



KD2370 Photo, Radiation and Radical Chemistry 7.5 credits

Foto-, strålnings- och radikalkemi

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

Establishment

Course syllabus for KD2370 valid from Spring 2025

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

Completed degree project 15 credits, 50 credits in chemical engineering or chemistry, 20 credits in mathematics and 6 credits in computer science/programming. English B/ 6.

Language of instruction

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

Intended learning outcomes

After completion of the course the student will be able to:

- Describe fundamental photochemical and radiation chemical processes both qualitatively and quantitatively, describe the properties and reactivity of radicals and how these are connected to the structure of radicals as well as account for the importance of radicals in industrial processes and in biological systems.
- Plan and execute experimental studies of simpler systems within the field of photo-, radiation- and radical chemistry, and have the ability to evaluate the experimental results.
- Orally describe and discuss published research within a limited part of the course content.

Course contents

- Fundamental photochemistry and radiation chemistry
- Photochemistry and radiation chemistry at interfaces
- Different types of radicals and their reactivity
- Chemical and physical properties of radicals
- Mechanisms and kinetics of radical reactions
- Production of radicals
- Methods for studies of radical reactions and characterization of radicals
- Radicals in biological systems
- Radicals in technical systems

Examination

- PRO1 - Project, 1.0 credits, grading scale: P, F
- TEN1 - Examination, 5.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laborations, 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.

Other requirements for final grade

Laboratory work (LAB1; 1 hp)

Project work (PRO1; 1 hp)

Examination (TEN1; 5,5 hp)

Final grade will be the same as the grade from examination.

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.