

1151AU320

STRENGTH OF MATERIALS LAB

L	T	P	C
0	0	2	1

**1. Preamble**

To supplement the theoretical knowledge gained in strength of materials with practical testing for determining the strength of materials under externally applied loads

**2. Pre-requisite**

1151AU101	Engineering Mechanics
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**3. Links to other courses**

Mechanics of Machines

**4. Course Educational Objectives**

Students undergoing this course are expected to

- To understand the theoretical knowledge gained in Mechanics of Solids and conduct practical testing for estimation of material properties under externally applied loads.
- To understand and conduct the microscopic examination of various materials

**5. Course Outcomes**

Upon the successful completion of the course, learners will be able to

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's)
CO1	Compute the tensile strength ,shear strength, impact strength of the given specimen using different testing methods (UTM, Torsion, Impact Test)	S3
CO2	Analyze the hardness of the given specimen using different testing methods (Brinell, Vickers and Rockwell)	S3
CO3	Predict the bending stress, modulus of rigidity, fatigue strength of the given specimen using different testing methods(compression test, deflection test, fatigue test)	S3
CO4	Evaluate the strain value of the given specimen using Rosette strain gauge	S3

**6. Correlation of COs with Programme Outcomes :**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1				H								L	M	H
CO2				M								L	M	H
CO3				M								L	M	H
CO4				L								L	M	H

H- Strong; M-Medium; L-Low

**7. List of Experiments**

1. Tension Test on a Mild Steel Rod
2. Double Shear Test on Mild Steel and Aluminum Rods
3. Torsion Test on Mild Steel Rod.
4. Impact Test on Metal Specimen.
5. Fatigue Test on Aluminum Rod
6. Hardness Testing - Brinell, Vickers and Rockwell Hardness Tester
7. Deflection Test on Beams
8. Compression Test on Helical Springs
9. Strain Measurement Using Rosette Strain Gauge

**TOTAL = 30 periods**