PROFILES OF LECTURERES IN TECHINICAL EUCATION DEPARTMENT.

S/NO	NAMES OF LECTUERS	ACADEMIC QUALIFICATIONS	
1	Dr VICTOR IGRUBIA	Doctor of Philosophy (Ph.D.) Master of Education (M.Ed. Tech) Bachelor of Education (B.Ed. Tech) Nigeria Certificate in Education (NCE Tech) West African School Certificate West African School Certificate. First School Leaving Certificate.	
2	MR TERRY YUODIOWIE	(M.Ed.) Industrial Master of Education (B.Sc.) Mechanical Bachelor of Science WAEC Senior School Certificate First School Leaving Certificate.	
3	MRS CHARITY OKARDI	MSc Vocational & Technology Education (Electrical/Electronic Option) PDGE Vocational & Technology Education (Electrical/Electronic Option) BSc Electrical/Electronic Engineering (Electronic Option.)	
4	PAST EBI TUESDAY	Masters in EdTech. PDGE HND – Electronics	

		Telecommunication Technician Primary 6 Certificate.	
5	MR FOSTER AYAOGE	BSc Technical Education Option; Mechanical Technology	
6	Dr PORIPO JACOB	Ph.D. Metalwork/Automobile Technology 2021, M.Ed. Industrial Technical Education 2013, B.Ed. 2nd class upper, Technical Education (Automobile Technology) 2006.	

COURSE CODE TITTLE AND CONTENT OF TECHNICAL EDUCATION DEPARTMEENT OR NCE PROGRAMME

100L FIRST SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L-T-P	CREDITS
VTE 110	Introduction to Voc./Tech. Education	1-0-0	1C
BTE 111	Introduction to Metalwork	1-0-3	2C
BTE 112	Introduction to Woodwork	1-0-3	2C
BTE 113	Introduction to Electrical and Electronics	1-0-3	2C
CHE 111	Introduction to Physical Chemistry	1-1-0	1C
PHY 113	Mechanics and Properties of Matter	1-1-0	1C
	TOTAL		**9C**

GSE COURSES FOR FIRST SEMESTER NCE 1

COURSE CODE	COURSE TITLE	CREDIT	STATUS
GSE 000A	**Media Information Literacy**	-	**Compulsory**
GSE 111	**General English 1**	1	**Compulsory**
GSE 112	**Introduction to library Studies**	1	**Compulsory**
	TOTAL	2	

100L SECOND SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
BTE 121	Introduction to Building Construction	1-0-3	2C
BTE 122	Introduction to Automobile Technology	1-0-3	2C
BTE 123	Applied/Fluid Mechanics	1-0-2	2C
TED 124	Introduction to Technical Drawing	1-0-2	2C
BTE 125	Mathematics for Technology (Algebra and Calculus)	1-1-0	1C
	TOTAL		**9 C**

GSE COURSES FOR SECOND SEMESTER NCE 1

COURSE CODE	COURSE TITLE	CREDIT	STATUS
GSE 000 B	Media Information Literacy	-	Compulsory
GSE 121	General English 11	1	Compulsory
GSE 123	Introduction to Computer Studies 1	1	Compulsory
GSE 124	Family Life and Emerging health	1	Compulsory
	TOTAL	**3**	

200L FIRST SEMESTER

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
TED 211	Foundry and Forging	1-0-2	1C
TED 212	Machine wood working 1	1-0-2	1C
TED 213	Electrical Circuit and Electrical Measuring Instruments	1-0-2	1C
TED 214	Construction Methods 1	1-0-2	1C
TED 215	Auto Braking, Suspension and Steering Systems.	1-0-2	1C
TED 216	Engineering Graphics	1-0-3	2C
TED 217	Heat Engines	1-0-2	1C
TED 218	Auto Electrical System, Repairs and Computers	1-0-2	1C
	TOTAL:		**9C**

GSE COURSES FOR FIRST SEMESTER NCE 11

COURSE CODE	COURSE TITLE	CREDIT	STATUS
GSE 000 C	Media Information Literacy	-	Compulsory
GSE 211	General English 111	1	Compulsory
GSE 213	Introduction to Computer studies 11	1	Compulsory
GSE214	Trafficking in persons issues	1	Compulsory
	TOTAL	**3**	

NOTE: - *All courses at 100level and first semester 200level are Compulsory.*

200L SECOND SEMESTER- AUTO/METALWORK

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS

VTE 220	Entrepreneurship in VTE	1-0-3	2C
TEA 221	Automobile Engine I	1-0-3	2C
TEM 222	Machine Shop Practice I	1-0-3	2C
TEM 223	Mechanical Engineering Drawing I	1-0-3	2C
TED 224	Special Methodology	1-1-0	1C
TED 225	SIWES		2 C
	TOTAL:		**11C**

GSE COURSES FOR SECOND SEMESTER NCE 11

COURSE CODE	COURSE TITLE	CREDIT	STATUS
GSE000 D	Media Information Literacy	2	compulsory
GSE 221	General English iv	1	compulsory
GSE 223	Citizenship Education	1	compulsory
GSE224	Entrepreneurship	1	Compulsory
	TOTAL	**5**	

