



Science Teachers Association of Nigeria

SCHEDULE OF 2016 NATIONAL WORKSHOPS

- ❖ The Science Teachers Association of Nigeria hereby invites all Science, Technology, Engineering, and Mathematics personnel to its 2016 workshops.
- ❖ Ministries of Education and other educational agencies are please requested to provide full sponsorship for members on their staff to attend the workshops.
- ❖ The first day indicated on the schedule is for arrival and registration while the last day is the departure date.
- ❖ The registration fee for each workshop is N 2,500 (two thousand five hundred naira) per participant.
- ❖ Feeding and accommodation charges will vary depending on the type of hostel/hotel available around the venue of the workshop.

For enquires, please contact:

The Principal Administrative Officer
Science Teachers Association of Nigeria
The STAN Place
Kwali
P.M.B.777 Garki, Abuja
Website: www.stanonline.org
Tel: 0708 274 3110, 0805 196 9227
Email: stan.headquarters@gmail.com

AGRICULTURAL SCIENCE

Date: 8 – 14 May 2016

Venue: Government Model School, Makurdi, Benue State

COURSE TITLES & CODES (Modules)	COURSE UNITS	Course Contents/Descriptions
STAN AGS 104 Sun, Air, Water and their uses (Module 4) (PRIMARY)	Unit 1: The sun and its uses	Nature of the sun; How to feel the sun; Uses of the sun (solar energy)
	Unit 2: Air and its uses	Nature of air; Uses of air; Effects of air pollution; Methods of controlling air pollution
	Unit 3: Water and its uses	Composition of water; Types of water; Sources of water; Uses of water; Danger of unclean water; Effects of flooding on human beings and the environment
STAN AGS 204: Weeds (Module 4) (JUNIOR SECONDARY)	Unit 1: Definition & Classification	Meaning of weeds with examples; Description of the adaptive structures of weeds; classifications of weeds; characteristics of weeds
	Unit 2: Uses & Weed Control	Uses of weeds; Methods of weed control; damages to crop plants; Effects of chemicals used in weed control on vegetation, environment and water
STAN AGS 305 Agricultural Engineering (Module 5) (SENIOR SECONDARY)	Unit 1: Sources of farm power	Sources of farm power (Human, Animals, mechanical, electrical, solar, wind, water); Advantages and disadvantages of each of the types.
	Unit 2: Problems and prospect of mechanization	Broad definition of mechanization; Advantages and disadvantages of mechanization, limitations of mechanization; prospects of mechanization in Nigeria
	Unit 3: Farm Machinery	Types of farm machinery; common farm machinery – Tractors, bulldozer, Sheller, Dryers, incubators, milking machine etc.; Tractor –coupled implements – Ploughs, harrows, Ridgers, Planters and Harvesters, Sprayers etc
	Unit 4: Surveying and Planning of farm stead	Importance of farm surveying and planning; Common survey equipment; principles of farm stead outlay

Contact Persons:

Chair

Alhaji Tajudeen Akanbi
Federal Government College
Minna
0806 770 8211, 0805 596 3325

Secretary

Mr. Femi Patrick Omotuyi
Holy Trinity Grammar School
Ondo, Ondo State
0806 358 1013

