

## 2023/24 2023/24 ANNUAL TEACHING PLANS: TECHNICAL SCIENCES: GRADE 12 (TERM 1)

**Important notes**

1. The content of the tables are CAPS aligned
2. The formal assessment will consist of:
  - 2.1 Term 1 – Control Test & formal experiment 1/PAT 1 (40% of PAT)
  - 2.2 Term 2 – June Test/Exam & formal experiment 2/PAT 2 (30% of PAT)
  - 2.3 Term 3 – September Examination & formal experiment 3/PAT 3 (30% of PAT)
  - 2.4 Term 4 – November/Final Examination



TERM 1	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10-11
<b>CAPS TOPICS</b>	<b>MECHANICS: Newton's laws of motion (4 hrs)</b>	<b>MECHANICS: Newton's laws of motion (4 hrs)</b>	<b>MECHANICS: Newton's laws of motion (4 hrs)</b>	<b>MECHANICS: Momentum &amp; impulse (4 hrs)</b>	<b>MECHANICS: Momentum &amp; impulse (4 hrs)</b>	<b>MECHANICS: Momentum &amp; impulse (4 hrs)</b>	<b>MECHANICS: Work, energy &amp; power (4 hrs)</b>	<b>MECHANICS: Work, energy &amp; power (4 hrs)</b>	<b>MECHANICS: Elasticity (4 hrs)</b>	<b>MECHANICS: Elasticity (1 hr) Consolidation &amp; revision (5 hrs) Control test (1 hr)</b>
<b>TOPICS, CONCEPTS, SKILLS AND VALUES</b>	<ul style="list-style-type: none"> <li>State Newton's first law of motion</li> <li>Define inertia</li> <li>Define mass as a measure of the inertia of a body</li> <li>Give examples to illustrate Newton's first law</li> <li>Define acceleration as the rate of change of velocity <math>a = \frac{\Delta v}{\Delta t}</math></li> <li>State Newton's second law of motion <math>F_{net} = ma</math></li> </ul>	<ul style="list-style-type: none"> <li>Use <math>F_{net} = ma</math> to solve problems in the context of technology</li> <li>Do not include pulley problems and lift problems</li> </ul>	<ul style="list-style-type: none"> <li>State Newton's third law of motion</li> <li>Give examples to illustrate Newton's third law, action-reaction force pairs</li> </ul>	<ul style="list-style-type: none"> <li>Define momentum <math>p = mv</math></li> <li>Use <math>p = mv</math> to solve problems in the context of technology</li> <li>Define the impulse of a force <math>Impulse = F_{net}\Delta t</math></li> <li>The impulse is equal to the change in momentum: <math>F_{net}\Delta t = \Delta p</math> OR <math>F_{net}\Delta t = m\Delta v</math></li> </ul>	<ul style="list-style-type: none"> <li>Use the equations of momentum to solve problems in the context of technology</li> <li>Define a net force as the rate of change in momentum <math>F_{net} = \frac{\Delta p}{\Delta t}</math></li> <li>Give applications of impulse and momentum in road safety</li> </ul>	<ul style="list-style-type: none"> <li>State the law of conservation of momentum</li> <li>Explain the concepts elastic and inelastic collision</li> <li>Use conservation of momentum to solve problems in technology</li> </ul>	<ul style="list-style-type: none"> <li>Define work and know work is a scalar</li> <li>Use <math>W = F\Delta x \cos\theta</math> to solve problems