

Discipline: MECHANICAL	Semester: 5th	Name of the Teaching Faculty: <u>Cheranjib Patra</u> PTGF: Mechanical
Subject: HM&FP	No. of days/per week class allotted: 4	Semester From date: <u>15.09.22</u> To date: 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.
	4th	Numerical on above (Centrifugal Pump)
5th	1st	Describe construction & working of single acting reciprocating pump.
	2nd	Describe construction & working of double acting reciprocating pump.
	3rd	Derive the formula for power required to drive the pump (Single acting & double acting)
	4th	Define slip.


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		State positive & negative slip & establish relation between slip & coefficient of discharge	
600	1 st		Solve numerical on above
	2 nd		Elements - filter-regulator-lubrication unit
	3 rd		Pressure control valves
	4 th		Pressure relief valves
700	1 st		Pressure regulation valves
	2 nd		
	3 rd		2.2IK.V.5.2, DK.V.5.3, DCV
	4 th		Flow control valves
800	1 st		Throttle valves
	2 nd		ISO Symbols of pneumatic components
	3 rd		Pneumatic circuits
	4 th		Direct control of single acting cylinder
900	1 st		Operation of double acting cylinder
	2 nd		Operation of double acting cylinder with metering in and metering out control
	3 rd		Hydraulic system, its merit and demerits
	4 th		Hydraulic accumulators
1000	1 st		Pressure control valves
	2 nd		Pressure relief valves
	3 rd		Pressure regulation valves
	4 th		Direction control valves

1100	1 st		3.2DK.V.5.2, DK.V.5.3, DCV
	2 nd		Flow control valves
	3 rd		Throttle valves
	4 th		Fluid power pumps
1200	1 st		External and internal gear pumps
	2 nd		Vane pump
	3 rd		Radial piston pumps
	4 th		ISO Symbols for hydraulic components.
1300	1 st		Actuators
	2 nd		Hydraulic circuits
	3 rd		Direct control of single acting cylinder
	4 th		Operation of double acting cylinder
1400	1 st		Operation of double acting cylinder with metering in and metering out control
	2 nd		Comparison of hydraulic and pneumatic system
	3 rd		Revision
	4 th		Revision
1500	1 st		Revision
	2 nd		Discussion of PVQ
	3 rd		Discussion of PVQ
	4 th		Discussion of PVQ

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