KD1510 Chemical Equilibrium 6.0 credits

Kemisk jämviktslära

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 KD1510 valid from Spring 2016

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completion of upper-secondary school by 1 July 2011 and adult education at the upper-secondary level (gymnasium) by 1 July 2012 Specific entry requirements: mathematics E, physics B and chemistry A. Passed or 3 in each of the subjects is required.

Upper-secondary school from 1 July 2011 and adult education at upper-secondary level (gymnasium) from 1 July 2012 (Gy2011) Specific entry requirements: Physics 2, Chemistry 1 and Mathematics 4. A pass in each of the subjects is the lowest acceptable grade.

Language of instruction

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

Intended learning outcomes

On completion of the course, the student should be able to:

1. set up an equilibrium equation for acid-, basis-, gas-, solubility-, complex- and redox reactions and calculate equilibria with appropriate approximations

2. identify phase equilibria and assess when the equilibrium concept is applicable

3. review how striving for equilibrium can be used to extract energy in different forms

4. from the principles of chemical equilibria explain flows of chemical substances in nature and in biochemical systems, and clarify the consequences of disturbances in equilibria of the systems

5. use computer programs to solve equilibrium problems

6. carry out wet chemical laboratory work and apply equilibrium concepts, for example, in analyses and separations

7. be familiar with routines and measures for a safe handling of chemicals.

Course contents

In the course, equilibria in nature and in closed system are analysed through calculations and laboratory investigations.

Course literature

1. Burrows, Holman, Parsons, and Pilling, Chemistry3, Oxford,

2. Collected works in chemical equilibrium

3. Supervision in the practical aspects of chemical equilibria

Examination

- LAB1 - Laboratory Exercises, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 3.0 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

All parts in the course should be approved

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.