



Course syllabus

Teknisk geologi Engineering Geology

VTGA05, 5 credits, G1 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED V

Date of Decision: 2023-03-21

General Information

Main field: Technology.

Compulsory for: W1

Language of instruction: The course will be given in Swedish

Aim

The aim is to present basics of general geology, hydrogeology and engineering geology. The course has a scientific geological base but is also focusing on environmental and ecological aspects including general engineering geology.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to give an account of the most common geological materials - minerals, rocks and soils - especially unconsolidated quaternary deposits of Sweden and their genesis, occurrence, landscape morphology and terrain position, stratification and material properties as permeability and frost properties.
- be able to understand how to read a geological map, how to construct a principal geological section - a type section - and thus describe a rock mass in three dimensions.
- be familiar with the relationship between geological conditions and ecological conditions.

Competences and skills

For a passing grade the student must

- be able to identify the most common minerals, rocks and soils.

Contents

Lectures

Minerals, rocks and soils - genesis, occurrence and properties. Stratification of quaternary glacial deposits and rock mass structures.

Connection between landscape morphology, genesis, material composition, grain size and also soil and rock properties.

Groundwater genesis, occurrence, flow and quality as a function of geological environment. Introduction to field investigations, geological materials in the urban and rural planning and construction processes and geology in civil engineering.

On the connection between geology and ecology, such as mineral chemistry, weathering processes, soil horizon genesis, postglacial geological development and paleoecology. The connection is emphasized as the course Terrestrial Ecology is given parallelly in time.

Exercises

Exercises on soils, minerals and rocks, executed as self study exercises with a limited access of teachers in a semipermanent geological collection available during the entire course. Geological map exercise. Groundwater exercise.

Excursions

1. Engineering geological excursion in Scania for demonstration of geological deposits and their structure, composition and use.

2. Geological-ecological excursion in Scania in co-operation with the parallel course in Terrestrial Ecology in order to show the relationship between geological conditions and terrestrial ecology.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written examination and compulsory excursions.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

The number of participants is limited to: No

The course overlaps following course/s: VGTA01, VTGA01, VTGF05

Reading list

- Conny Svensson: Kompendium i Teknisk Geologi AK. Tryckt av KFS, 2012. Compendium in Swedish only.
- Conny Svensson: Conny Svenssons Ingenjörsgelogiska exkursion. 1996. As a supplement to the course literature, the internet document "Conny Svenssons Ingenjörsgelogiska exkursion" is available at connywww.tg.lth.se.
- Conny Svensson: Geologi och ekologi - några synpunkter. Distribueras av institutionen, 2012. Available only in Swedish.

Contact and other information

Course coordinator: Joakim Robygd, joakim.robbygd@tg.lth.se

Course homepage: <http://www.tg.lth.se/grundutbildning/kurser>

Further information: In the time plan below excursion hours has been presented as laboratory hours (L). A teacher is available about 70 hours in the tutorial sample collection of the geolaboratory for learning discussions.