

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

Skill Paper I: Automotive Body Shop -					
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Theory	Automotive vehicle body materials(metals, composites, GRP, FRP etc.) and its repair technique	<ul style="list-style-type: none"> • Sheet metal repair • Aluminum repair • Bumper and plastic repair • Frame and unibody repair 	Understanding of vehicle body material repair techniques	15	1
Theory	Full paint services (except complete paint jobs)	<ul style="list-style-type: none"> • Paint Material • Paint color coding • Paint mixing process • Paint Clear and harder • 1K and 2K paints 	Understanding of basic automotive paint technology, body dent beating process and frame building structure	15	1
Practical	Body repair technique (Dent beating process) Prepare mounting for different automotive system	<ul style="list-style-type: none"> • complete mechanical services <ul style="list-style-type: none"> - suspension - engine diagnostics - airbags - brakes and ABS - cooling system - A/C • Glass replacement • Headlight reconditioning(for faded or discolored lenses) • Hail damage repair • Paint-less dent repair • Window tinting • Pin striping • Detailing 		30	2
Suggested books: Body repair technique, Chikara Anil Satya Publication, New Delhi					

Skill PaperII: Electric and Hybrid Vehicle –					
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Theory	Introduction of Electric vehicle	<ul style="list-style-type: none"> • Basic concept of electric vehicle • Importance of electric vehicle • Electric vehicle impact on environment. • Basic layout of electric vehicle • Advancement of electric vehicle 	Understanding of basic electric vehicle technology	30	2
Theory	Batteries	<ul style="list-style-type: none"> • Energy storage system, Lithium-Ion batteries • Charging system, Batteries monitoring system (BMS) 			
Theory	DC & AC electrical machines	<ul style="list-style-type: none"> • Working of DC and AC machine • Testing of electric machine • BLDC motors 			
Theory	Electric vehicle drive	<ul style="list-style-type: none"> • Drive controller • Types of drive controller • Working of drive controller 			
Theory	Hybrid Electric Vehicles	<ul style="list-style-type: none"> • Concept of hybrid vehicle • Types of hybrid vehicle • Advantages and disadvantages of hybrid vehicle 			
Practical		<ul style="list-style-type: none"> • Remedies and faults in Battery Management System (BMS) • Battery charging station installation • Faults in control system • Chassis and their material for electrical vehicle • Hybrid systems 		30	2
Suggested Books:					
<ul style="list-style-type: none"> • Electric Vehicle Technology Explained, 2ed (WSE), James Iarmini and John Lowry Willey Publication • Alternative fuel technology: electric, Hybrid and fuel cell vehicle, Erjavekjeck, IHI publication 					

Skill PaperIII: Automotive Service Operation -					
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour	Credit
Theory	Warranty Processing	<ul style="list-style-type: none"> • Introduction of vehicle warranty process • Warranty term and condition • Warranty related documents preparation (warranty claim, warranty tags etc.) • Extended warranty procedure 	Knowledge of warranty process of vehicle	15	1
Theory	Vehicle service Management	<ul style="list-style-type: none"> • Vehicle service schedule • Vehicle periodic services • Online job card preparation • Pre delivery inspection (PDI) 	Understanding of basic service management		
Theory	Spare Parts Management	<ul style="list-style-type: none"> • Technical specification of spare parts for OEM • Concept of Supply chain and logistics management • Parts checking through specification • Part claim for damage parts • Parts numbering, parts terminology and parts variation. 	Knowledge of parts inventory system of workshop	15	1
Theory	Service Advisor	<ul style="list-style-type: none"> • Estimation of time and cost of materials, • Customer agreements on job cards and cost estimates, estimation of parts and flat labor rate, closing of job card after completion of work, • Service contract under warranty condition offered by the dealership. • Service bulletin issued by manufacturers. • Documents under routine service, • Body repairs and maintenance. • AMC offered by dealership. Access procedure of service 	Knowledge of role of service advisor in vehicle service station		
Theory	Area Technical lead	<ul style="list-style-type: none"> • Overview of customer feedback system, • technical specification of OEM product for service, Planning for better service offering by OEM, Marketing campaign for effective service delivery, sales tool, • customer queries about service offering by OEM 	Knowledge of vehicle service center management	30	2

Theory	Customer Care	<ul style="list-style-type: none"> • Activities related to service center performance enhancement (Expert training, profitability, • value added service), Improvement of service level with in dealership network, • Service Parameter: customer engagement Index, service quality, dealer satisfaction index, skill enhancement, 	Understanding of basic concept of customer care or relationship in service center.		
<p>Suggested Books:</p> <ul style="list-style-type: none"> • Automobile workshop Manual • Workshop technique and Marketing, Chikara Anil, Satya Publication New Delhi 					