

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

Skill subject I: Automotive Engine - BVAMSR203					
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Theory	Engine Construction and working	<ul style="list-style-type: none"> • Components of engine • Historical development of engine • Classification of engine • Modern Vehicle engines 	Understanding of basic component of engine, working and development of engine technology	05	1
Theory	Two and Four Stroke engine	<ul style="list-style-type: none"> • Otto and Diesel cycle • Principle and working of two stroke engine. • Working of four stroke cycle • Advantage and Disadvantages of two and four stroke engine 	Fundamental knowledge of two and four stroke engine	10	
Theory	MPFI and CRDI engine	<ul style="list-style-type: none"> • Construction details of Multi Point Fuel Injection system • Working of MPFI • Development of MPFI engine • Construction details of Common Rail Direct Injection system • Advantages and Disadvantages of CRDI engine 	Understanding of modern engine technologies	10	1
Theory	Fuel, cooling and Lubrication system	<ul style="list-style-type: none"> • Components and types details of fuel, cooling and lubrication system. 	Understanding of basics system of automobile	05	
Theory	Supercharging, turbo charging and EGR	<ul style="list-style-type: none"> • Working and layout of supercharging • Modern vehicle supercharger • Working and layout of turbocharger • Benefits of turbocharger and super charger • Working of Exhaust Gas Recirculation system (EGR) 	Knowledge of vehicle performance system through different new technologies	10	1
Theory	Introduction of Electric vehicle	<ul style="list-style-type: none"> • Concept of electric vehicle • Control drives and motors • Battery management system, Charging system 	Understanding of basic electrical technology used in electric vehicle	05	

Suggested Books:

- I C Engine, Mathur and Sharma, Dhanpat Rai publication New Delhi
- Automobile Engineering, Gupta R B, Satya Publication Delhi

Skill subject II: Automotive Chassis system - Automotive Chassis System - BVAMSR204

Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Theory	Chassis and Frame and its layout	Different types of chassis and its lay out : <ul style="list-style-type: none"> • Composite Construction • Unibody Construction • Tubular Space Frame • Glass-fibre Body • Carbon-fibre Monocoque Chassis • Aluminium Monocoque 	Understanding of various types of chassis used in modern vehicle	15	1
Theory	Brakes	Introduction of Braking system Types of brakes: <ul style="list-style-type: none"> • Mechanical brake • Hydraulic brake • Pneumatic brake • Air brake • Anti-lock braking system 	Understanding working of braking system through model	15	1
Theory	Drive and live Axle, Steering and suspension system	<ul style="list-style-type: none"> • Introduction and working of Vehicle Axle (Dead and Live) • Working of steering system • Types of steering system. • Working of suspension system • Types of suspension system 	Understanding principle of vehicle system (Axle, Steering, suspension)	10	1
Theory	Wheels and Tyre	<ul style="list-style-type: none"> • Nomenclature of Wheel and Tyre • Types of tyre • Tyre designation system • Advancement of tyre materials • Alloy wheel 	Understanding of Tyre constriction through cut model.	05	
Theory	Applied Physics	<ul style="list-style-type: none"> • Units and Dimension and its conversion • Link and Mechanism • Acceleration, Torque and momentum 	Understanding of basic physics	05	

		<ul style="list-style-type: none"> • Ohms law, Faraday law 			1
Theory	Applied Mathematics	<ul style="list-style-type: none"> • Algebra • Basic trigonometry • Mensuration • Statistics 	Understanding of basic mathematics	15	
<p>Suggested books:-</p> <ul style="list-style-type: none"> • Automobile Engineering ,Rajput R K Laxmi Publication, New Delhi • Automobile Mechanics, Giri N K, Khanna Publication New Delhi 					

Skill subject III: Advance vehicle Fault diagnosis and troubleshooting - BVAMSR205					
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Theory	Sensor used for Automobile application	<ul style="list-style-type: none"> • Different types of sensor used in automobile application 	Understanding of various types sensors used in vehicle	15	1
Theory	Electronic control module	<ul style="list-style-type: none"> • Layout of electronic control module. • Introduction of micro controller • Faults and diagnosis techniques in ECM 	Understanding working of Electronic control module	15	1
Theory	On board diagnosis system	Overview of onboard diagnosis Layout of OBD Types of OBD kit	Understanding principle of onboard diagnosis system	10	1
Theory	Wheels and Tyre	<ul style="list-style-type: none"> • Finding Wheel geometry parameter through alignment machine. • Computerized Wheel balancing machine 	Knowledge of wheel geometry Understanding of Tyre constriction through cut model.	05	
Theory	Diagnosis and Trouble shooting	<ul style="list-style-type: none"> • Finding trouble code from faulty vehicle sub system 	Finding trouble shooting procedure through diagnosis tools	10	1
Theory	Basic safety at the time vehicle diagnosis and trouble shooting	<ul style="list-style-type: none"> • Following Safety standard duration of finding vehicle sub system faults • Work place safety • Safety equipment's knowledge 	Understanding of safety standard at work place	05	
<p>Suggested books:-</p> <ul style="list-style-type: none"> • Automobile Engineering ,Rajput R K Laxmi Publication, New Delhi • Automobile Mechanics, Giri N K, Khanna Publication New Delhi 					