



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Bioprocesssteknik

Bioprocess Technology

KBTF15, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED B/K

Date of Decision: 2023-04-18

General Information

Main field: Technology.

Main field: Biotechnology.

Compulsory for: B3, MBIO1

Elective for: W4-p

Language of instruction: The course will be given in English on demand

Aim

To give a basic knowledge of the use of biocatalysts in process technology.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- understand the connection between microbial growth and product formation and mass transfer,
- understand the connection between microbial growth and product formation and the environment,
- understand different modes of operations for bioreactors and their advantages and disadvantages,
- have an overview of the bioprocess from raw material to product,
- have basic knowledge of the use of enzymes.

Competences and skills

For a passing grade the student must

- be able to carry out, evaluate and report a biotechnological process in laboratory scale

- be able to carry out mass balancing calculations over bioreactors.

Judgement and approach

For a passing grade the student must

- have knowledge of questions related to biosafety.

Contents

Fermentation technology incl. microbial kinetics and mass balances, substrates, industrial microorganisms, sterilization, biosafety and mass transfer. Measurement and control. Bioreactors. Enzyme technology. Downstream processing. Practical in cultivation technology.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written exam. Written report.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0117. **Name:** Bioprocess Technology.

Credits: 6. **Grading scale:** TH. **Assessment:** Written exam.

Code: 0217. **Name:** Laboratory Work.

Credits: 1,5. **Grading scale:** UG. **Assessment:** Written report.

Admission

Admission requirements:

- KBKA05 Technical Biology or KMBA01 Microbiology or KMBF01 Molecular Cell Biology

Assumed prior knowledge: KETF25 Reaction Engineering.

The number of participants is limited to: No

The course overlaps following course/s: KBT115, BLT010, KBT070

Reading list

- Larsson, G.: Cultivation Technology. KTH.
- Handouts.

Contact and other information

Course coordinator: Carl Grey, Carl.Grey@biotek.lu.se

Course coordinator: Javier Linares-Pastén , javier.linares-pasten@biotek.lu.se

Course homepage: <http://www.biotek.lu.se/KBTF15>