



GOVERNMENT POLYTECHNIC, NABARANGPUR
DEPARTMENT OF AUTOMOBILE ENGINEERING

Discipline: AUTOMOBILE ENGG	Semester: 4TH	Name of the Teaching Faculty: Lect. RABINDRA PRASAD RATH
Subject: AUTOMOTIVE ENGINE	No. of days/per week class allotted: 04	Semester From date: 14.02.2023 To Date: No. of Weeks: 15
COURSE OUTCOMES	1. Principle and working of petrol engine. 2. Principle and working of diesel engine. 3. Properties of fuel, details of combustion and control of knocking. 4. Process of fuel being supplied to petrol & Diesel engine. 5. Types of engine cooling and working principle of cooling system. 6. Types, properties, requirement of lubricants & process of lubrication..	
WEEK	CLASS DAY	Theory / Practical Topics
1ST	1	1 Petrol engine and its constructional details
	2	1 Petrol engine and its constructional details
	3	1.1 Working principle of two stroke & four stroke petrol engine.
	4	1.2 Constructional details of petrol engine with materials. Engine components like piston, cylinder block, valve, connecting rod, crank shaft, crank slot.
2ND	1	1.2 Constructional details of petrol engine with materials. Engine components like piston, cylinder block, valve, connecting rod, crank shaft, crank slot.
	2	1.3 Cylinder arrangement: inline and v-type engine firing order of multi cylinder engine.
	3	1.4 Side valve actuating mechanism over head valve actuating mechanism.
	4	QUIZ & ASSIGNMENT
3RD	1	1.4 Side valve actuating mechanism over head valve actuating mechanism.
	2	1.5 I, F & T type valve arrangement, valve clearance.
	3	1.5 I, F & T type valve arrangement, valve clearance.
	4	QUIZ & ASSIGNMENT
4TH	1	1.6 Timing gear, vibration damper, inlet & exhaust manifold
	2	2. Diesel engine and its constructional details
	3	2. Diesel engine and its constructional details
	4	QUIZ & ASSIGNMENT
5TH	1	2.1 Working principle two strokes & four stroke diesel engine.
	2	2.1 Working principle two strokes & four stroke diesel engine.
	3	2.2 Types, advantages & limitations of diesel engine over petrol engine.
	4	QUIZ & ASSIGNMENT
6TH	1	2.2 Types, advantages & limitations of diesel engine over petrol engine.
	2	2.3 Function & types of combustion chamber.
	3	2.3 Function & types of combustion chamber.
	4	QUIZ & ASSIGNMENT
7TH	1	2.4 Direct injection type combustion chamber, pre combustion chamber, turbulence chamber. Their advantages & disadvantages.
	2	2.4 Direct injection type combustion chamber, pre combustion chamber, turbulence chamber. Their advantages & disadvantages.

	3	3. Performance of I.C engine
	4	QUIZ & ASSIGNMENT
8 TH	1	3. Performance of I.C engine

	2	4. Basic components of Hydraulic & Pneumatic systems.
	3	PROBLEM SOLVING CLASS
	4	4. Basic components of Hydraulic & Pneumatic systems.
9 TH	1	4.1 Hydraulic & Pneumatic system components
	2	4.1 Hydraulic & Pneumatic system components
	3	4.2 Air Motors
	4	QUIZ & ASSIGNMENT
10 TH	1	4.2 Air Motors
	2	4.3 Hydraulic Actuator – single and double cylinder
	3	4.3 Hydraulic Actuator – single and double cylinder
	4	QUIZ & ASSIGNMENT
11 TH	1	4.4 Valves: Classification of valves, pressure control, directional control, sequencing, synchronizing and flow control valve
	2	4.4 Valves: Classification of valves, pressure control, directional control, sequencing, synchronizing and flow control valve
	3	PROBLEM SOLVING CLASS
	4	QUIZ & ASSIGNMENT
12 TH	1	. 5. Accessories of hydraulic & pneumatic circuit
	2	. 5. Accessories of hydraulic & pneumatic circuit.
	3	QUIZ & ASSIGNMENT
	4	. 5.1 Filters: Type, functions, construction
13 TH	1	. 5.1 Filters: Type, functions, construction.
	2	. 5.2 Hoses & connectors: Type, construction and applications
	3	. 5.2 Hoses & connectors: Type, construction and applications
	4	. 5.3 Seals and gaskets: Types, function, construction
14 TH	1	. 5.3 Seals and gaskets: Types, function, construction
	2	6. Hydro Pneumatic Systems & Circuits
	3	6. Hydro Pneumatic Systems & Circuits
	4	6.1 Comparison of Hydraulic and Pneumatic circuits
15 TH	1	. 6.2 Hydraulic Circuits: Meter in, Meter out, Bleed off, Sequencing, Applications of hydraulic circuits
	2	6.3 Simple Pneumatic Circuits. Speed Control Circuits, Sequencing circuits, Application of Pneumatic Circuits
	3	REVISION
	4	REVISION

Robintra Prasad B-75
Sign. Of Faculty concerned

Sign. Of HOD

Principal, GP NABARANGAPUR
Principal
Government Polytechnic
Nabarangapur