydraulic press	4
b.	Polymerising unit	3
c.	Automatic wax Boil-out unit	3
d.	Set of Acrylic Mixing Vessels and Spatulas	6
e.	pressure forming unit with compressor	2
f.	Refrigerator	2
g.	Clamps (Single and Double)	10 each
h.	ultrasonic Cleaners	5

iii. **CASTING ROOM**

S/No.	Description	Quantity Required
4.		
a.	A set of properly isolated osey-acetyline gas cylinders	A set of 2
b.	A set of Gas Blow Torch (Assorted)	Assorted
c.	Pre-Heating furnace	2
d.	'Solbring' Casting Machine	2
e.	Induction Casting Machine	2
f.	Bench top casting machine for flame melting (Centrifugal)	2
g.	Dipping Bath (Bees as Unit)	2
h.	Gas Chamber/Cupboard	2
i.	Gume Extractor	3
j.	Set of casting rings Nos 1^x – 9^x	Assorted
	crucible formers, ceramic crucible	Assorted
	Tongs and asbestors Gloves	4 each
k.	Storage cabinets	Depends on size of laboratory
l.	Refractory benches	

iv. **POLISHING ROOM**

S/No.	Description	Quantity Required
5.		
a.	Polishing unit complete with dust extractor and lightning unit	3
b.	High speed Grinder	3
c.	Electrolytic polishing/plating unit	2
d.	Lather polishing Brushes (Assorted) and mops	Assorted
e.	Storage cabinet	Depends on Size of Laboratory
f.	Ultrasonic Cleaning Machine	2

SUNDRY ROOM

S/No.	Description	Quantity Required
6.		
a.	Spot welding and soldering unit	2
b.	Dental Surveyors	3
c.	Articulators – simple hinge, Fixed condylar and anatomical.	4 each
d.	Orthodontic kits, orthodontic wire, cabinet soldering jigs and platforms.	2 each
e.	crown and Brid	

LIST OF PARTICIPANTS.

S/N	NAME	ADDRESS
1.	Paul Anche	Representative Registrar Dental Technologists Registration Board Nigeria, Abuja. Department of Department of Dental & Maxillo-facial Surgery National Hospital Abuja.
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