

B. Voc. in Automotive Maintenance, Service & Repair
Third Semester Syllabus

Component	Unit (Module)	Subunit (Session)	Learning Objective
Theory	Paper- I Advance Auto Electric and Electronics	<p>Ohms Law, voltage, power, current (AC/DC) resistance, magnetism, electromagnetism and electromagnetic induction etc.</p> <ul style="list-style-type: none"> • Vehicle earthing and earthing methods. • Vehicle engine system (e.g. types, applications and operation of sensors, actuators, etc.). • Types of circuit protection and their use. • Electrical safety procedures. • The operation of warning, charging and starter circuits. • Symbols, units and terms associated with electric system and components. • Battery charging • Electrical/electronic control systems. • Operation of electronic and electric engine systems (including electrical component function, electrical inputs, outputs, voltages and oscilloscope patterns, digital and fiber optics principles). • Electrical theory and operation covering automotive digital computers, networked vehicles, voltage, current, resistance, power, capacitance, electrostatics, magnetic, inductance, discrete electronic components, logic families, and radio frequency. 	Knowledge basic electric technology
Practical		Faults finding of automotive electrical systems (charging, starting, lighting, horn, infotainment etc.).	Hands on experience of various automotive electrical systems.
Theory	Paper- II Advance Auto Electrical and electronics measuring techniques through various measuring instruments	<p>Measuring equipment: Analogue and digital multi-meters, lab oscilloscopes, data scanners, test lights, test LEDs, pulse generators etc.</p> <ul style="list-style-type: none"> • Electrical and electronic testing equipment: voltmeters, ammeters, ohmmeters, battery testing equipment, dedicated and computer based diagnostic equipment, oscilloscopes, scanner, battery tester, cell discharge tester, hydrometer, millimeter etc. • Other tools: engine scanning through laptops. 	Knowledge of Vehicle electrical system
Practical		Testing on electronics testing devices i.e. CRO, multi meters, data scanners, LED tester, battery testing device, engine scanners etc.	Hands on knowledge of advance automotive electronic system
Theory	Paper- III	<ul style="list-style-type: none"> • Theory of diagnosis including concept, design 	Understanding

	Auto Electrical and electronics Diagnosis and trouble shooting	<p>and planning.</p> <ul style="list-style-type: none"> • Types, functions, operations and limitations of diagnostic testing equipment. • Method and processes for recording and reporting diagnostic findings and recommendations. • The tests used to assess and confirm technical faults that cannot be determined through a visual inspection, including testing. • Wiring and connector integrity. • Operator and specification of input and output devices. • Controlling electronic components and computers. • Readings related to direct, indirect and intermittent causes. • The various sources of information available for assessing service and repair requirements of the vehicle including. • Diagnostic displays. • Visual inspections. • Test drives. • Vehicle/equipment manufacturer specifications standard operating procedures for diagnosis. • Typical symptoms of common technical faults in a vehicle including fluid levels, leaks, wear and tear, damage to a part/aggregate and need for adjustments. 	<p>vehicle advance electrical system</p>
Practical		<p>Trouble shooting of various automotive electronics instrumentation panel through measuring and testing devices.</p>	<p>Hands on experience of vehicle electrical faults and its remedies.</p>