

GOVT.POLYTECHNIC NAYAGARH
DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

SUBJECT: AUTOMOBILE ENGINEERING LABORATORY (PR-1)

PERIODS: 4P/WEEK

NAME OF FACULTY: ABINAS NAYAK, LECTURER STAGE I

SEMESTER FROM : 22/12/2025 to 18/04/2026

SEMESTER: 6th

GROUP: A & B

NO. OF WEEKS: 15

Week	Period	Theory / Practical Topics
1st	1st & 2nd	Exp 1: Study of Automobile chassis: Introduction to chassis types and layout.
	3rd & 4th	Demonstration of chassis components on a model/vehicle.
2nd	1st & 2nd	Sketching of Automobile chassis layout with major components.
	3rd & 4th	Viva Voce: Chassis frames and component placement.
3rd	1st & 2nd	Exp 7: Study of actual car engine: Identification of main parts.
	3rd & 4th	Demonstration of engine working using the actual car engine model.
4th	1st & 2nd	Detailed study of engine systems (Lubrication/Cooling points on engine).
	3rd & 4th	Viva Voce: Engine terminology and construction.
5th	1st & 2nd	Exp 4: Study of the cut section model of carburetor: Solex type.
	3rd & 4th	Study of the cut section model of carburetor: Maruti car type.
6th	1st & 2nd	Sketching of Solex and Maruti carburetor circuits (Idling, Low speed, High speed).
	3rd & 4th	Viva Voce: Carburetion principles and differences between types.
7th	1st & 2nd	Exp 5: Study of the fuel pump cut section model (Mechanical & Electrical).
	3rd & 4th	Demonstration of fuel pump working action and diaphragm movement.
8th	1st & 2nd	Sketching of Mechanical Fuel Pump.
	3rd & 4th	Viva Voce: Fuel supply system and pump troubleshooting.
9th	1st & 2nd	Exp 6: Study of actual cut section of gear box: Construction details.
	3rd & 4th	Demonstration of power flow in different gears (1st, 2nd, 3rd, 4th, Reverse).
10th	1st & 2nd	Sketching of Gear Box layout and gear engagement mechanism.
	3rd & 4th	Viva Voce: Transmission ratios and gear shifting mechanism.
11th	1st & 2nd	Exp 2: Study the differential mechanism of the Tractor: Construction.
	3rd & 4th	Working principle demonstration: Straight line motion vs Turning.
12th	1st & 2nd	Sketching of Differential unit (Crown wheel, Pinion, Sun & Planet gears).
	3rd & 4th	Viva Voce: Function of differential and final drive.
13th	1st & 2nd	Exp 3: Study the hydraulic braking system of automobile: Master Cylinder.
	3rd & 4th	Study of Wheel Cylinders and Brake drum/Shoe arrangement.
14th	1st & 2nd	Demonstration of brake bleeding process and system maintenance.
	3rd & 4th	Viva Voce: Braking principles, Pascal's law, and safety.

15th	1st & 2nd	Revision: Review of all cut-section models.
	3rd & 4th	Final Lab Record Submission / End Semester Practical Assessment.

REFERENCES:

1. **Automobile Engineering Vol- I & II** - Dr. Kirpal Singh, Standard Publishers.
2. **Automobile Engineering** - R.B. Gupta, Satya Prakashan.
3. **Automotive Mechanics** - William H. Crouse.

Abinas
22/11/24

Abinas Nayak
Lecturer Stage I