200L SECOND SEMESTER –BUILDING/WOODWORK

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
VTE 220	Entrepreneurship in VTE	1-0-3	2C
TEB 221	Elementary Structural Design	1-0-3	2C
TEW 222	Woodwork Design, Construction and Finishing	1-0-3	2C
TEB 223	Building/Electrical Drawing	1-0-3	2C
TED 224	Special Methodology	1-1-0	1C
TED 225	SIWES		2 C
	TOTAL		**11C**

200L SECOND SEMESTER –ELECTRICAL AND ELECTRONICS

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
VTE 220	Entrepreneurship in VTE	1-0-3	2C
TEE 221	Electrical/Electronic Devices	1-0-3	2C
TEE 222	Digital Electronics	1-0-3	2C
TEB 223	Building/Electrical Drawing	1-0-3	2C
TED 224	Special Methodology	1-1-0	1C
TED 225	SIWES		2C
	TOTAL		**11C**

300L FIRST SEMESTER

EDU 323	**Project**	**2C**
EDU 311	**Teaching Practice**	**6C**

300L - SECOND SEMESTER AUTOMOBILE TECHNOLOGY

COURSE CODE	COURSE TITLE	CONTACT HOURS L-T-P	CREDITS
TEA 321	Auto Workshop Practice II	1-0-2	1C
TEA 322	Auto Mechanics II (Fueling and Air Condition System)	1-0-3	2C
TEA 323	Practical Project	1-0-6	2C
TEM 324	Mechanical Engineering Drawing II	1-0-3	2C
TEA 325	Maintenance and Repairs of Mechanical Equipment.	1-0-2	1C
TEA 326	School Workshop Management	1-1-0	1C
TEA 327	Vehicle Driving	1-0-3	1C
	TOTAL:		**10C**

300L - FIRST SEMESTER BUILDING TECHNOLOGY

EDU 323	**Project**	**2C**
EDU 311	**Teaching Practice**	**6C**

300L - SECOND SEMESTER BUILDING TECHNOLOGY

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
TEB 321	Land Surveying	1-0-3	1C
TEB 322	Construction Methods II	1-0-3	2C
TEB 323	Practical Project	1-0-6	2C
TEB 324	Building Drawing	1-0-3	2C
TEB 325	Building Maintenance and Repairs	1-0-2	1C
TEB 326	School Workshop Management	1-1-0	1C
TEB 327	Construction Management	1-0-2	1C
	TOTAL		**10C**

300L - FIRST SEMESTER ELECTRICAL/ELECTRONICS TECHNOLOGY

EDU 323	**Project**	**2C**
EDU 311	**Teaching Practice**	**6C**

300L - SECOND SEMESTER ELECTRICAL AND ELECTRONICS TECHNOLOGY

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
TEE 321	Electrical Machines and Power	1-0-3	2C
TEE 322	Telecommunications	1-0-3	2C
TEE 323	Practical Project	1-0-6	2C
TEE 325	Maintenance and Repairs of Electrical Equipment	1-0-2	1C
TEE 326	School Workshop Management	1-1-0	1C
TEB 324	Building Drawing	1-0-3	2C
	TOTAL:		**10C**

300L - FIRST SEMESTER METALWORK TECHNOLOGY

EDU 323	**Project**	**2C**
EDU 311	**Teaching Practice**	**6C**

300L - SECOND SEMESTER METALWORK TECHNOLOGY

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
TEM 321	Machine Shop Practices II	1- 0- 3	2C
TEM 322	Advanced Fabrication & Welding	1- 0- 3	2C
TEM 323	Practical Project	1-0-6	2C
TEM 324	Mechanical Engineering Drawing	1- 0- 3	2C
TEM 325	Maintenance and Repair of Mechanical Tools and Equipment	1- 0- 2	1C
TEM 326	School Workshop Management	1- 1- 0	1C
	TOTAL:		**10C**

300L - FIRST SEMESTER WOODWORK TECHNOLOGY

EDU 323	**Project**	**2C**
EDU 311	**Teaching Practice**	**6C**

300L - SECOND SEMESTER WOODWORK TECHNOLOGY

COURSE CODE	COURSE TITLE	CONTACT HOURS L.T.P	CREDITS
TEW 321	Design, Rehabilitation of Woodwork Items and Upholstery	1- 0- 3	2C
TEW 322	Machine Woodworking II	1- 0- 3	2C
TEW 323	Practical Project	1- 0 -6	2C
TEB 324	Building Drawing	1- 0 -3	2C
TEW 325	Maintenance and Repair of Woodwork Equipment and Items	1- 0- 2	1C
TEW 326	School Workshop Management	1-1- 0	1C
	TOTAL:		**10C**

GSE COURSES FOR SECOND SEMESTER NCE 111

COURSE CODE	COURSE TITLE	CREDIT	STATUS
GSE 322	General English V	1	compulsory
GSE 323	Science and Technology in Society	1	compulsory
GSE 324	Political Economy	1	compulsory
TOTAL		**3**	

