FCK3505 Industrial Catalytic Processes 6.0 credits

Industriella katalytiska processer

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

Establishment

Course syllabus for FCK3505 valid from Spring 2022

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Eligible for studies at the third-cycle level.

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 doctoral student should have the knowledge and ability to:

- apply the fundamentals of catalysis and catalytic processes with its practice, and to be able to apply the fundamentals of catalysis and their applications in solving industrial problems, for example, designing catalysts, reactors, and process models which requires a detailed knowledge of reaction kinetics and mechanisms.
- present and motivate orally own project results, and critically evaluate own and others' presented project results.
- reflect on the selected scientific problem with respect to environmental, human or societal aspects.

Course contents

- Fundamental catalytic phenomena
- Catalyst materials, properties and preparation
- Catalyst characterization
- Reactor design and activity testing
- Catalyst deactivation, causes, mechanisms and treatment
- Industrial practice, hydrogen production, hydrogenation and dehydrogenation, catalytic oxidations, refining and processing,
- Environmental catalysis, mobile and stationary sources, and fuel cells

Examination

- SEM1 - Seminars, 6.0 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

Participation in 85% of the seminars, or if not, hand in extra material for each seminar missed.

Performed a presentation of a catalyst topic for example: characterization, reactor design, catalyst preparation technique and actively oppose on other presentations

Briefly present one topic or question from each chapter, each time. Maximum 5-10 min.

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.