



Science Teachers Association of Nigeria

SCHEDULE OF 2017 NATIONAL WORKSHOPS

- ❖ The Science Teachers Association of Nigeria hereby invites all Science, Technology, Engineering, and Mathematics personnel to its 2017 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:

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AGRICULTURAL SCIENCE

Date: 7 – 13 May 2017

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

COURSE TITLES & CODES (Modules)	COURSE UNITS	Course Contents/Descriptions
STAN AGS 106 Food Processing and Preservation (Module 6) (PRIMARY)	Unit 1: Food Processing	Meaning of food processing; importance of food processing; examples of processed food
	Unit 2: Food preservation	Meaning of farm produce preservation; Importance of farm produce preservation; Methods of farm produce preservation (sun drying, smoking, frying, refrigeration, canning, bottling etc)
STAN AGS 206: Farming and Cropping Systems (Module 6) (JUNIOR SECONDARY)	Unit 1: Meaning and Types of farming systems	Meaning and types of farming systems; meaning and types of cropping systems; advantages and disadvantages of each of the cropping systems.
	Unit 2: Cultural Practices	Pre planting and planting operations; Post planting operations and harvesting; Post harvest operations and storage; types of storage structures; Advantages and disadvantages of the types of storage structures
STAN AGS 301: Basic Concepts (Module 1) (SENIOR SECONDARY)	Unit 1: Problems of Agricultural Development	Problem created by inadequate land, basic amenities, water, electricity and healthcare delivery, transportation, storage and processing facilities, Low level of Agricultural education and extension, inadequate tools and machinery, farm input; Possible solution to these identified problems
	Unit 2: Agricultural Laws and reform	Land ownership and tenure system in Nigeria; Land use act of Nigeria; Role of government in Agricultural production (loan, credit, subsidy, settlement schemes, operation feed the nation, green revolution etc)

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BASIC SCIENCE

Date: 7 – 13 May 2017

Venue: Federal College of Education, Katsina, Katsina State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/DESCRIPTION
STAN BSC 206 Saving Your Energy (Module Six) (JUNIOR SECONDARY)	Unit 1: Science related occupation	Examples and work descriptions of farming, fishing, carpentry, engineering, medicine etc.
	Unit 2: Tools (machines) for work and their maintenance	Examples and descriptions of some basic tools used by farmers, fishermen, carpenters, auto mechanics, auto electricians, medical doctors, nurses etc. comparison of traditional and modern mechanically and electrically powered tools. Types of machine – the lever, inclined plane, pulley, screw, and wedge. Importance of regular maintenance of machines. Need for reducing friction in machines. Use of grease, oil, ball bearing to reduce friction.
	Unit 3: Force	Concept of force. Types of force – contact force (push, pull, friction, force field e.g. gravitational, electric, magnetic). Balanced and unbalanced forces. Friction in use, advantages of friction especially its use in walking. Effects of force
	Unit 4: Work and Energy	Concept of work and energy. Human and non-human means of doing work. Mechanical advantage, efficiency of machines, energy unavailable for desired work. Potential to kinetic energy as a example in human means of doing work. Electricity to mechanical and mechanical to heat energy as examples in non-human means of doing work.

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BASIC SCIENCE & TECHNOLOGY

Date: 14 – 20 May, 2017

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

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN BST 105 Technology (Module Five) (PRIMARY)	Unit 1: Meaning and Importance of Technology	Definition and meaning of technology. Importance of technology in national development
	Unit 2: Types of technologies	Identification of specific technologies e.g. Information and communication technology, Building and construction technology etc. Identification and use of building materials. Maintenance, doormat making and woodwork hand tools.

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BIOLOGY

Date: 14 – 20 May, 2017

Venue: Government Science & Technical College, Garki, Abuja

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN BIO 304	Unit 1: Nature of the Cell	Cell as a living Unit, forms in which cells exist (as independent organism, as a filament, as a colony). Cells as part of living organisms, cell structure (the cell theory, structure and functions of

The Cell (Module 4) (SENIOR SECONDARY)		cell components, differences and similarities between plant and animal cells
	Unit 2: The Cell and its Environment	Diffusion (definition, process, significance), Osmosis (diffusion of water through membrane, diffusion through a semi-permeable membrane, haemolysis, plasmolysis, osmometer with living materials, biological significance of osmosis.)
	Unit 3: Feeding	Definition and types, micronutrients and macro nutrients.

