**17CE31P2 - SOIL MECHANICS LABORATORY**

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

|  |  |
| --- | --- |
| **Course Objectives** | 1. To determine index properties of soil in the field and laboratory.
2. To compute the compaction characteristics.
3. To determine the permeability of soils.
4. To determine the California bearing ratio value.
5. To determine shear parameters of the soil.
6. To apply the process of sedimentation for distribution of soil particles.
 |
| **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.

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

(b) 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. (a) Consolidation Test.

(b) Free Swell Index Test. 1. Direct Shear Test.
2. Unconfined Compression Test.
3. Coefficient of Permeability by constant Head method.
4. Coefficient of Permeability by Falling Head method.
5. Hydrometer Analysis.

**DEMONSTRATION**1. Triaxial Shear Test.
2. North Dakota Cone Test.
 |