LUND UNIVERSITY

LTH
FACULTY OF ENGINEERING

Programme Syllabus

Master's Programme in Biotechnology

- Faculty: Faculty of Engineering, LTH
- Programme code: TABIT
- Credits: 120
- Admission level: Bachelor's degree
- Degree level: Second cycle
- Approved by: Programme Board B/K
- Approval date: 4 February 2026
- Validity: Academic year 2026/2027
- Entry into force: 4 February 2026

1 Aim and outcomes

1.1 Aim

This internationally oriented master's programme aims to provide specialised theoretical knowledge in a practical technological context in order to make students employable for advanced tasks in society and industry.

The programme aims to provide qualifications for both professional activities in society and industry and for research studies.

The programme is to provide

- in-depth knowledge in an area of specialisation in engineering or science,
- ability to plan, complete and assess experiments, in both the laboratory and on a large scale, and ability to use theoretical models to describe physical, biological and chemical processes as well as to assess the applicability and limitations of these models in different contexts,

- ability to select and design technical solutions for industrial production of bio-based products, with due regard to raw materials, energy, economics and sustainability in the system of industrial biotechnology,
- ability to create and develop products, and
- ability to consult specialised literature.

1.2 Outcomes for a Degree of Master of Science (120 credits)

(Higher Education Ordinance 1993:100)

Knowledge and understanding

For a Degree of Master of Science (120 credits) the student shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Degree of Master of Science (120 credits) the student shall

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information,
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work,
- demonstrate the ability in speech and writing both nationally and internationally to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and

- demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach

For a Degree of Master of Science (120 credits) the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work,
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

1.3 Specific outcomes for a Degree of Master of Science (120 credits) in Biotechnology

For a Degree of Master of Science (120 credits) in Biotechnology students must demonstrate the knowledge and skills required for working independently in research and development or in another advanced context within the area of biotechnology.

Knowledge and understanding

For a Degree of Master of Science (120 credits) students shall

- demonstrate specialised knowledge of the disciplinary foundations of engineering and science relevant to the field of biotechnology,
- demonstrate the ability to analyse entire systems as well as their constituent parts in industrial production aided by biological catalysts, and
- demonstrate insight into current research and development work in the field.

Competence and skills

For a Degree of Master of Science (120 credits) students shall

- demonstrate the ability to identify, formulate and deal with complex issues in the field autonomously and with a holistic approach,
- demonstrate the ability to analyse and critically assess different technical solutions in the field,
- demonstrate the ability to participate in research and development projects in biotechnology,
- demonstrate the ability to acquire new knowledge in the field and integrate this with previous knowledge,
- demonstrate the ability to autonomously plan and complete advanced tasks in the field,
- demonstrate the ability to develop and design systems and processes of industrial biotechnology while taking into account the circumstances and needs of individuals, and the targets of local and global society for sustainable development, and
- demonstrate the ability to clearly report in speech and writing their knowledge and different types of project work, including background material, investigation and findings, to expert and non-expert audiences in international contexts.

Judgement and approach

For a Degree of Master of Science (120 credits) students shall

- demonstrate the ability to make assessments in the field informed by relevant disciplinary, social and ethical aspects,
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability to identify their need for further knowledge in the field and to continuously develop and broaden their knowledge and skills in the field.

2 Programme structure

For students admitted autumn 23 or later, the programme comprises of 120 credits including 15 credits compulsory courses, 15 credits

elective compulsory courses (one advanced course in project/process and plant design), 60 credits optional courses and a degree project of 30 credits. Each year, the programme is adapted to the specialisations in bioprocess technology and molecular biotechnology of the Engineering programme in Biotechnology. The range of courses offered is broadened to include relevant courses from the other specialisations.

2.1 Courses

The courses included in the programme are indicated in the timetable. In addition to these courses, students are entitled to accreditation of 7.5 credits of courses in Swedish (organised by Lund University for exchange students).

2.2 Further studies

On completion of the second-cycle degree, students have basic eligibility for third-cycle studies.

3 Admission requirements

A Bachelor's degree in biotechnology, biochemical engineering or equivalent. Completed courses in microbiology or biochemistry, and mathematics (linear algebra/calculus and statistics). English 6.

4 Degree

4.1 Degree requirements

For a Degree of Master of Science (120 credits) students must successfully complete courses comprising 120 credits, including a degree project worth 30 credits. At least 90 credits must be second-cycle credits and at least 60 credits of those must be in the main field of study, including the degree project.

4.2 Degree and degree certificate

When students have completed all the degree requirements, they are entitled to apply for a degree certificate for a Degree of Master of Science (120 credits). Main Field of Study: Biotechnology.