



KE2051 Environmental Catalysis 7.5 credits

Miljökatalys

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 KE2051 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

Specific prerequisites

Completed degree project 15 credits, 50 credits in chemistry and chemical engineering, 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

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

- Compare experimental characterization methods for catalysts and surfaces (TEN1, LAB1)
- Explain the atomic/molecular basis of catalysis and catalyst deactivation (TEN1, LAB1)
- Describe methods for the synthesis of catalysts (TEN1, SEM1)
- Describe applications of catalysis for environmental protection (SEM1, TEN1)

Course contents

Characterization of emissions

Characterization of catalysts and catalytic reactions

Emissions standards and test cycles

Exhaust gas catalysts and system design

Catalysis in oil refining

Design of catalytic reactors

Emerging technologies in environmental catalysis

Hydrogen generation and fuel cells

Examination

- LAB1 - Laboratory work, 1.5 credits, grading scale: P, F
- SEM1 - Seminars, 3.0 credits, grading scale: P, F
- TEN1 - Written exam, 3.0 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.

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.