MH2056 Materials Properties I 7.5 credits

Materials egenskaper I

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

Establishment

Grading scale

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

Education cycle

Second cycle

Main field of study

Materials Science and Engineering

Specific prerequisites

In total 90 higher education credits in the main field of study of Technology.

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. Analyse and apply fundamental principles for deformation of metals.
2. Identify and analyse typical fracture surfaces connected to the fundamental principles of fractures in metals.
3. Apply fundamental models to describe mechanical properties in metallic materials.
4. Assess and evaluate the importance of the mechanical properties of metals in relation to other engineering materials.

In order to:

Provide knowledge and tools to be able to plan, design, produce and criticise metal producing or metal using industry when mechanical properties are of importance.

Course contents

The mechanical properties of metals in the form of:

- Plastic deformation, seen from continuum and crystal plastic perspective
- Dislocations and their properties
- Hardening mechanisms
- Static cracks with application on ductile and brittle fractures.
- Fatigue
- Creep

Examination

- SEM1 - Seminar, 2.0 credits, grading scale: P, F
- TEN2 - Home examination, 5.5 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.

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.