AREAS OF SPECIALIZATION

i) Basic Technology Automobile
ii) Basic Technology Building
iii) Basic Technology Electrical and Electronics
iv) Basic Technology Metalwork
v) Basic Technology Woodwork

The following codes represent the various areas of specialization in Technical Education:

a. TEA – Automobile Technology
b. TEB – Building Technology
c. TEE – Electrical and Electronics Technology
d. TEM – Metalwork Technology
e. TEW – Woodwork Technology

COURSE DESCRIPTION

100L – FIRST SEMESTER

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

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

BTE 111 INTRODUCTION TO METALWORK (2 Credits)

- General Workshop safety rules and regulations
- Metals – their properties and uses
- Production of Iron and Steel
- Ferrous and non-ferrous metals, plain carbon steels
- Basic hand tools: - Measuring and marking out tools, Cutting and striking tools, Holding devices, drilling, screw, rivets and their applications.
- Sheet metalwork tools and equipment
- Simple pattern development and production
- Introduction to Gas and Arc welding
- Soft soldering, and Brazing
- Production of simple engine
- cring components
- Finishing of metal products
- Production of simple engineering components e.g. key holder, spanners, bolt and nuts.

BTE 112 INTRODUCTION TO WOODWORK (2Credits)

- Workshop Environment and Personnel
- Workshop Safety Rules and Regulations
- Classification of hand tools and uses
- Tree growth
- Properties of timber.
- Nigeria and West Africa timber
- Manufactured Boards
- Ornamental wood working
- Fasteners and Fittings
- adhesives
- Design principles and construction

BTE 113 INTRODUCTION TO ELECTRICALAND ELECTRONICS (2Credits)

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

- Observe safety
- State the sources of electricity

- Explain electrical components and tools
- Carry out simple electrical wiring.

TOPICS

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

CHE I11 INTRODUCTION TO PHYSICAL CHEMISTRY (1Credit)

- Electronic structures of elements
- Discharge of electricity through gases
- Determination of E/M cathode rays
- Determination of the charge of an electron
- Concepts of the atom and the molecule
- Isotopes and mass spectrography. Atomic spectra, Bohr atom. Dual nature of matter.
- Uncertainty principle. Hydrogen or bitals
- Many electron systems. Electronic spin AUF BAU Principle, the Periodic table. Ionisation potential. Electron affinity number. Types of chemical bonds. Octel role.
- Lewis formula. Multiple electron-pair bonds.
- Odd-electron compounds.

PHY 113 MECHANIC AND PROPERTIES OF MATTER (1 CREDIT)

- Quantities, Units and Dimensions
- Fundamental and Derived Quantities (Mass, Length, Tim, Current, Temperature, Luminous Intensity and amount of substance).

- Fundamental and Derived Units
- Dimensions – Dimensional equations and their uses
- Vectors and Vector components
- Scalar and Vector Quantities
- Addition and subtraction of Vectors
- Composition and Resolution of Vectors
- Vectors and Scalar products

Motion

- Displacement, Velocity and Acceleration
- One, Two – dimensional motions
- Relative Velocity
- Projectiles

Newton's Law of Motion

- Force and Inertia, Friction

Momentum

- Definition
- Newton's Second Law; F – ma
- Law of Conservation of linear momentum
- Collision

Energy Work and Power

- Concepts of Energy/Work and Power
- Conservation of Energy

Statics

- Equilibrium of forces – Moments, Couples
- Statics Equilibrium – Stable, unstable and Neutral
- Triangle and Polygon of Forces
- Centre of Gravity (CG) and centers of Mass

Elasticity

- Modulus of Elasticity
- Young's sheer and Bulk module
- Poisons ratio

100 LEVEL SECOND SEMESTER

BTE 121 **INTRODUCTION TO BUILDING CONSTRUCTION**
(2Credits)

Specific Objectives:

- Identify common forms and general designs, features of various types of buildings
- Enumerate variety of trades, professions and interest normally involved in the construction of building
- List uses of common building tools and equipment
- State safety regulations governing the construction of building in Nigeria
- Identify building components and their functions (e.g. types of foundations, walls, floors and roofs)
- List functions and types of windows and doors (including iron monger)
- Choose and excel in a career in building industries.

- Variety of trades, professions and regulatory bodies normally involved in the construction of building.
- Uses of common building tools and equipment
- Safety regulations in the building industry
- Standard and Regulations governing the construction of building in Nigeria
- Properties and uses of clay soil classification in the building industry.
- Properties, constituents, production and uses of concrete
- Identification of materials: woods, metals, ceramics, plastics rubber and glass.
- Types/properties and application of mortar for plastering and rendering.
- Types/properties/uses of bituminous materials, putties and mastics
- Types, properties and application of paints in the building industry
- Production of cement, types and its uses in the building industry

BTE 122 **INTRODUCTION TO AUTOMOBILE TECHNOLOGY**
(2Credits)

Specific Objectives

Students to:
Identify the components of a vehicle
Identify different types of engine
maintain all types of automobile engines
State the principles of S.I., C.I. engines and gas turbine
List the different career in Auto Industry
Observe Safety rules and regulations in Automobile workshop
Use Tools and equipment in Automobile Workshop
Function in all Careers in Automobile Industry

