Badriprasad Institute of Technology, Sambalpur

Lesson plan for Theory -3, Hydraulic Machine & Industrial Fluid Power

Semester & Branch: 5th Sem. Mechanical Engineering **Total Periods- 60**

Name of the Faculty: Mr. Sunit Gourav Mohanty **No of periods /week- 4**

Week	Day	Topic
1st	1st	HYDRAULIC TURBINES: Definition and classification of hydraulic turbines.
	2nd	Construction and working principle of impulse turbine.
	3rd	Velocity diagram of moving blades,
	4th	work done and derivation of various efficiencies of impulse turbine
2nd	5th	Numerical on Impulse turbine.
	6th	Velocity diagram of moving blades of Francis turbine turbine.
	7th	work done and derivation of various efficiencies of Francis turbine.
	8th	Numerical on Francis turbine
3rd	9th	Velocity diagram of moving blades of Kaplan turbine.
	10th	work done and derivation of various efficiencies of Kaplan turbine.
	11th	Numerical on Kaplan turbine.
	12th	Distinguish between impulse turbine and reaction turbine. Revision and doubt clearing.
4th	13th	Class test
	14th	Introduction to pumps and its types.
	15th	Construction and working principle of centrifugal pumps.
	16th	work done and derivation of various efficiencies of centrifugal pumps.
5th	17th	Describe construction & working of single acting reciprocating pump.
	18th	Numerical on above.
	19th	State positive & negative slip & establish relation between slip & coefficient of discharge.
	20th	Describe construction & amp; working of double acting reciprocating pump.
6th	21st	Introduction to Fluid power system.
	22nd	Derive the formula foe power required to drive the pump (Single acting & double acting)
	23rd	Define slip and revision.
	24th	Numerical on above.
7th	25th	Class test
	26th	Hydraulic accumulators.
	27th	Hydraulic system, its merit and demerits.
	28th	Pressure control valves.
8th	29th	Pressure relief valves.
	30th	Pressure regulation valves.

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	31st	Direction control valves
	32nd	3/2DCV,5/2 DCV,5/3DCV.
9th	33rd	Flow control valves
	34th	Throttle valves.
	35th	Fluid power pumps.
	36th	External and internal gear pumps.
10th	37th	Vane pump.
	38th	Radial piston pumps.
	39th	ISO Symbols for hydraulic components.
	40th	Actuators.
11th	41st	Hydraulic circuits.
	42nd	Direct control of single acting cylinder.
	43rd	Operation of double acting cylinder
	44th	Operation of double acting cylinder with metering in circuit.
12th	45th	Operation of double acting cylinder with metering out circuit.
	46th	revision and doubt clearing.
	47th	Class test.
	48th	Introduction to PNEUMATIC CONTROL SYSTEM.
13th	49th	Comparison of hydraulic and pneumatic system.
	50th	Elements –filter-regulator-lubrication unit.
	51st	Pressure control valves
	52nd	Pressure relief valves.
14th	53rd	Pressure regulation valves
	54th	Direction control valves.3/2DCV, 5/2 DCV,5/3DCV.
	55th	Flow control valves.Throttle valves ISO Symbols of pneumatic components.
	56th	Direct control of single acting cylinder.Operation of double acting cylinder
15th	57th	Operation of double acting cylinder with metering in and metering out control
	58th	revision and doubt clearing.
	59th	revision and doubt clearing.
	60th	revision and doubt clearing.

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