COURSE TITLE : HYDRAULIC MACHINERY AND FLUID POWER LABORATORY
COURSE CODE : 6027
COURSE CATEGORY : A
PERIODS/ WEEK : 3
PERIODS/ SEMESTER : 45
CREDIT : 2

TIME SCHEDULE

MODULE	TOPIC	PERIODS
1	Pelton Turbine, Francis Turbine & Kaplan Turbine	11
2	Centrifugal Pump, Reciprocating Pump, Gear Pump, Lobe Pump, Self priming pump, Stage pump, Deep well pump.	11
3	Hydraulic Ram, hydraulic lift. Hydraulic Jack, Hydraulic press.	10
4	Pneumatic and Hydraulic systems.	13
TOTAL		**45**

COURSE OUTCOME :

sl.no.	sub	student will be able to
1	1	Carryout the experiment on Pelton Turbine, Francis Turbine & Kaplan Turbine.
	2	Understand the Centrifugal Pump, Reciprocating Pump, Gear Pump, lobe Pump, Self priming pump, stage pump, deep well pump.
	3	Understand the Hydraulic Ram and hydraulic lift
2	4	Comprehend the hydraulic Jack, hydraulic press.
3	5	Comprehend the pneumatic and hydraulic systems.

SPECIFIC OUTCOME

MODULE I

1.1.0 Carryout the experiment on Pelton Turbine, Francis Turbine & Kaplan Turbine.:

1.1.1 Study the Pelton turbine
1.1.2 Distinguish the characteristics curves of Pelton turbine
1.1.3 Find the efficiency at constant head and constant speed
1.1.4 Plot the characteristics curves
1.1.5 Interpret the curves.
1.1.6 Study the Pelton turbine
1.1.7 Distinguish the characteristics curves of above turbines
1.1.8 Find the efficiency at constant head and constant speed
1.1.9 Plot the characteristics curves
1.1.10 Interpret the curves.

MODULE II

2.1.0 Understand the Centrifugal Pump, Reciprocating Pump, Gear Pump, lobe Pump,Self priming pump, stage pump, deep well pump.

2.1.1 State the function and principle of working of centrifugal pumps
2.1.2 State its applications
2.1.3 Conduct an experiment and find out hydraulic efficiency and overall efficiency
2.1.4 Plot the characteristic curves and comment on it.

2.1.5 State the function and principle of working of reciprocating pumps
2.1.6 State its applications
2.1.7 Conduct an experiment and find out volumetric efficiency and overall efficiency
2.1.8 Plot the characteristic curves and comment on it.
2.1.9 State the function and principle of working of Gear Pumps
2.1.10 State its applications
2.1.11 Conduct an experiment and find out volumetric efficiency and overall efficiency
2.1.12 Plot the characteristic curves and comment on it.
2.1.13 State the function and principle of working of Lobe Pumps
2.1.14 State its applications
2.1.15 Conduct an experiment and find out volumetric efficiency and overall efficiency
2.1.16 Plot the characteristic curves and comment on it.
2.1.17 State the function and principle of working of Self priming Pumps
2.1.18 State its applications
2.1.19 Conduct an experiment and find out volumetric efficiency and overall efficiency
2.1.20 Plot the characteristic curves and comment on it.
2.1.21 State the function and principle of working of Stage Pumps
2.1.22 State its applications
2.1.23 Conduct an experiment and find out volumetric efficiency and overall efficiency
2.1.24 Plot the characteristic curves and comment on it.
2.1.25 State the function and principle of working of Deep well Pumps
2.1.26 State its applications
2.1.27 Conduct an experiment and find out volumetric efficiency and overall efficiency
2.1.28 Plot the characteristic curves and comment on it.

MODULE III

3.1.0 Understand the Hydraulic Ram and Hydraulic Lift

3.1.1 State the function of hydraulic ram
3.1.2 Explain the working of hydraulic ram
3.1.4 Conduct the experiment on hydraulic ram
3.1.5 Construct the graph – discharge versus efficiency of hydraulic ram
3.1.6 Plot the graph – discharge VsD'Abuisson's efficiency and Rankine efficiency
3.1.7 Interpret the above curves.

3.2.0 Comprehend the hydraulic Jack, hydraulic press

3.2.1 State the functions of hydraulic lift
3.2.2 Explain the working of hydraulic lift
3.2.3 State the function of hydraulic jack and press
3.2.4 Explain the working of hydraulic jack and press
3.2.5 Conduct the experiments on hydraulic jack and press

MODULE IV

4.1.0 Comprehend the Pneumatic and Hydraulic systems

4.1.1 Identify ISO standard pneumatic symbols.
4.1.2 Prepare circuit diagrams based on pneumatic system using pressure, flow and directional control valves {use transparent valves}
4.1.3 Carryout the experiment on pneumatic actuators and plot the curve, pressure Vs force with different bore sized actuators.
4.1.4 Identify the ISO standard hydraulic symbols.

4.1.5 Prepare the circuit diagrams based on hydraulic system using pressure, flow and directional control valves

4.1.6 Carryout the experiment on hydraulic actuators linear actuators and plot the curve, pressure Vs force curve with different bore sized actuators.

4.1.7 Carryout the experiment on hydraulic rotary actuators and plot the curve, pressure Vs torque with different bore sized actuators

4.1.8 Computer based simulation of hydraulic and pneumatic circuits

REFERENCE

1. HydraulicS Lab Manual K C JOHN