

LESSON PLAN

Discipline : MECHANICAL ENGG	Semester : 6TH	Name of the Teaching Faculty: SHUBHAJIT BISWAL
Subject: AUTOMOBILE ENGINEERING AND HYBRID VEHICLES (TH-2)	No. of days/per week class allotted: 04	Semester From date : 04.02.2025 To 17.05.2025 No. of Weeks: 15
Week	Class Day	Theory Topics
1ST	1ST	1.0 Automobiles: Definition, need and classification
	2ND	Layout of automobile chassis with major components (Line diagram)
	3RD	Manufacturer's specification of auto engines of motorcycle, scooter, car & bus one from each.
	4TH	State the classification of engines basing on working principle, fuel used position of cylinder, arrangement of cylinder.
2ND	1ST	Continued
	2ND	2.0 Clutch System: Need, Types and Working principle with neat sketch of single clutch system
	3RD	Need, Types and Working principle with neat sketch of double clutch system
	4TH	Continued
3RD	1ST	Gear Box: Purpose of gear box
	2ND	Continued
	3RD	Construction and working of a 4 speed gear box
	4TH	Concept of automatic gear changing mechanisms
4TH	1ST	Propeller shaft: Constructional features
	2ND	Differential: Need, Types and Working principle
	3RD	Continued
	4TH	3.0 Braking systems in automobiles: Need
5TH	1ST	Braking systems in automobiles: Types
	2ND	Discussed about Mechanical Brake
	3RD	Discussed about Hydraulic brake
	4TH	Discussed about Air brake
6TH	1ST	Discussed about Air assisted hydraulic brake
	2ND	Discussed about Vacuum Brake
	3RD	Define Auto electric system
	4TH	Wiring diagram of Horn circuit (Sketch and description)
7TH	1ST	Lighting circuit, Cut-out circuit (Sketch and description)

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	2 ND	Voltage current regulator circuit and Flasher circuit(Sketch and description)
	3 RD	Continued
	4 TH	State the common ignition troubles and its remedies.
8 TH	1 ST	Spark plugs: Purpose, construction and specifications
	2 ND	Continued
	3 RD	5.0 Description of the conventional suspensionsystem for Rear and Front axle.
	4 TH	Description of independent suspension system usedin cars (coil spring and tension bars)
9 TH	1 ST	Constructional features and working of a telescopicshock absorber.
	2 ND	State tyre specifications.
	3 RD	Explain the causes and remedies of tyre wear.
	4 TH	Describe necessity of engine cooling.
10 TH	1 ST	Continued
	2 ND	Describe defects of cooling and their remedialmeasures.
	3 RD	Describe the Function of lubrication.
	4 TH	Continued
11 TH	1 ST	Describe the lubrication System of I.C. engine.
	2 ND	Define Fuel and Ignition system
	3 RD	Discussed For petrol Engine: Fuel and Ignitionsystem
	4 TH	For petrol Engine: Describe carburetion and Air fuelratio.
12 TH	1 ST	Continued
	2 ND	For petrol Engine: Describe the Battery ignition and Magnet ignition system.
	3 RD	Continued
	4 TH	For petrol Engine: Describe Multipoint fuel injectionsystem.
13 TH	1 ST	For Diesel engine: Describe the working principle of Fuel feed pump.
	2 ND	For Diesel engine: Describe the working principle of Injector and Fuel filter.
	3 RD	For Diesel engine: Describe the working principle fuel injection system for multi cylinder engine.

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	4 TH	Introduction, Social and Environmental importance of Hybrid and Electric Vehicles
14 TH	1 ST	Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles
	2 ND	Continued
	3 RD	Continued
	4 TH	Battery for Electric Vehicles, Battery types and fuel cells
15 TH	1 ST	Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations;
	2 ND	Solar powered vehicles
	3 RD	Previous year questions discussion
	4 TH	Previous year questions discussion

Learning Resources:

Sl.	Name of Authors	Title of the Book	Name of the Publisher
1	R. B. Gupta	Automobile Engineering	Satya Prakashan
2	Dr Kirpal Singh	Automobile Engineering Vol-I & II	Standard Publishers
3	C. P. Nakra	Automobile Engineering	Dhanpat Rai Publication

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