



KD2170 Nano-structured Materials 7.5 credits

Nanostrukturerade material

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

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for KD2170 valid from Autumn 2017

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

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:

50 university credits (hp) in chemistry or chemical engineering, 20 university credits (hp) in mathematics and 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 completing the course you shall be able to:

- Describe what a nanostructured material is
- Describe nanostructured materials that can be found in nature and in technology
- Describe different methods for preparation of nanostructured materials
- Describe self-association phenomena that lead to formation of nanostructured materials
- Describe the unique physical properties that arise in nanostructured materials and why they appear
- Describe how the unique properties of nanostructured materials are used in nature and technology
- Describe some different characterization methods for nanostructured materials

Course contents

The course is focused on describing different types of nanostructured materials, and to provide explanations to the unique properties of nanostructured materials. The nature is full of nanostructured materials with fascinating organization and function. Some of these will be described with emphasis on structure-function relationships. Similar nanostructures and their use in some current technology areas will also be addressed. Self-association phenomena, preparation methods, and characterization methods will be discussed.

Course literature

Meddelas på första lektionen.

Examination

- LAB1 - Laboratory Course, 1.5 credits, grading scale: P, F
- PRO1 - Project, 1.5 credits, grading scale: P, F
- TEN1 - 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.

Other requirements for final grade

Examination (TEN!; 4,5 credits)

Project (PRO1; 1,5 credits)

Laboratory course (LAB1; 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.