



CE 455 – Geotechnical Investigations

Code and Name: CE 455 – Geotechnical Investigations

Credit Hours: 3 (Lecture: 3, Tutorial: 1)

Textbook:

- Site Investigation: Clayton, C.R.I., Matthews, M.C., & Simons, N.E. 2nd Edition, Department of Civil Engineering, University of Surrey

Other References:

- Das, B. M., *Principles of Geotechnical Engineering*, Cengage Learning. 2010

- American Society for Testing and Materials www.astm.org

Course Description:

Structure of ground investigation, Sources of information, Planning, management and control, Site exploration techniques, Geophysical testing methods, Geotechnical instrumentation, Geotechnical report writing.

Pre-requisites: CE351 Geotechnical Engineering, CE352 Geotechnical Engineering Lab

Co-requisites: None

Course Learning Outcomes:

With relation to ABET Student Outcomes (From Fall 2019-SOs: 1-7)

1. Describe detailed knowledge of the requirements of a geotechnical investigation of a site to be developed (1)
2. Develop a geotechnical investigation planning program (1)
3. Develop a field and laboratory testing program (1)
4. Interpret and analyze the results of a geotechnical investigation and testing program and prepare a geotechnical report (6)
5. Recommend geotechnical parameters for design, based on the interpretation and analysis of the results of a geotechnical investigation and testing program (6)

Topics to be covered:

- Purpose of geotechnical investigation.
- Geotechnical engineer's role in subsurface exploration.
- Description and classification of soils and rocks.
- Planning grounds investigations.
- Geophysics methods in subsurface exploration.
- Drilling and Sampling of soil and rock.
- Sampling and sample disturbance: Undisturbed sampling techniques.
- In-Situ testing and interpretation of soil properties.

Grading Policy:

The grading for the course is: 60% coursework and 40% Final Exam. The course work consists of two Midterm Exams, where each midterm exam is worth 20%. It also includes quizzes, and projects for the remaining 20% that is modified by the course instructor.