State Chair

Mr. Jeremiah Wanniam, Ogiri Oko Memorial School, Makurdi, 0812 259 8524

BASIC SCIENCE

Date: 8 – 14 May 2016

Venue: Education Resource Center, Bossa Road, Minna, Niger State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/DESCRIPTION
STAN BSC 204: Non-Living Components of the Environment I (Module Four) (JUNIOR SECONDARY)	Unit 1: Observation and classification of non-living things	Observing samples of non-living things. Limitation of our senses. Use of devices to aid our senses. Criteria for classification – colour, smell, shape, texture, taste etc. Classification into solid, liquid and gases.
	Unit 2: Measurements	Need for a standard measurement. Measuring devices – metre rule, a balance, a clock, a thermometer, a measuring cylinder. Measurement of length, mass, time, temperature and of volume.
	Unit 3: State of Matter	Solid, liquid and gases - water as an example. Particulate theory of matter. Use of particulate theory of matter to explain evaporation, boiling, melting, compressibility, pressure, cloud formation, water cycle, expansion. Physical change. Chemical change
	Unit 4: Air and Water	Pressure of air in our environment. Composition of air. Properties of air – has weight, exerts pressure, is compressible, is a mixture, moves (i.e. wind). Sources of water. Purifications of water – sedimentation, filtration, distillation. Uses of water. Burning of substance in the air. Proportion of air used. Laboratory preparation of oxygen
	Unit 5: Man and Space	The earth, sun and moon. Climate and seasons. Solar system. Stars.
	Unit 6: Elements, Compounds and Mixture	Elements, Compounds and mixtures. Methods of separating mixtures - decantation, filtration, distillation, evaporation, sieving, chromatography, sublimation etc.
	Unit 7: Hydrogen	Preparation, properties and use of hydrogen. Water as products of hydrogen and oxygen (synthesis of water from dry hydrogen and oxygen; electrolysis of water to give hydrogen and oxygen).
	Unit 8: Rusting	Rusting in nature. Conditions necessary for rusting. Rusting compared with burning and respiration.
	Unit 9: Energy	Concept of energy. Sun as primary source of energy. Forms of energy. Heat energy – temperature, effects of heat. Ways of producing heat. Light energy. Pinhole camera, eclipse, reflection of light, refraction of light. Colour – prism and production. Absorption of light by coloured objects.
	Unit 10: Measurement	Measurement of density, force, pressure. Mass and weight.

Contact Persons:

Chair

Hon. Dawleng Monday Ngufwan
Boys' Secondary School
P.M.B. 01001
Gindiri
Plateau State
0806 529 0922

Secretary

Mrs. Maryrose Mbanefo
Federal Government Girls' College
Ibusa
Delta State
0803 715 3517

State Chair

Mallam Suleiman Danjuma Mohammed, Government Technical College, P.M.B. 31, Minna, Niger State, 0803 569 6362

BASIC SCIENCE & TECHNOLOGY

Date: 15 – 21 May 2016

Venue: Community Secondary School, Aka Offot, Akwa Ibom State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN BST 103 Air, Water, Acids, Bases and Soap (Module Three) (PRIMARY)	Unit 1: Air and Water	The meaning and existence of air and water. Air in motion and floatation. Constituents of air and water. Uses of air and water
	Unit 2: Acid, Bases and Soap	Common acids and bases. Acids and bases and their reactions. Saponification as a process of making soap. Types of soap and their uses.

Contact Persons:

Chair

Mr. Iniobong Udofia
Government Secondary School
Ikot Idaha
Ibiono Ibom
Akwa Ibom State
0813 668 4536, 0809 210 8449

Secretary

Maryam Istifanus Danung
National Veterinary Research Institute
P.M.B.01
Vom
Plateau State
0813 910 1015, 0808 515 1643

State Chair

Elder Udeme Udofia, Community Secondary School, Afaha Eket, Eket, 0806 715 8228, 0802 831 6013

BIOLOGY

Date: 15 – 21 May 2016

Venue: STAN Secretariat, Festac College Compound, Festac Town, Lagos State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN BIO 302 Microorganisms (Module 2) (SENIOR SECONDARY)	Unit 1: Micro-organisms around us	Micro-organisms in air and water (groups of micro-organisms: bacteria, viruses, some algae, protozoa and some fungi), identification of micro-organisms in air, water soil, food and our body, carriers of micro-organisms and their locations.
	Unit 2: Micro-organisms in action	Locations of micro-organisms in carriers, growth of micro-organisms, beneficial and harmful effects, ways in which disease causing organisms spread and are transmitted.
	Unit 3: Towards Better Health	Control of harmful micro-organisms, vectors (definition, ways of controlling vectors, Pupils health (maintenance of good health and ways in which community can assist)

Contact Persons:

Chair

Dr. Agbo Felicia Onyemowo
Science and Technology Education Department
University of Jos
Jos
Plateau State
0803 404 0671

Secretary

Mrs. Victoria Nwaorgu
Model Secondary School
Maitama
Abuja
0812 480 5180

State Chair

Mr. Olufemi Oyekan, Lagos State Civil Service Senior Model College, Igbobo, Lagos, 0705 788 6462

