4TH SEM 10.03.2022-10.06.2022(SUMMER)

LESSON PLAN

AUTOMOTIVE ENGINE

ER. NILAKANTHA NAYAK

(LECTURER IN AUTOMOBILE ENGG.)

B.O.S.E.,CUTTACK

AUTOMOBILE ENGINEERING DEPATMENT

VISSION:

To develop competent, disciplined imaginative Automobile engineers, equipped with core competency and technical skills useful to the learning / teaching community and the industrial fraternity.

MISSION:

M1: To provide with operational and technical inputs to get innovative and research ideas in the field of automotive engineering.

M2: To give inputs for higher education with management qualities for the betterment of the society.

M3: Skilling with modern engineering tools necessary to meet and solve engineering problems.

PROGRAM EDUCATIONAL OBJECTIVES

PEO1: To provide technical skills to diagnose and apply the concept of automotive system

PEO2: To prepare to design, fabricate and innovate in automobile sector to face the industrial challenges.

PEO3: To inculcate with good communication skills, ethics and entrepreneurship skills to play the key role in automotive industry.

Discipline:-**Automobile Engg.**	Semester :-**4TH**	Name of the teaching faculty :- **NILAKANTHA NAYAK**
Subject Name :-**AUTOMOTIVE ENGINE(TH-4)**	No. Of Days/Week Class Allotted :- **04 Periods/Week (Monday, Wednesday, Friday, Saturday – 1 Period Each)**	Semester from Date -**10/03/2022** To Date -**10/06/2022** **No. of Weeks:15**
WEEK	**CLASS DAY**	**THEORY TOPICS**
1ST	11/03/2022	Introduction about the topic.
2ND		**1 PETROL ENGINE AND ITS CONSTRUCTIONAL DETAILS**
	14/03/2022	1.1 Working principle of two stroke & four stroke petrol engine.
	16/03/2022	1.1 Working principle of two stroke & four stroke petrol engine.
3RD		
	21/03/2022	1.2 Constructional details of petrol engine with materials. Engine components like piston, cylinder block, valve, connecting rod, crank shaft, and crank slot.
	23/03/2022	1.3 Cylinder arrangement: inline and v-type engine firing order of multi cylinder engine.
	25/03/2022	1.4 Side valve actuating mechanism over head valve actuating mechanism.
	26/03/2022	1.5 I, F & T type valve arrangement, valve clearance. 1.6 Timining gear, vibration damper, inlet & exhaust manifold
4TH		**2. DIESEL ENGINE AND ITS CONSTRUCTIONAL DETAILS**
	28/03/2022	2.1 Working principle two strokes & four stroke diesel engine.
	30/03/2022	2.1 Working principle two strokes & four stroke diesel engine.
5TH		

	02/04/2022	2.2 Types, advantages & limitations of diesel engine over petrol engine.
6TH		
	04/04/2022	2.3 Function & types of combustion chamber.
	06/04/2022	2.3 Function & types of combustion chamber.
	08/04/2022	2.4 Direct injection type combustion chamber, pre combustion chamber, turbulence chamber. Their advantages & disadvantages.
	09/04/2022	2.4 Direct injection type combustion chamber, pre combustion chamber, turbulence chamber. Their advantages & disadvantages.
7TH		**3. PERFORMANCE OF I.C ENGINE**
	11/04/2022	3.1 Define mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency Mean effective pressure &specific fuel consumption.
	13/04/2022	3.1 Define mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency Mean effective pressure &specific fuel consumption.
	15/04/2022	Holiday
	16/04/2022	3.2 Define air-fuel ratio & calorific value of fuel. 3.3 Morse – test and preparation of heat balance sheet
8TH		
	18/04/2022	3.4 Work out problems to determine efficiencies & specific fuel consumption.
	20/04/2022	3.4 Work out problems to determine efficiencies & specific fuel consumption.
	22/04/2022	3.4 Work out problems to determine efficiencies & specific fuel consumption.
	23/04/2022	**CLASS TEST & ASSIGNMENT**
9TH		**4. FUEL FEED SYSTEM FOR PETROL & DIESELS ENGINE**
	25/04/2022	4.1 Line diagram of petrol engine fuel supply system. 4.2 Components of petrol engine fuel supply system like fuel tanks, fuel lines, fuel pumps, (mechanical & electrical) fuel filter.
	27/04/2022	4.3 Requirements and working principle of carburettors. Air fuel ratios for different conditions in carburettors.
	29/04/2022	4.4 Circuits of various types of carburettor, like down draught carburettor

		& side draught carburettor.
	30/04/2022	4.5 Description of motorcycle carburettor 4.6 line diagram of diesel engine fuel supply system.
10TH		
	02/05/2022	4.7 Requirements and types of fuel injection system. 4.8 Air injection, solid injection individual pump system injection common rail system injection
	04/05/2022	4.8 Air injection, solid injection individual pump system injection common rail system injection
	06/05/2022	4.9 TBL system MPFI system PFI system ECM control functions 4.10 Constructional details of fuel pump.
	07/05/2022	4.11 Fuel injectors. 4.12 Governing system of fuel: Mechanical governor pneumatics governor. Hydraulic governor.
11TH		
	09/05/2022	4.11 Fuel injectors.
	11/05/2022	4.12 Governing system of fuel: Mechanical governor pneumatics governor. Hydraulic governor.
	13/05/2022	4.12 Governing system of fuel: Mechanical governor pneumatics governor. Hydraulic governor.
	14/05/2022	4.12 Governing system of fuel: Mechanical governor pneumatics governor. Hydraulic governor.
12TH		**5.COOLING SYSTEM**
	16/05/2022	Holiday
	18/05/2022	5.1 Necessity & types of engine cooling. 5.2 Constructional details of air cooling & water cooling (thermo siphon & pump air circulation)
	20/05/2022	5.2 Constructional details of air cooling & water cooling (thermo siphon & pump air circulation) 5.3 Advantages and limitations of air cooling.
	21/05/2022	5.4 Water pump thermostat, radiator.
13TH		

	23/05/2022	5.5 Anti-freezing and anti-corrosive additives.
	25/05/2022	**6. LUBRICATION SYSTEM** 6.1 Types, requirements and properties (flash point & fire points) of lubricants.
	27/05/2022	6.2 Types of lubrication system gravity type, Splash type, pressure type, dry sump type, semi pressure type etc.
	28/05/2022	6.3 Parts of lubricating system like oil sump, oil cooler, oil filter, oil pressure gauge, oil pressure indicating light, oil label indicator.
14TH		
	01/06/2022	6.3 Parts of lubricating system like oil sump, oil cooler, oil filter, oil pressure gauge, oil pressure indicating light ,oil label indicator.
	03/06/2022	6.4 Oil filters and its types – full flow filter and bypass filter. Crank case ventilation.
	04/06/2022	6.4 Oil filters and its types – full flow filter and bypass filter. Crank case ventilation.
15TH		
	06/06/2022	**CLASS TEST**
	08/06/2022	Doubt clearing class & Previous year Question Discussion
	10/06/2022	**MCQ** **or** **Revision**