

2021 Annual Teaching Plan Term 1: Mechanical Technology: Automotive Grade 11

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)	Tools (Generic)	Tools (Specific)	Engines (Specific)	Engines (Specific)	Engines (Specific)	PAT Consolidation	Revision	Assignment
Topics /Concepts, Skills and Values		First Aid HIV/Aids Awareness OHS Act Machine specific safety measures when dealing with: • Grinding machines • Cutting machines	Machine specific safety measures when dealing with: • Press machines • Hydraulic operated equipment	The principles and functions of the following: • Stocks and dies (characteristics and drill sizes) • Grinding machines • Cutting machines (drilling machines) • Press machines	The principles and functions of the following: • Dial indicators • Telescopic gauges • Torque wrenches • Outside, Inside micrometers and vernier calliper	C.I. Engines: Combustion chamber designs for direct and indirect injection Injector: Function, construction, operation and types of nozzles	Valve assemblies: • Identify various overhead valve arrangements • Identify various camshafts arrangements: SOHC and DOHC • Cam followers – mechanical and hydraulic	Valve timing diagram – • Continuously variable valve timing (CVVT) system • Purpose and importance of valve clearance • Timing gears, chains, belt drives and tensioners			
Requisite pre-knowledge		HIV/Aids Awareness	HIV/Aids Awareness	Hand tools and Measuring tools	Hand tools and Measuring tools	Operating principles of 2 & 4 stroke internal combustion engines	Operating principles of 2 & 4 stroke internal combustion engines	Operating principles of 2 & 4 stroke internal combustion engines			
Resources (other than textbook) to enhance learning		OHS act, Safety signs in workshop, First aid manuals & Tools & Equipment	OHS act, Safety signs in workshop, First aid manuals & Tools & Equipment	Tools and equipment as mentioned above.	Tools and equipment as mentioned above.	Direct and Indirect injection C.I. engines, different types of injectors.	Engines with various OHV assemblies, You-tube videos	Engines with various OHV assemblies, You-tube videos			
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</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 2: Mechanical Technology: Automotive Grade 11												
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		Systems & Control (Specific)					System & Control (specific) Consolidation of PAT			Revision	Controlled test	
Topics /Concepts, Skills and Values		Basic function, construction and operation of final drives: <ul style="list-style-type: none">• Spiral bevel type• Hypoid type• Conventional differential• Limited slip differential	Identify the layout and purpose of different drive systems: <ul style="list-style-type: none">• Four-wheel drive• All-wheel drive	Hydraulic brakes: <ul style="list-style-type: none">• Master Cylinder (Parts & Operation)	Hydraulic brakes: <ul style="list-style-type: none">• Vacuum servo unit (purpose and operation)• ABS braking system (basic lay-out and operation)	Define the difference in construction between: <ul style="list-style-type: none">• Front axles• Rear axles:<ul style="list-style-type: none">➢ Semi-floating➢ Full-floating•	Steering systems, layout & operation: <ul style="list-style-type: none">• Types of steering boxes• Power steering• Electric p/steering Identify the function & purpose of the following steering control components: <ul style="list-style-type: none">• Drag links• Tie rod endsBall joints					
Requisite pre-knowledge				Hydraulic brake systems	Hydraulic brake systems							
Resources (other than textbook) to enhance learning		Different types of final drives, hand tools, You-tube, educational videos, etc.	Different types of final drives and layouts, hand tools, etc.	Hydraulic brakes components and operational system, hand tools, etc.	Vacuum servo units, hand tools.	steering control components: (as above). Educational videos, etc.						
Assessment	Informal Assessment: Remediation	Classwork/case studies/worksheets/homework/class tests (Theory and practical work)										
	SBA & PAT (Formal)		Term test PAT - Any maintenance task (e.g. changing disc pads or any oil change or engine timing) and setting of engine valves. (Any ONE) 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									

2021 Annual Teaching Plan Term 3: Mechanical Technology: Automotive Grade 11

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			Maintenance (Specific)		Forces (Specific)	Consolidation of PAT		Revision	Control Test	
Topics /Concepts, Skills and Values		Suspension layout and operation: • Define sprung and un-sprung mass • Semi-elliptic leaf • Coil springs • Torsion bars • Control ➢ Telescopic shock absorbers (gas and hydraulic) ➢ Anti-roll bars ➢ Stabilisers	ELECTRICITY Identify the functions and describe the operation of the conventional ignition system with reference to: • Firing order • Ignition timing • Spark plugs • Purpose of mechanical and vacuum regulators	Starting circuit: Show an understanding of the basic starting circuit Supplemental systems (purpose and operation): • Traction control • Air bag control	Engine Lubrication Oil pumps (purpose and operation): • Gear • Vane • Rotor	Demonstrate an understanding of oil control methods referring to: • Oil filtration systems • Pressure relief valve • Seals Servicing of vehicles: • Importance of regular servicing	Automotive calculations and application: • Work • Power • Torque • Compression Ratio					
Requisite pre-knowledge			Identification and function of engine components	Identification and function of engine components	Properties of lubricants Friction, Lack of maintenance	Lubrication systems	Types of forces Basic calculations					
Resources (other than textbook) to enhance learning		Steering control components: (as above). Educational videos, etc.	Ignition system components (as above) with relative specifications.	Batteries, starters, hand tools, You-tube, CDX educational videos, etc.	Different types of oil pumps.	Oil filtration systems, vehicle or running engines for servicing.	Engines, measuring instruments and specifications. Calculators					
Assessment	Informal Assessment: Remediation	Classwork/case studies/worksheets/homework/class tests (Theory and practical work)										
	SBA & PAT (Formal)		Term Test PAT - Any maintenance task (e.g. changing disc pads or any oil change or engine timing) and setting of engine valves. (Any ONE) 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									

2021 Annual Teaching Plan Term 4: Mechanical Technology: Automotive Grade 11											
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		Terminology (Specific)		Practical: Maintenance			Revision, Consolidation and Moderation of PAT			Examination	
Topics /Concepts, Skills and Values		Work shop administration ➤ Read and interpret job instructions	Read & interpret & adhere manufacturers <i>specifications</i>	Changing disc pads or oil change or engine timing or setting of engine valves							
Requisite pre-knowledge		Work Shop Administration Maintenance									
Resources (other than textbook) to enhance learning		Sample job cards	Workshop manuals You-tube videos								
Assessment	Informal Assessment: Remediation	Classwork/case studies/worksheets/homework/class tests(Theory and practical work)									
	SBA & PAT (Formal)	Final Examination PAT - Any maintenance task (e.g. changing disc pads or any oil change or engine timing) and setting of engine valves.									