

CIV 341 – Geotechnical Engineering Laboratory

Current Catalog Description: This course consists of lecture and laboratory. The lecture is held ahead of the laboratory in order to provide the theoretical background and objectives of the tests conducted in the laboratory section of the course. Laboratory experiments that illustrate the basic analysis and behavior of soils, include liquid and plastic limits, grain size, compaction, permeability, consolidation, compression and shear strength. Lab report writing, measurement and error analysis.

Prerequisite: MEC 363

Corequisite: CIV 330

Textbooks and/or None

Other Required Material:

This course is: Required

- Topics Covered:**
1. Particle Size Analysis of Soil
 2. Atterberg Limits and Moisture Content
 3. Soil Classifications
 4. In-situ soil properties
 5. Soil Compaction
 6. Mechanically stabilized earth wall
 7. Permeability of Granular Soils
 8. Strength Properties of Clay
 9. Shear Strength of Soil

Course Learning and Student Outcomes:

Course Learning Objectives	ABET Student Outcomes
Employ various classification methods to identify index properties of soils.	6
Analyze geotechnical characteristics of soil, such as permeability, compaction, consolidation, and shear strength and organize data for presentation.	1, 2, 6
Operate geotechnical engineering testing machines, measuring devices, and data acquisition systems.	1, 2, 6
Write comprehensive lab reports and give oral presentations in order to discuss experimental results and enhance understanding of underlying theories and applications of each test.	3
Design a conduct a unique experiment to explore the properties of mechanically stabilized earth walls.	2, 5, 6
Work as an effective member of a multidisciplinary team	5

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