



SHRI VISHNU ENGINEERING COLLEGE FOR WOMEN:: BHIMAVARAM
(AUTONOMOUS)

DEPARTMENT OF MECHANICAL ENGINEERING
FLUID MECHANICS AND HYDRAULIC MACHINERY LAB

Laboratory In-charge : Mr.P.Surya Prakash Varma
Laboratory Technician : Mr. P.V.G.K.Raju

OBJECTIVES:

1. **Understanding Basic Principles:** To help students understand the fundamental principles of fluid mechanics, such as fluid properties, fluid statics, fluid dynamics, and flow measurement techniques.
2. **Experimental Skills:** To develop student's skills in conducting experiments, collecting data, and analyzing results related to fluid flow, pressure, velocity, and other relevant parameters.
3. **Applying Theory to Practice:** To bridge the gap between theoretical knowledge and practical application by allowing students to observe real-world phenomena related to fluid behavior and hydraulic machinery.
4. **Equipment Familiarization:** To familiarize students with the operation and usage of various equipment commonly used in fluid mechanics and hydraulic machinery experiments, such as flow meters, pumps, turbines, and pressure gauges.
5. **Performance Analysis:** To enable students to analyze the performance characteristics of hydraulic machines, such as pumps and turbines by conducting experiments to determine efficiency, power output, and other relevant parameters.
6. **Problem-Solving Skills:** To enhance student's problem-solving abilities by challenging them to interpret experimental data, troubleshoot equipment issues, and optimize system performance.
7. **Safety Awareness:** To promote safety awareness and proper laboratory practices when working with potentially hazardous equipment and fluids.
8. **Report Writing and Presentation:** To develop student's communication skills by requiring them to write formal lab reports documenting their experimental procedures, results, and conclusions, and to present their findings to their peers and instructors.







Lab Equipment:

S.No	Description	Stock	Cost (Rs)
1	Pelton Wheel Turbine	1	94,000
2	Francis Turbine	1	1,02,000
3	Kaplan Turbine	1	128,000
4	Venturi meter & Orifice meter	1	42,000
5	Major losses Test Rig	1	34,000
6	Variable speed single stage centrifugal Pump test rig	1	43,000
7	Variable speed Reciprocating Pump test rig	1	40,000
8	Two stage Centrifugal Pump test rig	1	42,000
9	Impact of Jet on Vanes test rig	1	38,000
10	Mouth piece and Orifice setup	1	53,000
11	Minor losses Experimental setup	1	54,000
12	Bernoullis theorem Experimental setup	1	43,000
13	V-Notch and Rectangular notch Experimental setup	1	42,000
Total			7,55,000

List of Experiments:

S.NO.	NAME OF THE EXPERIMENT
1	Calibration of Venturimeter.
2	Calibration of Orificemeter.
3	Determination of Friction factor for given Pipes (Major Losses).
4	Determination of loss of head due to sudden expansion and sudden contraction (Minor losses).
5	Verification of Bernoulli's theorem.
6	Impact of jet on vanes to determine the vane efficiency.
7	Performance test on Pelton Wheel Turbine.
8	Performance test on Francis Turbine.
9	Performance test on Kaplan Turbine.
10	Performance test on Single stage Centrifugal Pump.
11	Performance test on Reciprocating Pump.
12	Performance test on Multi stage Centrifugal Pump.
13	Determine the rate of flow in open channels by Notches.
14	Determine the rate of flow through an open by Orifice & Mouth piece.