



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Kemitekniska processer

Chemical Engineering Processes

KETF20, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED B/K

Date of Decision: 2023-04-18

General Information

Elective for: K4-p, W4-p

Language of instruction: The course will be given in English on demand

Aim

The chemical process industry is changing to adapt from the feedstock situation of yesterday, mainly characterized by finite resources, to a more sustainable production. Catalysts oftentimes play a central role in this change.

The aim of the course is to give an overview and an insight into the modern chemical process industry, its development and future. By using existing processes as examples, the student is prepared to make process choices from not only a technical and economical standpoint, but also from an environmental one. The course also gives an introduction to catalysis as a field, with the purpose of equipping the student with tools for discussing catalysts choices for a process, existing or new, with a catalyst supplier as well as understand the development process of a new catalyst

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to describe the main features of the development of the chemical process industry on a national and international level
- be able to explain the connections between feedstock, processes and product in the process examples given in the course
- be able to define the central concepts in catalysis and their industrial relevance

- be able to explain how to work from a feedstock to a process.

Competences and skills

For a passing grade the student must

- be able to analyze an existing process and decide how future change in rawmaterial may influence the process
- be able to decide the technology readiness level of a process and in general terms suggest a development path to a finished process as well as report it in writing.

Contents

The course has its starting point in yesterday's raw materials and describes the development through the petrochemical revolution to the chemical process industry of today. In the course yesterday's feedstock situation, characterised by finite resources, what changes that has already happened and what future changes that are required for a more sustainable production,.

The course contains the following sections: historic development of the process industry, cataysis, common feedstocks in the process industry, refinery processes, production of organic and inorganic chemcials, specialty chemicals, biotechnical process as well as paper and pulp production.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written examination and project assignments. The grade is based on the written examination.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0113. **Name:** Chemical Engineering Processes.

Credits: 5,5. **Grading scale:** TH. **Assessment:** Written examination

Code: 0213. **Name:** Project Assignment.

Credits: 2. **Grading scale:** UG. **Assessment:** Project assignments

Admission

Assumed prior knowledge: KETF25 Reaction engineering or KETF40/KTE170 Mass Transfer Processes in Environmental Engineering

The number of participants is limited to: No

The course overlaps following course/s: KET040, KTE055

Reading list

- Moulijn, J.A.; Makkee, M.; van Diepen A.: Chemical Process Technology, 2nd Edition. John Wiley & Sons, Ltd., 2013, ISBN: 978-1-4443-2025-1.
- Hulteberg, C.: Chemical Engineering Processes, Course compendium. 2015.

Contact and other information

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Course homepage: <https://www.ple.lth.se/en/>