AALBORG UNIVERSITET

CURRICULUM FOR THE MASTER'S PROGRAMME (CAND.POLYT.) IN CHEMISTRY, 2022

MASTER OF SCIENCE (MSC) IN ENGINEERING
AALBORG

Link to this studyline

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

Master of Science (MSc) in Engineering (Chemistry), 2017, version 2 2018
Master of Science (MSc) in Engineering (Chemistry), 2020

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§ 1: PREFACE

Pursuant to consolidation Act 778 of August 7, 2019 on Universities (the University Act), the following is established.

The programme also follows the Examination Policies and Procedures incl. the Joint Programme Regulations and for Aalborg University.

§ 2: BASIS IN MINISTERIAL ORDERS

The Master's programme is organised in accordance with the Ministry of Higher Education and Science's Order no. 2285 of December 1, 2021 on Full-time University Programmes (the University Programme Order) and Ministerial Order no. 2271 of December 1, 2021 on University Examinations (the Examination Order). Further reference is made to Ministerial Order no. 104 of January 24, 2021 (the Admission Order) and Ministerial Order no. 114 of February 3, 2015 (the Grading Scale Order).

§ 3: CAMPUS

The programme is offered in Aalborg.

§ 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: Civil engineering corps of external examiners.

§ 7: ADMISSION REQUIREMENTS

Applicants with a legal claim to admission (retskrav):

Applicants with the following degree are entitled to admission:

- Bachelor of Science in Engineering (Chemical Engineering), Aalborg University

Applicants without legal claim to admission

Additional qualifying programs

- Bachelor of Science in Chemical Engineering and Biotechnology, Aalborg University
- Bachelor of Engineering in Chemical Engineering and Biotechnology, Aalborg University
- Bachelor of Science in Chemical Engineering, Aarhus University
- Bachelor of Engineering in Chemical Engineering, Aarhus University
- Bachelor of Science in Chemical Engineering, Technical University of Denmark
- Bachelor of Engineering in Chemical Engineering, Technical University if Denmark
- Bachelor of Engineering in Chemical Engineering and International Business, Technical University of Denmark
- Bachelor og Science in Engineering (Chemistry and Biotechnology), University of Southern Denmark
- Bachelor of Engineering in Chemical Engineering, University of Southern Denmark
- Bachelor of Science (BSc) in Engineering (General Engineering with specialisation in Chemical Engineering), Aalborg University

All applicants without a legal claim must prove that their English language qualifications is equivalent to level B (Danish level) in English.

Admission to the master's programme in Chemistry, cand.polyt requires that the applicant has passed a relevant qualifying bachelor's or professional bachelor's degree programme. A bachelor's or professional bachelor's degree programme is defined as relevant if the degree programme provides competencies to a minimum of ECTS within the following subject areas:

- Mathematics and statistics (15 ECTS)
- Chemistry and chemical engineering, including general chemistry, organic chemistry, inorganic chemistry, physical chemistry, and process technology (100 ECTS)
- Experimental work in chemistry and chemical engineering, through practice courses, projects, or other activities (20 ECTS)

As a prerequisite for admission to the master's programme, students must have completed a bachelor programme in technical sciences, a bachelor of engineering programme or a bachelor in natural science.

§ 8: THE PROGRAMME TITLE IN DANISH AND ENGLISH

The Master's programme entitles the graduate to the designation Civilingeniør, cand.polyt. i kemi. The English designation is: Master of Science (MSc) in Engineering (Chemistry).

§ 9: PROGRAMME SPECIFICATIONS IN ECTS CREDITS

The Master's programme is a 2-year, research based, full-time study programme. The programme is set to120 ECTS.

§ 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

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 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

At programmes taught in English, it is assumed that the student can read academic text and use reference works, etc., in English.

§ 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

Knowledge

A Master in Chemistry has knowledge within chemistry that in selected areas, such as process technology, materials technology and polymer technology, is based on the highest international research.

A Master in Chemistry understand the principles of the above-mentioned areas, can reflect upon their knowledge in these areas at a scientific level, and use their knowledge to identify technological problems and industrial applications.

