



# KE2190 Experimental Process Design 6.0 credits

Experimentell processdesign

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

## Establishment

Course syllabus for KE2190 valid from Autumn 2010

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Chemical Science and Engineering, Chemistry and Chemical Engineering

## Specific prerequisites

\*\*Admission requirements for programme students at KTH:

\*\*At least 150 credits from grades 1, 2 and 3 of which at least 110 credits from years 1 and 2, and bachelor's work must be completed, within a programme that includes:  
75 university credits (hp) in chemistry or chemical engineering, 20 university credits (hp) in mathematics and 6 university credits (hp) in computer science or corresponding.

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

The overall aim is to provide a basic knowledge about the design and analysis of chemical reaction processes in laboratory scale.

After passed course the student is expected to be able to plan and realize laboratory experiments in an independent manner, using chemical reactors of different kinds.

After the course the student should be able to

- have on hands experience and be able to carry on laboratory projects in a head position.
- configure lab experiments in an optimal way, thus enabling a successful accomplishment of the experiments needed.
- build up an experiment-equipment from scratch, including equipment for measurement of reactant quantities, possible equipment for vaporization, reactor with equipment for temperature control, possible holder for catalyst, equipment for product separation and analyzing equipment.
- work up received experimental data and to present the results in a way that fulfils requirements on technical reports and publications in regard of disposition, clarity and for necessary documentation for possible reproduction.
- have knowledge concerning risks for the lab personnel and about routines for handling environmental harming wastes from the laboratory.

## Course contents

The course applies earlier learned knowledge about mass and energy balances and kinetic models for calculation of chemical reactors.

The laboratory course is such that skills and knowledge gained is useful by analogy when solving problems typical for the chemical industry or for research.

Methods for measurement of flows of gas and liquids, vaporisation of reactant liquids as well as measuring of temperatures in laboratory reactors.

Choice of chemical reactor and of running conditions for the chemical reactor and derivation of their model equations.

Technical analysis. Methods for process development and analysis, by experiments in laboratory scale, plan and evaluate a sampling procedure ,

Writing of a technical reports

## Course literature

Scientific papers related to the selected laboratory experiments.

## Examination

- LAB1 - Laboratory Work, 6.0 credits, grading scale: A, B, C, D, E, FX, 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

Laboratory Work (LAB1; 6.0 hp)

## 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.