

2021 Annual Teaching Plan Term 1: Mechanical Technology: Automotive Grade 12

TERM 1 (45 days)	Week 1 27-29 January (3 days)	Week 2 1-5 February	Week 3 8-12 February	Week 4 15-19 February	Week 5 22-26 February	Week 6 1-5 March	Week 7 8-12 March	Week 8 15-19 March	Week 9 23-26 March (4 days)	Week 10 29-31 March (3 days)
CAPS Topics	Safety (Generic)	Safety (Generic)	Safety (Generic)	Tools (Specific)	Tools (Specific)	Tools (Specific)	Engines (Specific)	Engines (Specific)	PAT Consolidation and Revision Assignment	
Topics /Concepts, Skills and Values	First Aid HIV/Aids Awareness Knowledge of basic First Aid measures Analyse the OHS Act and regulations where applicable to the following machines: <ul style="list-style-type: none"> Grinding machines (portable, bench and surface) Cutting (drilling machines, power saw, band saw) 	Analyse the OHS Act and regulations where applicable to the following machines: <ul style="list-style-type: none"> Shearing machines (manual and power driven) Press machines Joining (arc, gas) Handling and usage of gas cylinders 	Knowledge and application of basic workshop layouts: <ul style="list-style-type: none"> Process layout Product layout Referring to the OHS Act analyse the responsibilities of the: <ul style="list-style-type: none"> Employer Employee 	Identification and application of diagnostic equipment: <ul style="list-style-type: none"> Compression tester Cylinder leakage tester 	Identification and application of diagnostic equipment: <ul style="list-style-type: none"> Gas analyser Computerised diagnostic scanner 	Identification and application of diagnostic equipment: <ul style="list-style-type: none"> Wheel balancer Wheel alignment equipment 	Crankshafts: <ul style="list-style-type: none"> Balancing of crankshafts Vibration damper Cylinder layouts Crank arrangements Firing orders 	Describe the operating principles and construction of: <ul style="list-style-type: none"> Turbochargers Super chargers Describe the operating principles and construction of: <ul style="list-style-type: none"> Turbochargers Super chargers 		
Requisite pre-knowledge	Gr 11: Basic first Aid HIV/Aids Awareness OHS act Machine specific safety measures	Gr 11: Basic first Aid HIV/Aids Awareness OHS act Machine specific safety measures	Grade 11: Basic first Aid HIV/Aids Awareness OHS act Machine specific safety measures	Tools Purpose made tooling and equipment	Tools Purpose made tooling and equipment	Tools Purpose made tooling and equipment	Identification and function of engine components	CI engines Injectors Valve assemblies	CI engines Injectors Valve assemblies	
Resources (other than textbook) to enhance learning	OHS act Safety signs in workshop First aid training manuals	OHS act Safety signs in workshop First aid training manuals	OHS act Safety signs in workshop First aid training manuals	Compression testers Cylinder leakage tester Workshop manuals with specifications	Gas analyser Computerised diagnostic scanner. Workshop manuals with specifications	Wheel balancer Wheel alignment equipment. Workshop manuals with specifications	Engines (Stripping) Sub- assemblies. Workshop manuals with Specifications	Turbochargers Super chargers Hand tools Old question papers.	Turbochargers Super chargers Hand tools Old question papers	
Assessment	Informal Assessment: Remediation	Classwork/case studies/worksheets/homework/class tests (Theory and practical work)								
	SBA & PAT (Formal)	<p style="text-align: center;">Assignment PAT:Phase 1</p> <p>The legislation governing workplaces in relation to COVID – 19 is the Occupational Health and Safety Act, Act 85 of 1993, as amended, read with the Hazardous Biological Agents Regulations. Section 8 (1) of the Occupational Health and Safety (OHS) Act, Act 85 of 1993, Safe work practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or intensity of exposure to a hazard. Examples of safe work practices for SARS-CoV-2 include. Requiring regular hand washing or using of alcohol-based hand rubs. Learners and teachers should always wash hands when they are visibly soiled and after removing any PPE. Keep safe distances and wear a mask at all times. See the document on the workshop safety measures</p>								

