Linnæus University

Jnr: 2014/1745-3.1.2

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 by Faculty of Technology 2014-08-12
The course syllabus is valid from spring semester 2015

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.
On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

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
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.