



KD1140 The Concepts of Chemistry 6.0 credits

Kemiska koncept

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 KD1140 valid from Autumn 2007

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

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, select and explain which concepts are involved in which way in chemical phenomena.
- explain, on a quantum mechanical basis, the basic properties of atoms and molecules.
- identify and explain the basic forms of intermolecular interactions and how those determine the phase behavior of material.
- explain and calculate the thermodynamic, kinetic, and electrochemical characteristics of simple chemical reactions.
- recognize simple chemical compounds both by name and by chemical formula, recall their basic properties and how those lead to applications.
- classify and evaluate the feasibility of simple organic reactions and describe their structural results.

Course contents

The course present the fundamental concepts of chemistry:

- The building blocks of matter: atoms, molecules, ions.
- Chemical bond = electrostatics + quantum mechanics.
- Molecular shapes
- Molecules in motion and in interactions: intermolecular forces and kinetics.
- Reorganisation of atoms, molecules, and crystals: chemical reactions.
- How molecules affect you and all others: energy and entropy.

Course literature

P. Atkins and L. Jones, Chemical Principles: The Quest for Insight, 4th ed., Freeman.

Examination

- TEN1 - Examination, 6.0 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

1. Written examination, TEN1; 6 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.