



# AF2003 Structural Engineering, Advanced Course 7.5 credits

Bärverksanalys, avancerad kurs

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

## Establishment

Course syllabus for AF2003 valid from Autumn 2021

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

The Built Environment

## Specific prerequisites

Documented knowledge in Structural mechanics and Structural engineering, 15 ECTS corresponding to the content in courses AF1005 and AF1006.

Eng B/6 according to the Swedish upper secondary school system

## Language of instruction

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

## Intended learning outcomes

The overall aim of the course is to give knowledge and tools for analysis and design of civil structures with special reference to load bearing resistance. After having passed the course the student should be able to

- Describe the behaviour of an arbitrary structure and explain the difference between a statically determinate structure and a statically indeterminate structure.
- Analytically calculate the internal forces in statically indeterminate beams and frames, also with consideration of torsion in plane grids.
- Explain the relation between section forces, stresses and strains within the elastic range.
- Explain and analyse instability phenomena of beams, columns and column systems.

## Course contents

- Statically indeterminate structures.
- Displacement method
- Energy methods
- Stress state in beams and plates due to bending and torsion in the elastic range
- Linear elastic instability of beams and column systems

## Examination

- ÖVN1 - Exercises, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, 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.

## Other requirements for final grade

Passed written exam (4,5 ECTS credits)  
Passed exercises (3 ECTS credits)

## 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.