



Techno College of Engineering Agartala

An Engineering College Approved by AICTE, MHRD, Govt. of India

Affiliated to Tripura University (A Central University),

Department of Civil Engineering



List of Laboratory Experiments

Solid Mechanics and Fluid Mechanics Lab

Course Code	Hours / Week				Maximum Marks		
	L	T	P	C	CIA	SEE	Total
PC CE 408	0	0	2	1	40	60	100

Number of classes: 20 Hours

Prerequisites: Engineering Mechanics.

Branch: CE

Semester: IV

Course overview:

This course provides to experimentally verify the principles and theories learned in solid mechanics. It focuses on the behavior of materials and structural members under various loading conditions.

Key Areas Studied:

- Stress and strain behavior
- Elastic and plastic deformation
- Tensile, compressive, and bending loads
- Torsion and shear
- Material properties (Young's modulus, Poisson's ratio, etc.)

This course also provides to experimentally study the behavior of fluids (liquids and gases) under static and dynamic conditions, and verify theoretical fluid mechanics concepts.

Key Areas Studied:

- Fluid statics and dynamics
- Flow measurement and visualization
- Pressure measurement
- Losses in pipe systems
- Hydraulic machinery performance

Course objectives:

Objectives of Solid Mechanics Lab

- Understand Material Behavior



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- Determine Mechanical Properties
- Validate Theoretical Concepts.
- Analyze Structural Members
- Use Testing Equipment
- Interpret Experimental Data

Objectives of Fluid Mechanics Lab

- Understand Fluid Properties and Behavior
- Demonstrate Fluid Flow Principles
- Develop Measurement Skills
- Analyze Hydraulic Systems
- Understand Jet and Turbine Dynamics

Course outcomes:

CO Number	CO Description	K-level
CO-1	Determine compressive strength of concrete.	K-2
CO-2	Investigate Hook's law that is the proportional relation between force and stretching in elastic deformation.	K-3
CO-3	Compare Tension test, Impact test, Shear test, Bend test steel bar	K-4
CO-4	Percieve the broad principles of fluid statics, Kinematics and dynamics.	K-5
CO-5	Characterize laminar and turbulent flows	K-4
CO-6	Determine flow and flow properties.	K-4

Sl. No.	EXPERIMENT NAME	CO
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Solid Mechanics Lab

1.	Tension test	CO-3
2.	Bending tests on simply supported beam and Cantilever beam.	CO-3
3.	Compression test on concrete	CO-1
4.	Impact test	CO-3
5	Shear test	CO-3



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6	Investigation of Hook's law that is the proportional relation between force and stretching in elastic deformation,	CO-2
7	Bend test steel bar;	CO-3
8	Yield/tensile strength of steel bar;	CO-2
Sl. No.	EXPERIMENT NAME	CO
Fluid Mechanics Lab		
1		
2		
3		