



FBB3490 Cultivation technology, third level course 7.5 credits

Odlingsteknologi, doktorandkurs

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 FBB3490 valid from Autumn 2016

Grading scale

Education cycle

Third cycle

Specific prerequisites

Basic level courses in biochemistry, mathematics and chemistry corresponding to similar courses in the undergraduate teaching programme in Biotechnology at KTH.

Language of instruction

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

Intended learning outcomes

The overall goal with the course is to give the student an understanding of how to design a bioprocess in all its parts (the product recovery excluded). This understanding should be deep enough for the student to independently design a process for production of a typical bioproduct category. This includes the choice of an appropriate microorganism, the calculations of the medium composition and performance of the cultivation technique in such a way that the process can be successfully run at the lab.

Course contents

The historical development of Biotechnology. Production organisms and common bioproducts. Media. Kinetics. Bioreactors. Analyses in cultivation processes. Agitation and rheology. Aeration and oxygen transfer. Cultivation technology concepts. Lab course and simulation exercise.

Disposition

The course is based on a number of lectures (approx. 13 lectures) during seven weeks. Each week ends with a discussion seminar (workshop) to deepen the understanding of the theory. The cultivation concepts are further treated practically in a lab course (batch and fedbatch) and in a simulation exercise (continuous cultivation). The course contains also a study visit at the Swedish Yeast company to show a large industry in the field. Literature study on one of the areas of the course.

Course literature

"Cultivation technology", by Gen Larsson (compendium)

Examination

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.

Other requirements for final grade

Approved simulation exercises. Approved lab course. Participation in the study visit.

Approved written literature study and an oral presentation at the division.

Approved final examination.

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.