KE2331 Pharmaceutical Technology 7.5 credits

Läkemedelsteknologi

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

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for KE2331 valid from Autumn 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Chemical Science and Engineering

Specific prerequisites

Courses in thermodynamics, chemical process engineering, transport processes, transport processes advanced course, or equivalent. E.g KE1160, KE1175, KE1170 and KE2070.

Language of instruction

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

Intended learning outcomes

After the course the student should be able to:

- describe a batchwise production plant for production of pharmaceuticals and explain the benefits and drawbacks of this mode of production
- describe the mechanisms and performance of unit operations like agitation and mixing, crystallization, drying and chromatography in production of pharmaceuticals
- describe excipients and their function in pharmaceutical dosage forms
- describe manufacturing of pharmaceutical dosage forms, and the mechanisms and performance of important pharmaceutical unit operations
- acquire and evaluate information from technical/scientific litterature and other sources of information for the purpose of developement and design of new processes, or for improvement or trouble shooting of current processes
- plan, design and perform experiments to develop and design new processes, or for improvement or trouble shooting of current processes
- perform calculations over design, performance, operation and scaleup/scaledown of unit operations
- analyse processes and propose safe, sustainable, technically feasible and economically viable process improvements or solutions to process problems

Course contents

The course focuses on manufacturing of pharmaceuticals, and cover in particular separation processes in the manufacturing of the active pharamaceutical ingredients and pharmaceutical unt operations for solid dosage forms. The course focuses on batch processing and agitated tank operations, in multipurpose multiproduct plants with emphasis on the influence of physico-chemical and processing conditions on process result and product properties. The course gives a detailed description and analysis of crystallization, agitation and mixing, distillation, drying extraction and chromatography under these conditions. The course then continues with a description of in particular solid oral dosage forms, pharmaceutical excipients, and important pharmaceutical unit operations lika granulation, grinding and tabletting.

Examination

- LIT1 - Literature review, 1.5 credits, grading scale: P, F
- TEN1 - Written exam, 6.0 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.

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.