involving work, force and displacement</li> <li>No work is done when <math>F</math> acts at right angles to the direction of motion</li> <li>Define energy as the capacity to do work</li> <li>State the principle of conservation of mechanical energy</li> <li>Use <math>E_M = E_k + E_p</math> to solve problems in one dimension</li> </ul>	<ul style="list-style-type: none"> <li>Define power and use practical units of power in technology, e.g.:           <ul style="list-style-type: none"> <li>1 kW = 1 000 W</li> <li>1 horsepower (hp) = 746 W</li> </ul> </li> <li>When an object travels at a constant velocity: <math>P = Fv</math></li> <li>Solve power problems including conversions of practical units</li> </ul>	<ul style="list-style-type: none"> <li>Define a deforming and restoring force</li> <li>Define elasticity and plasticity and distinguish between perfectly elastic and perfectly plastic bodies with examples</li> <li>Define the elastic limit</li> <li>Define stress and use the equation <math>\sigma = \frac{F}{A}</math> in calculations</li> <li>Define strain. in symbols: <math>\epsilon = \frac{\Delta l}{L}</math></li> <li>Strain does not have a unit</li> </ul>	<ul style="list-style-type: none"> <li>State Hooke's law, <math>\sigma = \frac{F}{A}</math>, <math>K</math> a constant, and use it in calculations</li> <li><b>Control test (1 hr)</b></li> <li>Newton's laws of motion</li> <li>Momentum</li> <li>Work, energy and power</li> <li>Elasticity</li> </ul>
<b>REQUISITE PRE-KNOWLEDGE</b>	<ul style="list-style-type: none"> <li>Scalars &amp; vectors</li> <li>Motion in 1D</li> <li>Forces</li> </ul>	<ul style="list-style-type: none"> <li>Scalars &amp; vectors</li> <li>Motion in 1D</li> <li>Forces</li> </ul>	<ul style="list-style-type: none"> <li>Scalars &amp; vectors</li> <li>Motion in 1D</li> <li>Forces</li> </ul>	<ul style="list-style-type: none"> <li>Scalars &amp; vectors</li> <li>Forces</li> <li>Motion in 1D</li> </ul>	<ul style="list-style-type: none"> <li>Scalars &amp; vectors</li> <li>Forces</li> <li>Motion in 1D</li> </ul>	<ul style="list-style-type: none"> <li>Scalars &amp; vectors</li> <li>Forces</li> <li>Motion in 1D</li> </ul>	<ul style="list-style-type: none"> <li>Work &amp; energy</li> <li><math>E_p</math>, <math>E_k</math> &amp; <math>E_M</math></li> <li>Gravity</li> <li>Scalars, vectors and components of vectors</li> <li>Newton's laws</li> </ul>	<ul style="list-style-type: none"> <li>Work &amp; energy</li> <li><math>E_p</math>, <math>E_k</math> &amp; <math>E_M</math></li> <li>Gravitational acceleration</li> <li>Scalars, vectors and components of vectors</li> <li>Newton's laws</li> </ul>	<ul style="list-style-type: none"> <li>Area</li> <li>Gravitational acceleration</li> </ul>	<ul style="list-style-type: none"> <li>Area</li> <li>Gravitational acceleration</li> </ul>
<b>RESOURCES (OTHER THAN TEXTBOOK) TO ENHANCE LEARNING</b>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>