CHEMISTRY

Date: 22 – 28 May, 2016

Venue: Federal Science & Technical College, Awka, Anambra State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN CHE 301 Nature of matter and Separation Techniques (Module 1) (SENIOR SECONDARY)	Unit 1: Nature of Matter	Matter; Properties of matter; types of change; elements, mixture and compounds.
	Unit 2: Separation Techniques	Separation techniques (filtration, evaporation and decantation; Crystallization and re-crystallization; Distillation and fractional distillation; Precipitation; Chromatography

Contact Persons

Chair

Rev. Sr. (Dr) Margaret Enedoh
Immaculate Model Secondary School
Nnewi, Anambra State
0803 358 1992

Secretary

Dr. Toyin E. Owoyemi
University of Lagos
Lagos
0703 420 2968, 0805 918 0031

State Chair

Dr. Marcellinus C. Anaekwe, Federal College of Education, Umunze, 0803 440 9294

COMPUTER STUDIES

Date: 22 – 28 May, 2016

Venue: Computer Science Dept., Federal College of Education, Kano, Kano State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN CPS 103: Application Package (Module 3) (PRIMARY)	Unit 1: Programming languages	Meaning and identification of computer programs; definition of programming language; examples of computer programming language (e.g LOGO, BASIC etc)
	Unit 2: Application Packages	Meaning of application packages; types of application packages; examples of packages (e.g. Graphic package, Spreadsheet package, etc)
STAN CPS 201: Information Age (Module 1)	Unit 1: Technology of different information age	Different ages - Stone age; Iron age (hoe and cutlass); Middle age (feather pen and ink); Industrial age (machine); Electronic age (computers and internet).
	Unit 2: Data and Information	Meaning, sources and examples of (i). Data (ii) information; Qualities of good information (accurate, meaningful, comprehensive, relevant, timely, suitable)

(SECONDARY)	Unit 3: Information Transmission	Ancient method of information transmission (oral, beating drums, fire lighting, town crying, whistling, drawing diagrams, making representations); Modern methods of information transmission (prints, telephone, telex, radio, television, fax, satellite, internet, GSM); Classification of means of transmitting information (electronic and non-electronic); Modes of receiving information (Audio; Visual; Audio-visual)
	Unit 4: Information Evolution	Evolution of information and communication technology - invention of printing; invention of radio and television; invention of computers; linking up of computers and communication technology (ICT)
	Unit 5: Data Processing	Definitions of data processing; Data processing cycle (data gathering, data collation, input stage, processing stage, storage stage, output stage); Importance of the computer as a tool for processing data (increased accuracy, efficient storage facilities, fast access to information; handles repetitive tasks)
	Unit 6: Historical development of computers	Early counting devices (fingers, stones, sticks, pebbles, cowries etc); Mechanical counting and calculating devices (Abacus, slide rule etc); Electro-mechanical counting devices (John Napier bone; Blair Pascal machine, Gotfried Leibniz machine, Joseph Jacquard loom, Charles Babbage analytical machine, Philip Emeagwali); Electronic counting devices and modern computers (Herman Hollerith punch cards, John Von Neumann Machine, modern machines); Generations of computers (1 st , 2 nd , 3 rd , 4 th , and 5 th generations)

Contact Persons:

Chair

Mr. Francis Oladeji
Capital Science Academy
Kuje
Abuja
0706 310 0622

Secretary

Aniefiok Ikott
Community Secondary School
Ikot Akpam
Akwa Ibom State
0803 550 9425

