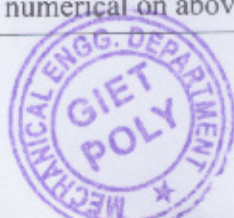


Discipline : MECHANICAL ENGG	Semester : 5th	Name of the Teaching Faculty: SUBHRANSU SEKHAR BARIK
Subject: HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER(Tb-3)	No. of days/per week class allotted: 04	Semester From date : 01.07.2024 To Date: 08.11.2024 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
1 ST	1 ST	HYDRAULIC TURBINES. Definition and classification of hydraulic turbines
	2 ND	Construction and working principle of impulse turbine
	3 RD	Construction and working principle of impulse turbine
	4 TH	Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine.
2 ND	1 ST	Velocity diagram of moving blades, work done and derivation of Various efficiencies of impulse turbine.
	2 ND	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.
	3 RD	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.
	4 TH	Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine
3 RD	1 ST	Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine
	2 ND	Numerical on above
	3 RD	Numerical on above
	4 TH	CLASSTEST
4 TH	1 ST	Numerical on above
	2 ND	Numerical on above
	3 RD	Distinguish between impulse turbine and reaction turbine
	4 TH	CENTRIFUGAL PUMPS Construction and working principle of centrifugal pumps.
5 TH	1 ST	work done and derivation of various efficiencies of centrifugal pumps
	2 ND	work done and derivation of various efficiencies of centrifugal pumps
	3 RD	Numerical on above
	4 TH	Numerical on above
6 TH	1 ST	RECIPROCATING PUMPS Describe construction & working of single acting reciprocating pump.
	2 ND	Describe construction & working of double acting reciprocating pump.
	3 RD	Derive the formula foe power required to drive the pump (Single acting & double acting).
	4 TH	Derive the formula foe power required to drive the pump (Single acting & double acting).
7 TH	1 ST	Define slip.
	2 ND	State positive & negative slip & establish relation between slip & coefficient of discharge.
	3 RD	State positive & negative slip & establish relation between Slip & coefficient of discharge.
	4 TH	Solve numerical on above

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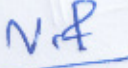



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8 TH	1 ST	Solve numerical on above
	2 ND	CLASS TEST
	3 RD	PNEUMATIC CONTROL SYSTEM Elements –filter-regulator-lubrication unit
	4 TH	Pressure control valves
9 TH	1 ST	Pressure relief valves
	2 ND	Pressure regulation valves
	3 RD	Direction control valves 3/2DCV,5/2 DCV,5/3DCV
	4 TH	Direction control valves 3/2DCV,5/2 DCV,5/3DCV
10 TH	1 ST	Direction control valves 3/2DCV,5/2 DCV,5/3DCV
	2 ND	Flow control valves
	3 RD	Throttle valves
	4 TH	ISO Symbols of pneumatic components
11 TH	1 ST	Pneumatic circuit Direct control of single acting cylinder
	2 ND	Operation of double acting cylinder
	3 RD	Operation of double acting cylinder with metering in and metering out control
	4 TH	Operation of double acting cylinder with metering in and metering out control
12 TH	1 ST	Operation of double acting cylinder with metering in and metering out control
	2 ND	HYDRAULIC CONTROL SYSTEM Hydraulic system, its merit and demerits.
	3 RD	Hydraulic accumulators
	4 TH	Pressure relief valves
13 TH	1 ST	Pressure control valves.
	2 ND	Pressure regulation valves.
	3 RD	Directioncontrolvalves3/2 DCV,5/2 DCV,5/3DCV.
	4 TH	Directioncontrolvalves3/2 DCV,5/2 DCV,5/3DCV..
14 TH	1 ST	Fluid power pumps, External and internal gear pumps Vane pump Radial piston pumps.
	2 ND	ISO Symbols for hydraulic components.
	3 RD	Actuators
	4 TH	Hydraulic circuits. Direct control of single acting cylinder.
15 TH	1 ST	Operation of double acting cylinder.
	2 ND	Operation of double acting cylinder with metering in and metering Out control.
	3 RD	Operation of double acting cylinder with metering in and metering Out control. Comparison of hydraulic and pneumatic system
	4 TH	CLASS TEST

Learning Resources:

01. Hydraulic Machines By Dr.Jagdish Lal , Metropolitan book Co
02. Hydraulics By Andrew
03. Hydraulic &Pneumatic Control By K Shanmuga,Sundaram, S.Chand
04. Hydraulic &Pneumatic Control By Majumdar , Tmh
05. Fluid Power Control By J.F. Blackburn,G.Reethof &J.Lshearer



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