NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
DEPARTMENT OF MECHANICAL ENGINEERING
FLUID MECHANICS LABORATORY

List of experiments:

1) **Bernoulli's principle apparatus.**
   - Determination of energy conversion in divergent/convergent pipe flow and recording the corresponding pressure curve in a Venturi nozzle.
   - Demonstration of Bernoulli's law

2) **Pipe Friction training apparatus**
   - Investigation of the pressure losses of flow through pipes and measurement of the pressure differential on different pipe sections.
   - Effect of different pipe diameters
   - Effect of different materials and surface roughness

3) **Methods of flow measurement apparatus.**
   - Comparison of different flow measuring methods and determination of the flow coefficients of the following flow meters:-
     a) Orifice plate flow meter
     b) measuring nozzle
     c) Venturi nozzle
     d) Rotameter

4) **Osborne Reynolds experiment apparatus.**
   - Visualization of laminar and turbulent flow and determination of the critical Reynolds number.

5) **Stability of floating bodies apparatus.**
   - Experimental investigation of center of buoyancy, center of gravity, buoyancy, metacenter & heel for a rectangular hull cross-section.

6) **Cavitation apparatus.**
   - Investigation of cavitation process at different flow rates and pressures in a venturi nozzle.

7) Centrifugal pumps apparatus.

- Determination of the characteristic curves and hydraulic power output and comparison of series and parallel operating modes in centrifugal pump.

8) Water hammer and Surge chamber apparatus.

- Demonstration of water hammers in pipes
- Determination of the velocity of sound in water
- Understanding the functional principle of a surge chamber
- Determination of natural frequency of oscillation in the surge chamber

9) Pelton and Francis turbine apparatus

- Determination of the mechanical and hydraulic power and efficiency of a Pelton & Francis turbine and to record its characteristic curves

10) Flow over weirs

- Determination of the coefficient of discharge for a triangular and rectangular weir & comparison with theoretical results