Topics

- Auto body and chassis
- Automobile engine
- Working principles of SI and CI engine
- Braking system
- Suspension system

- Automobile battery and types of battery
- Charging, starting lighting and accessories
- Ignition system
- Mechatronics technology
- Sensor and activators
- Transducers
- Engine
- Lubrication system
- Cooling system

BTE 123 APPLIED/FLUID MECHANICS (2Credits)

- Friction
- Vectors
- Dynamics
- Units and types of energy/power
- Speed and pressure relationship in airflow
- Variation of air pressure and air speed with application to lift and drag windmills.
- Surface tension, cohesion and adhesion
- Pressure (definition and types)
- Pressure in fluids
- Types of flow
- Application of fluid mechanics principles

TED 124 INTRODUCTION TO TECHNICAL DRAWING (2 Credits)

- Drawing equipment/instruments, materials and setting out.
- Lines and Lettering
- Dimensioning.
- Graphics Languages.
- Introduction to Orthographic/Pictorial Drawing.
- Geometrical Constructions eg. Ellipse, polygons, angles, triangles,
- Loci.
- Development of surfaces and Interpenetrations

BTE 125 MATHS FOR TECHNOLOGY (Algebra and Calculus) (1 Credit)

- Differentiation from the first principles and the derivation formula $d/dx\ (ax^2) = anx^{n-1}$ i.e. $y = ax^2$ for the differential coefficient.
- Gradients and function
- The differential coefficient as a gradient of a function of point
- Differentiation of product and quotient
- Integration as a reverse process of differentiation
- Application of Integration in determining areas and volumes of solids revolution and solution of other problems.

200L FIRST SEMESTER

TED 211 FOUNDRY & FORGING WORK (1Credit)

- Safety and operational rules in foundry
- Types of metal casting processes
- Foundry tools, devices and furnaces
- Pattern and core making
- Sand mould making and casting
- Melting and casting operations
- Knocking and finishing operations
- Forging tools and equipment
- Production of simple forged articles
- Field trips and excursions to relevant industries should be made compulsory.
- Heat treatment processes
- Heat treatment furnaces only
- Forging processes and operation

TED 212 MACHINE WOODWORKING I (1Credits)

Specific Objectives

Students should be able to:

- State the importance safety in machine shop
- List sequence of operations in machine woodworking
- List types of woodworking machines and operations
- Explain basic maintenance of woodworking machine

TOPICS

- Safety in machine shop
- Sequence of operations in machine woodworking
- Types of woodworking machines and operations; planning machine, band saw machine,

  reciprocating saw etc.
- Basic maintenance of woodworking machines

TED 213 ELECTRICAL CIRCUITS AND ELECTICAL MEASURING INSTRUMENTS (1Credits)

Specific Objectives

Students should be able to:

- Identify and use electrical and testing instruments
- Define and differentiate AC and DC Quantities
- Define resonance and resonant frequency
- State Kirchhoff's law, Thevenin's theorem, Norton theorem and J-notation
- Apply Kirchhoff's law, Thevenin's theorem, Norton theorem and J-notation to calculate various electrical quantities

TOPICS

- Electrical Measuring/Testing Instrument eg. Oscilloscope, analog, Digital meters, Watt meter and Megger.
- Ac and D.C circuits
- Ac quantities and power in A.C circuits.
- Resonance and Resonant frequency only
- Circuit theory (Kirchhoff's law, Thevenin's theorem, Norton theorem and J-notation)

TED 214 CONSTRUCTION METHODS 1 (1Credits)

Specific Objectives:

Student should be able to:

- State planning, organization and preparation of site for simple building projects
- List the basic principles and methods of construction of foundations
- Enumerate principles and methods of wall construction
- List principles and methods of floor construction
- Identify types of roofs and ceiling construction
- Sketch and name the different types of stair construction
- State the process of setting out a simple building
- Read blueprint of a building construction.

Topics

- Planning, Organization and preparation of site for simple building projects
- Basic principles and methods of construction of foundations.
- Principles and methods of Wall construction
- Principles and methods of floor construction
- Types of roofs and ceiling construction
- Types of stair construction
- Setting out of simple building
- Blueprint reading

TED 215 AUTO BRAKING, STEERING AND SUSPENSION SYSTEM (1Credits)

Specific Objectives:

- State the functions of brakes, steering and suspension system
- Identify the different types of brakes, steering and suspension systems
- Carry out simple repairs on the system

TOPICS

- The functions and repairs of the breaking systems, wheels and tyres.

- Layout of a hydraulic braking system
- Types and functions of suspension systems
- Principles of steering operations
- duplication.

