

1. CEE 3040 – Geotechnical Engineering Laboratory
2. Course credit hours: 1  
Contact hours per week: 2  
Credit category: Engineering Topics
3. Course coordinator: Daniel R. VandenBerge
4. Textbook: Mays, J.D. (2014). *The Student Lab Report Handbook*, 2nd Ed. Novare Science & Math, Austin, TX

Supplemental materials: ASTM Standards: D422, D698, D1557, D2166, D2488, D3080, D3080, D4318

5. Course information:

2020 Catalog description	Measurement of basic engineering properties of soils.
Prerequisite(s)	CEE 3030
Course type	Selected Elective – choice of two of CEE 3040, CEE 3430, or CEE 3120 labs are required

6. Course instructional outcomes:

Course Outcome No.	Course Outcome (CO)	ABET Student Outcome
CO1	Conduct and explain liquid and plastic limit tests on soils	1, 6
CO2	Explain the hydrometer tests in general terms	1
CO3	Analyze moisture-density relations for soils and determine specification compliance	1
CO4	Calculate soil strength parameters from basic strength tests such as unconfined compression and drained direct shear	1, 6
CO5	Analyze constant head permeability data	1, 6
CO6	Write basic reports on soil property evaluations	3
CO7	Know where to obtain information on standardized procedures for conducting basic soil tests	6

ABET criterion 3 Student Outcomes addressed by this course:

SO No.	Student Outcome (SO)
3.1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
3.3	An ability to communicate effectively with a range of audiences
3.6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

7. Course topics:
  1. Grain size, Atterberg limits, and classification (30%)
  2. Moisture–density relationships (20%)
  3. Permeability (10%)
  4. Soil Strength Testing (40%)

Program criteria (curriculum) addressed by this course:

1. Apply knowledge of mathematics through differential equations, calculus-based physics, chemistry, and at least one additional area of basic science
  2. Conduct experiments in at least one technical area of civil engineering and analyze and interpret the resulting data
8. Additional topics, assignments, or requirements for dual-level (4000/5000) course:  
N/A
  9. Date: 02/05/2020