



# ML1201 Strength of Materials, General Course 6.0 credits

Hållfasthetslära, allmän kurs

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

## Establishment

Course syllabus for ML1201 valid from Autumn 2020

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

Completed course ML1000 and approved modules TEN2 in ML1101 and TENA in ML1200  
or  
approved module TEN1 in ML1603 or equivalent

## Language of instruction

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

# 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.