

Lesson Plan for HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER, 5th Sem. Mechanical Engg. (2021-2022)

Discipline: Mechanical Engg
Subject: HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER

Semester: 5th

Name of the Teaching Faculty: SRITAM ROUT

No. of Days/ week class allotted=4

Semester From Date: 1.10.2021

To date : 18.1.2022

WEEK	PERIOD	TOPICS TO BE COVERED
01	01	Definition of hydraulic turbines
	02	classification of hydraulic turbines
	03	Construction and working principle of impulse turbine
	04	Construction and working principle of impulse turbine
02	01	Velocity diagram of moving blades of impulse turbine.
	02	work done and derivation of various efficiencies of impulse turbine
	03	Simple problem on above
	04	Velocity diagram of Francis turbine
03	01	work done and derivation of various efficiencies of Francis turbine
	02	Simple problem on above
	03	Velocity diagram of kaplan turbine
	04	work done and derivation of various efficiencies of kaplan turbine
04	01	Simple problem on above
	02	Distinguish between impulse turbine and reaction turbine.
	03	Distinguish between impulse turbine and reaction turbine.
	04	Introduction to centrifugal pump
05	01	Construction and working principle of centrifugal pumps
	02	work done and derivation of various efficiencies of centrifugal pumps
	03	Numerical on above
	04	Numerical on above
06	01	construction; working of single and double acting reciprocating pump.
	02	Derive the formula fluid power required to drive the pump
	03	Define slip, State positive and negative slip
	04	relation between slip & coefficient of discharge.
07	01	Solve numerical on above
	02	Elements –filter-regulator-lubrication unit
	03	Pressure control valves
	04	Pressure relief valves
08	01	Pressure regulation valves
	02	Direction control valves
	03	UNIT TEST-I
	04	3/2DCV,5/2 DCV,5/3DCV
09	01	Flow control valves
	02	Throttle valves
	03	ISO Symbols of pneumatic components
	04	Pneumatic circuits

10	01	Direct control of single acting cylinder
	02	Operation of double acting cylinder
	03	Operation of double acting cylinder with metering in control
	04	Operation of double acting cylinder with metering out control
11	01	Hydraulic system, its merit and demerits
	02	Hydraulic accumulators
	03	Pressure control valves
	04	Pressure relief valves
12	01	Pressure regulation valves
	02	Direction control valves
	03	3/2DCV, 5/2 DCV, 5/3DCV
	04	Flow control valves
13	01	Throttle valves
	02	Fluid power pumps
	03	External and internal gear pumps
	04	Vane pump
14	01	Radial piston pumps
	02	ISO Symbols for hydraulic components.
	04	Actuators
	05	Direct control of single acting cylinder
15	01	Operation of double acting cylinder
	02	hydraulic metering in circuit
	03	hydraulic metering out circuit

Mehandy

1.10.21

HOD MECHANICAL
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