HYDRAULICS AND HYDRAULIC MACHINES LABORATORY

Practicals : 3 Periods/Week Sessional marks : 40

Semester End Exam.: 3 Hrs. Semester End Exam. marks : 60

Credits : 2

Course Objectives:

- To determine the Darcy's friction factor for the pipes.
- To determine the coefficient of discharge of venturimeter, orfice, orifice meter, mouth piece and v-notch.
- To determine the efficiency of jet of vane.
- To determine the loss of head in pipes due to sudden expansion and contraction.
- To determine the manning's and chezy's constant for open channel.
- To study the performance and determine the efficiencies of pelton turbine and Francis turbine.
- To study the performance characteristics and efficiency of centrifugal pump

Course outcomes:

- By the end of the course the students will be able
- To understand the determination of discharge for hydraulic equipments.
- To understand the minor and major losses in pipes.
- To understand the performance of turbines and pumps with varying speed

Note: A minimum of twelve (12 No) shall be done and recorded

1. Verification of Bernoulli's theorem.
2. Venturi meter : Determination of Coefficient of discharge.
3. Orifice meter: Determination of Coefficient of discharge.
4. Orifices : Determination of Coefficient of discharge by steady and unsteady flow methods.
5. Mouth pieces: Determination of Coefficient of discharge by steady and unsteady flow methods.
6. Characterization of laminar and turbulent flows by Reynold's apparatus.
7. Determination of friction factor of Pipes.
8. Determination of loss of head in pipes due to bend /sudden contraction/ sudden expansion.
9. Determination of Coefficient of discharge for rectangular notch / V – notch.
10. Determination of Manning's and Chezy's coefficients in open channel.
1. Study on Characteristics of Hydraulic Jump
2. Measurement of force due to impact of jets on vanes of different types.
3. Performance studies on Pelton turbine.
4. Performance studies on Francis turbine /Kaplan turbine.
5. Performance studies on single stage centrifugal pump.
6. Performance studies on Reciprocating pump.