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CHEMISTRY

Date: 21 – 27 May, 2017

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

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN CHE 303 Chemical Combination & Chemical Reactions I (Module 3) (SENIOR SECONDARY)	Unit 1: Electron Configuration	Electron configuration of atom and the periodic table; illustration of electrovalency and covalency
	Unit 2: Bonding	Overview of bonding; Types of bonds (electrovalency, covalency, coordinate covalency, hydrogen bond, metallic bond)

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COMPUTER STUDIES

Date: 21 – 27 May, 2017

Venue: West African People Institute, Calabar, Cross River State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN CPS 105: Introduction to Networking and Internet (Module 5) (PRIMARY)	Unit 1: ICT and its gadgets	Meaning of ICT (information and communication Technology); Identification of ICT gadgets (computers, telephone, cellular networks Television radio, internet etc); Advantages and disadvantages of ICT;
	Unit 2: Networking	Meaning of networking; network as a resource sharing facility; network groups
	Unit 3: Internet	Definition of internet; Internet browsers; e-mail services (examples of e-mail addresses, procedure for creating accounts); Benefits and abuses of internet
STAN CPS 203: Basic Computer Operations and concepts II (Module 3) (SECONDARY)	Unit 1: Classifications of computers	Classifications of computers by generation (1 st , 2 nd , 3 rd , 4 th , and 5 th); Classifications of computers by types (analog, Digital, Hybrid); Classifications of computers by size (microcomputer, minicomputer, mainframe, supercomputer); Classifications of computers by degree of versatility (general purpose, special purpose).
	Unit 2: The computer system	The concept of computer system; Components of computer system – hardware components (Arithmetic and Logic Unit, control unit, memory, output devices, external storage device); Software components (system software, application software); People-ware components (computer professionals, computer users)
	Unit 3: Computer software	Definition of software; Types and examples of software (system software – operating system, application software – word processing,

		spreadsheet, graphics etc)
	Unit 4: Operating Systems	Definition of an Operating System (OS); Examples of operating system (DOS, Windows, Linux, Unix); Functions of operating system (resource allocation, system monitoring, utilities)
	Unit 5: Number bases	Number bases – decimal, binary, octal, hexadecimal.
	Unit 6: Units of Storage in computer	Units of storage – Bit, Nibble, Byte, Word

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HOME ECONOMICS

Date: 28 May – 3 June, 2017

Venue: Government Technical College, Abakiliki, Ebonyi State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN HEC 105 Clothing and Needle Craft (Module Five) (PRIMARY)	Unit 1: Clothing	Meaning of clothing. Personal clothing. Care and uses of clothes. Clothes for different occasions.
	Unit 2: Sewing and Sewing Tools	Simple sewing tools and equipment and their specific uses. Simple sewing, and knitting. Basic and decorative stitches. .
	Unit 3: Clothing Construction and Needle crafts	Simple clothing construction processes. Maintenance of clothing. Practical on income yielding crafts – armrest, mat, apron etc. Simple relevant clothing article practical.
STAN HEC 205 Clothing (Module Five) (JUNIOR SECONDARY)	Unit 1: Concept of Family Clothing.	Meaning of family clothing and household linen. Managing family clothing and household linen.
	Unit 2: Sewing tools and Processes	Simple sewing tools and equipment. The sewing machine. Sewing processes (simple stitches and seams). Seams and seam finishes.
	Unit 3: Elements of Designs and Care of fabrics	Basic elements of designs and basic pattern drafting. Figure types and body measurement. Edge finishing. Classes and properties of fibres. Identification and uses of fabrics. Care of fabrics.
STAN HEC 305 Feeding the Family II (Module Five) (SENIOR SECONDARY)	Unit 1: Food Storage and Preservation	Principles of food storage and preservation. Methods of food storage and preservation. Flour and flour mixtures. Effects of heat on nutrients
	Unit 2: Kitchen Plan & Table setting	Kitchen plan, hygiene, safety, kitchen equipment and utensils. Table setting and meal service
	Unit 3: Food purchasing & Entertainment	Principles and guides on Food purchasing. Entertainment (methods/procedures and basic guides.