2021 Annual Teaching Plan Term 2: Mechanical Technology: Automotive Grade 12

TERM 2 (51 days)		Week 1 13 – 16 April (4 days)	Week 2 19 – 23 April (5 days)	Week 3 28 – 30 April (3 days)	Week 4 3 – 7 May (5 days)	Week 5 10 – 14 May (5 days)	Week 6 17 – 21 May (5 days)	Week 7 24 -28 May (5 days)	Week 8 31 May - 4 June (5 days)	Week 9 7 – 11 June (5 days)	Week 10 14 – 18 June (4 days)	Week 11 21 – 25 June (5 days)
CAPS Topics		Materials (Generic)	Materials (Generic)	Forces (Specific)	Forces (Specific)	Maintenance (Specific)	Maintenance (Specific)	Drive trains (Specific)	Drive trains (Specific)	Consolidation OF PAT ,Revision PAT Simulation		
Topics /Concepts, Skills and Values		Identify materials by: • Sound test • Bending test • Filing test and • Machining test	Methods of enhancing the properties of steel (only heated temperature and cooling apply): • Tempering • Case hardening • Hardening • Annealing • Normalising	Application of the following automotive calculations: • Work, Power, Torque, Compression Ratio	Application of the following automotive calculations: • Indicated Power, Brake Power, Mechanical Efficiency	Diagnose faults by using and reading test equipment: • Gas analysing • Compression test	Diagnose faults by using and reading test equipment: • Cylinder leakage • Pressure test	Describe the operational purpose and functions of the automatic gearbox: • Torque converters • Epicyclical gear trains	Describe the operational purpose and functions of the automatic gearbox: • Brake bands/locking devices • Control body (purpose only) • Gear Ratios			
Requisite pre-knowledge		Properties of engineering materials	Properties of engineering materials	Automotive calculations and application	Automotive calculations and application	Purpose made tooling and equipment	Purpose made tooling and equipment	Purpose and layout of drive systems	Purpose and layout of drive systems			
Resources (other than textbook) to enhance learning		Hand tools and testing equipment	Instructional videos, You-tube videos, etc.	Workshop manuals including specifications	Workshop manuals including specifications	Motor vehicle or running engines (petrol) • Gas analyser • Compression tester	Motor vehicle or running engines (petrol) • Cylinder leakage tester • Radiator pressure test	Automatic gearboxes • Torque converters • Epicyclical gear trains Hand tools	Automatic gearboxes Hand tools Old question papers			
Assessment	Informal Assessment: Remediation	Classwork/case studies/worksheets/homework/class tests (Theory and practical work)										
	SBA & PAT (Formal)	<p style="text-align: center;">Practical simulation</p> <p style="text-align: center;">PAT :Phase 2</p> <p>The legislation governing workplaces in relation to COVID – 19 is the Occupational Health and Safety Act, Act 85 of 1993, as amended, read with the Hazardous Biological Agents Regulations. Section 8 (1) of the Occupational Health and Safety (OHS) Act, Act 85 of 1993,</p> <p>Safe work practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or intensity of exposure to a hazard. Examples of safe work practices for SARS-CoV-2 include. Requiring regular hand washing or using of alcohol-based hand rubs. Learners and teachers should always wash hands when they are visibly soiled and after removing any PPE. Keep safe distances and wear a mask at all times.</p> <p style="text-align: center;">See the document on the workshop safety measures</p>										

