AF2611 Geotechnical Engineering, Advanced Course 7.5 credits

Jordmekanik, avancerad kurs

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for AF2611 valid from Autumn 2013

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

The Built Environment, Technology

Specific prerequisites

For students not registered on a KTH programme.

180 credits academic studies in Engineering, Science, Economics or Planning and basic knowledge in Soil Mechanics ,Foundation Engineering, or Foundation Engineering equivalent to at least 2·times 7,5 ECTS points. Documented proficiency in English B or equivalent (TOEFL, IELTS e g).

For program students at KTH:

AF1601 Soil Mechanics and Foundation Engineering

AF2609 Foundation Engineering

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

This course focus on the application of soil mechanics in the analysis and design of earth retaining structures such as gravity wall, sheet pile wall and reinforced soil. The course is problem oriented where you work with a complex structure considering the whole design process. Hand calculations are combined with numerical modeling where deformations are considered. The course emphasizes the importance of parameter selection in calculations. In order to get appropriate in-data for the analyses, routine tests, oedometer tests, and undrained triaxial tests on soft clay are performed in the course. The aim of this course is to give advanced knowledge on analysis and design of foundation constructions.

Course contents

• Continuum Mechanics; Soil Stress-strain, stress paths, 3D Stresses & strains

• Elasticity and plasticity

• Constitutive soil models; Coulombe model; The Cam Clay model

• Performance and evaluation of triaxial tests. Laboratory routine test and ödometer tests

• The use the commercial FE-package Plaxis for the solution of practical engineering problems such as excavations, consolidation and embankments

• Design and analysis of a practical engineering problem is included in the course as a project task.

Course literature

Artiklar, rapporter och föreläsningsanteckningar som delas ut kontinuerligt under kursens gång

Examination

• ÖVN1 - Exercises, 3.0 credits, grading scale: P, F

- PRO1 - Project, 4.5 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

PRO1 - Project, 4.5 credits, grade: A-E

ÖVN1 - Exercises, 3.0 credits, grade: P

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.