



AALBORG UNIVERSITET

# **MASTER OF SCIENCE (MSC) IN ENGINEERING (OPERATIONS AND SUPPLY CHAIN MANAGEMENT) 2015**

MASTER OF SCIENCE (MSC) IN ENGINEERING  
AALBORG

MODULES INCLUDED IN THE CURRICULUM

## TABLE OF CONTENTS

Operations Management 2018/2019 .....	3
Advanced Operations Management 2018/2019 .....	5
Flexible Manufacturing 2018/2019 .....	7
Development of Quality, Risk, and Project Management Systems 1 2018/2019 .....	9
Supply Chain Operations 2018/2019 .....	11
Manufacturing and Supply Chain Systems 2018/2019 .....	13
Business Intelligence and Analytics 2018/2019 .....	15
Development of Quality, Risk, and Project Management Systems 2 2018/2019 .....	17
Global Manufacturing Management 2018/2019 .....	19
Master's Thesis 2018/2019 .....	21

# OPERATIONS MANAGEMENT

2018/2019

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

None.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Have gained in-depth knowledge of using quantitative Operations Management techniques on real life problems. The knowledge could be gained in a development project:
  - With one or more companies or public organisations, or
  - In a lab environment concerning Operations Management software or techniques.

#### SKILLS

- Be able to demonstrate the usage and limitations of quantitative Operations Management techniques
- Be able to compare and evaluate theoretical and experimental results
- Be able to critically evaluate applied methods and their results.

#### COMPETENCES

- Possess the ability to identify and implement options for improvements with special focus on cross-functional issues (e.g. in between sales, operations, development or service)
- Be able to implement Operations Management techniques in an industrial, service or public organisation.

### TYPE OF INSTRUCTION

The module is carried out as group-based, problem-oriented project work. The group work is carried out as an independent work process in which the students themselves organise and coordinate their workload in collaboration with a supervisor. The project is carried out in groups with normally no more than 6 members.

### EXTENT AND EXPECTED WORKLOAD

Since it is a 15 ECTS course module the expected workload is 450 hours for the student.

## EXAM

### EXAMS

Name of exam	Operations Management
Type of exam	Oral exam based on a project
ECTS	15
Assessment	7-point grading scale
Type of grading	Internal examination

## FACTS ABOUT THE MODULE

Danish title	Operations Management
Module code	M-OSM-K1-1
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	15
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Kjeld Nielsen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science

# ADVANCED OPERATIONS MANAGEMENT

2018/2019

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

None.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Have gained both theoretical and practical knowledge about stochastic simulation and its utilisation in improvement of planning and control systems in companies and supply chains
- Have gained knowledge of a number of numerical and mathematical methods and models for designing and improving planning and control concepts in companies and supply chains
- Have gained knowledge and understanding about numerical analysis of demand patterns
- Have gained knowledge about advanced order management systems
- Have gained knowledge about stochastic discrete event simulation and simulation tools
- Have gained knowledge to identify key performance indicators relevant to evaluate stochastic simulation models.

#### SKILLS

- Be able to analyse and develop order management systems for both industrial and service companies
- Be able to conduct a numerical analysis of a company's and supply chain's performance. This involves both choice and utilisation of statistical analysis methods on selected elements of companies and supply chains
- Show understanding the utilisation of probabilistic models in connection with design and usage of planning and control systems. This includes knowledge and insight into the opportunities and limitations of probabilistic models
- Be able to utilise stochastic discrete event simulation to assess opportunities and limitations of a production system and be able to utilise simulation as a tool for analysis and synthesis in their project work
- Be able to model and simulate a specific company's production system and evaluate the performance of this system
- Be able to design and redesign planning and control systems in production and service management companies and supply chains adapted to a company's or supply chain's specific situation.

#### COMPETENCES

- Be able to combine a number of mathematical tools in an appropriate manner to conduct an analysis of the as-is situation of a company or supply chain.

