

Course No.	Course Name	L-T-P-Credits	Year of Introduction
CE230	MATERIAL TESTING LAB	0-0-3-1	2016
<b>Course Objectives:</b>			
<ol style="list-style-type: none"> <li>To provide knowledge on mechanical behaviour of materials</li> <li>To acquaint with the experimental methods to determine the mechanical properties of materials.</li> </ol>			
<b>Syllabus</b>			
<b>List of experiments:</b>			
<ol style="list-style-type: none"> <li>Tension test on mild steel/ tor-steel/ high strength steel and cast iron using Universal Testing Machine and extensometers.</li> <li>Tests on springs (Open and closed coiled)</li> <li>Torsion pendulum (mild steel, aluminium and brass wires)</li> <li>Hardness test (Brinell, Vickers and Rockwell)</li> <li>Impact test (Izod and Charpy)</li> <li>Torsion test on mild steel rods.</li> <li>Shear test on mild steel rods.</li> <li>Fatigue test – Study of testing machine.</li> <li>Bending test on wooden beams.</li> <li>Strut test (Column buckling experiment)</li> <li>Verification of Clerk Maxwell's law of reciprocal deflection and determination of Young's modulus of steel.</li> <li>Photo elastic methods for stress measurements.</li> <li>Jominy hardenability test</li> <li>Measurement using strain gauges</li> <li>Determination of moment of inertia of rotating bodies</li> </ol>			
Note: A minimum of 10 experiments are mandatory.			
<b>Expected outcome:</b> At the end of the course the students will be able to			
<ol style="list-style-type: none"> <li>Acquire the knowledge on mechanical behaviour of materials</li> <li>Conduct experiments determine the mechanical properties of materials.</li> </ol>			
<b>References Books:</b>			
<ol style="list-style-type: none"> <li>G E Dieter. Mechanical Metallurgy, McGraw Hill,2013</li> <li>Dally J W, Railey W P, Experimental Stress analysis , McGarw Hill,1991</li> <li>Baldev Raj, Jayakumar T, Thavasimuthu M., Practical Non destructive testing, Narosa Book Distributors,2015</li> </ol>			