State Chair

Mohammed A. Falali, KERD, Gandun Albasa, Kano, 0806 047 3672

HOME ECONOMICS

Date: 29 May – 4 June, 2016

Venue: Queen Amina College, Kaduna, Kaduna State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN HEC 103 Food and Nutrition (Module Three) (PRIMARY)	Unit 1: Food and Feeding	Meaning of food and food groups. Functional classification of food. Food in the locality and food for health. Good feeding habits.
	Unit 2: Snacks and Meals	Meaning and importance of Snacks and fruit drinks. Differences between snacks and main meals. Special dishes and drinks. Meal services and entertainments.
	Unit 3: Food Preparation and Preservation	Common methods of cooking simple food and snacks. Simple food preservation and storage. Methods of food preservation and storage.
STAN HEC 203 Family Living (Module Three) (JUNIOR SECONDARY)	Unit 1: The Family	The meaning of family. Composition of the family. Types of family. Roles of each family member
	Unit 2: Marriage and Marriage Systems	Meaning of marriage. Meaning of courtship practices. Marriage system and procedures in Nigeria.
	Unit 3: Pregnancy, Childcare & Development	Pregnancy and childbirth: signs, Antenatal, post-natal care and preparation. Childcare practices and stages of child development. Factors that influence child development. Common childhood ailments.
	Unit 4: Family Budget	Meaning and importance of family budgets. Factors to consider in making family budgets.
	Unit 5: Family Conflict	Meaning and types of family conflicts and crisis. Causes of family conflict and crisis. Impact of conflict and crisis on the family.
	Unit 6: Family values, and Human Rights	The meaning of family value. Impact of family value in life style. Human rights and violation. Rights of the child, women etc.
STAN HEC 303 Family Living II (Module Three) (SENIOR SECONDARY)	Unit 1: Sexually transmitted infections/Diseases	Meaning and types of sexually transmitted infections/diseases. Causes, symptoms, prevention and treatment of the STDs.
	Unit 2: Courtship and marriage	Meaning of courtship and marriage. Precautions in Courtship. Boy/Girl relationships.
	Unit 3: Family Planning, Pregnancy and Childbirth	Meaning of family planning. Procedures for family planning. Stages of pregnancy and childbirth. Basic cares at pregnancy and after birth.
	Unit 4: Parenting, Child development and Home healthcare	Meaning of parenting, child development and home health care. Stages of child development. Approaches to home healthcare.

Contact Persons**Chair**

Vivian A. Ojukwu
The International School
University of Ibadan
Ibadan
0807 260 3048

Secretary

Madichie Williams
Federal College of Education (Technical)
Umunze
Anambra State
0802 327 0141

State Chair

Mallam Abdulrasheed Aliyu, Science Secondary School, Birnin Gwari, Kaduna, 0706 603 7377, 0705 632 0703

MATHEMATICS

Date: 29 May – 4 June, 2016

Venue: Math Lab. Ignatius Ajuru University of Education, Port Harcourt, Rivers State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN MAT 105 Everyday Statistics (Module Five) (PRIMARY)	Unit 1: Everyday Statistics	Basic concepts and applications of statistics. Single numbers. Groupings and group descriptions. Concept and applications of pictograms; bar graphs;
	Unit 2: Everyday Statistics	Data collection and presentation; measures of central tendency of a sample or. Population. Measures of dispersion.
STAN MAT 201: Number and Numeration (Module One) (JUNIOR SECONDARY)	Unit 1: Number and numeration I	An indigenous system of special relevance locally; The Roman system; The abacus as a calculating machine: Brief history of the spread of the Hindu-Arabic system; Revision exercises in addition, subtraction, division and multiplication.; Place value, diagnostic tests; word problems. The law of equivalence of common fractions; Basic processes applied to decimal fractions. Relation between percentages, common and decimal fractions. Addition and subtraction of positive and negative integers. Use of number line. Range of cost of various articles. Dimensions, capacity, mass of every day articles, local distances, personal statistics of people. Obtaining approximate values for calculation involving the four basic arithmetic processes. Rounding numbers to the nearest 1, 10, 100, 1000 as appropriate.
	Unit 2: Number and numeration II	Large numbers – one million and above. Large numbers in standard form. Primes (not exceeding 200) factors; Perfect squares; Common multiples and factors; Square roots by factor method; Rules of divisibility. Fractions, ratio, decimals (terminating and recurring) and percentages. Household arithmetic including budgeting, savings, rents, taxes, install mental buying etc. Commercial arithmetic including profit and loss, interest, discount, commission etc. small decimal fractions. Standard form of numbers less than one. Place value; Approximation; Problems using the basic operations involving money, population, export, and import. Ready reckoners –their construction and use. Square and squawroot tables; Various tables, charts, records and schedules. Multiplication and division of directed numbers. Multiplicative inverse and identity
	Unit 3: Number and numeration III	Binary counting system. The punched card I = yes, 0 = no, intersection presented as ‘yes yes’. Complement presented as ‘no’. The interpretation of word problems into numerical expressions and equations using brackets and fractions. The concept of inverse proportion. Study of applications such as speed, productivity, consumption, and reciprocal. Compound interest. Non rational numbers. Decimal places and significant figures. Problems in Mensuration involving volume, area of land, distances consumer arithmetic, games and athletics timing etc.
STAN MAT 305 Trigonometry (Module Five) (SENIOR SECONDARY)	Unit 1: Trigonometry I	Trigonometric ratios of 30°, 45°, and 60°. Application to simple problems. Trigonometric ratios related to the unit circle. Graphs of sine and cosine for $0^\circ \leq X \leq 360^\circ$
	Unit 1: Trigonometry II	Angles of elevation, depression, and bearings involving calculation of lengths and angles. Graphs of sine and cosine between 0° to 360° .

