KD2160 Structural Chemistry 7.5 credits

Strukturkemi

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

Establishment

Course syllabus for KD2160 valid from Spring 2011

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 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.

**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.

Language of instruction

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

Intended learning outcomes

To give an introduction to the structural chemistry of organic and inorganic compounds.

To understand how the structures are influenced by the geometry of their building blocks.

To understand how complicated structure types can be built starting from simple structural principles.

To understand and to be able to explain the relationships between different structure types.

To be able to explain the properties of solid compounds starting out from their structure

Course contents

- The crystalline state and description of crystal structures
- Ionic radii and simple ionic structures
- The VSEPR model and structures of compounds of the main-group elements
- transition metals and lignad field theory
- structures of non-metallic elements
- polyanionic and polycationic structures
- close packings and metal structures
- structures of molecular compounds
- structures of polymeric compounds
- physical properties of solid compounds
- symmetry as a ordering principle in solid phasesstructure
- determination: diffraction methodsstructure
- determination: spectroscopic methods

Course literature

Anthony R. West: Basic Solid State Chemistry, 2nd edition, Wiley, 2000.

Examination

- PRO1 - Project, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Course, 1.5 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.

Other requirements for final grade

Examination (TEN1, 4,5 credits)
Completed laboratory course (PRO1,1,5 credits)
Project (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.