

## LESSON PLAN

ACADEMIC SESSION-WINTER 2022

5TH SEMESTER W.E.F-19/09/2022 Total Period: - 60

SUBJECT- hydraulic machine and industrial fluid power (TH-3) Theory periods: 4 P/WEAKLY

TEACHER: - **RAKESH KUMAR DAS** (PTGF MECHANICAL ENGINEERING DEPT.)

SI NO	MONTH	WEEK	DATE	UNIT NO/ PERIOD ALLOTED	TOPIC TO BE COVERED AS PER SYLLABUS	TOPIC ACTUALLY COVERED AS PER SYLLABUS	SHORT FALL IF ANY/SYLLABUS	REMARKS
1	SEP	4TH	21/9/2022	15	1.0 HYDRAULIC TURBINES. 1.1 Definition and classification of hydraulic turbines		SHORT FALL	Mass Absent
2			22/9/2022		1.2 Construction and working principle of impulse turbine.	Covered	Nil	
3			23/9/2022		1.3 Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine.	Covered	Nil	
4			23/9/2022		1.3 Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine.	Covered	Nil	
5		5TH	28/9/2022		1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	Covered	Nil	
6			29/9/2022		1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	Covered	Nil	
7			30/9/2022		1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	Covered	Nil	
8			30/9/2022		1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine.	Covered	Nil	
9	OCT	3RD	12/10/2022		1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine.	Covered	Nil	
10			13/10/2022		1.6 Numerical on above	Covered	Nil	
11			14/10/2022		1.6 Numerical on above	Covered	Nil	
12			14/10/2022		1.6 Numerical on above	Covered	Nil	
13		4TH	19/10/2022		1.6 Numerical on above	Covered	Nil	
14			20/10/2022		1.6 Numerical on above	Covered	Nil	
15			21/10/2022		1.7 Distinguish between impulse turbine and reaction turbine.	Covered	Nil	
16			21/10/2022	2.0 CENTRIFUGAL PUMPS 2.1 Construction and working principle of centrifugal pumps	Covered	Nil		
17		5TH	26/10/2022	2.2 work done and derivation of various efficiencies of centrifugal pumps.	Covered	Nil		
18			27/10/2022	2.3 Numerical on above	Covered	Nil		
19	28/10/2022		2.3 Numerical on above	Covered	Nil			
20	28/10/2022		2.3 Numerical on above	Covered	Nil			
21	1ST	20	2/11/2022	3.0 RECIPROCATING PUMPS 3.1 Describe construction & working of single acting reciprocating pump	Covered	Nil		
22			3/11/2022	3.2 Describe construction & working of double acting reciprocating pump.	Covered	Nil		

23	NOV		4/11/2022		3.3 Derive the formula for power required to drive the pump (Single acting & double acting)	Covered	Nil		
24			4/11/2022		3.5 Define slip.	Covered	Nil		
25		2ND		9/11/2022		3.5 State positive & negative slip & establish relation between slip & coefficient of discharge.	Covered	Nil	
26				10/11/2022		3.6 Solve numerical on above	Covered	Nil	
27				11/11/2022		3.6 Solve numerical on above	Covered	Nil	
28				11/11/2022		4.0 PNEUMATIC CONTROL SYSTEM 4.1 Elements – filter-regulator-lubrication unit	Covered	Nil	
29		3RD		16/11/2022		4.2 Pressure control valves.	Covered	Nil	
30				17/11/2022		4.2.1 Pressure relief valves	Covered	Nil	
31				18/11/2022		4.2.2 Pressure regulation valves	Covered	Nil	
32				18/11/2022		4.3 Direction control valves	Covered	Nil	
33	4TH		23/11/2022		4.3.1 3/2DCV,5/2 DCV,5/3DCV		SHORT FALL	Mass Absent	
34			24/11/2022		4.3.2 Flow control valves		SHORT FALL	Internal Exam	
35			25/11/2022		4.3.3. Throttle valves		SHORT FALL	Internal Exam	
36			25/11/2022		4.4 ISO Symbols of pneumatic components		SHORT FALL	Internal Exam	
37	5TH		30/11/2022		4.5. Pneumatic circuits 4.5.1 Direct control of single acting cylinder.	Covered	Nil		
38	1ST		1/12/2022		4.5.2 Operation of double acting cylinder.	Covered	Nil		
39			2/12/2022		4.5.3 Operation of double acting cylinder with metering in and metering out control.	Covered	Nil		
40			2/12/2022		4.5.3 Operation of double acting cylinder with metering in and metering out control	Covered	Nil		
41	2ND		7/12/2022		5.0 HYDRAULIC CONTROL SYSTEM 5.1 Hydraulic system, its merit and demerits	Covered	Nil		
42			8/12/2022		5.2 Hydraulic accumulators 5.3.1 Pressure control valves	Covered	Nil		
43			9/12/2022		5.3.2 Pressure relief valves	Covered	Nil		
44			9/12/2022		5.3.3 Pressure regulation valves.		SHORT FALL	Mass Absent	
45	3RD		14/12/2022		5.3 Direction control valves 5.3.1 3/2DCV,5/2 DCV,5/3DCV				
46			15/12/2022		5.3.2 Flow control valves.				
47			16/12/2022		5.3.3 Throttle valves				
48			16/12/2022	20	5.4 Fluid power pumps				
49	4TH		21/12/2022		5.4.1 External and internal gear pumps				
50			22/12/2022		5.4.2 Vane pump				
51			23/12/2022		5.4.3 Radial piston pumps				
52			23/12/2022		5.5 ISO Symbols for hydraulic components.				
53	5TH		28/12/2022		5.6 Actuators				
54			29/12/2022		5.7 Hydraulic circuits 5.7.1 Direct control of single acting cylinder				
55			30/12/2022		5.7 Hydraulic circuits 5.7.1 Direct control of single acting cylinder				
56			30/12/2022		5.7.2 Operation of double acting cylinder				

57	J A N	1ST	4/12/2023	5.7.3 Operation of double acting cylinder with metering in and metering out control.			
58			5/12/2023	5.7.3 Operation of double acting cylinder with metering in and metering out control.			
59			6/12/2023	5.8 Comparison of hydraulic and pneumatic system			
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Rakesh KV. Das