MH1041 Introduction to Materials Characterization 7.5 credits

Introduktion i materialkarakterisering

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

Establishment

The official course syllabus is valid from the autumn semester 2026 as decided by the Faculty Board decision HS-2025-0013. Date of decision: 2025-10-08

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic eligibility.

Intended learning outcomes

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

1. Plan, execute and analyze structural and mechanical characterization of materials.

2. Plan, execute and analyze thermal analysis of materials.
3. Choose suitable sample preparation methods and protocols for various materials characterization tasks.
4. Describe fundamental principles of key materials characterization techniques for engineering materials.
5. Describe state-of-the-art in materials characterization.
6. Choose the right materials characterization method to address specific engineering material's questions.

Course contents

The course covers:

- Sample preparation for materials characterization
- Mechanical testing
- Microscopy
- Spectroscopy
- Diffraction
- Thermal analysis

Examination

- LAB1 - Laboratory work, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB2 - Laboratoty work, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB3 - Laboratory work, 2.5 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.