TED 216 **ENGINEERING GRAPHICS** **(2Credits)**

- Working Drawing
- Design process
- Technical Illustrations
- **Introduction to**Perspective Drawing

TED 217 **HEAT ENGINES** **(1Credit)**

- General properties of steam
- Steam Engine
- Steam Plant
- Refrigeration and Air Conditioning
- Principles of Internal Combustion Engine

TED 218 **AUTO ELECTRICAL SYSTEM, REPAIRS AND COMPUTER (1Credit)**

Specific Objectives

- State the conditions of battery in a vehicle
- Identify different types of battery
- State the functions of charging, starting, lighting, accessories systems in a vehicle

TOPICS

- Ignition system and repairs
- Transistorized Ignition system
- Valve and Ignition timing
- Duplication.
- Computer development and evolution
- Types of computer and application
- Hardware configurations
- The functional parts of hardware and their functions

- Computer networking (LANWAN and INTERNET).

200L SECOND SEMESTER (Automobile/Metal Work)

VTE 220 ENTREPRENEURSHIP IN VTE (All 200L)

Specific Objectives (2 Credits)

- Define the Concept of Entrepreneurship; Types of entrepreneurships
- Identify Types of risks and their management; conditions for establishing a business: forms of business ownership
- Differentiate Business and Technology – issues and problems.
- Enumerate methods of Financing business – new and old, including innovation techniques

-Explain Management and administration of small and medium businesses

- Discuss the future of business and succession issues; case study
- Define Pilot Study and feasibility report

TOPICS

Risks and its management

- Business and Social responsibility
- Government regulations/taxation, auditing
- Consumer behavior, Shareholders etc.
- Management functions
- Human Resources Management and Communications
- Record keeping/Book-keeping.

TEA 221 AUTOMOBILE ENGINES I (2 Credit)

Specific Objectives:

- Identify different components in an engine
- State the difference between C.I & S.I engines
- State the function of lubrication system and identify components of indicator system
- State the function and major components of coding system
- Carry out repairs on engine Inst. System and cooling system

TOPICS

- Engine: sketch and explain engine components and types
- The Internal Combustion processes in the SI and CI engines
- Explain differences in construction and materials used for both spark ignition (SI) and compression Ignition (CI) engines.
- Lubrication systems:
- Oil Filters, oil pressure gauge and pressure relief value
- Methods used in supplying oil to the engine working parts.
- Cooling system:
- Explain construction, type and working principles of components parts of water-cooled engine e.g. radiator pressure caps, water pump etc.

TEM 222 **MACHINE SHOP PRACTICE(2Credits)**

Specific Objectives

State Safety precautions in machine shop

- Identify Drilling machines – types and operations
- Identify Power saws – types and operations.
- Identify and Explain the features and working principles of centre lathe
- Discuss various methods Heat treatment
- Demonstrate the ability to Drill andsharpen lathe tool
- Perform the operation of Taper Turning
- Perform the operation of Screw cutting on the centre lathe
- Perform the operation of Turning of circular and eccentric components
- identify and use Cutting fluids – coolants and lubricants
- Perfom simple Components production.

TOPICS

Safety precautions in machine shop

- Drilling machines – types and operations
- Power saws – types and operations.
- The features and working principles of centre lathe
- Heat treatment
- Drill and lathe tool sharpening

- Taper Turning
- Screw cutting on the centre lathe
- Turning of circular and eccentric components
- Cutting fluids – coolants and lubricants
- Components production.

TEM 223 MECHANICAL ENGINEERING DRAWING I (2Credits)

Specific Objectives

- Draw Perspective Drawing
- Make orthographic projections of objects
- Identify and Standard conventions for keys, studs, screws, bolts, nuts, etc
- Make Pictorial and orthographic sketches of machine parts and labeling

TOPICS

- Perspective Drawing
- Further orthographic projections
- Standard conventions for keys, studs, screws, bolts, nuts, etc
- Pictorial and orthographic sketches of machine parts and labeling

TED 224 SPECIAL METHODOLOGY (All 200L) (1 Credit)

Specific Objectives

Discuss Problems of Technical Education Teachers in developing Countries

- IdentifySpecial approaches to the teaching of Technical Education subjects
- Develop Lesson planning and presentation
- Provide Teaching Aids & (Use of Improvisation)
- Carry out Assessment and evaluation techniques, systems observation

Develop process of evaluating and product/work sample ratings.

TOPICS

Problems of Technical Education Teachers in developing Countries

- Special approaches to the teaching of Technical Education subjects

- Lesson planning and presentation
- Teaching Aids & (Use of Improvisation)
- Assessment and evaluation techniques, systems observation

process evaluation and product/work sample ratings.

TEB 221 ELEMENTARY STRUCTURAL DESIGNS (2 Credit)

Specific Objectives

Students should be able to:

- State the theory of structure
- State considerations in the choice of building materials
- Determine the stress and strain relationship
- Solve problems relating to shear force and bending moments.
- use the Theory of Structures in design and construction of buildings
- make sound choices of building materials

TOPICS

- Building Materials
- Stress and strain relationship
- Shear force and bending moments. Diagrams
- Theory of Structures

\TEW 222 WOODWORK DESIGNS, CONSTRUCTION AND FINISHING (2Credits)

Specific Objectives:

Students should be able to:

- List types of construction e.g. carcass, stool and framed construction
- explain the purpose of finishing
- differentiate types of finishing
- Enumerate the need for safety precautions in finishing
- State the process of preparation of surface for finishing
- Demonstrate creative and decorative designs (carving, wall paneling, doors, architectures, skirting boards, inlaying margnetry, parqueting etc).
  TOPICS
- Types of construction e.g. carcass, stool and framed construction.
- Purpose and types of finishing
- Safety precautions in finishing

- Preparation of surfaces for finishing.
- Creative and decorative designs (carving, wall paneling, doors, architraves, skirting boards, inlaying **marquetry, parquetry** etc..)

