



STRENGTH OF MATERIAL LAB (BCEP-305)

Course Outcomes:

1. Describe the concepts and principles, understand the theory of elasticity including strain/displacement and Hooke's law relationships; and perform calculations, relative to the strength and stability of structures and mechanical components;
2. Define the characteristics and calculate the magnitude of combined stresses in individual members and complete structures; analyze solid mechanics problems using classical methods and energy methods
3. Analyze various situations involving structural members subjected to combined stresses by application of Mohr's circle of stress; locate the shear centre of thin wall beams
4. Calculate the deflection at any point on a beam subjected to a combination of loads; solve for stresses and deflections of beams under unsymmetrical loading; apply various failure criteria for general stress states at points; solve torsion problems in bars and thin walled members

List of Experiments:

1. Tension Test
2. Bending tests on simply supported beam and Cantilever beam
3. Compression test on concrete
4. Impact test
5. Shear test
6. Investigation of Hooke's law that is the proportional relation between force and stretching in elastic deformation.
7. Determination of torsion and deflection
8. Measurement of forces on supports in statically determinate beam,
9. Determination of shear forces in beams
10. Determination of bending moments in beams,
11. Measurement of deflections in statically determinate beam,
12. Measurement of strain in a bar
13. Bend test steel bar