



AALBORG UNIVERSITET

MASTER OF SCIENCE (MSC) IN ENGINEERING (MANAGEMENT ENGINEERING) 2019

MASTER OF SCIENCE (MSC) IN ENGINEERING
AALBORG

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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.

The Master of Science programme in Management Engineering is a two-year education which contains in total 2 specialisations within the areas of operation, supply chain and innovation management:

- Operations and Supply Chain Management
- Operations and Innovation Management

§ 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 Aalborg.

§ 4: FACULTY AFFILIATION

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

§ 5: STUDY BOARD AFFILIATION

The Master's programme falls under the Study Board of Production.

§ 6: AFFILIATION TO CORPS OF EXTERNAL EXAMINERS

The Master's programme is associated with the external examiners corps on Nationwide engineering examiners/Machine.

§ 7: ADMISSION REQUIREMENTS

Applicants with a legal claim to admission (retskrav):

- Bachelor of Science in Global Business Engineering, Aalborg University

Applicants without a legal claim to admission:

Applicants with one of the following degrees are entitled to admission:

- Bachelor of Engineering in Export Technology, Aalborg University
- Bachelor of Engineering in Global Business Systems, Aalborg University
- Bachelor of Engineering (Global Business Engineering), Technical University of Denmark and VIA University College
- Bachelor of Engineering in Global Management and Manufacturing, SDU

All applicants must, as a minimum, document English language qualifications comparable to an "English B level" in the Danish upper secondary school (gymnasium) (cf. the Admission Order).

§ 8: THE PROGRAMME TITLE IN DANISH AND ENGLISH

The Master's programme entitles the graduate to one of the following titles:

- Civilingeniør, cand.polyt. i produktionsledelse med specialisering i virksomhedssystemer. The English designation is: Master of Science (MSc) in Engineering (Management Engineering) with specialization in operations and supply chain management.
- Civilingeniør, cand.polyt. i produktionsledelse med specialisering i værdikæder og innovationsledelse. The English designation is: Master of Science (MSc) in Engineering (Management Engineering) with specialization in operations and innovation management.

§ 9: PROGRAMME SPECIFICATIONS IN ECTS CREDITS

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

It is assumed that the student can read academic texts in modern Danish, Norwegian, Swedish and 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 in Operations Management:

Knowledge

- Can demonstrate understanding of research work and is able to become a part of the research environment
- Can demonstrate insight into the implications of research work, including research ethics.

Skills

- Is able to work systematically, analytically and solution design-oriented
- Is able to evaluate, select among, and apply scientifically-based management engineering knowledge, methods, and tools related to specialization to analyze problems and design and implement solutions, alone as well as in a collaborative context
- Is able to apply scientific methodologies to solving a wide variety of problems within the field of specialisation
- Can communicate research-based knowledge and discuss professional and scientific problems with both peers and non- specialists.

Competencies

- Is able to work independently and in groups with a project on a specific problem within his/her field of specialization on the highest possible level within his/her specialisation
- Is able to take part in technical development and research
- Can manage work and development situations that are complex, unpredictable and require new solutions within the area of specialization
- Is able to use the correct terminology in oral, written or graphical communication and documentation of challenges and solutions within the field of specialization.

Specifically for graduates of the Master's programme in Operations Management with specialization in Operations and Innovation Management:

Knowledge

- Have international-level knowledge, based on state-of-the-art research in the field of Operations and Innovation Management. This includes organization analysis, engineering and design; operations development and strategy; business intelligence and performance management; and innovation and change management
- Understand and are able to reflect, on a scientific basis, on the technological, organizational, managerial, industrial and competitive aspects of Operations and Innovation Management problems and solutions.
- Have a management engineering perspective on the analysis of complex problems in complex industrial systems
- Understand and are able to reflect on design and implementation of innovative solutions to such problems, based on an integration of technological, organizational and managerial aspects.

Skills

- Can apply a deep understanding of the technological, organizational, strategic, managerial, industrial and competitive aspects of Operations and Innovation Management in analyzing complex problems and designing and implementing solutions in a wide range of empirical settings, in particular industrial and professional service settings

Competencies

- Can independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility within the area of Operations and Innovation Management

Specifically graduate of the Master's programme in Operations Management with specialization in Supply Chain Management:

Knowledge

- Has attained understanding of a broad range of theory, models, methods and techniques within the area of operations and supply chain management and systems
- Has knowledge of one or more subject areas that in selected areas within operations and supply chain management and systems are based on the highest international research in a subject area
- Can understand and, on a scientific basis, reflect over subject areas related to operations and supply chain management and systems and identify scientific problems within that area

Skills

- Can participate in or lead projects in development of operations and supply chain management systems, flexible manufacturing, development of quality, risk, and project management systems, supply chain operations, manufacturing and supply chain systems, business intelligence and analytics, and global manufacturing management

Competencies

- Is competent to solve new and complicated problems by the use of quantitative methods, advanced mathematics, scientific, and technological knowledge.

§ 17: STRUCTURE AND CONTENTS OF THE PROGRAMME

The programme is structured in modules and organised as a problem-based study. A module is a programme element or a group of programme elements aiming 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 that are defined in the curriculum. Each semester has an overall theme which serves a focal point in both modules and the project work. The programme is based on a combination of academic, problem-oriented and interdisciplinary approaches and organised 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
- Reflection
- Portfolio work.

