Lesson Plan

Discipline: Mechanical, Semester:5TH, Name of Faculty : SRITAM KUMAR ROUT		
Subject: HYDRAULIC MACHINES &INDUSTRIAL FLUID POWER	**No. of days/ week Class allotted: 04**	**Semester From Date: 15.09.2022 To date : 22.12.2022**
Week	**Class**	
1	**01**	INTRODUCTION TO SUBJECT
	02	Definition and classification of hydraulic turbines
	03	Construction and working principle of impulse turbine.
	04	Velocity diagram of moving blades of impulse turbine
2	**05**	Velocity diagram of moving blades of impulse turbine.
	06	Derivation of various efficiencies of impulse turbine
	07	Impulse turbine related problems.
	08	Velocity diagram of moving blades, work done of Francis turbine
3	**09**	derivation of various efficiencies of Francis turbine
	10	Francis turbine related problems.
	11	Velocity diagram of moving blades, work done of Kaplan turbine
	12	Derivation of various efficiencies of Kaplan turbine related problems.
4	**13**	Distinguish between impulse turbine and reaction turbine
	14	**Internal assessment**
	15	Construction and working principle of centrifugal pumps
	16	Work done expression of centrifugal pump
5	**17**	derivation of various efficiencies of centrifugal pumps
	18	solve problems on above
	19	**Unit test1**
	20	Describe construction & working of single acting reciprocating pump.
6	**21**	Describe construction & working of double acting reciprocating pump.
	22	Derive the formula for power required to drive the pump (Single acting & double acting)
	23	Define slip. State positive & negative slip & establish relation between slip & coefficient of discharge.
	24	Numerical related to reciprocating pump
7	**25**	Introduction to pneumatic system
	26	Elements –filter-regulator-lubrication unit
	27	Elements –filter-regulator-lubrication unit
	28	Pressure control valves
8	**29**	Pressure relief valves ,Pressure regulation valves
	30	Direction control valves

	31	3/2DCV,5/2 DCV,5/3DCV
	32	Flow control valves Throttle valves
9	33	ISO Symbols of pneumatic components
	34	ISO Symbols of pneumatic components
	35	Pneumatic circuits, Direct control of single acting cylinder
	36	Operation of double acting cylinder
10	37	Operation of double acting cylinder with metering in control
	38	Operation of double acting cylinder with metering out control
	39	**Unit test 2**
	40	Introduction to Hydraulic system
11	41	Hydraulic system, its merit and demerits
	42	Hydraulic accumulators
	43	Pressure control valves
	44	Pressure relief valves
12	45	Pressure regulation valves
	46	Direction control valves 3/2DCV,5/2 DCV,5/3DCV
	47	Direction control valves 3/2DCV,5/2 DCV,5/3DCV
	48	Flow control valves Throttle valves
13	49	Fluid power pumps ,External and internal gear pumps
	50	Vane pump ,Radial piston pumps
	51	ISO Symbols for hydraulic components.
	52	Actuators
14	53	Hydraulic circuits
	54	Direct control of single acting cylinder
	55	Operation of double acting cylinder
	56	Operation of double acting cylinder with metering in control
15	57	Operation of double acting cylinder with metering out control
	58	Comparison of hydraulic and pneumatic system
	59	Comparison of hydraulic and pneumatic system
	60	Revision previous year questions
16	61	**Unit test 3**
	62	Revision previous year questions
	63	Revision previous year questions

Concerned faculty

Sridhar Kumar Rout

P. R. Samantaray 20/9/22

HOD

Govt. Polytechnic Kandhamal

Principal

Govt. Polytechnic Kandhamal

Phulbani