

BLACK DIAMOND SCHOOL OF ENGINEERING, JHARSUGUDA

LESSON PLAN

Session (2022-2023)

Discipline: Mechanical Engg.	Semester: 6 th , Summer/2023	Name of the Faculty: Sipra Patel Lecturer
Subject: Automobile Engineering and Hybrid Vehicles	No of Days/week: 04	Start Date: 13/02/2023 End Date: 23/05/2023

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

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

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