Contact Persons**Chair**

Mr. Bello Abdulqadir
Mathematics Department
Federal College of Education
Yola, Adamawa State
0807 260 3048

Secretary

Mr. Emmanuel Olo
Mathematics Department
Ebonyi State College of Education
Ikwo, Ebonyi State
0807 260 3048

State Chair

Mr. Amadi E. Oporum, Community Secondary School, Obite-Etche, Rivers State, 0807 558 8643

PHYSICAL & HEALTH EDUCATION

Date: 5 – 11 June, 2016

Venue: Federal College of Education, Osiele, Ogun State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN PHE 103 Games and Sports (Module Three) (PRIMARY)	Unit 1: Indigenous Games and Sports	Rats and Rabbits. Fire on the mountain. Description of types, skills and rules in indigenous games and sports. Students should be involved in identification of indigenous games in their locality.
	Unit 2: Football (Soccer)	Activity – kicking, stopping, dribbling, heading, passing, shooting, chesting, throw-in, trapping. The history of football in Nigeria. Rules and regulations. Football officials and their duties. Court dimensions
	Unit 3: Basketball	Activity – Bouncing, throwing, catching, passing and dribbling. Defencing and offencing. Shooting, guard, forward etc. the history of the game in Nigeria. Rules and regulations. Officials and their activities. Court dimensions.
	Unit 4: Volleyball	Activity/skills – volleying, digging. History of volleyball in Nigeria. Rules and regulations. Officials and their activities. Court dimensions
	Unit 5: Table Tennis	Activity – The grip and serving, fore hand and backhand drives. Rules and regulations. Officials and their activities. Measurement of Table Tennis table.
	Unit 6: Hockey	Skills and techniques used in hockey. E.g. grip, hitting, passing, dribbling, etc. The history of hockey in Nigeria. Facilities and equipment e.g. the sticks, field etc. Rules and regulations. Officials and their duties.
	Unit 7: Handball	Skills in Handball – throwing, dribbling, tackling, shooting, goalkeeping. Rules and regulations. Officials and their duties. Court measurement & their markings.
	Unit 8: Swimming	Safe hints e.g. shower before and after swimming, don't swim immediately after meal. Skills in swimming e.g. entry into the water, ducking, breath holding etc. Types of strokes – front crawl, breaststroke, back stroke, butterfly stroke.
	Unit 9: Wrestling	History of wrestling and types of wrestling i.e. traditional and modern wrestling; importance of wrestling; skills and techniques of wrestling
	Unit 10: Karate and Taekwando	History of Karate. Its importance. Basic skills for karate. Rules and regulations. The history of Taekwando. Its importance. Rules and regulations
STAN PHE 203 Physical Fitness and Body Conditioning Programmes (Module Three) (JUNIOR SECONDARY)	Unit 1: Meaning and Components of Physical Fitness	Characteristics of a physically fit person. Fitness exercises
	Unit 2: Defects and Benefits of Physical Fitness Exercises	Posture and postural defects. Benefits of physical fitness exercises. Factors that influence physical fitness.
STAN PHE 303 Basic Human Anatomy and Physiology in Relation to Exercise (Module Three) (SENIOR SECONDARY)	Unit 1: The Skeletal System	Main parts and function of the human skeleton.
	Unit 2: Nervous System	Parts, structures and functions
	Unit 3: The circulatory System	Parts, structures and functions
	Unit 4: Reproductive System	Parts, structures and functions
	Unit 5: Respiratory System	Parts, structures and functions
	Unit 6: Digestive System	Parts, structures and functions
	Unit 7: Endocrine System	Organs, functions and effects.
	Unit 8: The Human Systems and Exercise	Relationships of the various systems to exercise

