



**GANDHI SCHOOL OF ENGINEERING
BHABANDHA, BERHAMPUR**

SESSION PLAN

5TH SEMESTER, BRANCH-MECHANICAL(GROUP 1)

HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER(TH-3)

Name of the Faculty – ER. ASISH KUMAR BEHERA						
Topics to be taken				Actually taken		
SL NO & CHAPTER	No. of Periods assigned by SCTE & VT	Details of the topics	PLANNED DATE	Details of the topics	ACTUAL DATE	Remarks
1. HYDRAULIC TURBINES	15	1.1 Definition and classification of hydraulic turbines 1.2 Construction and working principle of impulse turbine. 1.3 Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine. 1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine. 1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine 1.6 Numerical on above 1.7 Distinguish between impulse turbine and reaction turbine.	15/09/2022 TO 20/10/2022	1.1 Definition and classification of hydraulic turbines 1.2 Construction and working principle of impulse turbine. 1.3 Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine. 1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine. 1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine 1.6 Numerical on above 1.7 Distinguish between impulse turbine and reaction turbine.	15.09.2022 19.09.2022 21.09.2022 22.09.2022 24.09.2022 26.09.2022 28.09.2022 29.09.2022 31.09.2022 12.10.2022 13.10.2022 15.10.2022 17.10.2022 19.10.2022 20.10.2022	

<p>2. CENTRIFUGAL PUMPS</p>	<p>5</p>	<p>2.1 Construction and working principle of centrifugal pumps 2.2 work done and derivation of various efficiencies of centrifugal pumps. 2.3 Numerical on above</p>	<p>22/10/2022 TO 2/11/2022</p>	<p>2.1 Construction and working principle of centrifugal pumps 2.2 work done and derivation of various efficiencies of centrifugal pumps. 2.3 Numerical on above</p>	<p>22.10.2022 26.10.2022 27.10.2022 29.10.2022 2.11.2022</p>	
<p>3. RECIPROCATING PUMPS</p>	<p>10</p>	<p>3.1 Describe construction & working of single acting reciprocating pump. 3.2 Describe construction & working of double acting reciprocating pump. 3.3 Derive the formula foe power required to drive the pump (Single acting & double acting) 3.5 Define slip. 3.5 State positive & negative slip & establish relation between slip & coefficient of discharge. 3.6 Solve numerical on above</p>	<p>3/11/2022 TO 23/11/2022</p>	<p>3.1 Describe construction & working of single acting reciprocating pump. 3.2 Describe construction & working of double acting reciprocating pump. 3.3 Derive the formula foe power required to drive the pump (Single acting & double acting) 3.5 Define slip. 3.5 State positive & negative slip & establish relation between slip & coefficient of discharge. 3.6 Solve numerical on above</p>	<p>3.11.2022 5.11.2022 9.11.2022 10.11.2022 12.11.2022 14.11.2022 17.11.2022 19.11.2022 21.11.2022 23.11.2022</p>	

4. PNEUMATIC CONTROL SYSTEM	15	4.1 Elements –filter-regulator-lubrication unit	24/11/2022 TO 21/12/2022	4.1 Elements –filter-regulator-lubrication unit	24.11.2022
		4.2 Pressure control valves		26.11.2022	
		4.2.1 Pressure relief valves		28.11.2022	
		4.2.2 Pressure regulation valves			
		4.3 Direction control valves		30.11.2022	
		4.3.1 3/2DCV,5/2 DCV,5/3DCV		3.12.2022	
		4.3.2 Flow control valves		5.12.2022	
		4.3.3. Throttle valves			
		4.4 ISO Symbols of pneumatic components			
		4.5. Pneumatic circuits		7.12.2022	
		4 .5.1 Direct control of single acting cylinder		8.12.2022	
		4.5.2 Operation of double acting cylinder		10.12.2022	
		4.5.3 Operation of double acting cylinder with metering in and metering out control		12.12.2022	
				14.12.2022	
				15.12.2022	
	17.12.2022				
	19.12.2022				
	21.12.2022				

