FCK3104 Devices from Macro-molecules and Nanomaterials 7.5 credits

Interaktiva enheter från makromolekyler och nanomaterial

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

Establishment

Course syllabus for FCK3104 valid from Autumn 2020

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Eligible for studies at the third-cycle level

Language of instruction

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

Intended learning outcomes

After completion of the course the doctoral student should have the ability to:

- Understand and explain fundamental principles for some classes of functional macromolecules and nanomaterials and give examples on how they can be used to fabricate functional devices.
- Present, critically evaluate, and discuss in depth scientific articles presented in the course.
- Identify, discuss, and reflect upon selected aspects of sustainability and scientific ethics coupled to some of the functional devices that are discussed in this course.

Course contents

- Introduction and definition of the next generation electrooptical devices, difference in comparison with CMOS, and their potential in solving problems for a sustainable society and for fundamental science.
- Fundamentals of electrooptical macromolecules and nanomaterials.
- Introduction to device fabrication with classification of different techniques and their possibility to achieve structural units at different length scales, necessary for devices. In depth description of different manufacturing techniques.
- In depth description and examples of different devices.

Examination

- TEN1 - Oral examination, 4.5 credits, grading scale: P, F
- LIT1 - Literature assignment, 3.0 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.

Participation in lectures, and 2 weeks of studies of supplied literature, which is examined continuously, and a passed oral

Other requirements for final grade

Compulsory presence during the lectures and literature study is credited as 3.0 ECTS, and the passed oral exam as 4.5 ECTS.

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.