KF2140 Polymer Physics 7.5 credits

Polymerfysik

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

Establishment

Course syllabus for KF2140 valid from Autumn 2023

Grading scale

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

Education cycle

Second cycle

Main field of study

Chemical Science and Engineering, Chemistry and Chemical Engineering

Specific prerequisites

Bachelor's degree in engineering or in sciences including 75 credits in chemistry or chemical engineering, English B/6.

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:

- Explain concepts and solve problems connected to polymer physics
- Describe the behavior of polymers based on their structure and physical state
- Perform laboratory work to characterize polymers by experimental techniques and basic computer simulations
- Present and evaluate laboratory work in written and orally
- Reflect over the sustainability of materials

Course contents

Conformation and configuration. Molecular weight and its determination. The behavior of polymers in solution. Blends and multicomponent systems. Crosslinked polymers and rubber elasticity. Amorphous state and glass transition. Morphology and crystalline state. Modeling and simulation of polymers. Sustainability of materials. Degradation of polymers.

Examination

- LABA - Laboratory work, 3.0 credits, grading scale: P, F
- TENA - Written exam, 4.5 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.

Other requirements for final grade

Active participation in all compulsory activities as specified in Course information.

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.