FLUID MECHANICS AND HYDRAULIC MACHINES LAB

Course Code: 22CE1114

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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 14 experiments)

LIST OF EXPERIMENTS:

1. Calibration of Venturimeter.

2. Calibration of Orifice meter.

3. Determination of coefficient of discharge for a Small Orifice / External Mouthpiece by constant head method / variable head method.

4. Calibration of contracted Rectangular Notch / Triangular Notch.

5. Calibration of contracted Broad crested / Narrow crested weirs.

6. Determination of friction factor / coefficient of loss of head due to pipe fittings in a given pipeline.

7. Verification of Bernoulli's theorem.

8. Reynolds's Experiment- Demonstration of types of flows.

9. Impact of jet on vanes.

10. Performance test on Pelton Wheel.

11. Performance test on Francis Turbine / Kaplan Turbine.

12. Performance test on Single Stage / Multi Stage Centrifugal Pump.

13.Study of hydraulic jump.

14.Determination of coefficient of discharge for a Spillway / Hump / Venturi flume.

Reference:

1. P.S. Deshmuk, "Fluid Mechanics and Hydraulic Machines- a Lab Manual", 1st Edition, Laxmi Publication, 2003.

2. Kumara Swamy N., "Fluid Mechanics and Machinery Laboratory Manual", Charotar Publishing House Pvt. Ltd., 1st Edition, 2008.