**19CE31P1 – GEOTECHNICAL 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** | To determine the engineering properties of soil in the field and laboratory  |
| **Course Outcomes** | CO1 | Determine index properties of soils and classify them. |
| CO2 | Determine the compaction characteristics. |
| CO3 | Determine the permeability of soils. |
| CO4 | Determine the California Bearing Ratio value. |
| CO5 | Determine the shear parameters of the soil. |
| CO6 | Evaluate the distribution of soil particles by sedimentation process.  |
| **Course** **Content** | **LIST OF EXPERIMENTS**1. (a) Specific Gravity test

(b) Grain Size Distribution by Sieve Analysis.1. (a) Determination of Liquid Limit & Plastic Limit.

(b) Determination of Shrinkage Limit.3. (a) In-Situ density by core cutter method.  (b) In-Situ density by Sand replacement method.1. I.S. light Compaction Test.
2. California Bearing Ratio Test.
3. Direct Shear test
4. Coefficient of Permeability by constant Head method
5. Coefficient of Permeability by Falling Head method.
6. Triaxial shear test (UU)
7. Determination of coefficient of consolidation.

**DEMONSTRATION**1. Plate Load cone Apparatus
2. SPT test
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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** | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 1 | 1 |
| **CO2** | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 1 | 1 |
| **CO3** | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 1 | 1 |
| **CO4** | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 1 | 1 |
| **CO5** | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 1 | 1 |
| **CO6** | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 1 | 1 |