



Course syllabus

Faculty of Technology

Department of Built Environment and Energy Technology

1BT014 Kemisk teknologi, 7,5 högskolepoäng

Chemical Engineering, 7.5 credits

Main field of study

Bioenergy Technology

Subject Group

Energy Technology

Level of classification

First Level

Progression

G1F

Date of Ratification

Approved 2014-08-12

Revised 2018-04-23 by Faculty of Technology. Removal of ECTS-grading scale.

The course syllabus is valid from autumn semester 2018

Prerequisites

Mathematics corresponding to 1MA131 and 1MA132 "Basic Mathematics for Engineers" and "Calculus for Engineers" and the knowledge of basic chemistry equivalent courses 1KT002 and 1KT003 "Chemical Engineers" and "Biotechnology" or the equivalent.

Objectives

After completing the course the student is expected to

- Be well acquainted with chemical and energy engineering as well as the chemical terminology and formulae used in the area,
- Be oriented of such processes used for separation through mechanical sorting or phase separation,
- Be well acquainted with transport phenomena, unit operations and heat- and mass balances and be able to use this knowledge to describe and explain fundamental chemical processes,
- Understand fundamental transport phenomena between phases and be able to apply this knowledge for gas absorption, adsorption and stripping processes,
- Understand the properties with ideal reactors and be able to model such reactors for gas phase and liquid phase. The student shall also be able to use some selected method to model non-ideal liquid-phase reactors,
- Be able to apply the knowledge described above for dynamic simulations of non-stationary reactors.

Content

The course consists of the following:

- Process schemes and unit operations
- Mass- and energy balances
- Particle dynamics
- Diffusion
- Film theory
- Gas absorption, adsorption and stripping
- Equilibria, mass transfer and methods to mass transfer coefficients in gas absorption
- Ideal reactors
- Non-ideal reactors
- Modelling reactors for gas- and liquid phase
- Process flow simulation techniques

Type of Instruction

Lectures, exercises, computer exercises and laboratory work. Information on compulsory elements is given at the course start.

Examination

The course is assessed with the grades U, 3, 4 or 5.

Assessment of student performance usually takes place during special examination periods and will be done through project work, laboratory work, assignments and written examinations. Examination will be both written and oral.

Course Evaluation

A written course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The course evaluation will be filed at the department.

Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: Overlaps totally with the course 1BT006.

Other

On request, a Swedish University course certificate will be awarded upon successful completion of the course.

Required Reading and Additional Study Material

Compendium supplied from the department.