#### TYPE OF INSTRUCTION

The course consists of a number of lectures as well as the student's independent learning effort. The form and extent of the course is determined and described in connection with planning the semester. The lesson plans, literature etc. are created in connection with this. The course is conducted as a combination of single-disciplinary, problem-oriented and cross-disciplinary fields of study, and it is structured from a work and evaluation form which combines skills and reflection:

- Lectures
- Class work
- Project work
- Workshops
- Exercises (alone and in groups)
- Teacher feedback
- Reflection on content
- Portfolio work.

## EXTENT AND EXPECTED WORKLOAD

Since it is a 5 ECTS course module the expected workload is 150 hours for the student.

## EXAM

### EXAMS

Name of exam	Advanced Operations Management
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination

## FACTS ABOUT THE MODULE

Danish title	Advanced Operations Management
Module code	M-OSM-K1-2
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Kjeld Nielsen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science

# **FLEXIBLE MANUFACTURING**

**2018/2019**

## **PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE**

None.

## **CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE**

### **LEARNING OBJECTIVES**

#### **KNOWLEDGE**

- Have gained knowledge about mass customization systems in an operations management context
- Have gained knowledge about assessment of mass customization performance
- Have gained knowledge about product architecture, manufacturing architecture and their relations to mass customization
- Have gained knowledge about flexible manufacturing systems, reconfigurable manufacturing systems, changeable manufacturing systems, automated manufacturing systems and the differences between these.
- Have gained knowledge of planning methods designed specifically for flexible manufacturing systems.

#### **SKILLS**

- Be able to analyze a product family in terms of variety and product architecture
- Be able to evaluate different IT solutions supporting mass customization, including product configurators and perform basic modelling
- Be able to analyze a range of manufacturing tasks and evaluate different types of manufacturing systems to determine the appropriate level of flexibility vs. automation
- Be able to model flexible manufacturing problems

#### **COMPETENCES**

- Have the competence to evaluate a company's product portfolio in terms of volume, variety and manufacturing tasks and identify solutions for IT system support and manufacturing system design.

#### **TYPE OF INSTRUCTION**

The course consists of a number of lectures as well as the student's independent learning effort. The form and extent of the course is determined and described in connection with planning the semester. The lesson plans, literature etc. are created in connection with this. The course is conducted as a combination of single-disciplinary, problem-oriented and cross-disciplinary fields of study, and it is structured from a work and evaluation form which combines skills and reflection:

- Lectures
- Class work
- Project work
- Workshops
- Exercises (alone and in groups)
- Teacher feedback
- Reflection on content
- Portfolio work.

#### **EXTENT AND EXPECTED WORKLOAD**

Since it is a 5 ECTS course module the expected workload is 150 hours for the student.

## EXAM

### EXAMS

Name of exam	Flexible Manufacturing
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination

## FACTS ABOUT THE MODULE

Danish title	Fleksibel produktion
Module code	M-OSM-K1-3
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Kjeld Nielsen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science



# DEVELOPMENT OF QUALITY, RISK, AND PROJECT MANAGEMENT SYSTEMS 1

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

None.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Have gained knowledge of theories of quality control; business processes and supply chains
- Have gained knowledge of project planning and control as well as techniques for this
- Have gained knowledge of IT-systems for project planning and control
- Have gained knowledge of financial control of activities in engineer/manufacture to order companies with long project durations.

#### SKILLS

- Be able to understand quality control in relation to the company's business processes and analyse an organisation's need for quality control emphasising the supply chain, as well as give suggestions to changes and improvements of parts of or the entire system
- Be able to understand financial control of activities in engineer/manufacture to order companies. This includes: liquidity control, financial capacity control and calculations for planning, control and follow-up on the company's order-based production
- Be able to understand resource-constrained project management problems and plan the execution of projects under constraints (e.g. budgetary, time, resource), including the use of methods for project planning and control
- Be able to understand how IT-systems can support business processes and work flows in project-driven companies.

