

B. Voc. in Automotive- Maintenance, Service & Repair
First Semester

Skill Component -I : Fundamentals of Automotive Technology					
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Theory	History and Evolution of Automobile	<ul style="list-style-type: none"> • Invention of the wheel • Invention of the wheel cart and animal powered • Invention of Automobile and Evolution • Invention of Automobile and Evolution (Post World War II) 	Able to relate the invention of wheel, wheel cart and animal powered horse cart	5	4
Theory	Types of Automobiles	<ul style="list-style-type: none"> • Two and Three Wheelers • Passenger and Commercial vehicles • Agricultural vehicles • Construction equipment vehicles • Special vehicles 	Able to identify various types of Automobiles	5	
Theory	Major Systems & Components of an Automobile	<ul style="list-style-type: none"> • Chassis Frame and Auto Body • Engine, and its components • Lubrication System • Cooling System • Fuel Supply • Transmission System • Front and Rear Axle • Steering System • Suspension System • Wheels and Tyre • Brake • Electrical & Electronic Systems • Air Conditioning System • Active and Passive Safety 	Able to Major Systems & Components of an Automobile	10	
Theory	Road Safety	<ul style="list-style-type: none"> • Importance of road safety rules • Safe and responsible driving • Road Signs • Driving rules and Registration of a vehicle • Driving License 	Able to understand about road safety and rules adopted in regulation	10	
Theory	Automobile and Environment	<ul style="list-style-type: none"> • Air pollution • Auto Emissions and EU/ BS Standards • PUC Certification 	Able to understand about Automobiles and Environment	10	
Theory	Introduction to Vehicle	<ul style="list-style-type: none"> • Importance of Vehicle Maintenance and 	able to Introduce Vehicle Maintenance and	10	

	Maintenance and Servicing	Servicing <ul style="list-style-type: none"> • Tips to Extend the Life of Vehicles • Introduction to Vehicle Servicing procedure 	Servicing		
Theory Demonstration Practical	Innovation and Development	<ul style="list-style-type: none"> • Innovation and Development 	Able to understand about Innovation and Development in Automobiles	10	

Skill Component -II :- Introduction of Automotive Maintenance

Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Demonstration	Introduction of Automotive Maintenance	Concept of maintenance Types of maintenance Important of vehicle maintenance	Able to know automotive maintenance	10	4
Practical	Engine maintenance	Periodic/routine maintenance of engine Breakdown maintenance of engine	Able to identify maintenance approaches of engine	15	
Practical	Suspension & Braking Maintenance	Overview of suspension system Various suspension system maintenance procedure Routine service and overhauling of suspension system Various types braking system maintenance procedure	Able to understand about vehicle servicing and maintenance of suspension and braking system.	10	
Practical	Vehicle transmission maintenance	Different transmission system maintenance and service procedure Maintenance of drive line components	Basic knowledge about vehicle transmission maintenance	15	
Theory Demonstration Practical	Auto electrical system maintenance	Maintenance of basic electrical system of vehicle (lighting system, charging system, ignition system, electronics system etc.)	Able to understand about vehicle electrical system	10	

Skill Component -III : Basic vehicle Fault diagnosis and trouble shooting

Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Theory Demonstration Practical	Service Manual	<ul style="list-style-type: none"> • Reading of service manual manual 	Able to understand about uses of service manual	05	
Demonstration	Inspection and Repairs of the Fasteners	<ul style="list-style-type: none"> • Identification of fasteners used in a Vehicle • Various procedure used for 	Able to Identify different type of fasteners used in a	05	

Practical		removal of fasteners from the unit	vehicle		
Theory Demonstration Practical	Measuring Equipment's	<ul style="list-style-type: none"> • Handling and Use of dial gauge, telescopic gauge and bore gauge • Handling and Use of Vernier calliper and tyre depth gauge • Handling and Use of micrometer • Handling and Use of hydrometer and bevel gauge • Handling and Use of torque wrench and filler gauge • Usage of various gauges in a dash board in vehicle 	Able to understand and handle various measuring equipment and their uses	10	4
Theory Demonstration Practical	Suspension System	<ul style="list-style-type: none"> • Maintenance of suspension system • Service and replacement of leafs, cambering of leaf springs, shackle, shackle pin and centre bolt • Replacement of strut/shock absorbers, inspection of steering linkages • Manual and Power steering systems, Air suspension system • Steering system adjustments 	Able to test working of suspension system	10	
Theory Demonstration Practical	Serviceability, replacement or repair of components	<ul style="list-style-type: none"> • Reconditioning of valve mechanism • Inspection and replacement of piston rings • Inspection and replacement of connecting rod and engine bearing • Testing of cooling system and replacement of defective component • Regular servicing of MPFI system • Servicing of CRDI / non CRDI system 	Knowledge of serviceability and repairs.	10	
Theory Demonstration Practical	Transmission System	<ul style="list-style-type: none"> • Overhauling of clutch • Servicing of propeller/drive shaft, universal and slip joints • Servicing of differential unit and adjustments • Introduction to automatic transmission system 	Able to understand proper working of transmission system	10	

Theory Demonstration Practical	Auto Electrical System	<ul style="list-style-type: none"> • Reading of electrical symbol, circuit diagrams, colour codes and specification of cables and wiring Hardness • Multi meter, Timing light (stroboscope) and oscilloscope and its application • Battery and its maintenance • Circuit diagram for battery charging Checking of electrical connections and lights in a vehicle • Lighting system, application and replacement of fuses • Horn assembly, electrical fuel gauge and fuel pump their application and Maintenance • Circuit diagram for starter circuit • Circuit diagram for ignition circuit • Servicing of wiper system Introduction of HVAC System in a vehicle 	Basic understanding about auto electrical application in a vehicle	10	
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