<p style="text-align: center;">5. HYDRAULIC CONTROL SYSTEM</p>	<p style="text-align: center;">15</p>	<p>5.1 Hydraulic system, its merit and demerits 5.2 Hydraulic accumulators 5.2.1 Pressure control valves 5. 2.2 Pressure relief valves 5.2.3 Pressure regulation valves 5.3 Direction control valves 5.3.1 3/2DCV,5/2 DCV,5/3DCV 5.3.2 Flow control valves 5.3.3 Throttle valves 5.4 Fluid power pumps 5.4.1 External and internal gear pumps 5.4.2 Vane pump 5.4.3 Radial piston pumps 5.5 ISO Symbols for hydraulic components. 5.6 Actuators 5.7 Hydraulic circuits 5.7.1 Direct control of single acting cylinder 5.7.2 Operation of double acting cylinder 5.7.3 Operation of double acting cylinder with metering in and metering out control 5.8 Comparison of hydraulic and pneumatic system</p>	<p style="text-align: center;">22/12/2022 TO 21/01/2023</p>	<p>5.1 Hydraulic system, its merit and demerits 5.2 Hydraulic accumulators 5.2.1 Pressure control valves 5. 2.2 Pressure relief valves 5.2.3 Pressure regulation valves 5.3 Direction control valves 5.3.1 3/2DCV,5/2 DCV,5/3DCV 5.3.2 Flow control valves 5.3.3 Throttle valves 5.4 Fluid power pumps 5.4.1 External and internal gear pumps 5.4.2 Vane pump 5.4.3 Radial piston pumps 5.5 ISO Symbols for hydraulic components. 5.6 Actuators 5.7 Hydraulic circuits 5.7.1 Direct control of single acting cylinder 5.7.2 Operation of double acting cylinder 5.7.3 Operation of double acting cylinder with metering in and metering out control 5.8 Comparison of hydraulic and pneumatic system</p>	<p>22.12.2022 24.12.2022 26.12.2022 28.12.2022 29.12.2022 31.12.2022 2.01.2023 4.01.2023 5.01.2023 7.01.2023 9.01.2023 11.01.2023 12.01.2023 14.01.2023 16.01.2023 19.01.2023</p>	
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HOD, MECHANICAL



**GANDHI SCHOOL OF ENGINEERING
BHABANDHA, BERHAMPUR**

SESSION PLAN

5TH SEMESTER, BRANCH-MECHANICAL(GROUP 2)

HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER(TH-3)

Name of the Faculty – ER. JAGNYA PRASAD BEHERA						
Topics to be taken				Actually taken		
SL NO & CHAPTER	No. of Periods assigned by SCTE & VT	Details of the topics	PLANNED DATE	Details of the topics	ACTUAL DATE	Remarks
1. HYDRAULIC TURBINES	15	1.1 Definition and classification of hydraulic turbines 1.2 Construction and working principle of impulse turbine. 1.3 Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine. 1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine. 1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine 1.6 Numerical on above 1.7 Distinguish between impulse turbine and reaction turbine.	16/09/2022 TO 22/10/2022	1.1 Definition and classification of hydraulic turbines 1.2 Construction and working principle of impulse turbine. 1.3 Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine. 1.4 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine. 1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine 1.6 Numerical on above 1.7 Distinguish between impulse turbine and reaction turbine.	16.09.2022 19.09.2022 20.09.2022 23.09.2022 24.09.2022 26.09.2022 27.09.2022 30.09.2022 11.10.2022 14.10.2022 15.10.2022 17.10.2022 18.10.2022 21.10.2022 22.10.2022	

<p>2. CENTRIFUGAL PUMPS</p>	<p>5</p>	<p>2.1 Construction and working principle of centrifugal pumps 2.2 work done and derivation of various efficiencies of centrifugal pumps. 2.3 Numerical on above</p>	<p>28/10/2022 TO 5/11/2022</p>	<p>2.1 Construction and working principle of centrifugal pumps 2.2 work done and derivation of various efficiencies of centrifugal pumps. 2.3 Numerical on above</p>	<p>28.10.2022 29.10.2022 1.11.2022 4.11.2022 5.11.2022</p>	
<p>3. RECIPROCATING PUMPS</p>	<p>10</p>	<p>3.1 Describe construction & working of single acting reciprocating pump. 3.2 Describe construction & working of double acting reciprocating pump. 3.3 Derive the formula foe power required to drive the pump (Single acting & double acting) 3.5 Define slip. 3.5 State positive & negative slip & establish relation between slip & coefficient of discharge. 3.6 Solve numerical on above</p>	<p>11/11/2022 TO 26/11/2022</p>	<p>3.1 Describe construction & working of single acting reciprocating pump. 3.2 Describe construction & working of double acting reciprocating pump. 3.3 Derive the formula foe power required to drive the pump (Single acting & double acting) 3.5 Define slip. 3.5 State positive & negative slip & establish relation between slip & coefficient of discharge. 3.6 Solve numerical on above</p>	<p>11.11.2022 12.11.2022 14.11.2022 15.11.2022 18.11.2022 19.11.2022 21.11.2022 22.11.2022 25.11.2022 26.11.2022</p>	