#### COMPETENCES

- Be able to design quality and project management systems in companies with order based production while taking into account how such systems interact with a company's core activities and other control systems, especially the financial control systems
- Be able to specify projects and constraints as well as problems which may arise in project-driven companies
- Be able to use the attained knowledge in regards to how companies develop quality control systems.

#### TYPE OF INSTRUCTION

The course consists of a number of lectures as well as the student's independent learning effort. The form and extent of the course is determined and described in connection with planning the semester. The lesson plans, literature etc. are created in connection with this. The course is conducted as a combination of single-disciplinary, problem-oriented and cross-disciplinary fields of study, and it is structured from a work and evaluation form which combines skills and reflection:

- Lectures
- Class work
- Project work
- Workshops
- Exercises (alone and in groups)
- Teacher feedback
- Reflection on content

- Portfolio work.

## EXTENT AND EXPECTED WORKLOAD

Since it is a 5 ECTS course module the expected workload is 150 hours for the student.

## EXAM

### EXAMS

Name of exam	Development of Quality, Risk, and Project Management Systems 1
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination

## FACTS ABOUT THE MODULE

Danish title	Udvikling af kvalitets-, risiko - og projektstyringssystemer 1
Module code	M-OSM-K1-4
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Izabela Ewa Nielsen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science

# SUPPLY CHAIN OPERATIONS

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

1st semester of the MSc in Operations and Supply Chain Management programme.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Have gained in-depth knowledge of using supply chain operations on real life problems. The knowledge could be gained in a development project:
  - With one or more companies or public organisations, or
  - In a lab environment concerning supply chain software or techniques.

#### SKILLS

- Be able to demonstrate the usage and limitations of supply chain operations
- Be able to compare and evaluate theoretical and experimental results
- Be able to critically evaluate applied methods and their results.

#### COMPETENCES

- Possess the ability to identify and implement options for improvements with special focus on cross-company issues (e.g. one or more customers or suppliers)
- Be able to implement supply chain operations in an industrial, service or public organisation.

#### TYPE OF INSTRUCTION

The module is carried out as group-based, problem-oriented project work. The group work is carried out as an independent work process in which the students themselves organise and coordinate their workload in collaboration with a supervisor. The project is carried out in groups with normally no more than 6 members.

#### EXTENT AND EXPECTED WORKLOAD

Since it is a 15 ECTS course module the expected workload is 450 hours for the student.

## EXAM

### EXAMS

Name of exam	Supply Chain Operations
Type of exam	Oral exam based on a project
ECTS	15
Assessment	7-point grading scale
Type of grading	External examination

## FACTS ABOUT THE MODULE

Danish title	Styring af forsyningskæder
Module code	M-OSM-K2-1
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Kjeld Nielsen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science

# MANUFACTURING AND SUPPLY CHAIN SYSTEMS

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

1st semester of the MSc in Operations and Supply Chain Management programme.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Have gained knowledge of the structure and functionality of manufacturing and supply chain systems such as Enterprise Resource Planning, Advanced Planning & Scheduling, Vendor Managed Inventory, Optimisation Suites and Shop Floor Planning & Control
- Have gained knowledge of planning technologies and configuration of manufacturing and supply chain systems
- Have gained knowledge of how to share information and coordinate decisions in a supply chain

#### SKILLS

- Be able to work with differentiated manufacturing and supply chain control
- Be able to work with manufacturing and supply chain control principles
- Be able to work with information sharing levels

#### COMPETENCES

- Be able to select and design differentiated manufacturing and supply chain control principles
- Be able to develop planning and control solutions

#### TYPE OF INSTRUCTION

The course consists of a number of lectures as well as the student's independent learning effort. The form and extent of the course is determined and described in connection with planning the semester. The lesson plans, literature etc. are created in connection with this. The course is conducted as a combination of single-disciplinary, problem-oriented and cross-disciplinary fields of study, and it is structured from a work and evaluation form which combines skills and reflection:

- Lectures
- Class work
- Project work
- Workshops
- Exercises (alone and in groups)
- Teacher feedback
- Reflection on content
- Portfolio work.

