AF1734 Structural mechanics 1 5.0 credits

Byggnadsmekanik 1

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

Establishment

The course syllabus is valid from Autumn 2023 according to the Head of school decision: A-2023-0499, 3.2.2. Decision date: 2023-04-13

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

The course intends to give basic knowledge in structural mechanics.

On completion of the course, the student should be able to:

· Calculate the normal forces in plane trusses with the methods of joints and sections

· Draw NVM diagram for statically determinate beams

· Calculate the normal stresses in beams loaded with transverse and axial forces

· Calculate the normal stresses and deformations in bars subjected to temperature load

Course contents

· Plane force systems

· Resultant of forces and moments

· Equilibrium equations and calculation of the reactions

· Analysis of trusses with the methods of joints and sections

· Normal force, shear force and bending moment diagrams in beams

· Material properties, Hooke's law and thermal effect

· Cross-section properties

· Normal stresses in beams loaded with transverse and axial forces

Examination

• TENA - Written examination, 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.

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

Other requirements for final grade

Grading criteria are announced at the beginning of the course.

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.