Techno College of Engineering Agartala

An Engineering College Approved by AICTE, MHRD, Govt. of India
Affiliated to Tripura University (A Central University),
Department of Mechanical Engineering

List of Laboratory Experiments

Fluid Mechanics Lab							
Course Code	**Hours / Week**				**Maximum Marks**		
PC ME-408	L	T	P	C	**CIA**	**SEE**	**Total**
	0	0	2	1	40	60	100
Number of classes: 20 Hours			**Prerequisites: Fluid Mechanics – I & II**				
Branch: ME			**Semester: IV**				

Course overview:

The Fluid Mechanics Laboratory course provides students with hands-on experience in fundamental fluid mechanics principles through a series of carefully designed experiments. The course is intended to complement theoretical knowledge gained in lectures by allowing students to observe fluid behavior and measure important parameters such as pressure, flow rate, and velocity. Key experiments may include studies on Bernoulli's principle, flow through pipes, loss coefficients, and the performance of hydraulic machines. Emphasis is placed on accurate data collection, analysis, and interpretation, along with the development of technical report writing and teamwork skills. This lab is essential for engineering students to bridge the gap between theory and real-world fluid systems.

Course objectives:

i. Understand fundamental fluid properties through experimental observation and measurement, including density, viscosity, and pressure.
ii. Demonstrate key fluid mechanics principles such as Bernoulli's equation, continuity, and momentum through laboratory experiments.
iii. Develop skills in operating and calibrating fluid flow equipment, such as flow meters, pumps, and manometers.
iv. Analyze fluid flow behavior in various systems, including pipe networks, open channels, and hydraulic machines.
v. Interpret experimental data accurately and compare it with theoretical predictions and empirical correlations.
vi. Enhance problem-solving abilities by identifying sources of error and evaluating the reliability of experimental results.
vii. Communicate technical findings effectively through structured lab reports and presentations.
viii. Promote teamwork and collaborative learning in conducting experiments and troubleshooting instrumentation.

Course outcomes:

After completing this course, the students will be able to

CO Number	CO Description	K-level
CO-1	Explain the collected data for Venturimeter.	K-2
CO-2	Calculate the collected data with the small orifice/mouthpiece and Orifice meter.	K-3
CO-3	Find out various losses during flow through pipes.	K-3

CO-4	Analyze the data related to the experiment with Bernoulli's apparatus.	K-4
Sl. No.	**EXPERIMENT NAME**	**CO**
1.	Calibration of Venturimeter	CO-1
2.	Calibration of Orificemeter.	CO-2
3.	Calibration of Rotameter.	CO-2
4.	Determining the Coefficient of discharge for small orifice by constant head method.	CO-2
5.	Determining the Coefficient of discharge for mouthpiece by constant head method.	CO-2
6.	Calibration of contracted Rectangular Notch.	CO-3
7.	Calibration of Triangular Notch.	CO-3
8.	Determination of friction factor of a pipe.	CO-4
9.	Determination of Coefficient for minor losses.	CO-4
10.	Verification of Bernoulli's equation.	CO-4