GANAPATI INSTITUTE OF ENGINEERING AND TECHNOLOGY(POLYTECHNIC) JAGATPUR,CUTTACK

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 weeks class allotted:04	Semester from date **22.12.2025** to date **18.04.2026** No. of weeks - **15**
Week	Class Day	Theory Topics
1ST	1ST	**1.0**Automobiles:Definition,need and classification
	2ND	Lay out 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	Revision
	2ND	**2.0** Clutch System: Need, Type sand Working Principle with neat sketch of single clutch system
	3RD	Need ,Type sand 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 4speed gear box
	4TH	Concept of automatic gear changing mechanisms
4TH	1ST	Propeller shaft: Constructional features
	2ND	Differential :Need ,Types and Working principle
	3RD	Class Test-1
	4TH	**3.0**Braking systems in automobiles & its need
5TH	1ST	Braking systems in automobiles and its Types
	2ND	Discussed about Mechanical Brake
	3RD	Discussed about Hydraulic brake
	4TH	Discussed about Airbrake
6TH	1ST	Discussed about Air assisted hydraulic brake
	2ND	Discussed about Vacuum Brake
	3RD	Define Auto electric system

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	4TH	Wiring diagram of Horn circuit (Sketch and description)
7TH	1ST	Lighting circuit, Cut-out circuit(Sketch and description)
	2ND	Voltage current regulator circuit and Flasher circuit (Sketch and description)
	3RD	Continued
	4TH	State the common ignition troubles and its remedies.
8TH	1ST	Spark plugs: Purpose, construction and specifications
	2ND	Continued
	3RD	**5.0**Description of the conventional suspension system for Rear and Front axle.
	4TH	Description of independent suspension system used in cars (coil spring and tension bars)
9TH	1ST	Constructional features and working of a telescopic shock absorber.
	2ND	State tyre specifications.
	3RD	Explain the causes and remedies of tyre wear.
	4TH	Describe necessity of engine cooling.
10TH	1ST	Continued
	2ND	Described effects of cooling and their remedial measures.
	3RD	Describe the Function of lubrication.
	4TH	Continued
	5TH	Describe the lubrication System of I.C. engine.
11TH	1ST	Continued
	2ND	Define Fuel and Ignition system
	3RD	Discussed For petrol Engine: Fuel and Ignition system
	4TH	For petrol Engine: Describe carburetion and Air fuel ratio.
12TH	1ST	Continued
	2ND	For petrol Engine: Describe the Battery ignition And Magnet ignition system.
	3RD	Continued
	4TH	For petrol Engine: Describe Multipoint fuel injection system.
	1ST	For Diesel engine: Describe the working principle of Fuel feed pump.

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13TH	2ND	For Diesel engine : Describe the working principle of Injector and Fuel filter.
	3RD	For Diesel engine: Describe the working principle fuel injection system for multi cylinder Engine.
	4TH	Introduction, Social and Environmental importance of Hybrid and Electric Vehicles
14TH	1ST	Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles
	2ND	Continued
	3RD	Continued
	4TH	Battery for Electric Vehicles ,Battery types and fuel cells
15TH	1ST	Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations;
	2ND	Solar powered vehicles
	3RD	Previous year questions discussion
	4TH	Class Test-2

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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