Skills

A Master in Chemistry master the scientific methods, models and tools of the above-mentioned areas and the general skills that are tied to work within the area of chemical and molecular engineering.

A Master in Chemistry is able to evaluate and select among scientific theories, methods, tools and general skills used in chemical engineering and technology, develop and establish new analysis protocols and solution models in industrial and laboratory settings, and participate in the development and manufacturing of novel compounds and materials based on inorganic and organic chemistry.

A Master in Chemistry is able to communicate research based knowledge and discuss professional and scientific problems with both peers and non-specialists.

Competencies

A Master in Chemistry is able to carry out research, development, and manufacturing in areas of process chemistry, materials technology, and polymer technology.

A Master in Chemistry is able to independently initiate and carry out discipline specific and cross-disciplinary cooperation and to assume professional responsibility within the area of chemical engineering.

A Master in Chemistry is able to independently take responsibility for own professional development and specialization.

A Master in Chemistry can analyze, identify and formulate problems on a scientific basis and subsequently work problem-oriented on understanding, further developing and finding solutions both individually and in collaboration with other professionals.

A Master in Chemistry can use digital solutions for data collection and storage, statistical data analysis, data visualization, modeling and simulation, for presentation of theories, hypotheses and results in writing as well as orally, as well as for organizing and implementing collaboration in project groups and with external partners.

A Master in Chemistry can perform digital search of relevant professional and research literature and knowledge in databases as well as assess the validity of digital sources and use digital platforms for self-study and knowledge sharing as well as for professional discussion and communication.

§ 17: STRUCTURE AND CONTENTS OF THE PROGRAMME

The program is structured in modules and organised 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. Examinations are defined in the curriculum.

The program is based on a combination of academic, problem-oriented and interdisciplinary approaches and can be 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

AAU Micro

AAU Micro are small e-learning modules of limited, well-defined scope. AAU Micro modules are extra-curricular but may be employed to support learning in curricular course and project modules.

§ 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						
Materials Technology (K-KEM-K1-48B)	Project	15	7-point grading scale	Internal examination	Oral exam based on a project	English
Materials Chemistry (K-KEM-K1-20)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Processing of Materials (K-KEM-K1-19)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Physical Chemistry of Materials (K-KEM-K1-21)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
2 SEMESTER						
Industrial Application of Macromolecules (K-KEM-K2-48B)	Project	15	7-point grading scale	Internal examination	Oral exam based on a project	English
Polymer Chemistry (K-KEM-K2-19)	Course	5	Passed/Not Passed	Internal examination	Written or oral exam	English
Supramolecular Chemistry (K-KEM-K2-22B)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Carbohydrate Chemistry (K-BT-K2-9)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
3 SEMESTER Option A						
Project-Oriented Study in an External Organisation (K-KEM-K3-64A)	Project	30	7-point grading scale	External examination	Oral exam based on a project	English
3-4 SEMESTER Option B						
Master's Thesis (K-KMB-K4-4A)	Project	60	7-point grading scale	External examination	Master's thesis/final project	English

4 SEMESTER						
Master's Thesis (K-KMB-K4-5A)	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

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 www.en.bio.aau.dk

§ 20: COMMENCEMENT AND TRANSITIONAL RULES

The curriculum is approved by the Dean of The Faculty of Engineering and Science and enters into force as of September 1 2022.

The Study Board does not offer teaching after the previous curriculum from 2020 after the summer examination examination 2023.

The Study Board will offer examinations after the previous curriculum, if there are students who have used examination attempts in a module without passing. The number of examination attempts follows the rules in the Examination Order.

§ 21: AMENDMENTS TO THE CURRICULUM AND REGULATIONS

On November 14 2022 the Vice-Dean of Education has approved, that the assessment method is changed in the module "Polymer Chemistry". The amendment is valid from spring 2023.

The Vice-dean has on November 24, 2023, approved an addition of Micro Modules in section 17, valid from spring 2024.