Lesson Plan

Name of the faculty: Sh. Parveen Malik, Lecturer in Mechanical Engg.

Discipline: Mechanical

Semester: 6th Mechanical A & B

Subject: Automobile Engineering

Lesson Plan Duration: 15 weeks (From January 2025 to May 2025)

***Work Load (Lecture/ Practical) per week (in hours):** Theory-03 & 02

Week	Theory		Practical	
	Lecture day	**Topic (including assignment / test)**	**Practical Day**	**Topic**
1st	1st	Automobile and its development	1st	Fault and their remedies in (i) Battery Ignition System (ii) Magnetic Ignition System.
	2nd	Various types of automobiles manufactured in India		
	3rd	Layout of chassis	2nd	Fault and their remedies in (i) Battery Ignition System (ii) Magnetic Ignition System.
2nd	1st	Types of drives-front wheel, rear wheel,	1st	Demonstration of (i) Head Light Model (ii) Wiper and Indicators
	2nd	four wheel drive		
	3rd	Introduction; History of Hybrid and Electric Vehicles	2nd	Demonstration of (i) Head Light Model (ii) Wiper and Indicators
3rd	1st	Social and Environmental importance of Hybrid and Electric Vehicles	1st	Demonstration of (i) AC Pump (ii) SU Pump (iii) Master Cylinders.
	2nd	Components, Vehicle mechanics: Roadway fundamentals		
	3rd	Vehicle kinetics, Dynamics of vehicle motion	2nd	Demonstration of (i) AC Pump (ii) SU Pump (iii) Master Cylinders.
4th	1st	Propulsion System Design, Motor sizing, Introduction of CNG/PNG in Automobiles, Introduction to self-driven cars	1st	Demonstration of (i)rear Axle (ii) Differential (iii) Steering System
	2nd	Clutch- Function, Constructional details of single plate		

	3rd	Multiplate friction clutches, Cone clutch	2nd	Demonstration of (i)rear Axle (ii) Differential (iii) Steering System
5th	1st	hydraulic clutch	1st	Fault finding practices on an automobile- four wheelers (petrol/ diesel vehicles)
	2nd	Gear box- function, concept of sliding mesh		
	3rd	Constant mesh and synchromesh gear box, Torque converter and overdrive.	2nd	Fault finding practices on an automobile- four wheelers (petrol/ diesel vehicles)
6th	1st	Introduction to Automated Manual Transmission, Automatic transmission and Continuously Variable Transmission (CVT)	1st	Tuning of an automobile engine
	2nd	Function of propeller shaft, universal joint		
	3rd	Differential and different types of rear axles and rear axle drives	2nd	Tuning of an automobile engine
7th	1st	Wheels and tyres- types of wheels	1st	Driving practice on a 4-wheeler
	2nd	Types and specifications of tyres used in Indian vehicles		
	3rd	Wheel balancing, Toe in, Toe out, camber, caster, kingpin inclination,	2nd	Driving practice on a 4-wheeler
8th	1st	Function and principle of Ackerman.	1st	Charging of an automobile battery and measuring cell voltage and specific gravity of electrolyte
	2nd	Davis steering mechanism		
	3rd	Types of steering gear boxes- Worm and Wheel	2nd	Charging of an automobile battery and measuring cell voltage and specific gravity of electrolyte
9th	1st	Rack and opinion, power steering system Hydraulic and Electrical.	1st	Changing of wheels and inflation of tyres, balancing of wheels
	2nd	Revision		
	3rd	Revision	2nd	Changing of wheels and inflation of tyres, balancing of wheels
10th	1st	Constructional details and working of mechanical	1st	Checking spark gap and valve clearance.
	2nd	Hydraulic brake, Regenerative braking.		
	3rd	Concept of air and vacuum brake Details of master cylinder, wheel cylinder, Concept of brake	2nd	Checking spark gap and valve clearance.

		drum, brake lining/pad		
11th	1st	Brake adjustment	1st	Cleaning and adjusting a carburetor.
	2nd	Introduction to Anti lock brake system and its working		
	3rd	Function, types, working of coil spring	2nd	Cleaning and adjusting a carburetor.
12th	1st	Leaf spring		
	2nd	Concept of Air suspension		
	3rd	Shock absorber		
13th	1st	Functions and types, Constructional details of Lithium ion batteries		
	2nd	Specification of battery-capacity, rating , number of plates, selection of battery for particular use, Battery charging, chemical reactions during charge and discharge		
	3rd	Maintenance of batteries, Checking of batteries for voltage and specific gravity. Batteries for electric and hybrid vehicles. Battery pack Design		
14th	1st	Properties of Batteries		
	2nd	Dynamo- Function and details, Regulators - voltage current and compensated type		
	3rd	Cutout- construction, working and their adjustment		
15th	1st	Alternator- Construction and working, charging of battery by alternator.		
	2nd	Introduction to Integrated starter-alternator		
	3rd	wiring Diagram of an Automobile		