**19CE21P1 - STRENGTH OF MATERIALS LABORATORY**

**(Civil Engineering)**

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| **Course Category** | Professional Core | **Credits** | 1.5 |
| **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** | To understand the characteristics and behavior of various materials used in buildings and infrastructure. | |
| **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. Deflection test on fixed beam 2. Deflection test on simply supported beam 3. Deflection test on close-coiled helical springs 4. Deflection test on over hanging beam 5. Tension test on mild steel bar 6. a) Rockwell hardnesstest   b) Brinellhardness test   1. Tension test on HYSD bar 2. Torsion test 3. Compression test on wood 4. a) Direct shear test on mild steelbar   b) Charpy impact test  c) Izodimpact test | |

**CO-PO Mapping:**3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|  | **a** | **b** | **c** | **d** | **e** | **f** | **g** | **h** | **i** | **j** | **k** | **l** |
| **CO1** | 3 | 3 | 1 | 1 | 1 | - | - | 2 | 3 | 3 | 2 | 2 |
| **CO2** | 3 | 3 | 1 | 1 | 1 | - | - | 2 | 3 | 3 | 2 | 2 |
| **CO3** | 3 | 3 | 1 | 1 | 1 | - | - | 2 | 3 | 3 | 2 | 2 |
| **CO4** | 3 | 3 | 1 | 1 | 1 | - | - | 2 | 3 | 3 | 2 | 2 |
| **CO5** | 3 | 3 | 1 | 1 | 1 | - | - | 2 | 3 | 3 | 2 | 2 |
| **CO6** | 3 | 3 | 1 | 1 | 1 | - | - | 2 | 3 | 3 | 2 | 2 |