SYNERGY SCHOOL OF ENGINEERING,DHENKANAL

LESSION PLAN

Session (2025-2026)

Discipline: Mechanical Engineering	**Semester: 5TH , winter/2025**	**Name of the Faculty: Mr Mihir Kumar Swain** Lecturer **Email ID: rmihirswain13@gmail.com**
Subject: HM&IFP Th-3	**No. of Days/week:** 04	**Start Date:14/07/2025** **End Date: 15/11/2025**

Week	Class Day	Theory Topics
1st	1st	Definition and classification of hydraulic turbines 1.2 Construction and working principle of impulse turbine
	2nd	Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine
	3rd	solve simple problems
	4th	solve simple problems
2nd	1st	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine
	2nd	solve simple problems
	3rd	solve simple problems
	4th	Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine
3rd	1st	solve simple problems
	2nd	Distinguish between impulse turbine and reaction turbine
	3dr	Construction and working principle of centrifugal pumps
	4th	work done and derivation of various efficiencies of centrifugal pumps
4th	1st	solve simple problems
	2nd	solve simple problems
	3dr	. solve simple problems

	4th	Describe construction & working of single acting reciprocating pump. Describe construction & working of double acting reciprocating pump
5th	1st	Derive the formula for power required to drive the pump (Single acting & double acting), Define slip
	2nd	solve simple problems
	3rd	solve simple problems
	4th	State positive & negative slip & establish relation between slip & coefficient of discharge
6th	1st	Introduction to pneumatic system
	2nd	Elements –filter-regulator-lubrication unit
	3rd	Pressure relief valves
	4th	Pressure relief valves
7th	1st	Pressure regulation valves
	2nd	Pressure regulation valves
	3rd	3/2DCV
	4th	5/2 DCV
8th	1st	5/3DCV
	2nd	Flow control valves
	3rd	Flow control valves
	4th	Throttle valves
9th	1st	Symbols of pneumatic components
	2nd	Symbols of pneumatic components
	3rd	Direct control of single acting cylinder
	4th	Direct control of single acting cylinder
10th	1st	Operation of double acting cylinder
	2nd	Operation of double acting cylinder with metering in control

	3rd	Operation of double acting cylinder with metering in control
	4th	Operation of double acting cylinder with metering out control
11th	1st	Hydraulic system, its merit and demerits
	2nd	Hydraulic accumulators
	3rd	Pressure control valves
	4th	Pressure relief valves
12th	1st	Pressure regulation valves
	2nd	3/2DCV
	3rd	5/2 DCV
	4th	5/3DCV
13th	1st	Flow control valves
	2nd	Throttle valves
	3rd	External and internal gear pumps
	4th	Vane pump
14th	1st	Radial piston pumps
	2nd	ISO Symbols for hydraulic components
	3rd	Actuators
	4th	Direct control of single acting cylinder
15th	1st	Operation of double acting cylinder
	2nd	Operation of double acting cylinder with metering in and metering out control
	3rd	Comparison of hydraulic and pneumatic system
	4th	Previous year questions discussion

Concern Faculty

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