**19CE31P2 – TRANSPORTATION ENGINEERING 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 |

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| **Course Objectives** | 1. To assess the quality of bitumen and its suitability for highway construction works.
2. To learn the testing procedure of aggregate and to judge its suitability as highway construction material.
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| **Course****Outcomes** | CO1 | Determine various properties of aggregate. |
| CO2 | Evaluate the quality of the aggregate and its suitability for highway construction. |
| CO3 | Choose the required materials based on field conditions. |
| CO4 | Determine various properties of bitumen |
| CO5 | Conduct various tests on bitumen. |
| CO6 | Assess the quality of bitumen. |
| **Course****Content** | **LIST OF EXPERIMENTS****TESTS ON AGGREGATES**1. Specific Gravity and Water Absorption Test.
2. Aggregate Impact Test
3. Elongation Index Test
4. Flakiness Index Test
5. Angularity Number Test
6. Los Angles Abrasion Test
7. Aggregate Crushing Test

**TESTS ON BITUMEN**1. Flash & Fire Point Test
2. Softening Point Test
3. Specific Gravity Test
4. Penetration Test
5. Ductility Test
6. Viscosity test
7. Demonstration on Marshall method of mix design
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**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** | 1 | 2 | - | - | - | - | - | 1 | - | - | 2 | - |
| **CO2** | 1 | 2 | - | - | - | - | - | - | - | - | 2 | 1 |
| **CO3** | 1 | 2 | - | - | - | - | - | - | - | - | 2 | - |
| **CO4** | 1 | 2 | - | - | - | - | - | 1 | - | - | 2 | - |
| **CO5** | 1 | 2 | - | - | - | - | - | 1 | - | - | 2 | 1 |
| **CO6** | - | 2 | - | - | - | - | - | - | - | - | 2 | - |