The 3rd semester is allocated to gaining practical international experience. The semester will enable students to appreciate theoretical reflective work practice and cultural challenges. The aim of the semester is to:

1. Gain practical experience within the subject field
2. Analyse and reflect on educational experiences and professional practice
3. Clarify the Master's Thesis topic.

The third semester offers different ways of organisation – depending on the student's choice of content; project work at Aalborg University, study visit at an educational institution in Denmark or abroad, voluntary traineeship with project work at a company in Denmark or abroad, or a semester programme that comprises cross-disciplinary programme elements composed by the student. The total workload of the semester has to be equivalent to 30 ECTS, of which 5 ECTS can be elective courses. The project may be finalized with a project report or in the form of a scientific paper, or, if the project is continued at the 4th semester, with a midterm evaluation. For further information about the organisation of the module please see the Joint Programme Regulations.

§ 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: 1-professional

Specialization: Operations and Supply Chain Management						
Module name	Course type	ECT S	Applied grading scale	Evaluation method	Assessment method	Language
1 SEMESTER						
Designing Global Business Systems and Value Chains (M-OM-K1-1)	Project	15	7-point grading scale	External examination	Oral exam based on a project	English
Advanced Operations Management (M-OSM-K1-2)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Development of Quality, Risk, and Project Management Systems 1 (M-OSM-K1-4)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Flexible Manufacturing (M-OSM-K1-3)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
2 SEMESTER						
Development and Innovation of Global Business Systems and Value Chains (M-OM-K2-1A)	Project	15	7-point grading scale	Internal examination	Oral exam based on a project	English
Business Intelligence and Analytics (M-OIM-K2-3)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Manufacturing and Supply Chain Systems (M-OSM-K2-2)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Development of Quality, Risk, and Project Management Systems 2 (M-OSM-K2-4)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
3 SEMESTER Option A						
Global implementation (M-OM-K3-1)	Project	30	7-point grading scale	Internal examination	Oral exam based on a project	English
3 SEMESTER Option B						
Global implementation (M-OM-K3-2)	Project	25	7-point grading scale	Internal examination	Oral exam based on a project	English
Elective courses - Operations Management	Course	5				
3 SEMESTER Option C						
Project Oriented Study in an External Organisation (M-OM-K3-6)	Project	30	7-point grading scale	Internal examination	Oral exam based on a project	English
3 SEMESTER Option D						
Project Oriented Study in an External Organisation (M-OM-K3-7)	Project	25	7-point grading scale	Internal examination	Oral exam based on a project	English
Elective courses - Operations Management	Course	5				
4 SEMESTER						

Master's Thesis (M-OM-K4-1)	Project	30	7-point grading scale	External examination	Master's thesis/final project	English
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Offered as: 1-professional Specialization: Operations and Innovation Management						
Module name	Course type	ECTS	Applied grading scale	Evaluation method	Assessment method	Language
1 SEMESTER						
Designing Global Business Systems and Value Chains (M-OM-K1-1)	Project	15	7-point grading scale	External examination	Oral exam based on a project	English
Organisation Analysis and Design (M-OIM-K1-1)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Enterprise Engineering and Design (M-OIM-K1-2)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Operations Development and Strategy (M-OIM-K1-3)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
2 SEMESTER						
Development and Innovation of Global Business Systems and Value Chains (M-OM-K2-1A)	Project	15	7-point grading scale	Internal examination	Oral exam based on a project	English
Business Intelligence and Analytics (M-OIM-K2-3)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Innovation and Change Management (M-OIM-K2-1)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Global Business Performance (M-OIM-K2-2)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
3 SEMESTER Option A						
Global implementation (M-OM-K3-1)	Project	30	7-point grading scale	Internal examination	Oral exam based on a project	English
3 SEMESTER Option B						
Global implementation (M-OM-K3-2)	Project	25	7-point grading scale	Internal examination	Oral exam based on a project	English
Elective courses - Operations Management	Course	5				
3 SEMESTER Option C						
Project Oriented Study in an External Organisation (M-OM-K3-6)	Project	30	7-point grading scale	Internal examination	Oral exam based on a project	English
3 SEMESTER Option D						
Project Oriented Study in an External Organisation (M-OM-K3-7)	Project	25	7-point grading scale	Internal examination	Oral exam based on a project	English

Elective courses - Operations Management	Course	5				
4 SEMESTER						
Master's Thesis (M-OM-K4-1)	Project	30	7-point grading scale	External examination	Master's thesis/final project	English

Elective courses for 3rd semester:

Elective courses - Operations Management						
Module name	Course type	ECTS	Applied grading scale	Evaluation Method	Assessment method	Language
Capita selecta Operations and Innovation Management (M-OM-K3-3)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Research Design and -Communication (M-OM-K3-4)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English
Understanding Entrepreneurship (M-EE-K1-4)	Course	5	7-point grading scale	Internal examination	Written or oral exam	English

§ 19: ADDITIONAL INFORMATION

The current version of the curriculum is published on the Board of Studies' 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. Further information about the introductory course can be found at the homepage of the study board of Materials and Production.

§ 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 2019.

§ 21: AMENDMENTS TO THE CURRICULUM AND REGULATIONS

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

On May 1st, 2020 The Pro-dean has approved the following prerequisites for enrollment for the exam in the module "Operations Development and Strategy" valid as of September 2020: "Hand-in of written assignment".

On October 19, 2021, the Pro-dean has approved an update of the list of applicants without legal claim to admission.