MAHARAJA POLYTECHNIC, TARABAI, BHUBANESWAR.

LESSON PLAN

NAME OF FACULTY:- RUDRAPRASAD MALLIA

SUBJECT NAME:- HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER

BRANCH & SEMESTER:- MECHANICAL ENGG & 5th SEM

TOTAL NO. OF STUDENT IN THE CLASS:-

SUBJECT CODE:-TH.3

TOTAL NO. OF CLASSES REQUIRED:-60

SESSION:-2022-23

Sl. No.	Topics to be covered	Topics covered on date	Total no. of students present	Verified byHoD	Verified by the principal	Remark
1.	**UNIT:1 HYDRAULIC TURBINES.**					
2.	Definition and classification of hydraulic turbines					
3.	Construction and working principle of impulse turbine.					
4.	Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine					
5.	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.					
6.	Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine					
7.	Numerical on above					
8.	Distinguish between impulse turbine and reaction turbine					
9.	**UNIT:2 CENTRIFUGAL PUMPS**					
10.	Construction and working principle of centrifugal pumps					
11.	work done and derivation of various efficiencies of centrifugal pumps					
12.	Numerical on above					
13.	**UNIT:3 RECIPROCATING PUMPS**					

14.	Describe construction & working of single acting reciprocating pump.					
15.	Describe construction & working of double acting reciprocating pump.					
16.	Derive the formula foe power required to drive the pump (Single acting & double acting)					
17.	Define slip.					
18.	State positive & negative slip &					
19.	establish relation between slip & coefficient of discharge.					
20.	Solve numerical on above					
21.	**UNIT:4 PNEUMATIC CONTROL SYSTEM**					
22.	Elements –filter-regulator-lubrication unit					
23.	Pressure control valves. 1. Pressure relief valves					
24.	2. Pressure regulation valves					
25.	Direction control valves 1. 3/2DCV,5/2 DCV,5/3DCV					
26.	2. Flow control valves					
27.	3. Throttle valves					
28.	ISO Symbols of pneumatic components					
29.	Pneumatic circuits 1. Direct control of single acting cylinder					
30.	2 .Operation of double acting cylinder					
31.	3. Operation of double acting cylinder with metering in and metering out control					
32.	**UNIT:5 HYDRAULIC CONTROL SYSTEM**					
33.	Hydraulic system, its merit and demerits					
34.	Hydraulic accumulators 1. Pressure control valves					
35.	2. Pressure relief valves					
36.	3. Pressure regulation valves					
37.	Direction control valves 1. 3/2DCV,5/2 DCV,5/3DCV					
38.	2 .Flow control valves					

39.	3. Throttle valves					
40.	Fluid power pumps 1. External and internal gear pumps					
41.	2. Vane pump					
42.	3. Radial piston pumps					
43.	ISO Symbols for hydraulic components					
44.	Actuators					
45.	Hydraulic circuits 1. Direct control of single acting cylinder					
46.	2. Operation of double acting cylinder					
47.	3. Operation of double acting cylinder with metering in and metering out control					
48.	Comparison of hydraulic and pneumatic system					

SIGN OF FACULTY **SIGN OF HOD** **SIGN OF PRINCIPAL**