

Program: Diploma in Automobile Engineering	
Course Code: 6051C	Course Title: Vehicle Body Engineering
Semester: 6	Credits: 4
Course Category: Program Elective	
Periods per week: 4 (L:4, T:0, P:0)	Periods per semester: 60

Course Objectives:

- To know about different styles of body employed in good vehicles and passenger carriers, materials employed in body panel work.
- To elaborate about the body panel refinishing, paintwork, repainting, under carriage rust proofing and sound dampening.
- Familiarization of different body panels in passenger cars. frameless construction and body over frame construction.

Course Prerequisites:

Topic	Course code	Course name	Semester
Automobile frame construction		Automobile chassis and transmission	4

Course Outcomes:

On completion of the course, the student will be able to:

CO _n	Description	Duration (Hours)	Cognitive level
CO1	Identify various car body components	14	Applying
CO2	Explain the typical layout of vehicles and vehicle body materials.	15	Understanding
CO3	Make use of vehicle body repair types and specific tools	14	Applying
CO4	Summarize automotive painting	15	Understanding
	Series Test	2	

CO – PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2						
CO2	3						
CO3	3			2			
CO4	3						

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline:

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	Identify various car body components.		
M1.01	State the purpose and requirements of the car body	1	Remembering
M1.02	Explain different types of body construction.	3	Understanding
M1.03	Identify automotive body components and their purpose	2	Applying
M1.04	Explain window actuating mechanism	2	Understanding
M1.05	Compare different types of door and door locks	2	Understanding
M1.06	Classify body damage types	3	Applying
M1.07	State the use of body fillers	1	Remembering
Contents: Car body purpose and requirements, Car body construction types - body over frame construction and integral body - car body components and its purposes, Different car body styles, window actuating mechanism - types and working, Doors and door locks. Body damage classification - direct, indirect and work hardening. Body fillers,			
CO2	Explain typical layout of vehicles and vehicle body materials.		
M2.01	Classify bus body based on shape and style.	1	Understanding
M2.02	Explain entrance and exit location in bus	1	Understanding

M2.03	List the sequence of bus body building operation	3	Remembering
M2.04	Explain interior paneling and exterior paneling	3	Understanding
M2.05	Outline different types of commercial vehicle body.	2	Understanding
M2.06	Demonstrate different types of light commercial vehicles.	3	Understanding
M2.07	Summarize various vehicle body materials	2	Understanding
	Series Test – I	1	

Contents:

Bus body styles-single decker, double decker, two level, split level and articulated bus, Typical layout of bus - Floor height, engine location, entrance and exit location, comfortable seating angle. Constructional details: Frame construction, Double skin construction. Typical layout of commercial vehicles - Types of body, Flat platform, drop side, fixed side, tipper body, tanker body. Light commercial vehicle body types. Vehicle body materials - steel, light alloys, plastics, textiles, glass, wood, aluminum materials, adhesives and their properties, corrosion and their prevention.

CO3	Make use of vehicle body repair types and specific tools		
M3.01	Identify different hand tools used in vehicle body repair.	1	Applying
M3.02	Explain two types of plastic repair in vehicle body.	1	Understanding
M3.03	Explain service procedures of hood, bumper, fender, lid and trim.	3	Understanding
M3.04	Identify the major parts of a typical passenger compartment.	2	Applying
M3.05	Interpret servicing of front and rear seats	2	Understanding
M3.06	Apply body damage measurement system	2	Applying
M3.07	Explain major body repair procedure	1	Understanding
M3.08	Identify basic straightening and aligning techniques.	2	Applying

Contents:

Hand tool study, power tool and equipment, shop safety, minor repairs - repairing plastics, hood, bumper, fender, lid, and trim service, door, glass service, passenger compartment

service. Major body repair - frame repair, frame/body damage measurement - Gauge measurement, universal measurement, Dedicated fixture system, laser and electronic/computer system, frame re-alignment

CO4	Summarize automotive painting		
M4.01	List the types of paint and basic composition	1	Remembering
M4.02	Explain materials used in refinishing process	1	Understanding
M4.03	Explain vehicle body refinishing process.	2	Understanding
M4.04	Outline the construction and working of paint spray gun.	2	Understanding
M4 .05	List different types of spray gun feeds	2	Remembering
M4.06	Recall the use of air brushes and its types	2	Remembering
M4.07	Show the use of spray paint booth	1	Remembering
M4.08	Illustrate spray paint booth	2	Understanding
M4.09	Outline rust repair procedure	2	Understanding
	Series Test – II	1	

Contents:

Basic composition of Paint and different types of paint, refinishing process - Materials used, paint removal, preparing bare metal, prime coat selection, final sanding, masking, surface cleaning. Spray guns working, spray gun feeds, air brushes - single action and double action, spray booth types. Rust repair procedures

Text / Reference:

T/R	Book Title/Author
T1	James E. Duffy – Auto-body Repair Technology
R1	Dennis W. Parks – The complete guide to Auto- body Repair
R2	W. A. Livesey R Robinson – The repair of vehicle bodies
R3	Anil Chhikara – Automobile Engineering Vol. V (Paint Technology)
R4	Powloski J – Vehicle Body Engineering

Online Resources:

Sl.No	Website Link
1	https://www.youtube.com/watch?v=zSKtwgX8wpc
2	https://www.youtube.com/watch?v=3W3mJJbnwNg
3	https://www.youtube.com/watch?v=ZQSWg6gAebw
4	https://www.youtube.com/watch?v=1sP9Ty0jQy8