TERM 1		WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10-11
POA ASSESSMENT	INFORMAL ASSESSMENT: REMEDIATION	<ul style="list-style-type: none"> <li>Homework</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal experiment: Relationship between <math>a</math> and <math>m</math> for constant <math>F_{net}</math></li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal test</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal experiment: Conservation of momentum during a collision</li> <li>Informal test</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal experiment: Determine the power output of an individual</li> <li>Informal test</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal experiment: Hooke's law</li> </ul>
	NONE	None		None	None	None	None	None	None	None	Control test
	PAT (FORMAL)		Formal experiment: PAT 1								

## 2023/24 ANNUAL TEACHING PLANS: TECHNICAL SCIENCES: GRADE 12 (TERM 2)

TERM 2	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10-11
<b>CAPS TOPICS</b>	Corrections of control test (1 hr) <b>MECHANICS:</b> Viscosity (1 hr) & hydraulics (1 hr)	<b>MECHANICS:</b> Hydraulics (4 hrs)	<b>MATTER &amp; MATERIALS:</b> Electronic properties of matter (4 hrs)	<b>MATTER &amp; MATERIALS:</b> Organic chemistry (4 hrs)	<b>MATTER &amp; MATERIALS:</b> Organic chemistry (4 hrs)	<b>MATTER &amp; MATERIALS:</b> Organic chemistry (4 hrs)	<b>WAVES &amp; SOUND:</b> Light (4 hrs)	<b>WAVES &amp; SOUND:</b> Electromagnetic radiation (4 hrs)	<b>WAVES &amp; SOUND:</b> Electromagnetic radiation (4 hrs)	Consolidation, revision and June exam
<b>TOPICS, CONCEPTS, SKILLS AND VALUES</b>	<b>Viscosity</b> <ul style="list-style-type: none"> <li>Define viscosity</li> <li>Discuss the effect of temperature on viscosity in technology</li> <li>Discuss motor oil viscosity grades</li> </ul> <b>Hydraulics</b> <ul style="list-style-type: none"> <li>Define thrust and pressure and how they are related: <math>p = \frac{F}{A}</math></li> <li>Use the above equation in calculations</li> </ul>	<b>Hydraulics.</b> <ul style="list-style-type: none"> <li>Use conversions between practical units of pressure in calculations: <ul style="list-style-type: none"> <li>1 atmosphere = <math>1,01 \times 10^5</math> Pa</li> <li>1 bar = <math>10^5</math> Pa</li> <li>1 torr = 133 Pa</li> </ul> </li> <li>Define fluid pressure (<math>p = \rho gh</math>) and use the equation in calculations</li> <li>State Pascal's law</li> <li>Discuss the use of hydraulics in technology, e.g., car lifts, jacks, hydraulic brakes, dentists' chairs, etc.</li> <li>Apply <math>\frac{F_1}{A_1} = \frac{F_2}{A_2}</math> where <math>A_2 &gt; A_1</math> in hydraulic lifts</li> <li>Use this equation to calculate force, area and radius of pistons</li> </ul>	<b>Electronic properties of matter</b> <ul style="list-style-type: none"> <li>Define a semiconductor with examples (no band theory)</li> <li>Define intrinsic semiconductors and doping</li> <li>Describe n-type and p-type semiconductors</li> <li>Discuss the construction and working of a p-n junction diode</li> <li>Study the characteristics of p-n junction diode</li> </ul>	<b>Organic chemistry</b> <ul style="list-style-type: none"> <li>Define organic molecules</li> <li>Write molecular formulae and structural (including condensed structural) formulae for organic compounds of up to six carbon atoms for alkanes, alkenes, alkynes, alkyl halides, aldehydes, ketones, alcohols, carboxylic acids and esters</li> <li>Define the terms functional group, homologous