



ML1201 Strength of Materials, General Course 6.0 credits

Hållfasthetslära, allmän kurs

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

Course syllabus for ML1201 valid from Autumn 2011

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

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

- calculate uniaxial stress and deformation states in structures, based on models for slender structures: bars, beams, rivets and sheaves of circular cross section.
- determine where stress concentrations occur
- size the above types of structures (select materials and geometry) by means of the load and the mechanical properties of the material. The sizing may be based on deformation, tensile strength, buckling or classical fatigue.
- determine the applicability of the models that are used and have a conception of made approximations impact on the results

Course contents

- Quantities, units and dimensions.
- Uniaxial stress and deformation analyses
- Material properties. Hooke's law.
- Normal tension - deformation
- Shear tension - deformation
- Distributed loads
- The method of sections
- Beam theory, section quantities, the geometry of plane surfaces, boundary conditions, elementary cases.
- Elastic torsion in circular symmetrical cross-sections.
- Basic classical fatigue

Disposition

Lectures

Laboratory exercises

Course literature

Statics and Mechanics of Materials, 4rd Edition
in SI Units. Hibbeler & Cheong. Prentice Hall,
Pearson Education, Singapore, 2014. ISBN 9789314526043.

Handbok och formelsamling i hållfasthetslära, KTH, Institutionen för Hållfasthetslära.

Examination

- LAB1 - Laborations, 1.0 credits, grading scale: P, F

- TEN1 - 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.

Other requirements for final grade

Approved written exam

Approved laboratory exercises

See course PM

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.