



KF1050 Polymeric Materials 7.0 credits

Polymera material

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

Establishment

Course syllabus for KF1050 valid from Spring 2024

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed upper secondary education including documented proficiency in English corresponding to English A. For students who received/will receive their final school grades after 31 December 2009, there is an additional entry requirement for mathematics as follows: documented proficiency in mathematics corresponding to Mathematics A.

And the specific requirements of mathematics, physics and chemistry corresponding to Mathematics E, Physics B and Chemistry A.

Language of instruction

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

Intended learning outcomes

- Describe polymers, using eg molar mass, structure, conformation, configuration, transitions
- Describe common polymerization reactions, such as the general reaction steps and reaction mechanisms
- Using calculations, describe polymers and polymerizations, e.g. molar mass, conversion, composition
- Explain the properties of polymeric materials, e.g. how mechanical and rheological properties depend on the polymer's structure, morphology, processing
- Justify material and process choices for manufacturing polymeric parts
- Relate plastic to its environmental impact with regard to eg degradation, stability and recycling
- Carry out and evaluate laboratory work in polymer technology, including polymer synthesis and processing methods

Course contents

The aim of this course is to introduce the student to polymer materials. Polymer materials is today a common material used in all fields of applications. Polymer materials with a wide variety of properties can be produced and the properties be tailored with respect to the end-use demands. Basic material knowledge and concepts for material groups in different technique areas is of importance also for engineers not directly involved in material selection processes. The present course describes the production, characterization, physical, chemical, and mechanical properties of polymers on a general basic level.

Examination

- LAB1 - Laboratory, 2.0 credits, grading scale: P, F
- SEM1 - Seminar, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN2 - Written exam, 3.0 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.

Transitional regulations

The course had the following moment division up to and including Spring 2023

- LAB1 - Laborations/Laborations, 2.0 credits, grading scale: P, F
- TEN1 – Written exam/Written exam, 5 credits, grading scale: A, B, C, D, E, Fx, F

The course will have the following module division Spring 2024

- LAB1 - Laborations/Laborations, 2.0 credits, grading scale: P, F
- SEM1 - Seminar/Seminar, 2.0 credits, grading scale: A, C, E, Fx, F
- TEN2 – Written exam/Written exam, 3 credits, grading scale: A, B, C, D, E, Fx, F

A new course with the course code CK1050 will be set up, which will have the following module division from and including Spring 2025

- LAB1 - Laborations/Laborations, 2.0 credits, grading scale: P, F
- SEM1 - Seminar/Seminar, 2.5 credits, grading scale: A, C, E, Fx, F
- TEN1 – Written exam/Written exam, 3 credits, grading scale: A, B, C, D, E, Fx, F

Students must contact the examiner for information about seminars and exams.

- Module TEN1 – after the course has ended, the written exam will be given four times during the following two years [1) reexam period in Aug Autumn 24 2) exam period 4 Spring 25 3) reexam period in Aug Autmn 25 4) exam period 4 Spring 26]
- SEM1 – after the course ends, the seminar will be given twice in the following two 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.