ML1201 Strength of Materials, General Course 6.0 credits

Hållfasthetslära, allmän kurs

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

Establishment

The official course syllabus is valid from the autumn semester 2025 as decided by the Faculty Board: HS-2025-0013. Date of decision: 2025-06-09

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

- Approved module TENA and TENB in ML1000
- Approved module statics in ML1101
- Approved module material in ML1200

or

- Approved module TENA and TENB in ML1000
- Approved module statics in ML1101

- Approved module SEM1 in ML16118

Intended learning outcomes

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

- Calculate and dimension uniaxial stress and deformation conditions in structures outgoing from models for slim structures
- Decide the used models applicability and understand approximations
- Decide the used models applicability and have an understanding of approximations and their effect on the results

Course contents

- Quantity, units and dimensions
- Uniaxial stress and deformation analysis
- Material relations. Hooke's law
- Stress – deformation
- Shear stress – deformation
- Uniformly distributed loads
- Section methods. Shear and moment diagrams
- Beam theory, section quantity, planar surface geometry, boundary conditions and beam deflection formulas
- Elastic torsion during circular symmetric sections
- Euler's buckling formula
- Safety factors
- Stress concentrations
- Basic classic fatigue

Examination

- TEN1 - Written examination, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laborations, 1.0 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.

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.