

FLUID MECHANICS AND HYDRAULIC MACHINES LAB

Course Code: 20CE1114

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0	0	3	1.5

Pre-requisites: Fluid Mechanics

Course Outcomes: At the end of the Course, the Student will be able to:

CO1: Determine the discharge using flow measuring devices in pipe and open channel flows (L3)

CO2: Demonstrate the application of Bernoulli's Theorem (L3)

CO3: Illustrate different types of flow patterns (L3)

CO4: Calculate the loss of energy in pipes (L3)

CO5: Determine the performance of turbines and pumps under varying operating conditions (L3)

(Any 12 out of 16 experiments)

LIST OF EXPERIMENTS:

1. Verification of Bernoulli's theorem.
2. Calibration of Venturimeter / Orifice meter.
3. Calibration of contracted Triangular Notch / Rectangular Notch.
4. Calibration of Broad crested / Narrow crested weirs.
5. Determination of coefficient of discharge for a Small Orifice / External Mouthpiece by constanthead method.
6. Determination of coefficient of discharge for a Small Orifice / External Mouthpiece by variablehead method.
7. Determination of coefficient of discharge for an Ogee Spillway / Hump / Venturi flume.
8. Determination of friction factor in a given pipeline.
9. Determination of coefficient of loss of head due to pipe fittings in a given pipeline.
10. Reynolds's Experiment- Demonstration of types of flows.
11. Impact of jet on vanes.
12. Performance test on Pelton Wheel.
13. Performance test on Francis Turbine / Kaplan Turbine.
14. Performance test on Single Stage / Multi Stage Centrifugal Pump.
15. Performance test on Reciprocating Pump.
16. Study of hydraulic jump.

Reference:

1. P.S. Deshmuk, "Fluid Mechanics and Hydraulic Machines- a Lab Manual", 1st Edition, LaxmiPublication, 2003.
2. Kumara Swamy N., "Fluid Mechanics and Machinery Laboratory Manual", CharotarPublishing House Pvt. Ltd., 1st Edition, 2008.