4. PNEUMATIC CONTROL SYSTEM	15	4.1 Elements –filter-regulator-lubrication unit	28/11/2022 TO 23/12/2022	4.1 Elements –filter-regulator-lubrication unit	28.11.2022	
		4.2 Pressure control valves		4.2 Pressure control valves	29.11.2022	
		4.2.1 Pressure relief valves		4.2.1 Pressure relief valves	2.12.2022	
		4.2.2 Pressure regulation valves		4.2.2 Pressure regulation valves		
		4.3 Direction control valves		4.3 Direction control valves	3.12.2022	
		4.3.1 3/2DCV,5/2 DCV,5/3DCV		4.3.1 3/2DCV,5/2 DCV,5/3DCV	5.12.2022	
		4.3.2 Flow control valves		4.3.2 Flow control valves	6.12.2022	
		4.3.3. Throttle valves		4.3.3. Throttle valves		
		4.4 ISO Symbols of pneumatic components		4.4 ISO Symbols of pneumatic components	9.12.2022	
		4.5. Pneumatic circuits		4.5. Pneumatic circuits	10.12.2022	
		4 .5.1 Direct control of single acting cylinder		4 .5.1 Direct control of single acting cylinder	12.12.2022	
		4.5.2 Operation of double acting cylinder		4.5.2 Operation of double acting cylinder	13.12.2022	
		4.5.3 Operation of double acting cylinder with metering in and metering out control		4.5.3 Operation of double acting cylinder with metering in and metering out control	16.12.2022	
					17.12.2022	
					19.12.2022	
					20.12.2022	
					23.12.2022	

<p>5. HYDRAULIC CONTROL SYSTEM</p>	<p>15</p>	<p>5.1 Hydraulic system, its merit and demerits 5.2 Hydraulic accumulators 5.2.1 Pressure control valves 5. 2.2 Pressure relief valves 5.2.3 Pressure regulation valves 5.3 Direction control valves 5.3.1 3/2DCV,5/2 DCV,5/3DCV 5.3.2 Flow control valves 5.3.3 Throttle valves 5.4 Fluid power pumps 5.4.1 External and internal gear pumps 5.4.2 Vane pump 5.4.3 Radial piston pumps 5.5 ISO Symbols for hydraulic components. 5.6 Actuators 5.7 Hydraulic circuits 5.7.1 Direct control of single acting cylinder 5.7.2 Operation of double acting cylinder 5.7.3 Operation of double acting cylinder with metering in and metering out control 5.8 Comparison of hydraulic and pneumatic system</p>	<p>24/12/2022 TO 21/01/2023</p>	<p>5.1 Hydraulic system, its merit and demerits 5.2 Hydraulic accumulators 5.2.1 Pressure control valves 5. 2.2 Pressure relief valves 5.2.3 Pressure regulation valves 5.3 Direction control valves 5.3.1 3/2DCV,5/2 DCV,5/3DCV 5.3.2 Flow control valves 5.3.3 Throttle valves 5.4 Fluid power pumps 5.4.1 External and internal gear pumps 5.4.2 Vane pump 5.4.3 Radial piston pumps 5.5 ISO Symbols for hydraulic components. 5.6 Actuators 5.7 Hydraulic circuits 5.7.1 Direct control of single acting cylinder 5.7.2 Operation of double acting cylinder 5.7.3 Operation of double acting cylinder with metering in and metering out control 5.8 Comparison of hydraulic and pneumatic system</p>	<p>24.12.2022 26.12.2022 27.12.2022 30.12.2022 31.12.2022 2.01.2023 3.01.2023 6.01.2023 7.01.2023 9.01.2023 10.01.2023 13.01.2023 16.01.2023 20.01.2023 21.01.2023</p>	
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