ICE2604  FUNDAMENTALS OF GEOTECHNICAL ENGINEERING

Credits and contact hours: 10 UC credits / 10 hours (3 h. Lectures; 1,5 h. Assistantship; 1,5 h. Labs and 4 h. Independent learning experiences)

Instructor’s name: Christian Ledezma and Esteban Sáez

Course coordinator’s name: Christian Ledezma

Textbook: Recommended books:

Course Catalog Description: Geotechnical engineering is present in virtually any civil engineering project, and this course serves as an introduction to the basic principles of the discipline. The topics covered in this course include identification and characterization of soils and rocks, evaluation of the engineering properties of these materials, and analysis methods for problems like, e.g., shallow footing design and slope stability.

Prerequisite Courses: ICE2313 Mechanics of solids

Co-requisite Courses: None

Status in the Curriculum: Required

Course Learning Outcomes:
1. Understand the fundamentals of soil mechanics.
2. Evaluate engineering properties of soils through laboratory tests.
3. Solve basic geotechnical engineering problems, such as: slope stability analysis, lateral earth pressures on walls, and design of shallow footings.

Relation of Course to ABET Criteria:
a. Knowledge of mathematics, science and engineering
c. Design a system, component, or process
d. Multidisciplinary teams
Topics covered:

1. Introduction
2. Stress distribution
3. Water flow in 1D and 2D
4. Consolidation and settlements
5. Shear strength
6. Slope stability
7. Lateral pressures and retaining walls
8. Shallow footings