#### EXTENT AND EXPECTED WORKLOAD

Since it is a 5 ECTS course module the expected workload is 150 hours for the student.

## EXAM

### EXAMS

Name of exam	Manufacturing and Supply Chain Systems
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination

## FACTS ABOUT THE MODULE

Danish title	Fremstillings- og forsyningskædesystemer
Module code	M-OSM-K2-2
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Thomas Ditlev Brunø</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science

# BUSINESS INTELLIGENCE AND ANALYTICS

2018/2019

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

This module is based on knowledge gained on the 1st Semester of the Operations and Innovation Management programme.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Account for Business Intelligence (BI) concepts, theories and methods including:
  - Creation of knowledge from either people/employees/"experts" or from analysing existing data
  - Knowledge representation
  - Traditional BI handling systems such as expert systems, knowledge base systems, decision support systems and executive information systems.

#### SKILLS

- Make decisions about the optimal use of the BI concepts, theories, methods and selected systems for identification of needs, development of alternative solutions, evaluation selection and implementation
- Use BI in disciplines such as enterprise engineering/modelling, business analytics, data mining, etc.

#### COMPETENCES

- Apply knowledge and skills in relation to business intelligence development projects and thereby apply the knowledge handling activities: knowledge acquisition, knowledge verification, knowledge representation and knowledge engineering.

### TYPE OF INSTRUCTION

The teaching is organized in accordance with the general form of teaching. Please see the programme curriculum §17.

### EXTENT AND EXPECTED WORKLOAD

Since it is a 5 ECTS course module the expected workload is 150 hours for the student.

## EXAM

### EXAMS

Name of exam	Business Intelligence and Analytics
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination

## FACTS ABOUT THE MODULE

Danish title	Business Intelligence og analytiske metoder
Module code	M-OIM-K2-3
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Kim Nørgaard Jensen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science



# DEVELOPMENT OF QUALITY, RISK, AND PROJECT MANAGEMENT SYSTEMS 2

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

1st semester of the MSc in Operations and Supply Chain Management programme.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Have gained knowledge of a range of selected models and methods in the area of quality and project management, including:
  - Planning, control and optimising in multi-project environments
  - Models, methods and tools to develop advanced quality, environmental and project management systems
  - Risks management and performance measurements.
- Have gained knowledge of how quality, project and management accounting systems can be incorporated as strategic elements in a company
- Have gained knowledge of how quality, project and management accounting systems can be integrated with a company's other management systems
- Have gained knowledge of risk identification and risk management in ETO productions, and how such risks can be addressed as a strategic business advantage.

#### SKILLS

- Be able to analyse an organisation's need for quality and project management, internal as well as external in relation to customers and suppliers
- Be able to analyse a group of projects with simultaneous lifetime and to evaluate existing project portfolios
- Be able to apply advanced methods and models in the improvement suggestions for an organisation's current quality and project management systems
- Be able to identify and analyse risk factors for project portfolios and understand risk management systems, also with a strategic focus
- Be able to evaluate the effect of the implementation of suggested methods and models.

#### COMPETENCES

- Be able to understand and identify the connection between the quality system and a company's other control systems as well as relations to suppliers and customers in the value chain
- Be able to design and understand project management systems with conflicting success criteria, limited resources available and limited budgets
- Be able to analyse risk factors for a project portfolio, understand risk management systems and to turn risks into business opportunities.

#### TYPE OF INSTRUCTION

The course consists of a number of lectures as well as the student's independent learning effort. The form and extent of the course is determined and described in connection with planning the semester. The lesson plans, literature etc. are created in connection with this. The course is conducted as a combination of single-disciplinary, problem-oriented and cross-disciplinary fields of study, and it is structured from a work and evaluation form which combines skills and reflection:

- Lectures

- Class work
- Project work
- Workshops
- Exercises (alone and in groups)
- Teacher feedback
- Reflection on content
- Portfolio work.

