DEPARTMENT OF MECHANICAL ENGINEERING

LESSON PLAN

6TH SEMESTER

SUBJECT - AUTOMOBILE ENGINEERING AND HYBRID VEHICLES SECTION - A & B SESSION- 2022 - 2023

MONTH	NO. OF PERIODS AVAILABLE	TOPICS TO BE COVERED
FEB **MARCH** **APR**	**14** **22** **23**	**INTRODUCTION & TRANSMISSION SYSTEM:** 1.1 Automobiles: Definition, need and classification: Layout of automobile chassis with major components (Line diagram) 1.2 Clutch System: Need, Types (Single & Multiple) and Working principle with sketch 1.3 Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box 1.4 Concept of automatic gear changing mechanisms 1.5 Propeller shaft: Constructional features 1.6 Differential: Need, Types and Working principle **2.0 BRAKING SYSTEM:** 2.1 Braking systems in automobiles: Need and types 2.2 Mechanical Brake 2.3 Hydraulic Brake 2.4 Air Brake 2.5 Air assisted Hydraulic Brake 2.6 Vacuum Brake **3.0 IGNITION & SUSPENSION SYSTEM:** 3.1 Describe the Battery ignition and Magnet ignition system 3.2 Spark plugs: Purpose, construction and specifications 3.3 State the common ignition troubles and its remedies 3.4 Description of the conventional suspension system for Rear and Front axle 3.5 Description of independent suspension system used in cars (coil spring and tension bars) 3.6 Constructional features and working of a telescopic shock absorber **4.0 COOLING AND LUBRICATION:** 4.1 Engine cooling: Need and classification 4.2 Describe defects of cooling and their remedial measures 4.3 Describe the Function of lubrication 4.4 Describe the lubrication System of I.C. engine **5.0 FUEL SYSTEM:** 5.1 Describe Air fuel ratio 5.2 Describe Carburetion process for Petrol Engine 5.3 Describe Multipoint fuel injection system for Petrol Engine 5.4Describe the working principle of fuel injection system for multi cylinder Engine 5.5 Filter for Diesel engine 5.6 Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine **6.0 ELECTRIC AND HYBRID VEHICLES:** 6.1 Introduction, Social and Environmental importance of Hybrid and Electric Vehicles 6.2 Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles 6.3 Battery for Electric Vehicles, Battery types and fuel cells 6.4 Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations;6.5 Drive train 6.6 Solar powered vehicles .