FCK3301 Radiation induced synthesis of organic and inorganic nanoparticles 3.0 credits

Strålningsinducerad syntes av organiska och oorganiska nanopartiklar

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

Establishment

Course syllabus for FCK3301 valid from Spring 2019

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 completed the course the student will be able:

- To describe fundamental radiation chemistry in water, how to control radiation-induced reactions and how radiation chemistry can be used to synthesize organic and inorganic nanoparticles. (TEN1).
- To orally and in written form account for how chemical composition, size and shape can be controlled in radiation induced synthesis of a specific nanoparticle. (PRO1).

Course contents

Nanoparticles – Synthesis and applications (in general)

Interactions between ionizing radiation and matter

Basic radiation chemistry

Radiation chemistry of water

The radiation chemical toolbox

Radiation induced synthesis of organic nanoparticles

Radiation induced synthesis of metallic nanoparticles

Radiation induced synthesis of metal oxide nanoparticles

Disposition

The course consists of lectures16 h, seminars 4 h, written exam 4 h and independent work 40 h (studies and project)

Course literature

Handouts (research papers).

Examination

- TEN1 - Written exam, 2.0 credits, grading scale: P, F
- PRO1 - Project, 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.

Grading criteria are specified in the course PM.

Other requirements for final grade

Learning outcomes completely fulfilled (PRO1, 1 ECTS, TEN1, 2 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.