series, saturated and unsaturated hydrocarbons and isomers</li> <li>Distinguish between saturated and unsaturated homologous series</li> <li>Write structural formulae of given isomers and name the isomers</li> </ul>	<b>Organic chemistry</b> <ul style="list-style-type: none"> <li>Give the IUPAC names when given the formulae or vice versa for the above homologous series</li> <li>Compare physical properties (boiling point, melting point, vapour pressure and viscosity) of different homologous series</li> </ul>	<b>Organic chemistry:</b> <ul style="list-style-type: none"> <li>Write balanced equations using molecular and structural formulae for oxidation, substitution, addition, halogenation and hydro-halogenation</li> <li>Describe the terms polymer, macromolecule, chains and monomers</li> <li>Define plastics and polymers and discuss the industrial use of polythene</li> </ul>	<b>Light:</b> <ul style="list-style-type: none"> <li>Discuss the laws of reflection</li> <li>Define refraction and discuss the laws of refraction</li> </ul>	<ul style="list-style-type: none"> <li>Define the critical angle and total internal reflection</li> <li>Demonstrate the total internal reflection of light</li> <li>Give uses of total internal reflecting prisms</li> <li>Define dispersion of light</li> <li>Discuss frequency and wavelength of the various components of light</li> <li>Discuss the transmission of light through convex and concave lenses</li> <li>Discuss applications of convex and concave lenses</li> </ul>	<ul style="list-style-type: none"> <li>Define an electromagnetic wave and discuss its properties</li> <li>Discuss the electromagnetic spectrum in terms of frequency and wavelength</li> <li>Give the uses of electromagnetic radiation</li> <li>Define a photon and give its energy as <math>E = hf</math></li> <li>Use <math>E = hf</math> to do calculations</li> </ul>	<ul style="list-style-type: none"> <li>Mechanics (4 hrs)</li> <li>Matter and materials (2 hrs)</li> <li>Waves and sound (2 hrs)</li> <li><b>June exam</b> Term 1 and 2 topics: MECHANICS: (2 hrs) <ul style="list-style-type: none"> <li>Newton's laws of motion</li> <li>Momentum &amp; impulse</li> <li>Work, energy &amp; power</li> <li>Elasticity</li> <li>Viscosity</li> <li>Hydraulics</li> </ul> </li> <li>MATTER &amp; MATERIALS: <ul style="list-style-type: none"> <li>Electronic properties of matter</li> <li>Organic chemistry</li> </ul> </li> <li>WAVES &amp; SOUND: <ul style="list-style-type: none"> <li>Light</li> </ul> </li> </ul>
<b>REQUISITE PRE-KNOWLEDGE</b>	<ul style="list-style-type: none"> <li>Vectors &amp; scalars</li> <li>Density</li> </ul>	<ul style="list-style-type: none"> <li>Vectors &amp; scalars</li> <li>Density</li> <li>Conductors &amp; insulators</li> <li>Periodic table</li> <li>Atomic structure</li> </ul>	<ul style="list-style-type: none"> <li>Conductors &amp; insulators</li> <li>Periodic table</li> <li>Atomic structure</li> <li>Chemical bonding</li> <li>Periodic table</li> </ul>	<ul style="list-style-type: none"> <li>Chemical bonding</li> <li>Periodic table</li> </ul>	<ul style="list-style-type: none"> <li>Chemical bonding</li> <li>Periodic table</li> <li>Balancing of equations</li> </ul>	<ul style="list-style-type: none"> <li>Chemical bonding</li> <li>Periodic table</li> </ul>	<ul style="list-style-type: none"> <li>Waves</li> </ul>	<ul style="list-style-type: none"> <li>Waves</li> </ul>		
<b>RESOURCES (OTHER THAN TEXTBOOK) TO ENHANCE LEARNING</b>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	

