# MOMENTUM TRANSFER LAB

**Course Code: 22CH1105**

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**Course Outcomes:** At the end of the laboratory course, the student should be able to

**CO 1** Identify and characterize flow patterns and regimes. (L1)
**CO 2** Discuss the differences among flow measurement techniques, their relevance and applications. (L2)
**CO 3** Demonstrate practical understanding of Bernoulli's equation. (L3)
**CO 4** Demonstrate practical understanding of frictional losses in internal flows. (L3)
**CO 5** Measure fluid pressure and its relation to velocity. (L3)

*Student should also submit a detailed report for all the above laboratory practical's.

## LIST OF EXPERIMENTS

1. Identification of laminar and turbulent flows.
Major equipment - Reynolds apparatus.

2. Verification of Bernoulli's equation.
Major equipment – Bernoulli's Apparatus.

3. Variation of Orifice coefficient with Reynolds Number.
Major equipment - Orifice meter Assembly.

4. Determination of Venturi coefficient.
Major equipment – Venturi meter Assembly.

5. Friction losses in Fluid flow in pipes.
Major equipment - Pipe Assembly with provision for Pressure measurement.

6. Determination of minor losses for various pipe fittings.
Major equipment- A pipe system with sudden contraction, sudden enlargement, bend and elbow.

7. Pressure drop and void fraction in a fluidized bed.
Major equipment-Fluidized bed with pressure drop measurement.

8. Studying the coefficient of contraction for a given open orifice.
Major equipment - Open Orifice Assembly.

9. Studying the coefficient of contraction for a given Mouth Piece.
Major equipment - Mouth Piece Assembly.

10. Studying the coefficient of discharge in a V-notch.
Major equipment - V-notch Assembly.

11. Studying the Characteristics of a centrifugal pump
Major equipment - Centrifugal Pump.

12. Viscosity determination using Stoke's law.
Major equipment – Terminal Velocity determination column
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13. Determination of coefficient of impact on vanes.
Major equipment- A Jet impinges on a flat plate, inclined plate and hemispherical dome.