AALBORG UNIVERSITET

MASTER OF SCIENCE (MSC) IN ENGINEERING (SUSTAINABLE BIOTECHNOLOGY) 2019

MASTER OF SCIENCE (MSC) IN ENGINEERING
COPENHAGEN

Link to this studyline

Link(s) to other versions of the same line:

Master of Science (MSc) in Engineering (Sustainable Biotechnology), 2020

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§ 1: PREFACE

Pursuant to consolidation Act 172 of February 27, 2018 on Universities (the University Act) with subsequent changes, the following curriculum is established. The programme also follows the Joint Programme Regulations and the Examination Policies and Procedures for The Faculty.

§ 2: BASIS IN MINISTERIAL ORDERS

The Master's programme is organised in accordance with the Ministry of Higher Education and Science's Order no. 1328 of November 15, 2016 on Bachelor's and Master's Programmes at Universities (the Ministerial Order of the Study Programmes) with subsequent changes and Ministerial Order no. 1062 of June 30, 2016 on University Examinations (the Examination Order) with subsequent changes. Further reference is made to Ministerial Order no. 106 of February 12, 2018 (the Admission Order) and Ministerial Order no. 114 of February 3, 2015 (the Grading Scale Order).

§ 3: CAMPUS

The programme is offered in Copenhagen.

§ 4: FACULTY AFFILIATION

The Master's programme falls under The Faculty of Engineering and Science, Aalborg University.

§ 5: STUDY BOARD AFFILIATION

The Master's programme falls under Study Board of Chemistry and Bioscience

§ 6: AFFILIATION TO CORPS OF EXTERNAL EXAMINERS

The Master's programme is associated with the external examiners corps on: Ingeniøruddannelsernes landsdækkende censorkorps – kemi.

§ 7: ADMISSION REQUIREMENTS

Applicants with a legal right of admission (retskrav)

- Bachelor in Sustainable Biotechnology, Aalborg University

Applicants without legal right of admission

- Bachelor in Biotechnology, Aalborg University

§ 8: THE PROGRAMME TITLE IN DANISH AND ENGLISH

The Master's programme entitles the graduate to the Danish designation Civilingeniør, cand.polyt. i bæredygtig bioteknologi. The English designation is: Master of Science (MSc) in Engineering (Sustainable Biotechnology).

§ 9: PROGRAMME SPECIFICATIONS IN ECTS CREDITS

The Master's programme is a 2-year, research-based, full-time study programme. The programme constitutes a total of 120 ECTS credits.

§ 10: RULES CONCERNING CREDIT TRANSFER (MERIT), INCLUDING THE POSSIBILITY FOR CHOICE OF MODULES THAT ARE PART OF ANOTHER PROGRAMME AT A UNIVERSITY IN DENMARK OR ABROAD

The Study Board can approve that passed programme elements from other educational programmes at the same level replaces programme elements within this programme (credit transfer).

Furthermore, the Study Board can, upon application, approve that parts of this programme is completed at another university or a further education institution in Denmark or abroad (pre-approval of credit transfer).

The Study Board's decisions regarding credit transfer are based on an academic assessment.

§ 11: EXEMPTIONS

The Study Board's possibilities to grant exemption, including exemption to further examination attempts and special examination conditions, are stated in the Examination Policies and Procedures published at this website: https://www.studyservice.aau.dk/rules

§ 12: RULES FOR EXAMINATIONS

The rules for examinations are stated in the Examination Policies and Procedures published at this website: https://www.studyservice.aau.dk/rules

§ 13: RULES CONCERNING WRITTEN WORK, INCLUDING THE MASTER'S THESIS

The Study Board may determine whether, and to what extent, a student's language proficiency is included in the assessment of an individual exam.

Spelling and writing skills are always a part of the assessment of final exams (bachelor's project, final project, and master's thesis).

The evaluation is based on an overall assessment, meaning that the student's language proficiency in final exams is assessed both in the written project report and during the oral examination.

The Study Board may, in special cases (e.g., in cases of dyslexia or if the student's native language is not Danish), grant an exemption from the requirement that spelling and writing skills be included in the assessment, unless these skills are an essential part of the exam's objectives.

The master's thesis must include an English summary. If the project is written in English, the summary can be in Danish. The summary is included in the evaluation of the project as a whole.

§ 14: REQUIREMENTS REGARDING THE READING OF TEXTS IN A FOREIGN LANGUAGE

It is assumed that the student can read academic texts in his or her native language as well as in English and use reference works etc. in other European languages.

§ 15: COMPETENCE PROFILE ON THE DIPLOMA

The following competence profile will appear on the diploma:

A Candidatus graduate has the following competency profile:

A Candidatus graduate has competencies that have been acquired via a course of study that has taken place in a research environment.

