4CE113 Geotechnical Engineering – I Lab

L-T-P-Cr: 0-0-3-1

Prerequisite: A Pass grade or having attended at least 75% of the classes conducted or at least 60 % attendance and a minimum of 40% marks in the course(s) Earth Sciences/Earth & Climate Science.

Objective: To impart knowledge and skill for soil identification, classification other physical Properties of soils, viz seepage, stress distribution, compaction and consolidation.

 Practical: 1. Specific Gravity of Soils.

 2. Field Density of soils.

3. Particle size distribution of soils by sieving.

 4. Particle size distribution of soils by hydrometer method.

 5. Determination of Atterberg‘s limits.

 6. Permeability of soils using falling head method.

7. Permeability of soils using constant head method.

8. Consolidation Characteristics of soils.

9. Proctor‘s Compaction Test. 10. Direct Shear Test.

11. Unconfined Shear Test. 12. Tri-axial Shear Test.

13. Vane Shear Test.

14. Differential Swelling Test. Books And Laboratory Mannuals: 1. Soil Mechanics in Engineering Practice - Terzaghi and Peck, John Wiley and Sons Inc New York. 2. Soil Mechanics- Lamb and Whitman, Wiley Eastern Pvt. Ltd, New Delhi. 3. Fundamentals of Soil Mechanics - Taylor, John Wiley and Sons Inc New York. 4. Experiments in Soil Mechanics by Jain and ----, Nem Chand publication Civil lines Roorkee.

Expected Outcome: The students would be able to identify, classify and determine physical & engineering properties of different types of soils.