

LESSON PLAN

ACADEMIC SESSION-WINTER 2023

5TH SEMESTER

W.E.F-01/08/2023 Total Period: - 60

SUBJECT- hydraulic machine and industrial fluid power (TH-3)

Theory periods: 4 P/WEAKLY

TEACHER: - SONALI DAS (PTGF MECHANICAL ENGINEERING DEPT.)

SI NO	MON TH	WEEK	DATE	UNI T NO/ PE RIO D ALL OT ED	TOPIC TO BE COVERED AS PER SYLLABUS	TOPIC ACTUAL LY COVERE D AS PER SYLLAB US	SHORT FALL IF ANY/S YLLAB US	REMARKS
1	S E P	4TH	2/8/2023	15	1.0 HYDRAULIC TURBINES. 1.1 Definition and classification of hydraulic turbines			
2			2/8/2023		1.2 Construction and working principle of impulse turbine.			
3			3/8/2023		1.3 Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine.			
4			4/8/2023		1.3 Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine.			
5		5TH	9/8/2023		1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.			
6			9/8/2023		1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.			
7			10/8/2023		1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.			
8			11/8/2023		1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine.			
9	O C T	3RD	16/8/2023	1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine.				
10			16/8/2023	1.6 Numerical on above				
11			17/8/2023	1.6 Numerical on above				
12			18/8/2023	1.6 Numerical on above				
13		4TH	23/8/2023	1.6 Numerical on above				
14			23/8/2023	1.6 Numerical on above				
15			24/8/2023	1.7 Distinguish between impulse turbine and reaction turbine.				
16	25/8/2023		2.0 CENTRIFUGAL PUMPS 2.1 Construction and working principle of centrifugal pumps					
17	5TH	30/8/2023	5	2.2 work done and derivation of various efficiencies of centrifugal pumps.				
18		30/8/2023	2.3 Numerical on above					

19		31/8/2023		2.3 Numerical on above			
20		1/9/2023		2.3 Numerical on above			
21	1ST	6/9/2023	20	3.0 RECIPROCATING PUMPS 3.1 Describe construction & working of single acting reciprocating pump			
22		6/9/2023		3.2 Describe construction & working of double acting reciprocating pump.			

23	NOV	7/9/2023		3.3 Derive the formula for power required to drive the pump (Single acting & double acting)			
24		8/9/2023		3.5 Define slip.			
25	2ND	13/9/2023		3.5 State positive & negative slip & establish relation between slip & coefficient of discharge.			
26		13/9/2023		3.6 Solve numerical on above			
27		14/9/2023		3.6 Solve numerical on above			
28		15/9/2023		4.0 PNEUMATIC CONTROL SYSTEM 4.1 Elements – filter-regulator-lubrication unit			
29	3RD	20/9/2023		4.2 Pressure control valves.			
30		20/9/2023		4.2.1 Pressure relief valves			
31		21/9/2023		4.2.2 Pressure regulation valves			
32		22/9/2023		4.3 Direction control valves			
33	4TH	27/9/2023		4.3.1 3/2DCV,5/2 DCV,5/3DCV			
34		27/9/2023		4.3.2 Flow control valves			
35		28/9/2023		4.3.3. Throttle valves			
36		29/9/2023		4.4 ISO Symbols of pneumatic components			
37	5TH	4/10/2023		4.5. Pneumatic circuits 4.5.1 Direct control of single acting cylinder.			
38	1ST	4/10/2023		4.5.2 Operation of double acting cylinder.			
39		5/10/2023		4.5.3 Operation of double acting cylinder with metering in and metering out control.			
40		6/10/2023		4.5.3 Operation of double acting cylinder with metering in and metering out control			
41	DEC	11/10/2023	20	5.0 HYDRAULIC CONTROL SYSTEM 5.1 Hydraulic system, its merit and demerits			
42		11/10/2023		5.2 Hydraulic accumulators 5.3.1 Pressure control valves			
43		12/10/2023		5.3.2 Pressure relief valves			
44		13/10/2023		5.3.3 Pressure regulation valves.			
45	3RD	18/10/2023		5.3 Direction control valves 5.3.1 3/2DCV,5/2 DCV,5/3DCV			

46		18/10/2023	5.3.2 Flow control valves.			
47		19/10/2023	5.3.3 Throttle valves			
48		20/10/2023	5.4 Fluid power pumps			
49	4TH	25/10/2023	5.4.1 External and internal gear pumps			
50		25/10/2023	5.4.2 Vane pump			
51		26/10/2023	5.4.3 Radial piston pumps			
52		27/10/2023	5.5 ISO Symbols for hydraulic components.			
53	5TH	01/11/2023	5.6 Actuators			
54		01/11/2023	5.7 Hydraulic circuits 5.7.1 Direct control of single acting cylinder			
55		2/11/2023	5.7 Hydraulic circuits 5.7.1 Direct control of single acting cylinder			
56		3/11/2023	5.7.2 Operation of double acting cylinder			
57	J A N	1ST	8/11/2023	5.7.3 Operation of double acting cylinder with metering in and metering out control.		
58			8/11/2023	5.7.3 Operation of double acting cylinder with metering in and metering out control.		
59			9/11/2023	5.8 Comparison of hydraulic and pneumatic system		
60			10/11/2023	5.8 Comparison of hydraulic and pneumatic system		

Sonali Das