AALBORG UNIVERSITET

BACHELOR (BSC) IN ENGINEERING (SUSTAINABLE BIOTECHNOLOGY), 2016, VERSION 2 2018

BACHELOR OF SCIENCE (BSC) IN ENGINEERING
COPENHAGEN

Link to this studyline

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§ 1: PREFACE

Pursuant to Act 261 of March 18, 2015 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 Bachelor'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) and Ministerial Order no. 1062 of June 30, 2016 on University Examinations (the Examination Order). Further reference is made to Ministerial Order no. 110 of January 30, 2017 (the Admission Order) and Ministerial Order no. 114 of February 3, 2015 (the Grading Scale Order) with subsequent changes.

§ 3: CAMPUS

The programme is offered in Copenhagen.

§ 4: FACULTY AFFILIATION

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

§ 5: STUDY BOARD AFFILIATION

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

§ 6: AFFILIATION TO CORPS OF EXTERNAL EXAMINERS

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

§ 7: ADMISSION REQUIREMENTS

Admission requires an upper secondary education.

According to the Admission Order, the programme's specific entry requirements are:

- Mathematics A
- English B

And one of the following combinations:

- Physics B and Chemistry B
- Physics B and Biotechnology A
- Geoscience A and Chemistry B

§ 8: THE PROGRAMME TITLE IN DANISH AND ENGLISH

The Bachelor's programme entitles the graduate to the Danish designation Bachelor (BSc) i teknisk videnskab (bæredygtig bioteknologi). The English designation is: Bachelor of Science (BSc) in Engineering (Sustainable Biotechnology).

§ 9: PROGRAMME SPECIFICATIONS IN ECTS CREDITS

The Bachelor's programme is a 3-year, research-based, full-time study programme. The programme is set to 180 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.studieservice.aau.dk/regler-vejledninger

§ 12: RULES FOR EXAMINATIONS

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

§ 13: RULES CONCERNING WRITTEN WORK, INCLUDING THE BACHELOR'S PROJECT

In the assessment of all written work, regardless of the language it is written in, weight is also given to the student's formulation and spelling ability, in addition to the academic content. Orthographic and grammatical correctness as well as stylistic proficiency are taken as a basis for the evaluation of language performance. Language performance must always be included as an independent dimension of the total evaluation. However, no examination can be assessed as 'Pass' on the basis of good language performance alone; similarly, an examination normally cannot be assessed as 'Fail' on the basis of poor language performance alone.

The Study Board can grant exemption from this in special cases (e.g., dyslexia or a native language other than Danish).

The Bachelor's project 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 presupposed, that the student can read academic texts in one's native language and English, as well as use reference work etc. in other European languages.

§ 15: COMPETENCE PROFILE ON THE DIPLOMA

The following competence profile will appear on the diploma:

A graduate of the Bachelor's programme has competencies acquired through an educational programme that has taken place in a research environment.

A graduate of the Bachelor's programme has fundamental knowledge of and insight into his/her subject's methods and scientific foundation. These properties qualify the graduate of the Bachelor's programme for further education in a relevant Master's programme as well as for employment on the basis of the educational programme

§ 16: COMPETENCE PROFILE OF THE PROGRAMME

Individuals who attain degrees at this level

Knowledge

- Have a research-based knowledge about theory, methods and practise within the biotechnological and sustainable biotechnological area
- Can understand and reflect on theories, scientific and technical methods and practise

- Can understand the significance of sustainability to biotechnological energy, chemical and material production

Skills

- Can use scientific methods and tools of the above-mentioned areas and use the general skills that are tied to work within sustainable biotechnology
- Are able to evaluate theories, methods, tools and general skills of sustainable biotechnology and utilize these in a sustainable context
- Are able to communicate biotechnological problems and sustainable solutions based upon biotechnology to peers, non-specialists, collaborative partners and users

Competencies

- Are able to handle complex situations and tasks within sustainable and process-oriented problems in connection with study or work situations
- Are able to independently initiate and carry out discipline specific and cross-disciplinary cooperation and to assume professional responsibility, within the area of sustainable biotechnology

§ 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 aims 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. The 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
- Workshop exercises (individually and in groups)
- Project work and exercises in labs
- Teacher feedback

The BSc education in Sustainable Biotechnology is taught in English.

The student must participate in all first year examinations by the end of the first year of study in the Bachelor's program, in order to be able to continue the program. The first year of study must be passed by the end of the second year of study, in order that the student can continue his/her Bachelor’s program.

In special cases, however, there may be exemption from the above if the student has been on a leave of absence. Leave is granted during first year of study only in the event of maternity, adoption, military service, UN service or where there are exceptional circumstances.

