

2/4 B.Tech. FOURTH SEMESTER

CE4L1 FLUID MECHANICS AND HYDRAULIC MACHINES LAB

Credits: 2

Lecture: -

Internal assessment: 25 marks

Lab : 3 periods/week

Semester end examination: 50 marks

Pre-requisites: Fluid mechanics, Hydraulics and hydraulic machinery

Learning objectives:

- To learn the calibration of various hydraulic measuring devices and determine characteristics of hydraulic machinery.

Course outcomes:

At the end of course the student will have:

1. Knowledge of the working principles, components, function of hydraulic equipments and hands-on experience in their operation and calibration.

LIST OF EXPERIMENTS:

1. Calibration of Venturimeter & Orifice meter
2. Determination of Coefficient of discharge for a small orifice by a constant head method.
3. Determination of Coefficient of discharge for an external mouth piece by variable head method.
4. Calibration of contracted Rectangular Notch and /or Triangular Notch
5. Determination of Coefficient of loss of head in a sudden contraction and friction factor.
6. Verification of Bernoulli's equation.
7. Impact of jet on vanes
8. Study of Hydraulic jump.
9. Performance test on Pelton wheel turbine
10. Performance test on Francis turbine.
11. Efficiency test on centrifugal pump.
12. Efficiency test on reciprocating pump.

LIST OF EQUIPMENT:

1. Venturimeter setup.
2. Orifice meter setup.
3. Small orifice setup.
4. External mouthpiece setup.
5. Rectangular and Triangular notch setups.
6. Friction factor test setup.
7. Bernoulli's theorem setup.
8. Impact of jets.
9. Hydraulic jump test setup.
10. Pelton wheel and Francis turbines
11. Centrifugal and Reciprocating pumps