



Lok Jagruti Kendra University
University with a Difference

Diploma in Automobile Engineering



Course Code: 025010404

Chassis & Body Engineering

Programme / Branch Name			Automobile Engineering			
Course Name	Chassis and Body Engineering				Course Code	025010404
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses BSC: Basic Science Courses
 ESC: Engineering Science Courses PCC: Program Core Courses
 OEC: Open Elective Courses PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week					Evaluation Scheme				
L	T	P	Total Teaching Hours	Total Credit	CA	CCE	SEE (TH)	SEE (PR)	Total
4	0	0	4	4	10	40	50	-	100

Legends: L: Lectures T: Tutorial P: Practical
 CA: Continuous Assessment (Attendance + Activity)
 CCE: Continuous & Comprehensive Evaluation
 SEE (Th): Semester End Evaluation (Theory)
 SEE (Pr): Semester End Evaluation (Practical)

2. Prerequisite

- ✓ Physics
- ✓ Engineering Materials and Mechanics of Solids

3. Rationale

- ✓ Automobile engineers need to be updated with latest materials to meet the challenges of developing cost-effective technologies. This subject therefore highlights advances in engineering materials, also this subject is conceptual applications of vehicular chassis and body components, their design psychology and repair techniques in case of major and minor accidents.

4. Objectives

- ✓ To develop the knowledge on structure of Different classes of vehicles.
- ✓ To provide an understanding to students on the correlation between structure, Panels and Frames of Vehicles.
- ✓ To develop the knowledge on Various Types of Accidents and damages caused.
- ✓ Study about stresses, strains and deformation of various simple mechanical components under load.
- ✓ To study about Various Repairing Processes for repairing Damaged Frames and Chassis', and Body Panels.

5. Contents

Unit No.	Unit Name	Topics	Learning Outcome	% Weightage	Hours
1.	Vehicle Chassis	1.1 Introduction 1.2 Body Panels 1.3 Introduction of Vehicle Body Panels 1.4 Body Panel Material 1.5 Vehicle Aerodynamics Basics 1.6 Simple Structural Surface method analysis for Van 1.7 Types of Chassis and Frame 1.8 Vehicle Layout and Component Locations 1.9 Crumple Zone and Safety Cell	<ul style="list-style-type: none"> Identify and Understand Various Body structures and Panels 	25	11
2.	Tools and Equipment	2.1 Basic Hand Tools 2.2 Identify Various hand Tools 2.3 Application of Hand tools in repairing 2.4 Power Tools and Equipment 2.5 Identify Power Tools 2.6 Identify Special Body Repair Benches and Equipment 2.7 Application of Special Purpose tools and Equipment	<ul style="list-style-type: none"> Identify and Understand Hand and Power tools for Repair work 	20	13
3.	Minor Body Repair	3.1 Minor Body Repair using Basic hand Tools 3.2 Panel Repair using Hammer and Dolly 3.3 Panel Treatment Process 3.4 Panel making using FRP and GRP 3.5 Body Panel fillers 3.6 Minor Body Repair using Power Tools 3.7 Welding, Sanding, Grinding and Cutting Process. 3.8 Types of Glasses used in Vehicle	<ul style="list-style-type: none"> Understand how to perform various minor body repairs 	15	12

4.	Major Body Repair	4.1 Major Accidents 4.2 Front End Collision 4.3 Rear End Collision 4.4 Side Collision 4.5 Roll Over 4.6 Chassis and Frame alignment using Bench 4.7 Panel Replacement Process. 4.8 Windshield Replacement Process	<ul style="list-style-type: none"> Understand how to perform various minor body repairs and Various After Repairing Tests 	15	10
5.	Vehicle Paint Technology	5.1 Introduction to Painting 5.2 Components of Paint 5.3 Basic Paint Layers in Vehicle 5.4 Tools and equipment for Painting process 5.5 Painting Processes, Dipping Process, Electro Deposition, Air Spray Process, Airless Spray Process, Heating and Drying Process. 5.6 Paint Defects	<ul style="list-style-type: none"> Understanding Painting Process for Vehicles and Identify Paint Defects 	15	08

Total Hours 56

6. Suggested Specification Table for Evaluation Scheme

Unit No.	Unit Name	Distribution of Topics According to Bloom's Taxonomy					
		R %	U %	App %	C %	E %	An %
1.	Vehicle Chassis	50	50	0	0	0	0
2.	Tools and Equipment	25	50	25	0	0	0
3.	Minor Body Repair	30	60	10	0	0	0
4.	Major Body Repair	30	60	10	0	0	0
5.	Vehicle Paint Technology	50	50	0	0	0	0

Legends: R: Remembering U: Understanding
 App: Applying C: Creating
 E: Evaluating An: Analyzing

7. Reference Books

- 1) Automobile Engineering Body Repair Technique Vol 4, By Anil Chikara; Satya Prakashan (Text Book)
- 2) Automobile Engineering Paint Technique Vol 5, By Anil Chikara; Satya Prakashan
- 3) Jnusz Pawlowski, "Vehicle Body Engineering", Business books limited
- 4) Automotive Refinishing, By Harry T Chuddy; Prentic Inc.
- 5) Vehicle Body Layout by John Fanton, Mechanical Engineering Publications
- 6) The Haynes Automotive Body Repair & Painting Manual, Haynes, Delmar Cengage Learning, 1 Edition

8. Open Sources (Website, Video, Movie)

- 1) <https://www.youtube.com/c/TheAutomotives>
- 2) <https://www.youtube.com/channel/UC4la8Cf7-DxaxsfMhaWpHiQ>
- 3) <https://theautomobileengineers.blogspot.com/>
- 4) <http://nptel.ac.in/>
- 5) <https://www.youtube.com/c/LearnEngineering>
- 6) <https://www.youtube.com/watch?v=gcKx2ZqhlcU>
- 7) https://www.youtube.com/watch?v=ORFa_iPtAeY
- 8) <https://www.youtube.com/watch?v=I3OIxtpWX7Y>
- 9) <https://www.youtube.com/watch?v=t4TdwcPbEiE>
- 10) <https://www.youtube.com/watch?v=u0IJjKh-dWE>
- 11) <https://www.youtube.com/watch?v=LtwX8rrcEUQ>
- 12) <https://www.youtube.com/watch?v=SnDCcnzQapo&list=PL91B84909AEC3F3E4>
- 13) <https://www.youtube.com/watch?v=qUehclZVeIs>