



# AF1735 Structural mechanics 2 with load analysis 7.5 credits

## Byggnadsmekanik 2 och lastanalys

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

The course syllabus is valid from spring 2024 according to the Head of school decision:  
A-2023-2171, 3.2.2. Decision date: 2023-10-02

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

## 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 students shall be able to calculate the shear stresses in beams, draw NVM diagram for statically determinate frames and sloping beams, analyse simple statically indeterminate beams and calculate the critical load for columns with different boundary conditions. Students shall also be able to calculate characteristic loads and design loads in ultimate state for simple constructions.

## Course contents

- Shear stresses in beams
- Torsion of circular bars
- Statically determinate frames and sloping beams
- Statically indeterminate beams - flexibility method
- Buckling of columns
- Qualitative analysis of beams and frames
- Loading conditions
- Characteristic values for selfweight, imposed load, snow load and wind load
- Calculation of the design load in the ultimate limit state
- Optimization of structures in order to achieve increased sustainability

## Examination

- INL2 - Thesis proposals, 0.5 credits, grading scale: P, F
- TEN2 - Written exam, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- TENA - Written exam, 5.0 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.

## Transitional regulations

Students that have completed TEN1 or INL1 according to earlier exam modules can until spring 2025 be examined in the remaining exam module and are recommended to get in contact with the study counselor.

## 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.