**17CE31P1 - MATERIAL TESTING LABORATORY**

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| **Course Category**  | Professional Core | **Credits**  | 2 |
| **Course Type**  | Laboratory | **Lecture - Tutorial - Practical**  | 0 - 0 - 3 |
| **Prerequisite**  | Strength of Materials | **Sessional Evaluation** | 40 |
| **Semester End Exam Evaluation** | 60 |
|  **Total Marks**  | 100 |

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| **Course Objectives** | 1. To understand the characteristics and behavior of various materials used in buildings and infrastructure.
2. To select materials based on their properties and their proper use for a particular facility under prevailing loads and environmental conditions.
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| **Course Outcomes** | CO1 | Determine the strength and elastic modulus of various materials used in buildings and infrastructure. |
| CO2 | Evaluate the impact strength of mild steel. |
| CO3 | Compute the rigidity modulus of mild steel. |
| CO4 | Evaluate the hardness property of steel, copper and brass. |
| CO5 | Evaluate the stiffness property of the spring. |
| CO6 | Determine the elastic modulus and flexural rigidity of various types of beam. |
| **Course Content** | **LIST OF EXPERIMENTS**1. Tension test on Mild Steel bar.
2. Tension test on HYSD bar.
3. Compression test on wood.
4. Direct shear test on Mild Steel.
5. Rockwell and Brinell Hardness tests.
6. Charpy and Izod Impact tests.
7. Bending test on Rolled Steel Joist.
8. Bending test on carriage springs.
9. Torsion test-Determination of Rigidity modulus (G).
10. Deflection test on simply supported beam-Determination of Elastic modulus (E).
11. Deflection test on fixed beam- Determination of Elastic modulus (E).
12. Deflection test on close-coiled helical springs.
13. Deflection test on over hanging beam - Determination of Elastic modulus (E).
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