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MATHEMATICS

Date: 28 May – 3 June, 2017

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

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN MAT 101: Number and Numeration (Module One)	Unit 1: Number and Numeration I	Whole numbers. Fractions. Demography. Ratio and proportions and percentages. Sorting and classification of objects leading to the ideas of numbers. Identifying numbers. Writing numbers. Ordering numbers. Recognizing the symbol '0'. Recognize 10 as a group. Use

(PRIMARY)		place value and identify fractions using concrete objects
	Unit 2: Number and Numeration II	Counting of large numbers. Finding LCM and HCF of numbers. Reading, writing and comparing population of big cities. Working on ratios and proportions thereby finding the ratio of family size and resources as well as express the ratio of prevalence of HIV/AIDS between two sexes in town or country.
STAN MAT 203 Geometry and Mensuration (Module Three) (JUNIOR SECONDARY)	Unit 1: Geometry & Mensuration I	Basic properties of cube, cuboids, pyramid, cylinder, sphere, cone and triangular prism e.g. faces, vertices, edges. Properties of: Rectangle, square, isosceles triangle, equilateral triangle and circles. Perimeters of irregular and regular polygons, squares, rectangles, trapezia, parallelograms and circles. Areas of irregular and regular shapes, including squares, rectangles, parallelograms, trapezia and circles. Volumes of cubes, cuboids, right triangular prism. Constructing parallel and perpendicular lines. Measuring angles. Angle sum of a triangle. Construction of triangles
	Unit 2: Geometry & Mensuration II	Parallelograms, rhombus, kite and circle bringing out their properties. Angle sum of a convex polygon. Combination of plane shapes to produce design. Scale drawing. Calculation from scale drawings using ratio and proportion. Angles of elevation and depression. Bearings. Scale drawing of the position of objects and buildings etc. Pythagoras's rule. Surface area of cylinder and cones. Volume of cylinder and cone. Rough estimates of everyday common sizes, quantities, capacity etc.
	Unit 3: Geometry & Mensuration III	Views, plans and sketches of cube, cone, cuboid, cylinder, sphere. Similar shapes (triangles, squares, cubes and cuboids). Enlargement and scale factor. Use of scale factor to calculate lengths, areas and volumes in practical problems. The sine, cosine and tangent of an acute angle. Uses of similar right angled triangles. Areas of triangles, parallelograms, trapezia and circles. Bisection of a line segment. Bisection of an angle. Construction of angles of size 90° , 60° , 45° , 30° . Copying a given angle
STAN MAT 301: Number and Numeration (Module One) (SENIOR SECONDARY)	Unit 1: Number and numeration I	Revision of standard form as a shorthand notation. Laws of indices. Relationships between indices and logarithm. Graph of $y = 10^x$. Use of graph for multiplication and division. Base 10 logarithm tables and anti logarithm tables. Calculation involving multiplication, division, powers and square roots. Idea of set, universal set, finite and infinite sets, empty sets and subset. Idea and notation for union. Intersection and complement of sets. Disjoint set. Venn diagrams as diagrammatic representation of sets. Solution of practical problems involving classification, using venn diagrams.
	Unit 2: Number and numeration II	Percentage error. More problems on A.P and G.P. Determination of n^{th} term of a given sequence.
	Unit 3: Number and numeration III	Application of the basic rules of Logarithms.. Use of logarithm tables in problems on compound interest, investment and annuities etc.