2021 Annual Teaching Plan Term 3: Mechanical Technology: Automotive Grade 12

TERM 3 (52 days)	Week 1 13 – 16 July (4 days)	Week 2 19 – 23 July (5 days)	Week 3 26 – 30 July (5 days)	Week 4 2 - 6 Aug (5 days)	Week 5 10 - 13 Aug (4 days)	Week 6 16 – 20 August (5 days)	Week 7 23 – 27 August (5 days)	Week 8 30 Aug - 3 Sept (5 days)	Week 9 6 - 10 Sept (5 days)	Week 10 13 - 17 Sept (5 days)	Week 11 20 - 23 Sept (4 days)
CAPS Topics	Systems & Control (Specific)	Systems & Control (Specific)	Systems & Control (Specific)	Systems & Control	Systems & Control	Consolidation, Revision and PATs				Preparatory Examination	
Topics /Concepts, Skills and Values	Steering Geometry: • Alignment to manufacturers specifications • Toe-in and toe-out • Castor and camber	Steering Geometry: • Alignment to manufacturers specifications • Kingpin inclination •Ackerman principle.	Application of wheel balancing: • Static • Dynamic	ELECTRICITY: Purpose and operation of engine management: • Petrol	ELECTRICITY: Purpose and operation of engine management: • Diesel • Catalytic converter						
Requisite pre-knowledge	Steering control Suspension layouts	Steering control Suspension layouts	Steering control Suspension layouts	Electricity conventional ignition systems	Electricity conventional ignition systems						
Resources (other than textbook) to enhance learning	Wheel alignment equipment & a motor vehicle	Wheel alignment equipment & a motor vehicle	Wheel balancer and the necessary tooling. - wheels	Motor vehicle or running engines (petrol)	Motor vehicle or running engines (diesel)						
Assessment	Informal Assessment: Remediation	Classwork/case studies/worksheets/homework/class tests (Theory and practical work)									
	SBA & PAT (Formal)	<p style="text-align: center;">Preparatory examination PAT :Phase 3 and 4</p> <p>The legislation governing workplaces in relation to COVID – 19 is the Occupational Health and Safety Act, Act 85 of 1993, as amended, read with the Hazardous Biological Agents Regulations. Section 8 (1) of the Occupational Health and Safety (OHS) Act, Act 85 of 1993, Safe work practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or intensity of exposure to a hazard. Examples of safe work practices for SARS-CoV-2 include. Requiring regular hand washing or using of alcohol-based hand rubs. Learners and teachers should always wash hands when they are visibly soiled and after removing any PPE. Keep safe distances and wear a mask at all times. See the document on the workshop safety measures</p>									

2021 Annual Teaching Plan Term 4: Mechanical Technology: Automotive Grade 12

TERM 4 (47 days)		TERM 4 (47 days)	Week 1 5 - 8 Oct (4 days)	Week 2 11 – 15 Oct (5 days)	Week 3 18 – 22 Oct (5 days)	Week 4 25 – 29 Oct (5 days)	Week 5 26 - 30 Oct (5 days)	Week 6 1 - 5 Nov (5 days)	Week 7 8 - 12 Nov (5 days)	Week 8 15 - 19 Nov (5 days)	Week 9 - 11 22 Nov – 8 Dec (15 days)
CAPS Topics		Systems & Control	Systems & Control	Systems & Control	Final PAT Moderation and Revision		Examinations		Examinations		Examinations
Topics /Concepts, Skills and Values		ELECTRICITY: Purpose and operation of engine management: • Speed Control systems	ELECTRICITY: Purpose and operation of engine management: • Charging systems (Alternator)	ELECTRICITY: Electrical fuel pump • Purpose and operation • Pressure control (basic)							
Requisite pre-knowledge		Functions of engine components- battery and alternator	Functions of engine components- battery and alternator	Functions of engine components – Electric fuel pump							
Resources (other than textbook) to enhance learning		Speed control systems, Hand tools You-tube videos	Alternators, Hand tools You-tube videos	Electrical fuel pumps You-tube videos							
Assessment	Informal Assessment: Remediation	Classwork/case studies/worksheets/homework/class tests (Theory and practical work)									
	SBA (Formal)	Examination									