



# ML1214 Solid Mechanics, Advanced Course 7.5 credits

Hållfasthetslära, fortsättningskurs

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

## Establishment

## 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 should be able to

- calculate stress and deformation states in composite structures (trusses and simple frameworks) based on models of slender structures, rods, beams, rivets and cylindrical axles
- calculate stress and deformation states for axisymmetric structures (axles, pipes, pressure vessels)
- choose geometry and dimension for above-mentioned types of structures regarding deformation, plastication, ultimate strength, buckling and lifelength (at repeated load).
- define boundary conditions for an FE (Finite Element) analysis
- judge the applicability of the used models and carry out a plausibility assessment for approximations
- decide where concentrations of stress appear and when a fracture-mechanical analysis is necessary

## Course contents

- Multidimensional stress and deformation analysis
- Equivalent stress
- Hooke's generalised law
- Statically undetermined systems and frameworks
- Fatigue, introduction to fracture mechanics
- Finite Element Methods
- Formulation of boundary values

## Disposition

Lectures

## Course literature

Meddelas senast en månad före kursstart

## Examination

- ÖVN1 - Exercises, 2.5 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.

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

## Other requirements for final grade

Approved written examination  
Approved exercises

Final grades A-F

The Final grade is based on the grade of the written examination

## 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.