# Soil Mechanics

Programme course

6 credits

Geoteknik

TNBI71

Valid from: 2017 Spring semester

**Determined by**
Board of Studies for Mechanical Engineering and Design

**Date determined**
2017-01-25

## Main field of study
Civil Engineering

## Course level
First cycle

## Advancement level
G1X

## Course offered for
- Civil Engineering, B Sc in Engineering

## Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites
Building mechanics and strength of materials.

## Intended learning outcomes
After completing the course the student should be able to :

- Describe the significance of soil mechanics in construction.
- Describe the origin of soils.
- Describe the macro- and microstructure of soils.
- Describe methods used for foundation of buldings.
- Describe methods used for geotechnical field investigations.
- Describe methods used for determination of soil properties.
- Explain the significance of total and effective stresses in a ground.
- Calculate and evaluate the bearing capacity and the settlement of a foundation.
- Describe and apply a method to analyse the stability of slopes in soils.
- Describe and apply systems for classification of soils.
- Apply the results of a ground investigation to analyse the foundation of buildings.

## Course content
The origin of soils. Definitions and determination of soil parameters and properties.Classification of soils. Methods for field investigation of the ground. Evaluation of a field investigation. Calculation of the bearing capacity of soils. Settlement of buildings and earthpressures against walls. Slope stability.

## Teaching and working methods
Teaching is done in lectures and a groupwork. The groupwork consists of field investigation, laboratory works and calculations.

## Examination

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|---|---|---|---|
| UPG2 | Project assignment | 2 credits | U, G |
| TEN1 | Written examination | 4 credits | U, 3, 4, 5 |

## Grades
Four-grade scale, LiU, U, 3, 4, 5

## Other information
Supplementary courses: Road and Traffic Engineering, Water supply and Wastewater Technology, Concrete structures and Geo Construction

## Department
Institutionen för teknik och naturvetenskap

## Director of Studies or equivalent
Dag Haugum

## Examiner
Anders Jägryd

## Course website and other links
http://www2.itn.liu.se/utbildning/kurs/index.html?coursecode=TNBI17

## Education components
Preliminary scheduled hours: 58 h
Recommended self-study hours: 102 h

# Course literature

## Additional literature

### Books

Bengt Langesten, *Geotekniska Grundbegrepp*

### Compendia

Anders Jägryd, Kurskompendium i Geoteknik

# Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.