KD2410 Imaging Tools of Chemistry 6.0 credits

Kemins avbildningsmetoder

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

Establishment

Course syllabus for KD2410 valid from Autumn 2011

Grading scale

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

Education cycle

Second cycle

Main field of study

Chemical Science and Engineering

Specific prerequisites

_Admission requirements for programme students at KTH:
_At least 150 credits from grades 1, 2 and 3 of which at least 110 credits from years 1 and 2, and bachelor's work must be completed, within a programme that includes:
75 university credits (hp) in chemistry or chemical engineering, 20 university credits (hp) in mathematics and 6 university credits (hp) in computer science or corresponding.

_Admission requirements for independent students:
_75 university credits (hp) in chemistry or chemical engineering, 20 university credits (hp) in mathematics and 6 university credits (hp) in computer science or corresponding.
Documented proficiency in English corresponding to English B.

Language of instruction

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

Intended learning outcomes

After the completed course the student must be able to;

- identify and explain the basic physical phenomena and mathematical principles that underlie different imaging methods such as AFM, MRI, confocal microscopy and electron microscopy.
- identify, classify, and analyse the mathematical methods such as Fourier and Radon transformation that are used for producing and analysing images.
- explain and calculate how the basic principles define the performance such as sensitivity and resolution of selected methods.
- describe and exemplify the applications of selected methods in chemistry and chemical engineering.
- identify and explain the choice of imaging methods most suitable for selected chemical problems.
- perform selected imaging experiments.

Course contents

The course includes independent project work that can be chosen to be either experimental or theoretical in character.

Disposition

Lectures and classroom exercises.
Project presentation days (two half days), and experimental work in non-scheduled groups.

Course literature

Utdelat kursmaterial.

Examination

- PRO1 - Project, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 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

Examination (TEN1; 4,5 credits)
Project work (PRO1; 1,5 credits)

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.