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PHYSICAL & HEALTH EDUCATION

Date: 4 – 10 June, 2017

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

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN PHE 105 Gymnastics and Physical Fitness (Module Five) (PRIMARY)	Unit 1: Gymnastics	Meaning, Floor activities, slow and fast movement e.g. forward and backward roll, Cart wheel. Gymnastic activities with apparatus – for swimming; vaulting; somersaulting; climbing; stunt activities e.g. bent knee, crab walk, dog run, duck walk, frog jump etc. backward jump, balance stand. Stunt activities with partner – wheel barrow, rock the boat, one hand wrestle. Tumbling stunts – backward roll, head stand, hand stand etc.
	Unit 2: Physical Fitness	Definition/Meaning of physical fitness. Components of physical fitness. Activities include push-ups, squatting position, bent knees, sit-ups, sit and reach, agility run, arm circling, treadmills, bear hug Importance of physical fitness – the value of being physically fit (personal benefits, social benefits and economic benefits). Measuring physical fitness components – muscular endurance (pull-ups); cardiovascular endurance (12 minutes run, walk, bench steps); Strength (press ups, sit-ups); Speed (50m dash); Agility (10m shuttle run)); Flexibility (Toe touch); Balance (Beam walk) etc.
STAN PHE 205 Recreation, Dance, Leisure activities and Martial Arts (Module Five) (JUNIOR SECONDARY)	Unit 1: Meaning and Benefits and types of Recreation	Meaning, types and components of recreation. Leisure and rest. Benefits of recreation, leisure and rest. Computer games.
	Unit 2: Traditional and social Dance	Traditional and social dance or folk dance like Atiliogwu (ibo), Sharo (Fulani), Lango (Hausa). Regae, Disco. Dramatic and Creative rhythms
	Unit 3: Wrestling	History and development of traditional and modern wrestling. Importance of wrestling. Wrestling skills – offensive and defensive.
STAN PHE 305 Gymnastics and Swimming (Module Five) (SENIOR SECONDARY)	Unit 1: Mat work	Headspring and Handspring combination – fly spring, forward roll, backward roll.
	Unit 2: Box Work	Astride Vault, through vault with emphasis on approach run, execution and landing techniques.
	Unit 3: Horizontal Bars	Cycling center and over, Chin Up, Mount and dismount
	Unit 4: Gymnastics and other Sports	Discussion of general educational gymnastics in relation to other sports.
	Unit 5: Traditional Sports	Definition & types of traditional sports. Safety precaution in carrying out the traditional sports. Traditional dances (Atiliogwu)

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PHYSICS

Date: 4 – 10 June, 2017

Venue: St. Louis College, Jos, Plateau State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN PHY 305 Waves (Module Five) (SENIOR SECONDARY)	Unit 1: Production & Propagation of waves	Production of mechanical waves; pulsating system; wave form; mechanical relationships among f , λ , T , and V
	Unit 2: Types and properties of Waves	Liquid waves; transverse waves (classification based on mode of vibration and direction of propagation); reflection of waves (laws of reflection); Superposition of waves (two waves in same direction, two waves in opposite direction); refraction of waves (laws of refraction); interference of waves; diffractions of waves (sound and light); polarization of light (application in Polaroid only)
	Unit 3: Sound Waves and Applications	Sources of sound; Transmission of sound waves; noise and music; pitch loudness and quality; forced vibration; speed of sound in solid, liquid and air; Velocity of sound; Stationary waves
	Unit 4: Musical Instruments.	Wind instruments (clarinet, flute, saxophone and trumpet); String instruments (guitar, sonometer, piano); Percussion instrument (drum, bell, the talking drum); Echoes and their applications

