PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
SCHOOL OF ENGINEERING
DEPARTMENT OF STRUCTURAL AND GEOTECHNICAL ENGINEERING
ABET COURSE SYLLABI

ICE3623 FOUNDATION ENGINEERING

Credits and contact hours: 10 credits / 10 hours (3 h. Lectures and 7 h. Independent learning experiences)

Instructor's name: Christian Ledezma

Course coordinator's name Christian Ledezma

Textbook:

- Bowles, J. (1996) Foundation analysis and design. McGraw Hill.
- Das, B. (2006) Principios de ingeniería de cimentaciones. Cengage Learning.
- Peck, R.B., Hanson, W.E., and Thornburn, T.H., Foundation Engineering, John Wiley & Sons, 1974.

Course Catalog Description: Foundation Engineering is a relevant subject in all civil engineering projects. The main purpose of this course is to train students to analyze and design foundations on any type of soil or rock. The topics covered in this course include factors determining type of foundation, methods of construction, shallow and deep foundations on clay as well as in sand, foundations on collapsing and swelling soils, and foundations on rock.

Prerequisite Courses: ICE2614 Soil mechanics

Co-requisite Courses: None

Status in the Curriculum: Required

Course Learning Outcomes:

1. Know the different types of foundations, construction techniques, and related problems.
2. Apply the principles of Soil Mechanics to the analysis and design of shallow foundations.
3. Apply the principles of Soil Mechanics to the analysis and design of deep foundations.

Relation of Course to ABET Criteria:

a. Knowledge of mathematics, science and engineering
b. Design and conduct experiments: analyze and interpret data
e. Identify, formulate, and solve engineering problems
k. Techniques, skills, and modern tools for engineering practice.

Topics covered:

1. Shallow footings on sand and clay
2. Individual piles in clayey soils
3. Individual piles in sandy soils
4. Dynamic of pile driving
5. Pile groups in clay as well as in sand
6. Foundations on collapsing and swelling soils
7. Foundations on rock
8. General considerations in foundation design
9. Factors to consider for foundations selection