



KD2370 Photo, Radiation and Radical Chemistry 7.5 credits

Foto-, strålnings- och radikalkemi

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 KD2370 valid from Spring 2019

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.

Minst 150 högskolepoäng från årskurs 1, 2 och 3 varav minst 110 högskolepoäng från årskurs 1 och 2 samt kandidatexamensarbete måste vara avklarade, inom ett program som innehåller:

75 högskolepoäng (hp) inom kemi eller kemiteknik, 20 hp matematik och 6 hp programmering eller motsvarande.

Language of instruction

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

Intended learning outcomes

After the course, the student should be able to:

- Describe fundamental photochemical and radiation chemical processes qualitatively and quantitatively.
- Describe the properties and reactivity of radicals as well as the impact of radicals in technical and biological systems.
- Explain relationships between radical structure, properties and reactivity
- Apply these relationships on more complex systems

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

Course literature

An Introduction to Free Radical Chemistry, Andrew F. Parsons, Blackwell Science och utdelat material

Examination

- LAB1 - Laborations, 1.0 credits, grading scale: P, F
- PRO1 - Project, 1.0 credits, grading scale: P, F
- TEN1 - Examination, 5.5 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

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.