



AE1106 Geoscience 6.0 credits

Geovetenskap

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 AE1106 valid from Autumn 2012

Grading scale

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

Education cycle

First cycle

Main field of study

Architecture, Technology

Language of instruction

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

Intended learning outcomes

After completing the course the student should be able to

- describe the Earth's structure, form and composition

- explain how natural conditions such as soil, water and ecosystems are the basis for community-building and physical planning.
- describe the physical and chemical properties of soil and rock (including mineralogical composition and classification)
- understand past and ongoing geological and hydrogeological processes that affect the land use development and long-term sustainability
- describe soil structures and general soil and rock stratigraphy
- describe the properties and uses of various soil and rock material
- understand the occurrence of water in nature and society and basically describe the natural water flow
- basically interpret existing geological and hydrological data
- explain the society's technical support systems such as water, sewage, waste and energy.

Course contents

The course includes lectures, exercises, laboratory work and a field exercise.

The course covers the natural conditions for spatial planning, land forms and formations as a function of recent and past geological processes, behavior and physical and chemical (mineralogical) properties of soil and rock materials. Particular importance is attached to the rock and soil layers structural composition and changes in soil properties in the short and long term. The course also covers basic knowledge of soil water retention characteristics as well as soil water and groundwater flow under saturated and unsaturated conditions and pore water pressure. Basic knowledge of geological conditions in Sweden and utilization of soil and rock material. Particular emphasis is research methods and skills of interpretation and analysis of geological and hydrological data (maps and charts). The exercises in this section include basic knowledge of mineral, soil and rock and interpretation of geological data.

Furthermore, the course comprises technical infrastructure in society, including facilities for water supply, sewage and waste-

Disposition

The course is taken to large extent together with AE1102.

Specific prerequisites

Basic knowledge of mathematics and physics/chemistry of at least 20 hp. Recommended requirement is knowledge comparable to y1 and y2 in the KTH programme Energy and Environment.

Course literature

* Per-Gunnar Andreasson m fl 2006: Geobiosfären - en introduktion. Studentlitteratur. ISBN: 9789144036700

* Olofsson B. m fl 2011: Naturresursteknik för samhällsbyggare. Compendium, KTH

* Exercise notes and other digital notes put on the course's platform.

Examination

- TEN1 - Written Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Exercises and Excursion, 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.

Written examination (TEN1), 4.5 hp (A,B,C,D,E,Fx,F)

Accepted exercises and excursion (ÖVN1), 1.5 hp (P,F)

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.