Contact Persons

Chair

Miss Christiana Ify Azodo
 P.O.Box 23
 Umudioka Dunukofia
 Anambra State
 0803 627 3422

Secretary

Dr. Tony Onohwakpor
 Department of Physical Health Education
 College of Education
 Warri, Delta State
 0802 830 4117

State Chair

Mr. Peter A. Onanuga, Department of STED, Olabisi Onabanjo University, Ago Iwoye, 0803 408 3958

PHYSICS

Date: 5 – 11 June, 2016

Venue: College of Education, Jalingo, Taraba State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN PHY 303 Conservation Principles (Module Three) (SENIOR SECONDARY)	Unit 1: Linear Momentum	Momentum and impulse; Newton’s law of motion; Conservation of Linear Momentum; Collisions; Inertia, Inertia mass and weight; Applications of the laws
	Unit 2: Mechanical energy, Heat Energy – temperature and measurements – Heat energy measurements	Concept of work as a measure of energy; quantitative treatment of mechanical energy; temperature and its measurements; pressure and temperature of gas; thermometers; absolute scale of temperature; molecular explanation of temperature; Heat energy measurements (specific and latent heats); applications of latent heat; evaporation, boiling and sublimation; relative humidity and dew point
	Unit 3: Gas laws, fluids at rest in motion	Measurement of gas pressure; barometer in practical use; Boyle’s law and its application; Charles law and its application; General gas law
	Unit 4: Conservation of Energy	Conservation of mechanical energy, Applications of mechanical energy, Machines

Contact Persons

Chair

Muhidin Ahmed Sherif
 Department of Basic Sciences
 Federal Polytechnic
 Damaturu
 Yobe State
 0802 381 0419, 0805 468 5470

Secretary

Dr. Theresa Ugonwa Okafor
 Anambra State University
 Uli
 Anambra State
 0806 372 2257, 0805 561 3812

State Chair

Mallam Mohammed Bello, College of Education, Jalingo, 0806 770 2545

TECHNOLOGY EDUCATION

Date: 12 – 18 June, 2016

Venue: Kwara State College of Education, Ilorin, Kwara State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN AEL 304 Charging Systems (Module Four) (SENIOR SECONDARY)	Unit 1: Charging System and Charging Circuit Diagram	The charging system assembly as a sub-system in a motor vehicle. Graphical and pictorial representation of the charging circuit. Need for diagrammatic representation of the charging system. How to remove and fix the charging system
	Unit 2: Voltage Regulator	The voltage regulator. Construction and operation of the voltage regulator. Functions of the voltage regulator.
STAN AUM 305 Electrical Systems (Module Five) (SENIOR SECONDARY)	Unit 1: The Lighting System	Main components of exterior lighting system and their functions. Main components of interior lighting system and their functions. Simple circuit diagram of exterior and interior lighting system.
	Unit 2: Ignition System	The main components of computerized ignition system
	Unit 3: Auxiliary Circuit	Auxiliary circuit e.g. instrument panel, horn circuit. Layout of various auxiliary circuits.
	Unit 4: Battery Charging and Charging System	Purpose of lead-acid battery. Basic construction features of a battery. Chart on battery diagnosis. Charging guide.
	Unit 5: Remote Control	Principles of remote control. Basic components of remote control. Operating guide.
	Unit 6: Mechatronic Principles	Components of mechatronics. Operations of the mechatronic components. Reasons and benefits of mechatronics on motorcar.
STAN BEL 305 Electrical Measurements/Appliances, Digital Bases Electrical Circuit Wiring (Module Five) (SENIOR SECONDARY)	Unit 1: Electrical Appliances and Measuring Instruments	Classes of electrical appliances. Electrical appliance maintenance. Electrical appliance fault troubleshooting and repairs. Electrical measuring instruments. Electrical measuring instrument errors. Number system - Number bases and Mathematical operations of number bases.
	Unit 2: Logic Gates	Meaning of logic gates and logic circuits. Symbol of logic gates. Applications of logic gates.
	Unit 3: Wiring	Types of wiring. Lighting points and switches. Preparation of cable ends for connection. Methods of terminating cables at accessories. Types of conduit materials. Conduit fittings. Conduit practical work. Trunking and ducting. Trunking and ducting fittings. Power socket outlet layout diagram. Tools and testing instruments. Use of tools and

