UCPES, BERHAMPUR

LESSON PLAN

Session (2023-2024)

Discipline: Mechanical Engg.	**Semester:** 6th ,Summer/2024	**Name of the Faculty:** Rama Krishna Sahu,Lecturer St-II(Mech)
Subject: Automobile Engineering and Hybrid Vehicles	**No of Days/week:** 04	**Start Date:** 16/01/2024 **End Date:** 26/04/2024

Week	Class Day	Theory Topics
1st	1st	Automobiles: Definition, need and classification
	2nd	Layout of automobile chassiswith major components (Line diagram)
	3rd	Clutch System: Need, Types (Single & Multiple)
	4th	Working principle with sketch: Different types of clutces
2nd	1st	Gear Box: Purpose of gear box, Types
	2nd	Construction and working of a 4 speed gear box
	3rd	Concept of automatic gear changing mechanisms
	4th	Propeller shaft: Constructional features and working
3rd	1st	Differential: Need, Types and Working principle
	2nd	Working of differential of 4-wheeler
	3rd	Review class

	4th	*Assignment Evaluation & Class Test*
Week	**Class Day**	**Theory Topics**
4th	1st	Braking systems in automobiles: Need and types
	2nd	Mechanical Brakes
	3rd	Hydraulic Brake
	4th	Air Brake and Vacuum Brake
5th	1st	Air assisted Hydraulic Brake
	2nd	Review class
	3rd	*Assignment Evaluation & Class Test*
	4th	Battery ignition system: Schematic diagram, elements and working
6th	1st	Magnet ignition system: Schematic diagram, elements and working
	2nd	Spark plugs: Purpose, construction and specifications
	3rd	Common ignition troubles and its remedies
	4th	Conventional suspension system for Rear and Front axle
7th	1st	Independent suspension system used in cars (coil spring and tension bars)
	2nd	Constructional features and working of a telescopic shock absorber
	3rd	Review class
	4th	*Assignment Evaluation & Class Test*
8th	1st	Engine cooling: Need and classification
	2nd	Cooling systems of IC engine
	3rd	Defects of cooling and their remedial measures
	4th	Engine lubrication: Need and classification
9th	1st	Describe the Lubrication System of I.C. engine
	2nd	Review class
	3rd	*Assignment Evaluation & Class Test*

Week	Class Day	Theory Topics
10th	1st	Air fuel ratio, Carburetor
	2nd	Carburetion process for Petrol Engine
	3rd	Multipoint fuel injection system for Petrol Engine
	4th	Air fuel ratio of diesel engine. Filter for Diesel engine
11th	1st	Elements of fuel injection system of Diesel engine
	2nd	Working principle of fuel injection system for multi cylinder Engine
	3rd	Principle of Fuel feed pump and Fuel Injector for Diesel engine
	4th	Review class
12th	1st	*Assignment Evaluation & Class Test*
	2nd	Introduction to Electric and Hybrid vehicles
	3rd	Social and Environmental importance of Hybrid and Electric Vehicles
	4th	Description of Electric Vehicles, operational advantages
13th	1st	Present performance and applications of Electric Vehicles
	2nd	Battery for Electric Vehicles, Battery types and fuel cells
	3rd	Hybrid vehicles, Types of Hybrid and Electric Vehicles
	4th	Parallel, Series, Parallel and Series configurations
14th	1st	Drive train
	2nd	Solar power generation and its application for automobiles
	3rd	Solar powered vehicles
	5th	Review class
15th	1st	*Assignment Evaluation & Class Test*
	2nd	*Discussion of previous year Question papers*
	3rd	*Discussion of previous year Question papers*
	4th	*Discussion of Possible Questions*