

Branch Name:	Automobile Engineering
Program Code:	ET408
Course Title:	Vehicle Body Engineering
Course Code:	2ET4080405
Pre-requisite Course:	-----

Course Objectives:

1. To Study Various types of chassis and frame.
2. To study about hand and power tools used for repair work.
3. To study about major and minor body repair procedure.
4. To study about Body materials
5. To study about denting, painting, etc.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	0	2	4	60	40	20	30	150

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	Development and construction of vehicle body • Introduction to chassis, frame and body Methods of construction Basic body construction & its classification Integral body construction Design feature of integral body frame(safety body cell & crumple zone) Driver seat & drivers visibility General information-body repairs Space & safety in vehicle Introduction to chassis, frame and body	04	10
2	Body repair tools and shop equipment's • Describe various hand & power tools require for vehicle body repair & alignment Explain safety Measures	04	07
3	Minor Body Repairs • Repair with washer welder Repair with hammer and dolly Panel filling with plastic body and filler-forming with solder Panel shrinking (drawing operation) Repairing of rusted body panels	08	20
4	Major Body Repairs • Diagnosis of damage Front end Collision Rear end Collision Side swipe collision Roll-over damage Fibre glass repairs & replacement Body aligning. Panel replacement	10	23
5	Miscellaneous Body services • Interior trim and upholstery Glass and door service Body insulation and sealing Exterior trim	08	10
6	Body Materials • Characteristics of Sheet Metal Types of Glass Types of Resins Plastic parts Composite materials GRP (glass reinforced plastic) , FRP (fiber reinforced plastic)	04	10

7	Painting & Refinishing Paint types & characteristics Painting methods & techniques a. Spraying b. Immersion Painting equipments Painting procedure with surface preparation Refinishing facilities Refinishing equipments and tools Different types of paint defects occurring during painting & immediately after drying, their causes & remedies.	07	20
---	--	----	----

List of Practical:

1. Observe & prepare report of various bodies repairing work.
2. Demonstrate use of different tools required for body repairing work.
3. Demonstrate safety measures in body building shop.
4. Demonstrate works carried out for minor repairing.
5. Demonstrate various joining process.
6. Demonstrate glasses and door fitting and repairing process.
7. Demonstrate the use of various paints and coating used for vehicles.

Reference Books:

1. Vehicle body engineering Century Gilcs J Pawlowski Century Publications ISBN
2. Automotive Refinishing Harry T. Chudy Prentice Hall, Inc., London
3. Vehicle body layout and Analysis John Fanton Mechanical Engineering Publications (1980) ISBN
4. The Haynes Automotive Body Repair & Painting Manual Haynes Delmar Cengage Learning; 1 edition ISBN:- 1850104794

List of Open-Source Software/learning website:

1. <https://www.youtube.com/watch?v=gcKx2ZqhlcU>
2. https://www.youtube.com/watch?v=ORFa_iPtAeY
3. <https://www.youtube.com/watch?v=t4TdwCPbEiE>
4. <https://www.youtube.com/watch?v=u0IJjKh-dWE>
5. <https://www.youtube.com/watch?v=I3OIxtpWX7Y>

Course Learning Outcomes (CLO):

1. Classify vehicle body according to body shape
2. Use various hand & power tools require for vehicle body repair & alignment
3. Describe repair procedure of vehicle body damages
4. Describe various painting and repainting methods
5. Identify different paint defects, its causes and corrections

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	L	M										L	M	L		
CLO2	L	L		L	M				L			L	L	M	M	
CLO3	L		M	L	M									M	L	
CLO4	L		L		M				L				M	L	M	
CLO5	M	L	M	M	M				M				L	M	M	

H: High, M: Medium, L: Low