TERM 2		WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10-11
POA ASSESSMENT	INFORMAL ASSESSMENT: REMEDIATION	<ul style="list-style-type: none"> <li>• Corrections of March control test</li> <li>• Homework</li> </ul>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Informal test</li> </ul>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Informal experiment: Characteristics of a p-n junction diode</li> <li>• Informal test</li> </ul>	<ul style="list-style-type: none"> <li>• Homework</li> </ul>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Informal test</li> </ul>	<ul style="list-style-type: none"> <li>• Homework</li> </ul>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Informal experiment: Position of the image in a flat mirror</li> </ul>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Informal test</li> </ul>	<ul style="list-style-type: none"> <li>• Homework</li> </ul>	
	SBA (FORMAL)	None	None	None	None	None	None		None	None	June Test/Exam
	PAT (FORMAL)								Formal experiment: PAT 2		

## 2023/24 ANNUAL TEACHING PLANS: TECHNICAL SCIENCES: GRADE 12 (TERM 3)

TERM 3	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8-11
<b>CAPS TOPICS</b>	<b>ELECTRICITY &amp; MAGNETISM: Electrostatics</b> (4 hrs)	<b>ELECTRICITY &amp; MAGNETISM: Electrostatics</b> (2 hrs) <b>Electric circuits</b> (2 hrs)	<b>ELECTRICITY &amp; MAGNETISM: Electric circuits</b> (4 hrs)	<b>ELECTRICITY &amp; MAGNETISM: Electromagnetism</b> (4 hrs)	<b>ELECTRICITY &amp; MAGNETISM: Electromagnetism</b> (2 hrs) <b>CHEMICAL CHANGE: Electrochemical cells</b> (2 hrs)	<b>CHEMICAL CHANGE: Electrochemical cells</b> (4 hrs)	<b>CHEMICAL CHANGE: Electrochemical cells</b> (4 hrs)	Trial examination
<b>TOPICS, CONCEPTS, SKILLS AND VALUES</b>	<b>Electrostatics</b> <ul style="list-style-type: none"> <li>Define a capacitor and give examples of uses in technology</li> <li>Define capacitance of a capacitor and use <math>C = \frac{Q}{V}</math> in calculations</li> <li>Express capacitance also as <math>C = \frac{\epsilon_0 A}{d}</math> and use it in calculations</li> </ul>	<b>Electrostatics</b> <ul style="list-style-type: none"> <li>Continue with capacitance calculations</li> <li>Discuss the factors affecting capacitance</li> </ul> <b>Electric circuits</b> <ul style="list-style-type: none"> <li>Define power and do calculations using: <math display="block">P = \frac{W}{\Delta t}</math> <math display="block">P = \frac{V^2}{R}</math> <math display="block">P = VI</math> <math display="block">P = I^2 R</math> </li> </ul> SI unit for power is W	<b>Electric circuits</b> <ul style="list-style-type: none"> <li>Use kWh as practical unit of power</li> <li>Determine the power dissipated in bulbs connected either in series or parallel, or both series and parallel</li> <li>The heat produced in a resistor in a circuit is given by <math>W = I^2 R \Delta t</math>.</li> <li>Use <math>W = I^2 R \Delta t</math> in calculations</li> </ul>	<b>Electromagnetism</b> <ul style="list-style-type: none"> <li>A current carrying conductor produces a magnetic field around it</li> <li>Determine the direction of the magnetic field around a current-carrying conductor</li> <li>Draw the magnetic field lines around a straight current-carrying wire and a current-carrying loop (single) of wire</li> <li>Define electromagnetic induction, magnetic flux and magnetic flux density (<math>\Phi = BA</math>) and use the equation in calculations</li> <li>State Faraday's law (<math>\epsilon = -N \frac{\Delta \phi}{\Delta t}</math>) and do calculations using this formula</li> <li>State Lenz's law and use examples from technology to demonstrate it</li> </ul>	<b>Electromagnetism (2 hrs)</b> <ul style="list-style-type: none"> <li>Define a transformer and calculate output voltage using <math>\frac{V_s}{V_p} = \frac{N_s}{N_p}</math></li> <li>Use the above equation to determine the input voltage, output voltage, and number of turns in the primary and secondary coils</li> <li>A transformer that increases the voltage is called a step-up transformer</li> <li>A transformer that decreases the voltage is called a step-down transformer</li> <li>Define a generator and explain the basic principle of an AC generator</li> <li>Explain how a DC generator works and how it differs from an AC generator</li> <li>Define a motor and explain its basic principles</li> </ul> <b>Electrochemical cells (2 hrs)</b> <ul style="list-style-type: none"> <li>Define an electrolytic cell and a galvanic cell</li> <li>State the functions of all components of the galvanic cell</li> </ul>	<ul style="list-style-type: none"> <li>Give the half-reactions at the anode and cathode, net cell reaction</li> <li>Give the standard conditions under which standard electrode potentials are determined</li> </ul>	<ul style="list-style-type: none"> <li>Describe the movement of ions through the solutions and the salt bridge</li> <li>Use standard cell notation or diagrams to represent a galvanic cell</li> <li>Calculate the emf of a galvanic cell using the standard electrode potential table <math>E^\circ_{\text{cell}} = E^\circ_{\text{cathode}} - E^\circ_{\text{anode}}</math></li> <li>Discuss the use of alternate energies and their environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>All topics covered from term 1 to 3</li> <li><b>Paper 1</b> (150 marks) <ul style="list-style-type: none"> <li>Mechanics (93)</li> <li>Electricity and magnetism (33)</li> <li>Waves, sound and light (24)</li> </ul> </li> <li><b>Paper 2</b> (75 marks) <ul style="list-style-type: none"> <li>Chemical change (46)</li> <li>Matter and materials (29)</li> </ul> </li> </ul>
<b>REQUISITE PRE-KNOWLEDGE</b>	<ul style="list-style-type: none"> <li>Electric fields</li> <li>Charges</li> <li>Forces</li> </ul>	<ul style="list-style-type: none"> <li>Ohm's law</li> <li>Unit conversion</li> </ul>	<ul style="list-style-type: none"> <li>Ohm's law</li> <li>Unit conversion</li> </ul>	<ul style="list-style-type: none"> <li>Electric fields</li> <li>Magnetic fields</li> </ul>	<ul style="list-style-type: none"> <li>Electric fields</li> <li>Magnetic fields</li> <li>Redox reactions</li> <li>Oxidation numbers</li> </ul>	<ul style="list-style-type: none"> <li>Redox reactions</li> <li>Oxidation numbers</li> </ul>		

