MH2060 Materials Properties II 7.5 credits

Materials egenskaper II

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

Establishment

The official course syllabus is valid from the spring semester 2026 in accordance with the decision by the Head of the ITM School: HS-2025-0767. Date of decision: 2025-04-08.

Grading scale

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

Education cycle

Second cycle

Main field of study

Materials Science and Engineering

Specific prerequisites

Knowledge of the mechanical properties of materials equivalent to contents of course MH2056 Materials Properties I.

Language of instruction

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

Intended learning outcomes

After passing the course, the student should be able to:

1. Use stereographic figures to study the origin of deformation textures and analyse the effect of textures on mechanical properties.
2. Identify and analyse advanced deformation mechanisms that arise in special systems or at particular situations.
3. Analyse risks for and consequences of embrittlement and effects from environment and use, on mechanical properties.
4. Evaluate the influence of residual stresses on fatigue life.

In order to analyse the importance of deformation processes for final mechanical properties in different directions in a substance, to analyse risks and consequences of embrittlement through influence from the environment, and to evaluate fatigue life.

Course contents

Mechanical properties:

- For engineering materials, memory metals, metallic glass, intermetals and Hadfield steel
- For materials in corrosive and embrittling environments
- For gradient zones and surface-treated layers
- During combination of corrosion, creep and fatigue

Examination

- INL1 - Hand in exercise, 3.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN2 - Written exam, 4.0 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.

KON1 and KON2 are optional and can when passed replace TEN1.

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.