TEB 223 BUILDING/ELECTRICAL DRAWING (2 Credit)

Specific Objectives

- At the end of the course students should be able to:
- Identify various electrical and electronics symbols and drawings
- Interpret and convert circuit diagram to block diagrams and vice-visa
- Draw wiring diagrams for domestic building and school workshop

TOPICS

- Assembly drawings of Electrical/Electronic equipment to BS/N50 engineering practice requirement
- Sectional drawings of electrical equipment e.g. motor single-phase Transformer
- Electrical and Electronic diagrams – common use: Single line, Schematic, Block diagram connection (wiring) and interconnection diagram
- Conversion of CCT diagram to block diagram and vice-visa
- Wiring diagram for Domestic Building and School Workshop
- Electrical and Electronic symbols
- Electrical and Electronics diagram to include schematic point to point, base line diagram, high way diagram.
- Single line, schematic, block diagram connection (wiring) and interconnection diagram.
- Simple electronic circuit and logic diagram e.g. basic power supply, single stage amplifier, culprit's oscillators etc.
- Blue print reading

TEE 221ELECTRONIC AND ELECTRONIC DEVICES (2Credit)

Specific Objectives

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

- Define and explain the concept of thermionic emission process and vacuum tubes
- Explain various semiconductor devices and their applications
- Explain the concept of ICT
- Semi-conductor devices

TOPICS

- Thermionic Emission Process (Bipolar, transistors, Field Effect Transistors (FET) Thyristor, Semi-conductor diodes).
- Logic gates and circuits
- Electronic transistors and amplifiers
- Oscillation and Oscillators
- Introduction to computer and computer devices
- Information and Communication Technology (ICT): Analogue and digital Communication systems, Meaning and nature of ICT process, Schematic diagram of GSM transmission system, Meaning of internet and its process, Internet equipment and transmission process, Merits and demerits of the internet etc.

TEE 222DIGITAL ELECTRONICS **(2 Credits)**

Specific Objectives

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

- Explain Basic Computer parts, types and other devices
- Explain computer hardware configuration and techniques of computer aided designs.
- Explain Number system
- Explain Logic gates
- Identify Computer parts and types
- Explain Flip-flop
- Explain Counters
- distinguish between Decoders and Encoders
- explain the functions of Microprocessors
- Carry out designs using Computer aided software
- Configure Computer Hardware
- identify and of computer and computer devices

Topics

Basic Computer parts, types and other devices

- computer hardware configuration and techniques of computer aided designs.
- Number system
- Logic gates

- Computer parts and types
- Flip-flop
- Counters
- Decoders and Encoders
- Microprocessors
- Computer aided design
- Computer Hardware Configuration
- Introduction to computer and computer devices

TED 225 SIWES (All 200L) (2 Credits)

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

Specific Objectives

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

AUTOMOBILE TECHNOLOGY- 300L - FIRST SEMESTER

EDU 311	**Teaching Practice**	**6C**
EDU 323	**Research Project**	**2C**

AUTOMOBILE TECHNOLOGY- 300L - SECOND SEMESTER

TEA 321 AUTO WORKSHOP PRACTICE I (1 Credits)

Specific Objectives

- Identify and use the precision machines/equipment in the auto workshop
- Carry out simple repairs and services in auto workshop
- Determine the engine's conditions after over-hauling

Topics

- Precision measurements of Engine components e.g. Dial indicator, venire caliper, micrometer
- Engine servicing and repairs.
- Engine re-conditioning and testing
- Use of cylinder boring and honing machines, gas analyzer, dwell meter, vacuum gauge stroboscopic timing light etc.
- Valve re-facing and re-grinding
- Injector testing and repairs
- Carburetor repairs

TEA 322 AUTO FUELING AND AIR CONDITIONING SYSTEMS (1 Credit)

Specific Objectives

- List the types of fuels
- State the properties of fuels
- State the functions of the components in the fuel system
- State the operational principles of Auto A/C System
- Carry out simple tests and repair on Auto A/C System

Topics

- Properties and safety precautions of fuels
- Fuel Filtration and types of fuels
- Fuel system layouts and major components
- Working principles of fuel pumps and repairs
- Working principles of petrol injection
- Working principles of carburetors used on various engines
- Automobile air conditioner and repairs

TEA 323 PRACTICAL PROJECT (2 Credits)

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

TEM 324 MECHANICAL ENGINEERING DRAWING II (2 Credit)

Specific Objectives

Students should be able to:

- Produce pictorial and orthographic drawing of machine parts involving labeling of cams, gears, etc.
- Make assembly drawing of given machine components
- Produce assembly drawing from exploded views of machine components and vice visa.

