

Discipline	mech	Semester	5th	Name of the teaching Faculty	AJAYA KU SAHOO
Subject	Hydraulic machine Industrial Fluid Power	No. of Days/week	(4)	Semester From	01-08-23 to 09-12-23
Week	Class/day	Theory TOPICS			
	1st	x			
	2nd				
1st	3rd				Construction and working of Impulse Turbine
	4th	x			
	5th				velocity diagram of moving blades work alone
	6th	x			
	1st				Derivation of various efficiencies of impulse turbine
	2nd				velocity diagram of moving blades
2nd	3rd				workdone and derivation of various efficiency of Francis turbine
	4th	x			
	5th				velocity diagrams of moving blades of Kaplan turbine
	6th	x			
	1st				various efficiencies of Kaplan turbine
	2nd	x			
3rd	3rd				Numerical problems on above
	4th	x			
	5th				Numerical problems Continue
	6th	x			

week	class day	Theory Topics
	1st	Distinguish between Impulse and Reaction turbine
	2nd	Construction and working principle of centrifugal pump
4th	3rd	Numerical problem on above
	4th	x
	5th	work done and derivation of various efficiency of centrifugal pump
	6th	x
	1st	Numerical problems on centrifugal pump
	2nd	Construction and working of single acting reciprocating pump
5th	3rd	x
	4th	x
	5th	Numerical problem on above
	6th	x
	1st	Construction and working of double acting reciprocating pump
	2nd	Numerical problems on above
6th	3rd	x
	4th	x
	5th	Derive the Formula for power required to drive the pump
	6th	x
	1st	Define Slip
	2nd	state positive and negative slip
7th	3rd	Relation between slip and coefficient of discharge
	4th	x
	5th	Numerical problems on above
	6th	x

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week	class/day	Theory Topics
	1st	X
	2nd	X
8th	3rd	X
	4th	X
	5th	Numerical problems on above
	6th	X
	1st	Numerical problems on above
	2nd	Elements: Filter-regulator-lubricator
9th	3rd	pressure control valves
	4th	X
	5th	pressure relief valves
	6th	X
	1st	X
	2nd	pressure regulation valves
10th	3rd	3/2 DCV
	4th	X
	5th	5/2 DCV
	6th	X
	1st	5/3 DCV
	2nd	Flow Control valves
11th	3rd	Throttle valves
	4th	X
	5th	ISO symbols of pneumatic components
	6th	X

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week	class/day	Theory Topics	
	1st		
	2nd		
12th	3rd	PUJA VACATION	
	4th		
	5th		
	6th		
	1st		Direct Control of single acting ^{cylinders}
13th	2nd		operation of double acting ^{cylinders}
	3rd	with metering-in control	
	4th	x	
	5th	with metering-out control	
	6th	x	
	1st	Hydraulic System, its merit and ^{demerite}	
	2nd	Hydraulic accumulators	
14th	3rd	pressure relief valves	
	4th	x	
	5th	pressure regulation valves	
	6th	x	
	1st	Fluid power pump	
	2nd	External gear pump	
15th	3rd	Internal gear pump	
	4th	x	
	5th	vane pump	
	6th	x	

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Week	Classy Day	Theory Topics
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16th	1st	Radial piston pump
	2nd	ISO symbols for hydraulic components
	3rd	Actuators
	4th	X
	5th	Hydraulic Circuits
	6th	X

17th	1st	X
	2nd	Direct Control of single acting cylinder
	3rd	operation of double acting cylinder
	4th	X
	5th	operation of double acting cylinder
	6th	X with metering-in control

18th	1st	operation of double-acting cylinders
	2nd	with metering-out control
	3rd	Comparison of hydraulic and pneumatic system.
	4th	X
	5th	X
	6th	X

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