The Bachelor’s program must be completed no later than six years after it was begun.

§ 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 assessment by the supervisor only).

Offered as:						
Module name	Course type	ECTS	Applied grading scale	Evaluation method	Assessment method	Language
1 SEMESTER						

Linear Algebra	Course	5	7-point grading scale	Internal examination	Written exam	English
Problem-based Learning in Science, Technology and Society	Course	5	Passed/Not Passed	Internal examination	Written exam	Danish and English
General and Organic Chemistry	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Biological Production – a Case Study	Project	5	Passed/Not Passed	Internal examination	Oral exam based on a project	English
Biological Production	Project	10	7-point grading scale	Internal examination	Oral exam based on a project	English
2 SEMESTER						
Calculus	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Biomolecules and Biochemistry I	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Sustainability	Course	5	7-point grading scale	Internal examination	Written exam	English
Biomass Conversion	Project	15	7-point grading scale	External examination	Oral exam based on a project	English
3 SEMESTER Option A						
Energy and Resources	Course	5	7-point grading scale	Internal examination	Written exam	English
Applied Biodiversity	Course	5	7-point grading scale	Internal examination	Written exam	English
Kinetics and Modelling of Bioprocesses	Course	5	7-point grading scale	Internal examination	Written exam	English
Sustainable Production of Bioenergy	Project	15	7-point grading scale	Internal examination	Oral exam based on a project	English
3 SEMESTER Option B						
Energy and Resources	Course	5	7-point grading scale	Internal examination	Written exam	English
Applied Biodiversity	Course	5	7-point grading scale	Internal examination	Written exam	English
Kinetics and Modelling of Bioprocesses	Course	5	7-point grading scale	Internal examination	Written exam	English
Sustainable Production of Biochemicals	Project	15	7-point grading scale	Internal examination	Oral exam based on a project	English
4 SEMESTER						
Microbiological Processes	Course	5	7-point grading scale	Internal examination	Written exam	English
Biochemistry II	Course	5	7-point grading scale	Internal examination	Written exam	English
Process Technology	Course	5	7-point grading scale	Internal examination	Written exam	English
The Cell as a Factory	Project	15	7-point grading scale	External examination	Oral exam based on a project	English

5 SEMESTER						
Applied Statistics	Course	5	7-point grading scale	Internal examination	Written or oral exam	Danish and English
Molecular Biology	Course	5	7-point grading scale	Internal examination	Written exam	English
Cell Biology and Genetics	Course	5	7-point grading scale	Internal examination	Written exam	English
Development of Recombinant Biocatalysts	Project	15	7-point grading scale	External examination	Oral exam based on a project	English
6 SEMESTER						
Biotechnology, Ethics and Society	Course	5	7-point grading scale	Internal examination	Oral exam	English
BSc Project	Project	20	7-point grading scale	External examination	Oral exam based on a project	English
Cases in Bioprocess Technology	Course	5	7-point grading scale	Internal examination	Written exam	English

Theory of Science and Ethics

Theory of science, scientific methods and ethics are taught in the courses, and in the project work biological production (1. Semester) and Biotechnology, ethics and society (6. Semester).

Elective Courses

On 3rd semester option A or B is chosen

New Version of the Curriculum September 2018

From September 2018 active participation in the lectures has to be approved for participation in the ordinary exam for the modules; General and Organic Chemistry and the module Biomolecules and Biochemistry I

Special Project Process

On the 3rd, 4th and 5th semesters, the student can upon application, design an educational program where the project work is replaced by other study activities; cf. the Joint Programme Regulations, section 9.3.1.

§ 19: ADDITIONAL INFORMATION

The current version of the curriculum is published on the School's website, including more detailed information about the program, including exams.

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 September 1st, 2016

Students who wish to complete their studies under the previous curriculum from 2014 must conclude their education by the summer examination period 2018 at the latest, since examinations under the previous curriculum are not offered after this time.

§ 21: AMENDMENTS TO THE CURRICULUM AND REGULATIONS

Minor editorial changes have been made in connection with the digitisation of the study curriculum.

July 10 2019: The Advised Dean of Education has approved the following changes to the programme for the students who start their 3rd semester in September 2019:

- The module "Applied Statistics" from the 5th semester replaces the module "Energy and Ressources" on 3rd semester.
- The module "Energy and Ressources" from the 3rd semester replaces the module "Applied Statistics" on 5th semester.
- The module "Biotechnology, Ethics and Society" from the 6th semester replaces the module "Process Technology" on 4th semester.
- The module "Proces Technology" from the 4th semester replaces the module "Biotechnology, Ethics and Society" on 6th semester.