AE2401 Engineering Geology 7.5 credits

Teknisk geologi

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

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

Establishment

Course syllabus for AE2401 valid from Autumn 2014

Grading scale

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

Education cycle

Second cycle

Main field of study

Built Environment

Specific prerequisites

Bachelor's degree in the field of Civil Engineering, Environmental Engineering, or another subject with clear relevance to the course, of at least 180 ECTS credits, including basic knowledge in Mathematics, Physics, Geosciences or Chemistry for at least 30 ECTS credits, including Geosciences for at least 6 ECTS credits. In addition, second cycle courses for at least 30 ECTS credits and proficiency in English B or equivalent are required.

Language of instruction

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

Intended learning outcomes

The goal of the course is to increase the student's knowledge and understanding of geology, and apply this knowledge to engineering projects such as dams, landfills, rock quarries, roads, tunnels and slopes.

Another goal is to increase the students' presentation skills, both oral and in written.

Course contents

The course focusus on rocks properties and interpretation of geological conditions under the ground surface.

By the end of the course the students should:

- be able to construct a map of the surface geology and a cross section of the subsurface geological from drill-hole logs.

- have knowledge of the physical, hydrological, mechanical and chemical properties of common rocks.

- have knowledge of investigation methods, primarily geophysical methods, for determining the rock mass properties underground, their strengths and weaknesses.

- be able to evaluate an area suitability with respect to: (for example)

1. drilling for ground water;

2. opening of a rock quarry based the rock's suitability for usage in asphalt and concrete;

3. building a land fill that will not negatively affect the groundwater quality or interact negatively with developed areas;

- be able to identify potential problems associated with:

1. slope stability;

2. drilling a tunnel;

3. construction of a dam.

- be able to use a sterionet to analyze slope stability. They should be able to interpret information presented in a sterionet.

Course literature

Engineering Geology, Rock in Engineering Construction by Richard E. Goodman, John Wiley & Sons, Inc. 1993.

Examination

- FÄL1 - Exkursion, 1.5 credits, grading scale: P, F
- PRO1 - Project, 2.2 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 2.3 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Assignments, 1.5 credits, grading scale: P, 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.

Other requirements for final grade

The grade is based on the reslults in the following 3 parts of the course all of which are graded on a A-F scale.

1. Final test covers the material covered in the exercises; open book test.

2. Course project - written and oral presentation.

There are several field days which are mandatory for completion of the course. If by chance the student cannot attend a field day then an alterntive assignment may be agreed upon.

3. Field exercises, preparation assignments and exercises.

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.