



# FAF3602 Theoretical Rock Mechanics 7.5 credits

Teoretisk bergmekanik

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

## Establishment

Course syllabus for FAF3602 valid from Spring 2019

## Grading scale

P, F

## Education cycle

Third cycle

## Specific prerequisites

Master of Science in civil engineering or similar, with at least one basic course in rock mechanics.

## Language of instruction

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

## Intended learning outcomes

After the course, the student shall be able to:

- Analyse different types of rock support with the ground reaction curve concept, both with respect to deformations, excavations sequences and the time dependent development of shotcrete strength.
- Apply the observational method on tunnel design in combination with the ground reaction curve.
- Analyse and design support for arching stability in blocky rock masses.

## Course contents

The course gives a deep understanding of the theoretical concepts of rock engineering design, focusing on tunnel stability. The course covers advanced application of

- the ground reaction curve concept with elasto-plastic and time dependent material models,
- analysis methods for development of deformations due to the advancing face and the detailed support response of grouted dowels and shotcrete linings,
- application of the ground reaction curve concept in combination with the observational method,
- arching stability of blocky rock masses and design of rock support for these types of failure modes.

## Course literature

The course literature is announced at the beginning of each course round.

## Examination

- PRO1 - Project work, 7.5 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.

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

The project work shall be presented both orally and as a written report.

## 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.