Topics

- Pictorial and orthographic projections of machine parts and labeling
- Cams and Gears
- Assembly drawing of machines and machine components
- Assembly drawings from exploded view of components and vice versa

TEA 325 MAINTENANCE AND REPAIRS OF MECHANICAL EQUIPMENT (1Credit)

- Enumerate types of maintenance
- State strategies for Maintenance
- Maintenance pumps: eg. Valves, tools, mechanical pump (centrifugal and plugs typed electrical pumps).
- Maintenance of valves
- Maintenance of tools

Topics

- Types of maintenance
- strategies for Maintenance
- Maintenance pumps: eg. Valves, tools, mechanical pump (centrifugal and plugs typed electrical pumps).
- Maintenance of valves
- Maintenance of tools

TEA 326 SCHOOL WORKSHOP MANAGEMENT (1 Credit)

- Comprehensive, general and unit workshops
- Material control
- Maintenance and records
- Equipment and Supplies
- School workshop design (units and integrated)

Safety and safety equipment workshop/laboratory personnel and their responsibilities

TEA 327 VEHICLES DRIVING (1 Credit)

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

BUILDING TECHNOLOGY 300L FIRST SEMESTER

EDU 311	Teaching Practice	6C
EDU 323	Research Project	2C

BUILDING TECHNOLOGY - 300L SECOND SEMESTER

TEB 321 LAND SURVEYING (1 Credit)

Specific Objectives

Students should be able to:

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

- Branches of land surveying (chain leveling traversing etc)
- Simple chain surveying
- Simple leveling
- Simple traversing
- Computations of areas and volumes
- Contouring
- Setting out

TEB 322 CONSTRUCTION METHODS II (2 Credits)

Specific Objectives

Students should be able to:

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

TEB 323 PRACTICAL PROJECT (2Credits)

Specific Objective

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

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

TEB 324 BUILDING DRAWING (2Credits)

Specific Objectives

Students should be able to:

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

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

TEB 325 BUILDING MAINTENANCE AND REPAIRS (1Credit)

Specific Objectives

Students should be able to:-

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

TEB 326 SCHOOL WORKSHOP MANAGEMENT (1 Credit)

- See TEM 326 under Automobile or Metalwork Technology.

TEB 327 CONSTRUCTION MANAGEMENT (1 Credits)

Specific Objectives

Students should be able to:

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

300L FIRST SEMESTER ELECTRICAL AND ELECTRONICS TECHNOLOGY

EDU 311	Teaching Practice	6C
EDU 323	Research Project	2C

300L SECOND SEMESTER ELECTRICAL AND ELECTRONICS TECHNOLOGY

TEE 321 ELECTRICAL MACHINES AND POWER (2 Credits)

Specific Objectives

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

- Explain types of power generation, transmission and distribution and their components
- Explain techniques of protective devices and testing
- Explain operation of various electrical machines.
- Identify Power generation, transmission and distribution, transmission lines, Tariffs, power factor and correction
- Explain Sub-station installment and maintenance
- Identify and explain the operation of various types of Protection devices
- Design a simple Power supply and stabilization systems
- Discuss the operations of Machines (AC and DC) including **Transformers**
- carry out Testing installation
- explain Wiring systems (industrial)

Design Illumination of building

Topics

- Types of power generation, transmission and distribution and their components

Techniques of protective devices and testing

Operation of various electrical machines.

- Power generation, transmission and distribution, transmission lines, Tariffs, power factor and correction
- Sub-station installment and maintenance
- Protection devices
- Power supply and stabilization systems
- Machines (AC and DC) including **Transformers**
- Testing
- Wiring systems (industrial)

Illumination

TEE 322 - TELECOMMUNICATIONS (2Credits)

Specific Objectives

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

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

Topics

Various components of Telecommunication System

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

TEE 323PRACTICAL PROJECT (2 Credits)

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

TEB 324 BUILDING DRAWING (2Credits)

- See TEB 324 under Building Technology

TEE 325 MAINTENANCE AND REPAIR OF ELECTRICAL AND ELECTRONIC EQUIPMENT (1Credit)

Specific Objectives

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

- Mention and explain types of Maintenance and Repairs Techniques
  Identify and Explain Electrical/Electronic Equipment.
- Explain Safety rules and regulations
- Explain Types of electrical maintenance
- carry out Servicing and maintenance of Electrical and Electronics and Installation
- Explain the advantages& disadvantages of maintenance
- Carry out Maintenance and repair of Computer Hard wares

Topics

types of Maintenance and Repairs Techniques
Electrical/Electronic Equipment.

- Safety rules and regulations
- Types of electrical maintenance
- Servicing and maintenance of Electrical and Electronics and Installation
- Advantages & disadvantages of maintenance
- Maintenance and repair of Computer Hard wares

TEE 326SCHOOL WORKSHOP MANAGEMENT (1Credit)

- See TEA 326 in Automobile technology.