TERM 3		WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8-11	
<b>RESOURCES (OTHER THAN TEXTBOOK) TO ENHANCE LEARNING</b>		<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Practical apparatus</li> <li>Simulations</li> <li>Videos</li> </ul>		
<b>POA ASSESSMENT</b>	<b>INFORMAL ASSESSMENT: REMEDIATION</b>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal test</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal test</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal test</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal experiment: Determine the effect of the change in magnetic field or magnetic flux in a coil</li> <li>Informal experiment: Demonstrate an electric motor</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal experiment: Electrolysis of copper chloride</li> <li>Informal test</li> </ul>	<ul style="list-style-type: none"> <li>Homework</li> <li>Informal test</li> <li>Informal experiment: Determine the electrode potential of a Zn-Cu cell</li> </ul>		
	<b>SBA (FORMAL)</b>	None	None		None	None	None	None	None	<b>Trial examination</b>
	<b>PAT (FORMAL)</b>			<b>Formal experiment: PAT 3</b>						

## 2023/24 ANNUAL TEACHING PLANS: TECHNICAL SCIENCES: GRADE 12 (TERM 4)

TERM 4		WEEK 1	WEEK 2	WEEK 3
CAPS TOPICS		REVISION	REVISION	FINAL END OF THE YEAR EXAMINATION
TOPICS, CONCEPTS, SKILLS AND VALUES		<b>MECHANICS: (2 hrs)</b> <ul style="list-style-type: none"> <li>Newton's laws of motion (25 min)</li> <li>Momentum &amp; impulse (25 min)</li> <li>Work, energy &amp; power (25 min)</li> <li>Elasticity (15 min)</li> <li>Viscosity (15 min)</li> <li>Hydraulics (15 min)</li> </ul> <b>MATTER &amp; MATERIALS: (1 hr)</b> <ul style="list-style-type: none"> <li>Electronic properties of matter (15 min)</li> <li>Organic chemistry (45 min)</li> </ul> <b>WAVES &amp; SOUND: (30 min)</b> <ul style="list-style-type: none"> <li>Light (15 min)</li> <li>Electromagnetic radiation (15 min)</li> </ul>	<b>ELECTRICITY &amp; MAGNETISM: (2 hrs)</b> <ul style="list-style-type: none"> <li>Electrostatics (45 min)</li> <li>Electric circuits (45 min)</li> <li>Electromagnetism (30 min)</li> </ul> <b>CHEMICAL CHANGE: (2 hrs)</b> <ul style="list-style-type: none"> <li>Galvanic cells (1 hr)</li> <li>Electrolytic cells (1 hr)</li> </ul>	<ul style="list-style-type: none"> <li>All topics covered from term 1 to 3</li> <li><b>Paper 1</b> (150 marks) <ul style="list-style-type: none"> <li>Mechanics (93)</li> <li>Electricity and magnetism (33)</li> <li>Waves, sound and light (24)</li> </ul> </li> <li><b>Paper 2</b> (75 marks) <ul style="list-style-type: none"> <li>Chemical change (46)</li> <li>Matter and materials (29)</li> </ul> </li> </ul>
REQUISITE PRE-KNOWLEDGE				
RESOURCES (OTHER THAN TEXTBOOK) TO ENHANCE LEARNING		<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Simulations</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Question bank such as previous papers or study guides</li> <li>Simulations</li> <li>Videos</li> </ul>	
ASSESSMENT	INFORMAL ASSESSMENT: REMEDIATION	None	None	None
	SBA (FORMAL)	None	None	None