

Course Number and Name												
BCE3L2 - STRENGTH OF MATERIALS LAB												
Credits and Contact Hours												
2 & 45												
Course Coordinator's Name												
Ms.A.Arunya												
Course Description												
<ul style="list-style-type: none"> To expose the students to the testing of different materials under the action of various forces and determination of their characteristics experimentally. 												
Prerequisites						Co-requisites						
Engineering Mechanics						NIL						
required, elective, or selected elective (as per Table 5-1)												
Course Outcomes (COs)												
CO1	To study the failure due to tensile force subjected to a material											
CO2	To study the failure due to shear force subjected to a material											
CO3	To study hardness properties of materials and its types											
CO4	To study impact intensity of materials and its properties											
CO5	To study ductility properties of materials											
CO6	To study fatigue properties of materials											
CO7	To study the deflections in springs											
CO8	To study the behavior of different types of columns											
Student Outcomes (SOs) from Criterion 3 covered by this Course												
COs/SOs	a	b	c	d	e	f	g	h	i	j	k	
CO1	M	H			M							
CO2	M	H			M							
CO3	M	H			M							
CO4	M	H			M							
CO5	M	H			M							
CO6	M	H			M							
CO7	M	H			M							
CO8	M	H			M							
List of Topics Covered												
LIST OF EXPERIMENTS												

I. TESTS ON STEEL

1. Tension Test to find yield stress, ultimate stress, nominal and actual breaking stress and % age elongation and reduction in area of cross section, work done in breaking the specimen and calculation of Young's modulus using different extensometers (test on mild steel, High tensile steel Rods & flats).
2. Shear test: Double Shear
3. Hardness test Vicket, Brunell, and Rockwell.
4. Impact Test using Charpy and Izod Testing machines
5. Cold Bend Test
6. Ductility Test: sheet Ductility, Reverse bending on works.
7. Fatigue Test.

II TESTS ON TIMBER:

Compression test both parallel and perpendicular to the grains, deflection

III OTHER TESTS:

1. Springs: Leaf spring and helical spring
2. Columns: Long and short columns
3. Beams: Steel and timber beams with different cross sections of different and conditions (simply supported, cantilever, propped, continuous) Test under elastic and Ultimate stages.