



# SE1055 Strength of Materials and Solid Mechanics, Basic Course with Energy Methods 9.0 credits

Hållfasthetslära, grundkurs med energimetoder

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 SE1055 valid from Autumn 2008

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Mechanical Engineering, Technology

## Specific prerequisites

Calculus II, part 1 + 2, Linear algebra, Differential equations and transform methods II, Mechanics, basic course, Mechanics, advanced course and Vector analysis in Physics, basic course.

## Language of instruction

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

## Intended learning outcomes

After the course, the participant should be able to

- determine stresses and deformations in truss structures, frames and composites using models for rods and beams
- determine stresses and deformations in axisymmetric structures.
- determine the loading applied on a crack.
- be able to determine the applicability of the models above and also understand the order of the approximations included in the models.
- account for energy methods in solid mechanics
- analyse one dimensional dynamic problems

## Course contents

To acquire knowledge about the basic principles and terminology of solid mechanics, mechanical behaviour of engineering materials, methods to solve important types of solid mechanics problems and ability to apply this knowledge for solution of simple problems of practical importance.

## Course literature

B. Sundström, Enaxliga problem. Teknisk balkteori. Hållfasthetslära , KTH, 1994

B. Sundström, Allmänna tillstånd och dimensioneringskriterier, Hållfasthetslära, KTH, 1994

B. Sundström, Svängningar i diskreta system. Hållfasthetslära , KTH, 1994

B. Sundström, Energimetoder. Svängningar i kontinuerliga system, Hållfasthetslära, KTH, 1994

Exempelsamling i hållfasthetslära, KTH, Hållfasthetslära, 2004.

Handbok och formelsamling i hållfasthetslära, KTH, Hållfasthetslära, 1998

## Examination

- LAB1 - Laboratory, - credits, grading scale: P, F
- TEN2 - Examination, 6.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN2 - Hand in Task, 3.0 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.

## Other requirements for final grade

Written exam (TEN2; 6 university credits), passed homework (HEM2; 3 university credits), laboratory (LAB1; 0 university credits).

## 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.