LESSON PLAN

SUB: HM&IFP

BRANCH:- MECHANICAL ENGG.

SEMESTER: 5TH
NAME OF FACULTY: ER. Sagar kumar behera

GOVERNMENT POLYTECHNIC, BHADRAK
SESSION:2025-26

Hod ,Mechanical

Academic Co-ordinator
Academic Co-ordinator

Principal
Govt. Polytechnic, Bhadrak

Discipline: MECHANICAL	Semester: 5th	Name of the Teaching Faculty Sagar kumar behera Lecturer (Stage-II),Mechanical Engineering
Subject: HM&IFP	No. of days/per week class allotted: 4	Semester From date: 14/07/2025 To date:15-11-25 No of weeks: 15
Week	Class Day	Theory Topics:
1st	1st	Introduction to Hydraulic Turbine
	2nd	Definition and classification of hydraulic turbines
	3rd	Construction of impulse turbine
	4th	working principle of impulse turbine
2nd	1st	Velocity diagram of moving blades of Impulse Turbine.
	2nd	work done and derivation of various efficiencies of impulse turbine
	3rd	Velocity diagram of moving blades of Francis Turbine.
	4th	work done and derivation of various efficiencies of Francis turbine.
3rd	1st	Velocity diagram of moving blades of Kaplan Turbine.
	2nd	work done and derivation of various efficiencies of Kaplan turbine
	3rd	Numerical on above (Kaplan Turbine)
	4th	Distinguish between impulse turbine and reaction turbine.
4th	1st	Introduction and Construction of centrifugal pumps
	2nd	working principle of centrifugal pumps
	3rd	work done and derivation of various efficiencies of centrifugal pumps. Numerical on above (Centrifugal Pump)
	4th	CLASS TEST - 1
5th	1st	Describe construction & working of single acting reciprocating pump.
	2nd	Describe construction & working of double acting reciprocating pump.
	3rd	Derive the formula foe power required to drive the pump (Single acting & double acting)
	4th	Define slip.

6th	1st	State positive & negative slip & establish relation between slip & coefficient of discharge.
	2nd	Solve numerical on above
	3rd	Elements –filter-regulator-lubrication unit
	4th	Pressure control valves
7th	1st	Pressure relief valves
	2nd	Pressure regulation valves
	3rd	3/2DCV,5/2 DCV,5/3DCV
	4th	Flow control valves
8th	1st	Throttle valves
	2nd	ISO Symbols of pneumatic components
	3rd	Pneumatic circuits. Direct control of single acting cylinder
	4th	CLASS TEST - 2
9th	1st	Operation of double acting cylinder
	2nd	Operation of double acting cylinder with metering in and metering out control
	3rd	Hydraulic system, its merit and demerits
	4th	Hydraulic accumulators
10th	1st	Pressure control valves
	2nd	Pressure relief valves
	3rd	Pressure regulation valves
	4th	Direction control valves

11th	1st	3/2DCV,5/2 DCV,5/3DCV
	2nd	Flow control valves
	3rd	Throttle valves
	4th	Fluid power pumps
12th	1st	External and internal gear pumps
	2nd	Vane pump
	3rd	Radial piston pumps
	4th	ISO Symbols for hydraulic components.
13th	1st	Actuators
	2nd	Hydraulic circuits
	3rd	Direct control of single acting cylinder
	4th	Operation of double acting cylinder
14th	1st	Operation of double acting cylinder with metering in and metering out control
	2nd	Comparison of hydraulic and pneumatic system
	3rd	Revision
	4th	Revision
15th	1st	Revision
	2nd	Discussion of PYQ
	3rd	Discussion of PYQ
	4th	Discussion of PYQ

10/08/25

10/8/25