

GOVT. POLYTECHNIC, NAYAGARH

5th SEMESTER MECHANICAL ENGINEERING(2022-23)

SUBJECT- HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER

TOTAL PERIOD-60

**NAME OF FACULTY : Ramya Rashmi Rout,PTGF(MECH)&
Devasis Sahoo, PTGF(MECH)**

THEORY-4P/WEEK

Sl No.	week	Day	Topics to be covered
1	1 st	1 st day	Definition and classification of hydraulic turbines
		2 nd day	Construction and working principle of impulse turbine
		3 rd day	Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine
		4 th day	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine
Sl No.	week	Day	Topics to be covered
2	2 nd	1 st day	Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine
		2 nd day	Distinguish between impulse turbine and reaction turbine.
		3 rd day	Numerical on above
		4 th day	Construction and working principle of centrifugal pumps
Sl No.	week	Day	Topics to be covered
3	3 rd	1 st day	Work done and derivation of various efficiencies of centrifugal pumps.
		2 nd day	Describe construction & working of single acting reciprocating pump.
		3 rd day	Describe construction & working of double acting reciprocating pump
		4 th day	Derive the formula for power required to drive the pump (Single acting & double acting)
Sl No.	week	Day	Topics to be covered
4	4 th	1 st day	Define slip. State positive & negative slip & establish relation between slip & coefficient of discharge.
		2 nd day	Numerical on above
		3 rd day	Elements –filter-regulator-lubrication unit of Pneumatic Control System
		4 th day	Pressure control valves
Sl No.	week	Day	Topics to be covered
5	5 th	1 st day	Pressure relief valves
		2 nd day	Pressure regulation valves
		3 rd day	Direction control valves and 3/2DCV,5/2 DCV,5/3DCV
		4 th day	Flow control valves
Sl No.	week	Day	Topics to be covered
6	6 th	1 st day	Throttle valves
		2 nd day	ISO Symbols of pneumatic components
		3 rd day	Direct control of single acting cylinder of Pneumatic circuits
		4 th day	Direct control of single acting cylinder of Pneumatic circuits

Sl No.	week	Day	Topics to be covered
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7	7 th	1 st day	Operation of double acting cylinder
		2 nd day	Operation of double acting cylinder with metering in and metering out control
		3 rd day	Comparison of hydraulic and pneumatic system
		4 th day	Comparison of hydraulic and pneumatic system
Sl No.	week	Day	Topics to be covered
8	8 th	1 st day	Direction control valves and 3/2DCV,5/2 DCV,5/3DCV
		2 nd day	Numericals on Impulse turbine
		3 rd day	Numericals on Francis turbine
		4 th day	Numericals on Kaplan turbine
Sl No.	week	Day	Topics to be covered
9	9 th	1 st day	Numericals on Centrifugal pump
		2 nd day	Numericals on Reciprocating pump(Single acting Reciprocating pump)
		3 rd day	Numericals on Reciprocating pump(Double acting Reciprocating pump)
		4 th day	Numericals on Centrifugal pump
Sl No.	week	Day	Topics to be covered
10	10 th	1 st day	Numericals on Centrifugal pump
		2 nd day	Numericals on Reciprocating pump(Single acting Reciprocating pump)
		3 rd day	Numericals on Reciprocating pump(Double acting Reciprocating pump)
		4 th day	Numericals on Centrifugal pump
Sl No.	week	Day	Topics to be covered
11	11 th	1 st day	Numericals on Impulse turbine
		2 nd day	Numericals on Francis turbine
		3 rd day	Numericals on Kaplan turbine
		4 th day	Numericals on Kaplan turbine
Sl No.	week	Day	Topics to be covered
12	12 th	1 st day	Numericals on Impulse turbine
		2 nd day	Numericals on Francis turbine
		3 rd day	Numericals on Kaplan turbine
		4 th day	
Sl No.	week	Day	Topics to be covered
13	13 th	1 st day	Doubt clearance and Revision
		2 nd day	Doubt clearance and Revision
		3 rd day	Doubt clearance and Revision

		4 th day	Doubt clearance and Revision
Sl No.	week	Day	Topics to be covered
14	14 th	1 st day	Numerical Problem solving
		2 nd day	Numerical Problem solving
		3 rd day	Numerical Problem solving
		4 th day	Numerical Problem solving
Sl No.	week	Day	Topics to be covered
15	15 th	1 st day	Doubt clearance and Revision
		2 nd day	Doubt clearance and Revision
		3 rd day	Doubt clearance and Revision
		4 th day	Doubt clearance and Revision