A Candidatus graduate is qualified for employment on the labour market based on his or her academic discipline as well as for further research (PhD programmes). A Candidatus graduate has, compared to a Bachelor, developed his or her academic knowledge and independence so as to be able to apply scientific theory and method on an independent basis within both an academic and a professional context.

§ 16: COMPETENCE PROFILE OF THE PROGRAMME

The graduate of the Master's programme

Knowledge

- Has knowledge within sustainable biotechnology on the use of state of the art biotechnological techniques and methods for process development and exploitation of renewable sustainable resources as replacement for fossil resources and mitigation of green-house gases
- Understand and reflect, on a scientific basis, over the knowledge associated with general biotechnology, microbiological production, sustainability, biomass conversion processes, biorefineries, production of biomaterials, biochemicals and bioactive compounds, and be able to identify scientific problems related to these areas

Skills

- Can master the scientific methods and tools of the above-mentioned areas and master the general skills that are tied to work within sustainable biotechnology

- Are able to evaluate and select among the scientific theories, methods, tools and general skills of sustainable biotechnology, and set up new analysis and solution models, on a scientific basis
- Can communicate research based knowledge and discuss professional and scientific problems with both peers and non-specialists

Competencies

- Can develop and design biotechnological processes and biorefineries for the sustainable conversion of biomass into valuable products and work with complex, unpredictable and new solutions
- Can independently initiate and carry out discipline specific and cross-disciplinary cooperation and to assume professional responsibility within the area of sustainable biotechnology
- Can independently take responsibility for own professional development and specialization

§ 17: STRUCTURE AND CONTENTS OF THE PROGRAMME

The program is structured in modules and organized as a problem-based study. A module is a program element or a group of program elements, which aim to give students a set of professional skills within a fixed time frame specified in ECTS credits, and concluding with one or more examinations within specific exam periods. Examinations are defined in the curriculum.

The program is based on a combination of academic, problem-oriented and interdisciplinary approaches and organized based on the following work and evaluation methods that combine skills and reflection:

- Lectures
- Classroom instruction
- Project work
- Workshops
- Exercises (individually and in groups)
- Teacher feedback

§ 18: OVERVIEW OF THE PROGRAMME

All modules are assessed through individual grading according to the 7-point scale *or* Pass/Fail. All modules are assessed by external examination (external grading) or internal examination (internal grading or by assessment by the supervisor only).

Offered as: 1-professional						
Module name	Course type	ECTS	Applied grading scale	Evaluation method	Assessment method	Language
1 SEMESTER						
Advanced Microbiological Production (K-BBT-K1-16)	Project	15	7-point grading scale	Internal examination	Oral exam based on a project	English
Biorefinery Principles (K-BBT-K1-7)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Systems and Synthetic Biology (K-BBT-K1-8)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Biological Production Processes (K-BBT-K1-9)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
2 SEMESTER						
Biomass Conversion Processes (K-BBT-K2-13)	Project	15	7-point grading scale	Internal examination	Oral exam based on a project	English

Microbiological Discovery (K-BBT-K2-7)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Advanced Kinetics and Modelling of Bioprocesses (K-BBT-K2-8)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Sustainable biotechnological companies – from innovation to industry (K-BT-M2-82)	Course	5	7-point grading scale	Internal examination	Oral exam based on a project	English
3 SEMESTER						
Project-oriented Study in an External Organisation (K-BBT-K3-17)	Project	30	Passed/Not Passed	External examination	Oral exam based on a project	English
3-4 SEMESTER						
Master's Thesis (K-BBT-K3-18)	Project	60	7-point grading scale	External examination	Master's thesis/final project	English
4 SEMESTER						
Master's Thesis (K-BBT-K4-16)	Project	30	7-point grading scale	External examination	Master's thesis/final project	English

Elective Courses

On 3 - 4 semester option A or B is chosen

§ 19: ADDITIONAL INFORMATION

More detailed information about the programme, including exams and literature, is published on Moodle (learning management system).

All students who have not participated in Aalborg University's PBL introductory course during their Bachelor's degree must attend the introductory course "Problem-based Learning and Project Management". The introductory course must be approved before the student can participate in the project exam. For further information, please see the course description

§ 20: COMMENCEMENT AND TRANSITIONAL RULES

The curriculum is approved by the dean and enters into force as of 2019.

The Study Board does not offer teaching after the previous curriculum from 2017 after the summer examination 2020.

§ 21: AMENDMENTS TO THE CURRICULUM AND REGULATIONS

Changes to the curriculum in 2019:

- The 2nd semester course Anaerobic and fungal biotechnology has been replaced by the course Sustainable biotechnological companies - from innovation to industry.