ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

Dicipline: Mechanical	Semester: 5th	Name of the Teaching Faculty: Ashish Kumar Sahoo	
Subject: Hydraulic m/c & Industrial fluid power	No of Days/Week Class Allotted: 4	Semester From date: 01.10.21 To date 18.01.22	No.of Weeks: 15

WEEK	Class Day	Theory Topics
1st	1st	Hydraulic turbines, defination & its functions.
	2nd	Classification of hydraulic turbines.
	3rd	Construction & working principle of impulse turbine.
	4th	Velocity diagram of moving blades, workdone & efficiencies of impulse turbine.
	5th	
2nd	1st	Velocity diagram of moving blades of francis turbine.
	2nd	Velocity diagram of moving blades of Kaplan turbine.
	3rd	Workdone & derivation of efficiency of francis turbine.
	4th	Workdone & derivation of efficiency of Kaplan turbine.
	5th	
3rd	1st	Solve numerical problems on above.
	2nd	Continuing numerical problems on above.
	3rd	Difference between impulse & reaction turbine.
	4th	Summerize the above.
	5th	

WEEK	Class Day	Theory Topics
4th	1st	Centrifugal pump. defination & its function.
	2nd	Construction & working principle of centrifugal pumps.
	3rd	Workdone & derivation of efficiencies of centrifugal pumps.
	4th	Solve numerical problems on above.
	5th	
5th	1st	Summesize the above.
	2nd	Reciprocating pumps. defination, types & its function.
	3rd	Construction & working of single acting reciprocating pump.
	4th	Construction & working of double acting reciprocating pump.
	5th	
6th	1st	Derive the formula for power required to drive single acting & double acting reciprocating pump.
	2nd	Slip and its types, establish relation between slip & coefficient of discharge.
	3rd	Solve numericals on above.
	4th	Continuing numericals on above.
	5th	

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WEEK	Class Day	Theory Topics
7th.	1st	Summerize the above.
	2nd	Class test-I & Question answer discussion.
	3rd	Introduction of Pneumatic control System.
	4th	Advantages & limitations of Pneumatic control Systems.
	5th	
8th	1st	Elements, filter regulator & lubrication unit.
	2nd	Pressure Control valves.
	3rd	Pressure relief valves.
	4th	Pressure regulation valves.
	5th	
9th	1st	Direction Control valves (DCV) & its types.
	2nd	3/2 DCV, 5/2 DCV, 5/3 DCV
	3rd	Flow control valves.
	4th	Throttle valves.
	5th	

WEEK	Class Day	Theory Topics
10th	1st	ISO symbols of pneumatic components.
	2nd	Pneumatic Circuits.
	3rd	Direct Control of Single acting cylinder.
	4th	Operation of double acting cylinder.
	5th	
11th	1st	Operation of double acting cylinder with metering in.
	2nd	Operation of double acting cylinder with metering out.
	3rd	Summarize the above.
	4th	Introduction to Hydraulic Control Systems.
	5th	
12th	1st	Advantages and disadvantages of Hydraulic control systems.
	2nd	Hydraulic accumulators and pressure control valves.
	3rd	Pressure relief valves
	4th	Pressure regulation valves.
	5th	

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WEEK	Class Day	Theory Topics
13th	1st	Direction Control Valves (DCV). 3/2 DCV, 5/2 DCV · 5/3 DCV
	2nd	Flow control valves
	3rd	Throttle valves
	4th	Fluid Power Pump
	5th	
14th	1st	External and Internal gear pumps.
	2nd	Vane pump.
	3rd	Radial piston pumps.
	4th	ISO Symbols for hydraulic components.
	5th	
15th	1st	Actuators.
	2nd	Operation of Single & Double acting cylinder with metering in and out control.
	3rd	Summarize the above.
	4th	Class test-II & Question answer discussion.
	5th	