



# KE2045 Chemical Reaction Engineering 7.5 credits

Kemisk reaktionsteknik

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

## Establishment

Course syllabus for KE2045 valid from Spring 2020

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Chemical Science and Engineering

## Specific prerequisites

Courses corresponding to the Bachelor programme Engineering chemistry at KTH or equivalent.

## 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 student should be able to:

- Describe ideal reactors and their characteristics
- Develop mathematical expressions (models) to describe the behaviour of reactors and analyse how kinetics, mass- and heat transfer affect the performance of reactors.
- Apply analytical and numerical methods to determine reactor behaviour and analyse the results
- Design/Size chemical reactors and optimise operating conditions
- Apply RTD (residence time distribution) methods to diagnose non-ideal flows in reactors and calculate conversions in non-ideal reactors.

## Course contents

This course introduces students to chemical reaction engineering and reactor design. The aim is to give the students an enhanced understanding of the theory of chemical reactors and enhanced skill in formulation and analysis of mathematical models in chemical reaction engineering. The class problems and the computer laboratory exercises aim to enhancing problem solving skills both with and without computer usage.

## Examination

- BER1 - Home and classroom problems, 3.0 credits, grading scale: P, F
- TEN1 - Written exam, 3.0 credits, grading scale: P, F
- LAB1 - Laboratory work, 1.5 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.

The final grade of the course is determined based on an algorithm described in the course-PM.

## 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.