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TECHNOLOGY EDUCATION

Date: 11 – 17 June, 2017

Venue: Ibeku High School, Umuahia, Abia State

COURSE CODES & TITLES	COURSE UNITS	COURSE CONTENTS/COURSE DESCRIPTION
STAN AEL 306 Lighting and Auxiliary Systems (Module Six) (SENIOR SECONDARY)	Unit 1: Purpose of Lighting and Lighting Circuit Diagram	Need for lighting in motor vehicle. Obligatory lights in motor vehicle. Interpretation and drawing of light circuit diagram identification of the units that make up the circuit.
	Unit 2: Circuit protection and classification	Guarantee of circuit damage. Classification of circuits. Circuit connection nodes.
	Unit 3: Head Lamp Setting	Headlamp focusing and alignment.
	Unit 4: Auxiliary Circuit & Auxiliary Circuit Diagram	Concept of auxiliary system. Definition and uses. Units in the auxiliary system. Interpretation and drawing if auxiliary circuit diagram. Identification of the units that are classified as auxiliary.
	Unit 5: Troubleshooting	Causes and remedies of light fault from any part of the lighting circuit.
STAN AUM 301 Safety Maintenance (Module One) (SENIOR SECONDARY)	Unit 1: Vehicle layout	Main component of a car body. Engine, Gearbox, clutches, chassis, rear axle, and connection to road wheels.
	Unit 2: Auto workshop;	Introduction to automobile workshops – repair, services, body work and machining. Need for maintenance. Differences between maintenance and repair.
	Unit 3: Safety maintenance in auto mobile workshop	Good safety habits. Safety while working. Understanding shop layout, location of safety devices and avoiding hazards.
	Unit 4: preventive maintenance;	Purpose of preventive maintenance, lubrication points. Maintenance schedules on time and mileage basis.
	Unit 5: Default diagnosis	System fault diagnosis. Use of diagnostic equipments – meters and testers.
	Unit 6: Lighting systems	Simple fault diagnosis. Lamp and fuse replacement. Headlamp alignment
	Unit 7: Causes of Accidents & Safety Devices	Main causes of accidents – vehicle defects, driver’s errors, road conditions, and their combinations. Devices for preventing accidents. Devices for reducing injury in the event of accident. The highway code. Proper driving training. Defensive driving.
STAN BEL 302 Electrical Circuits and Electromagnetism (Module Two) (SENIOR SECONDARY)	Unit 1: Resistance, Capacitance and Inductance	Definition of resistance. Connections of resistors. Definitions of resistivity and conductivity. Experimental verification of resistivity and conductivity. Definition of capacitance. Connections of capacitors. Definitions of capacitive reactance and impedance. Definitions of inductance. Connections of inductors. Definitions of inductive reactance and impedance. Alternating current terminologies.
	Unit 2: Kerchhoff’s Laws	Kerchhoff’s current law. Kerchhoff’s voltage law.
	Unit 3: Magnets	Origins of magnets. Properties of magnets, applications of magnets.
	Unit 4: Electromagnetism	Concept of electromagnetism. Faraday’s law of electromagnetic. Lenz’s law of electromagnetic induction. Applications of electromagnetism.
	Unit 5: Transformers	Classifications of transformers. Constructional features of transformers. Transformer efficiency. Transformer losses. Application of transformers.
STAN ELT 301: Electrical Quantities/Electronic Components & Circuits (Module One) (SENIOR SECONDARY)	Unit 1: Electric Current, & Electric Power	Electric currents (structure of atom, conductors & insulators, direct and alternating currents and their sources) Current, voltage and resistance. Ohms law. Relationships between power, current and voltage. Electric power (simple calculation of current, voltage and resistance).
	Unit 2: Electric Circuits	Circuit components – resistors, capacitors and inductors. Symbols, signs and units. Colour coding and ratings of resistors. Electric Circuits – explanation of electric circuits, circuit boards, circuit

		arrangement. Simple calculations on circuit arrangement. Wiring of circuit arrangement
	Unit 3: Magnets and Magnetic fields	Definition of terms. Permanent and temporary magnets. Laws of attraction and repulsion. Applications of magnetism.
STAN FAW 305 Forging Operations and Fasteners (Module Five) (SENIOR SECONDARY)	Unit 1: Classification & Types of Fasteners	Concept of fasteners. Classification of fasteners – permanent and temporary fasteners. Types of fasteners: Rivets (types and uses. Riveting tools); Bolt and nut (Description of bolts and nut, types and uses).
	Unit 2: Forging and forging processes	Concept of forging. Forging tools. Uses of forging tools. Types of forging. Forging processes e.g. upsetting; drawing down; bending etc.
	Unit 3: Material selection and Treatment	Principles of selection of materials. Selection of materials for jobs. Heat treatment – hardening; normalizing; tempering, case hardening
STAN MTW 305 Sheet metal work (Module Five) (SENIOR SECONDARY)	Unit 1: Selection of material, Tools & Equipment	Types of sheet metals. Selection of sheet metal materials. Standard gauges of sheet metals. Tools and equipment for sheet metals. Specific uses of the tools and equipment.
	Unit 2: Pattern Development & Cutting	Methods of pattern development. Types of patterns. Layinout of patterns. Cutting out of patterns.
	Unit 3: Basic Fabrication Processes	Shapes to be fabricated. Bending operations. Raising and hallowing. Sinking. Expanding and contracting.
	Unit 4: Joints & Joining	Types of joints. Types of riveting. Self-tapping screw. Soft soldering.
STAN WWK 306 Upholstery and Decorative Wood Working (Module Six) (SENIOR SECONDARY)	Unit 1: Upholstery tools and Materials	Types and uses of upholstery tools and materials. Properties of upholstery materials. Sketching of upholstery tools. Types of upholstery platforms. Padding. Covering materials and techniques. Upholstery processes.
	Unit 2: Wood turning, wood Carving and Sculpture	Parts of the lathe machine and the uses. Wood turning tools – (uses and sketches). Wood turning processes and operations. Characteristics of wood suitable for carving and sculpture. Calving and sculpture techniques/processes.
	Unit 3: Surface decoration & wood Shaping	Description of types of surface decoration. Techniques of surface decoration. Tools and materials for surface decoration. Types of wood shapes (rounding, mounding, barreling, chamfering, tapering).

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