



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

Strength of Materials Lab							
Course Code	Hours / Week				Maximum Marks		
PC ME 407	L	T	P	C	CIA	SEE	Total
	0	0	2	1	40	60	100

Number of classes: 24 Hours

Prerequisites: Strength of Materials

Branch: ME

Semester: IV

Course overview:

The Strength of Materials Laboratory is designed to reinforce theoretical concepts learned in the Strength of Materials course through hands-on experiments. This lab enables students to observe material behavior under different loading conditions, such as tension, compression, shear, bending, and torsion. Students gain practical skills in operating universal testing machines, hardness testers, impact testers, and other essential equipment. The course also develops skills in data analysis, result interpretation, and technical report writing, which are critical for understanding material properties and structural performance.

Course objectives:

- I. To experimentally determine the mechanical properties of materials.
- II. To understand the stress-strain behavior of different materials under various loading conditions.
- III. To use standard testing equipment for material property evaluation.
- IV. To correlate theoretical knowledge with practical behavior of materials.
- V. To interpret data, analyze results, and draw meaningful conclusions.

Course outcomes:

CO Number	CO Description	K-level
CO-1	Perform Tension, shear and torsion test on solid materials	K-3
CO-2	Determine the Toughness of the material using CHARPY and IZOD Test	K-4
CO-3	To assess the settlement and bearing capacity of shallow and deep footing by loading test.	K-4
CO-4	Estimate the elastic constants through compression test on springs and deflection test on beams.	K-4
Sl. No.	EXPERIMENT NAME	CO
1.	To study the Brinell Hardness testing machine and the Brinell hardness test	CO-1
2.	To study the Rockwell Hardness testing machine and perform the Rockwell hardness test.	CO-1



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3.	To study the Vickers Hardness testing machine and perform the Vickers hardness test.	CO-1
4.	To study the Impact Testing machine and Perform Izod impact test.	CO-2
5.	To study the Impact Testing machine and Perform charpy impact test	CO-2
6.	To study the UTM and perform the tensile test	CO-3
7.	To Perform compression test on UTM.	CO-3
8.	To perform the bending test on UTM.	CO-3
9.	To perform the shear (both single and double) test on UTM	CO-4
10.	Torsion test on mild steel rod	CO-4