METAL WORK TECHNOLOGY – 300L FIRST SEMESTER

EDU 311	**Teaching Practice**	**6C**
EDU 323	**Research Project**	**2C**

METAL WORK TECHNOLOGY – 300L SECOND SEMESTER

TEM 321 MACHINE SHOP PRACTICE II (2 Credits)

Specific Objectives

- To expose the students to advanced machine shop process
- Precision measurement and Inspections (tools application) e.g. (venier, calipers, micrometre screw gauge etc.
- Topics
- Advanced Lathework
  (a) Taper turning, screw cutting
  (b) Eccentric turning etc.
- Types of lathes and their applications
- Shaping machine and shaping operations
- Grinding machine and grinding operations
- Introduction to computer assisted machining

- Mechanic programming procedure

Numerical Control

Milling and Milling operation

- Drilling and drilling operation

TEM 322 ADVANCED FABRICATION AND WELDING (2 Credits)

-Specific Objectives

- To expose the students to advanced fabrication and welding processes

TOPICS

- Complex pattern development and production
- Layout and production of components
- Preparing cutting lists of pattern pieces
- Design and production of simple engineering components
- Finishing processes of fabricated projects e.g. Electroplating, Galvanizing, Painting, etc.
- Science of welding e.g Electrode and its coating fluxes, welding materials, welding defects etc.

- Advanced welding processes and its application

TEM 323 PRACTICAL PROJECT (2 Credits)

Each Students should carry out a major practical project on applied mechanical/metal Technology backed by a written report.

TEM 324 MECHANICAL ENGINEERING DRAWING II (2Credits)

- Pictorial and orthographic drawing of machines parts and labeling cams and gears.
- Assembly drawing of machine and components
- Assembly drawing from exploded view of component and vice versa

TEM 325 MAINTENANCE AND REPAIR OF MECHANICAL TOOLS AND EQUIPMENT (1 Credit)

-Specific Objectives

- To train the students on simple workshop maintenance skills
  Identify different types of maintenance

Topics

- Cleaning and lubrication of lathe, milling machine etc.
- Lubrication of Hand tools and Storage
- Maintenance processes
- Types of maintenance and policies

- Over-hauling and repair of grinding machines, sheetmetal equipment etc.
- Maintenance and repairs of machine tools, such as: lathe machine, grinding machine, shaping machine, milling machine, drilling machine, power hacksaw machine and shearing machine.

TEM 326 SCHOOL WORKSHOP MANAGEMENT
(1Credit)

- see TEA 326 under automobile technology

300L FIRST SEMESTER WOODWORK TECHNOLOGY

EDU 323	Research Project	2C
EDU 311	Teaching Practice	6C

300L SECOND SEMESTER - WOODWORK TECHNOLOGY

TEW321 DESIGN REHABILITATIONOF WOODWORK ITEMS AND UPHOLSTERY

(2Credits)

Specific Objectives

Expose students to upholstery design, equipment and different upholstery construction methods

Topics

Complex designs and costing

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

TEW 322 MACHINE WOODWORKING II (2 Credits)

Specific Objectives

To Expose students to various power tools and their operations for mass production of wooden items

TOPICS

- Portable power tools and their operations, e.g. portable power saws, planer, jig saw, sander, blower, sprayer, router etc.

- Advance woodworking machines operations
- Mass production of various items by using woodworking machines.

TEW 323 **PRACTICAL PROJECT** **(2Credits)**

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

TEB 324 **BUILDING DRAWING** **(2Credits)**

See TEB 324 in Building Technology

TEW 325 **MAINTENANCE AND REPAIRS OF WOOD WORK EQUIPMENTS AND ITEMS (1 Credit)**

Specific Objectives

Expose students to the maintenance and repairs of general wood work equipment and items

Topics

Cleaning of woodworking machine parts

- Greasing/overhauling of woodwork machines
- Replacement of machine spare parts
- Removal and replacement of wood fittings
- Reconditioning of woodwork tools
- Sharpening and setting machine cutters
- Brazing, folding and fixing of Band saw blades

TEW 326 **SCHOOL WORKSHOP MANAGEMENT** **(1Credit)**

- See TEM 326 under Metalwork Technology

SIWES ASSESSMENT FORM

NAME.....

DEPARTMENT.....

CLASS.....

PLACE OF ATTACHMENT.....

ADM. NO. .....

YEAR OF ATTACHMENT.....

ASSESSMENT

DESCRIPTION	MARK OBTAINABLE	MARKS OBTAINED
Log Book	50%	
Supervisor's Assessment	20%	
Industrial based supervisor's comment	5%	
Oral interview with student	5%	
Written technical Report by student	10%	
*Defence of Technical Report	10%	
Entrepreneurship in Vocational and Technical Education II **Total: -**	100%	

*Breakdown of Defence of Technical Report

Main Assignment 3%

Presentation 1%

FINAL GRADE

Ability to Solving problems on site 3%

Relevance of Experience 3%

Other Remark:.....

.....

NAME OF SUPERVISOR.....

SIGNATURE.....

NB: To be completed in Triplicate,

- *Original goes to the School Exam officer*
- *Duplicate goes to the SIWES Coordinator*