KF1165 Materials Chemistry and Properties 9.0 credits

Materialens kemi och egenskaper

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

Establishment

The official course syllabus is valid from the autumn semester 2025 as decided by the Faculty Board: PA-2025-0010. Date of decision: 2025-08-27.

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

15 ECTS chemistry, of which at least 6 ECTS organic chemistry.

Intended learning outcomes

After completing the course the student should be able to

1. Define and describe materials with regard to (TEN1)
   Structure

Morphology
Characteristics
Fabrication processes

2. Explain relationships between material structure and properties
3. Suggest and defend a material selection for a given application
4. Develop and design materials and material products with regard to sustainable development.
5. Practically perform, and present in writing, laboratory work in materials chemistry and material production processes.
6. Summarize and evaluate knowledge from material related industry and independently reflect on typical roles and duties of a civil engineer in material related industry

Course contents

The course has as general aim to give a broad and basic knowledge of materials chemistry including polymers, fiber-based materials, composites, hybrid materials, optical and electronic materials.

The course provides advanced knowledge in creating, developing and analysing the structure and properties of the materials, and includes both practical and theoretical parts.

Examination

- TEN1 - Written exam, 7.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1.0 credits, grading scale: P, F
- OVN1 - Study Visits, 1.0 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.

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

Other requirements for final grade

Pass in all parts of the course

TEN1: Pass examination

OVN1: Compulsory attendance for study visits

LAB1: Compulsory attendance for laboratory sessions

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.