GEOTECHNICAL ENGINEERING LABORATORY

Practicals : 3 Periods/Week Sessional marks : 40

Semester End Exam.: 3 Hrs. Semester End Exam. marks : 60

Credits : 2

Course Objectives:

- To determine physical properties like water content, specific gravity, bulk unit weight, Atterberg limits and gradation analysis.
- To determine engineering properties of soils like permeability, compaction, consolidation and shear strength of soils.

Course Outcomes:

Students will be able to:

- Classify the soil.
- Based on classification plan for suitability of soil for various civil engineering projects.
- Determine engineering properties of soils which are required design of retaining walls, foundations, checking settlements and stability of slopes.

Note: A minimum of twelve (12No) shall be done and recorded

1. Determination of water content by oven drying method and rapid moisture tester.
2. Determination of specific gravity soil by using density bottle and pycnometer
3. Gradation analysis
   (a) Mechanical Sieve analysis
   (b) Hydrometer analysis.
4. Determination of Atterberg limits
5. Determination of free swell index and swelling pressure of expansive soils.
6. Determination of field unit weight by
   a) Core cutter method.
   b) Sand replacement method.
7. Determination of permeability by
   a) Constant head permeameter.
   b) Variable head permeameter.
8. Direct shear test.
9. Vane shear test.
10. Unconfined compression test
11. IS - Light compaction test
12. IS - Heavy compaction test
13. Triaxial shear test.(demonstration only)
14. Det.of coefficient of consolidation by Taylor's and Casagrande's methods.
15. Det.of relative density of soil.