**20CE21P3 - STRENGTH OF MATERIALS LABORATORY**

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| **Course Category**  | Professional Core | **Credits** | 1.5 |
| **Course Type** | Practical | **Lecture - Tutorial - Practical** | 0 - 0 - 3 |
| **Prerequisite** | - | **Sessional Evaluation** | 40 |
| **Semester End Exam Evaluation** | 60 |
| **Total Marks** | 100 |
| **Course Objectives** | To determine the characteristics of various materials and their behaviour used in buildings and infrastructure. |
| **Course Outcomes** | CO1 | Determine the elastic modulus and flexural rigidity of various types of beams. |
| CO2 | Evaluate the stiffness property of the spring. |
| CO3 | Determine the strength and elastic modulus of various materials used in buildings and infrastructure.  |
| CO4 | Evaluate the hardness property of steel, copper and brass. |
| CO5 | Compute the rigidity modulus of mild steel. |
| CO6 | Evaluate the impact strength of mild steel. |
| **Course Content** | **LIST OF EXPERIMENTS**1. Deflection test on fixed beam
2. Deflection test on simply supported beam
3. Deflection test on over hanging beam
4. Deflection test on close-coiled helical springs
5. Tension test on mild steel bar
6. a) Rockwell hardness test

 b) Brinell hardness test1. Tension test on HYSD bar
2. Torsion test
3. Compression test on wood
4. a) Direct shear test on mild steel bar

 b) Charpy impact test c) Izod impact test |

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

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|   | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** | 3 | 2 | - | 1 | - | - | - | 1 | - | - | - | 1 |
| **CO2** | 3 | 2 | - | 1 | - | - | - | 1 | - | - | - | 1 |
| **CO3** | 3 | 3 | - | 2 | - | - | - | 2 | - | - | 1 | 2 |
| **CO4** | 3 | 2 | - | 1 | - | - | - | 1 | - | - | - | 1 |
| **CO5** | 3 | 2 | - | 1 | - | - | - | 1 | - | - | - | 1 |
| **CO6** | 3 | 2 | - | 1 | - | - | - | 1 | - | - | - | 1 |