



FCK3501 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 FCK3501 valid from Spring 2021

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Eligible for studies at the third-cycle level and Passed on the courses KE1175, KE1160 alternatively MF2015, MF2016 or equivalent knowledge.

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 doctoral student should be able to:

- assess air pollution problems in industry and in the society
- propose a suitable sustainable method to reduce emissions of hazardous substances from mobile or stationary sources from given data
- analyze various emission sources, both mobile and stationary, and determine their impact on society
- explain the role of the catalyst in environmental catalysis and identify its constraints

Course contents

- characterization of emissions
- health effects, pollutant formation
- test cycles
- emission standards
- influence of fuel on emissions
- exhaust gas catalysts for different kinds of vehicles
- system architecture and system design for exhaust treatment
- control of stationary emissions (VOC, NO_x, SO_x)
- catalysis in oil refining
- production of motor fuels with low content of sulfur and aromatics including biofuels
- hydrogen generation for fuel cell vehicles and fuel cell vehicle technology
- design of catalytic reactors
- new emerging reactor technologies in environmental catalysis

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.

Mandatory presentation as part of requirement for SEM1. Also approved report is mandatory. Approved report for the laboratory assignment is mandatory for LAB1.

Transitional regulations

If the examination form is changed, the student will be examined according to the examination form that applied when the student was admitted to the course. If the course is completed, the student is given the opportunity to be examined on the course for another two academic years.

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.