F3C5619 Environmental Catalysis 6.0 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 F3C5619 valid from Spring 2014

Grading scale

undefined

Education cycle

Third cycle

Specific prerequisites

Master in Chemical Engineering or Combustion Engines Course or equivalent knowledge

Language of instruction

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

Intended learning outcomes

The course gives an in-depth knowledge of modern emission reduction technologies using catalytic methods. The course includes subjects such as characterization of emissions, health effects, introduction about internal combustion engines and their history, pollutant formation, test cycles, emission standards, influence of fuel on emissions, motor fuel history, exhaust gas catalysts for different kinds of vehicles, control of stationary emissions (VOC, NOx, SOx), design of units for abatement of nitrogen oxides and VOC, catalytic combustion, production of motor fuels with low content of sulfur and aromatics, hydrogen generation from various fuels for fuel cell vehicles and for emission abatement, market aspects, and green production.

Course contents

The course gives an overview of chemical processes that employ catalysts to control the emissions of environmentally unacceptable compounds and the course also covers processes which eliminate the formation of such substances. A special emphasis will be put on abatement of emissions from mobile sources. New and emerging catalytic technologies will be given special attention. The general concepts will be covered in lectures, while detailed studies will be performed in supervised seminar assignments. The assignments cover current problems in industry or in the society. These will be presented orally at seminars as well as in a technical paper. The entire course is given in English.

Course literature

Heck, R. M.and Farrauto, R. J. **Catalytic Air Pollution Control**, 2nd ed., John Wiley, New York, 2002, kompletterat med utdelade aktuella vetenskapliga artiklar.

Heck, R. M. and Farrauto, R. J. **Catalytic Air Pollution Control**, 2nd ed., John Wiley, New York, 2002, supplemented with hand-outs of recent scientific papers.

Examination

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.

TEN1 - Examination, 3.0 credits, grade scale: A, B, C, D, E, FX, F

ÖVN1 - Seminars, 3.0 credits, grade scale: P

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.