Fluid Mechanics Lab

Lab-In-Charge: Prof. S. Anbu Kumar

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Lab Attendant: Mr. Nitesh Kumar

About the Lab:

The Fluid Mechanics laboratory is purpose-built to facilitate the study of fluid properties and perform experiments on both incompressible and compressible flow. The laboratory features advanced equipment for investigating the fundamentals of fluid statics, as well as the kinematics and kinetics of fluid flow, to provide our students with an immersive and hands-on learning experience. The course is an introductory level, where students are introduced to the flow behaviour, fluid forces, and analysis tools. The experiments aim to determine the forces generated when fluid flows over a solid object, apply the control volume approach, conduct flow measurements, assess major and minor losses in the flow, and determine the state of flow using the Reynolds experiment.

List of Equipment:

1. Estimation of discharge from a given Tank using an Orifice/Mouthpiece
2. Determination of discharge in a laboratory Flume using Triangular Notch/Rectangular Notch
3. Verification of Conservation of Energy Principle for a given flow system using Bernoulli's Theorem
4. Determination of discharge of a given Pipe Flow using a Venturi meter/Orifice meter
5. Estimation of Friction factor and Major loss/Minor losses for a given flow system
6. Determination of Stability of a Floating Ship Model
7. Determination of the state of flow in a closed conduit using the Reynolds Experiment 8. Cavitation study
9. Impact of Jet over a flat surface

List of Experiments:

1. Francis Turbine Test Apparatus
2. Kaplan Turbine Test Apparatus
3. Mini Hydraulic Flume
4. Centrifugal Pump
5. Pelton Wheel Turbine
6. Open Channel Flow Equipment
7. Hydraulic Models
8. Impact of Jet Apparatus
9. 10 meters Open Channel Flume, with all modern accessories like an electromagnetic flow meter, and ultrasonic sensor for measuring the head.
10. 16 Mhz ADV Probe, Water velocity meter, Canal Bed Profiling System.
11. Metacentric height apparatus.
12. Orifice & mouthpiece apparatus.
13. Orifice meter apparatus,
14. Pipe friction apparatus
15. Venturi meter apparatus
16. V-notch apparatus
17. Forced vortex apparatus
18. Free vortex apparatus
19. Bulb loading arrangement with stand


MINOR LOSSES
APPARATUS
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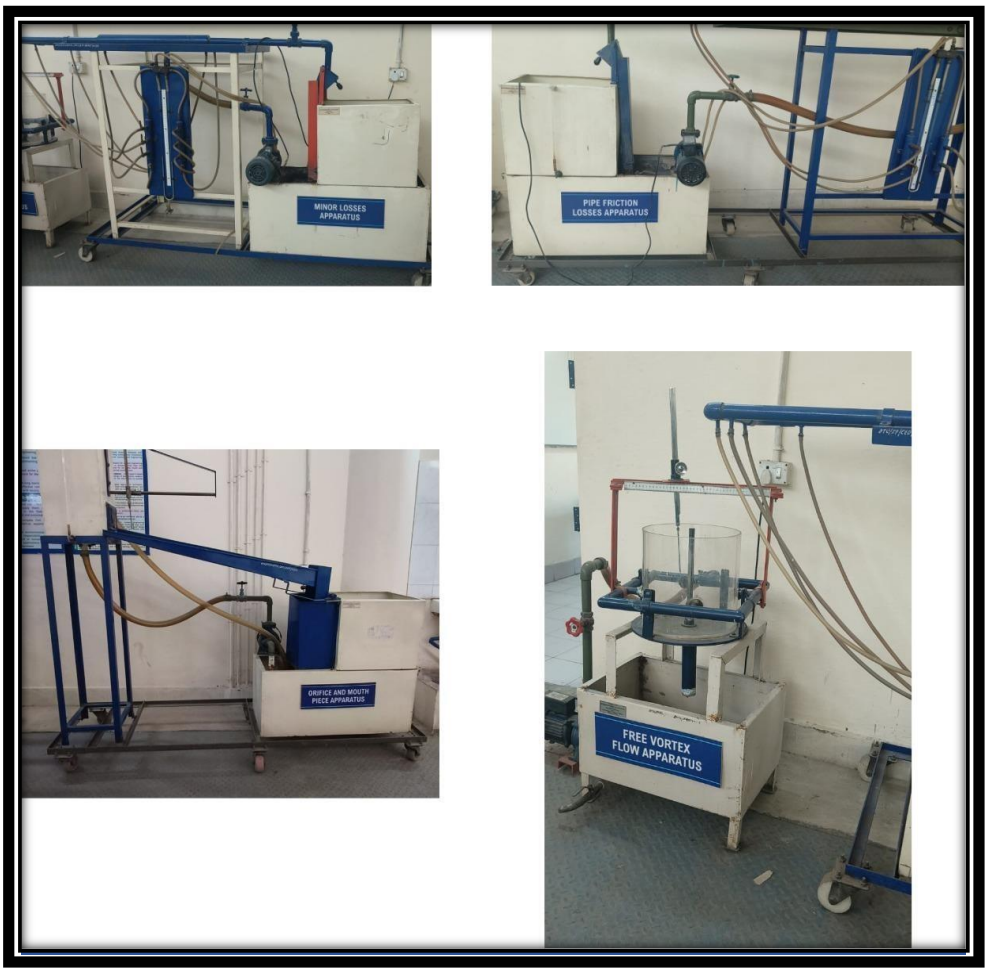
MINOR LOSSES
APPARATUS
PIPE FRICTION
LOSSES APPARATUS
ORIFICE AND MOUTH
PIECE APPARATUS
FREE VORTEX
FLOW APPARATUS


RECTANGULAR
NOTCH APPARATUS
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METACENTRIC HEIGHT
APPARATUS
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