		testing instruments. E.E E. regulations as applied to electrical wiring.
	Unit 4: Maintenance and Repair and installation test	General preventive maintenance. Faults and remedies. Types of installation test. Fault diagnosis in a completed installation. Importance of earthing accessories.
STAN ELT 305: Measuring Instruments and tools, Transducers and Sensors (Module five) (SENIOR SECONDARY)	Unit 1: Hand tools & Measuring Instruments	Hand tools (meaning, types and uses); Measuring tools (concept, classification and types);
	Unit 2: Transducers and sensors	Explanation of transducers and sensors. Principles of operation of transducers. Principles of operation of sensors. Types and uses of transducers. Type and uses of sensors. Acoustic transducers (types & applications)
STAN FAW 303 Materials; Properties and Selection (Module Three) (SENIOR SECONDARY)	Unit 1: Ferrous and non Ferrous Materials	Concept of ferrous and non-ferrous materials. Classification of ferrous and non-ferrous materials. Examples of ferrous materials: metal-sheet, cast iron etc. examples of non ferrous materials: Aluminum, copper etc.
	Unit 2: Material Properties and Application	Characteristics of materials – ductility; hardness; toughness; malleability; fusion; tenacity. Physical properties of metal – malleability, ductility, brittleness, toughness, elasticity, plasticity. Household metallic materials. Heavy-duty industrial materials.
	Unit 3: Sheet metals, Flat bars and Cylindrical Bars	Concept of sheet metals. Examples of sheet metals – aluminum, mild steel, brass. Gauges of sheet metal Flat bars: aluminum. Steels, cast iron etc. Standard size flat bars. Cylindrical bars: steels, aluminum. Standard sizes. Principles of selection of metals for job.
	Unit 4: Heat Treatment	Hardening; Normalizing; Annealing; Tempering; Case hardening
STAN MTW 303 Metal Joining Processes (Module Three) (SENIOR SECONDARY)	Unit 1: Types and Joining Operations	Temporary metal joining (Identification of common fasteners and their uses); Permanent Metal Joining (types of soldering, soldering materials, tools and equipment, brazing materials – tools and equipment; Brazing operation; Types of welding; Joint preparation for welding; Types of electrodes and their uses; Types of rivets and their uses
STAN WWK 304 Design and Construction II (Module Four) (SENIOR SECONDARY)	Unit 1: Timber Production & Preparation	Production of veneers and manufactured boards. Uses of veneers and manufactured boards. Structures, properties, advantages and disadvantages of man-made boards. Meaning of timber preparation. Tools used in timber preparation. Safety precautions
	Unit 2: Woodwork Joint, Wood Finishes and Finishing	Wood joints: types, classification and uses. Sketching of woodwork joints. Tools and machines. Construction of joints. Assembling of joints. Wood finishes: types, uses and properties. Tools, equipment and materials for application of finishes. Processes involved. Preparation of timber surfaces for application of finishes.
	Unit 3: Wood Abrasives	Meaning of abrasives. Production of abrasives from local materials. Abrasive grades available in local markets. Correct selection and use of wood abrasives.
	Unit 4: Wood Adhesives and Wood Fittings	Adhesives – types, classification, characteristics and uses. Selection and use of adhesives. Preparation of adhesives. Gluing terms. Wood fittings – hinges, lock, wood screws, nails, catches, bolts, handles etc.
	Unit 5: Managing wood work production system	Production planning. Material procurement. Estimation and costing. Sourcing for fund. Financing. Division of labour. Customer relation and salesmanship.

Contact Persons

Chair

Mr. Oladimeji Teshino Kolawole
Government Technical College
Podogari
Niger State
0805 693 4522

Secretary

Dorcas Ahuchama
Girls Technical College
Aba
Abia State
0803 317 6804

State Chair

Dr. Esther Omosewo, Department of Science Education, University of Ilorin, Ilorin, 0803 562 2496