## EXTENT AND EXPECTED WORKLOAD

Since it is a 5 ECTS course module the expected workload is 150 hours for the student.

## EXAM

### EXAMS

Name of exam	Development of Quality, Risk, and Project Management Systems 2
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination

## FACTS ABOUT THE MODULE

Danish title	Udvikling af kvalitets-, risiko- og projektstyringsystemer 2
Module code	M-OSM-K2-4
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Izabela Ewa Nielsen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science

# GLOBAL MANUFACTURING MANAGEMENT

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

2nd semester of the MSc in Operations and Supply Chain Management programme..

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Dependent on student's choice of content and organisation of the semester; the student may choose between project work at Aalborg University or a voluntary traineeship at a company in Denmark or abroad. The total work load of the semester has to be equivalent to 30 ECTS. If carried out at Aalborg University, the project may be finalised with a project report or in the form of a scientific paper. If continued at the 4th semester, the project is evaluated with a midterm evaluation.

## LEARNING OBJECTIVES

### KNOWLEDGE

- Have gained knowledge and understanding of Global Manufacturing Management
- Be able to understand and apply advanced analysis for evaluating Global Manufacturing Management systems and structures
- Be able to understand and apply advanced synthesis for Global Manufacturing Management.

### SKILLS

- Be able to describe the problem solved and the criteria applied for its solution
- Be able to evaluate the concepts, theories and methodologies applied in the solution of the problem
- Be able to account for the choices made during the solution of the problem, and substantiate that these are made on a high professional level
- Be able to assess the limitations of the concepts, theories, and methodologies applied in the solution of the problem.

### COMPETENCES

- Be able to analyse and solve an actual problem of industrial relevance through application of systematic research and development processes, including advanced analytical, experimental and/or numerical methods and models.

## TYPE OF INSTRUCTION

Dependent on student's choice of content and organisation of the semester

- If the semester is carried out as an academic internship, the student is included in the company's daily work. Concurrent to the work in the company, the student makes a report, which is evaluated after ending the academic internship
- The project work is carried out as an independent work process in which the students themselves organise and coordinate their workload in collaboration with a supervisor. The project may be carried out individually or in groups.

## EXTENT AND EXPECTED WORKLOAD

Since this is initially a 30 ECTS course module, the expected workload is 900 hours for the student (please see additional information).

## EXAM

### EXAMS

Name of exam	Global Manufacturing Management
Type of exam	Oral exam based on a project
ECTS	30
Assessment	7-point grading scale
Type of grading	Internal examination

## ADDITIONAL INFORMATION

1. Students are given several choices of composing an individual planned semester, including extending the master's thesis to up to 60 ECTS. Combination of project and courses (see note 2), internship, semester at other university.
2. The project must be equivalent to at least 15 ECTS. Course modules approved by the Study Board for the specific study must supplement to a total of 30 ECTS.
3. By agreement with the Study Board of Industry and Global Business Development, the project may be reduced to allow for participation in course activities. However, the project must encompass at least 15 ECTS. Proposed course activity is evaluated and tested in accordance with the curriculum in which the course module is described.

## FACTS ABOUT THE MODULE

Danish title	Global udvikling af virksomheden
Module code	M-OSM-K3-1
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	30
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Kjeld Nielsen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science

# MASTER'S THESIS

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Successful conclusion of the first three semesters of the Operations and Supply Chain Management programme. Exemptions to this rule can be given, but only by decision of the Study Board of Industry and Global Business Development.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Have attained thorough understanding of a broad range of theoretical, numerical and experimental models, methods and techniques within the area of design of Operations and supply chain management systems.

#### SKILLS

- Be able to apply scientific methodology to solving a wide variety of problems within the field of specialisation
- Be able to perform scientific work in relevant topics of the field of the specialisation
- Be able to apply a wide range of engineering methods in research and development projects in the field of specialisation
- Be able to participate in or lead projects in Operations and supply chain management systems, Operations Development and Strategy, Development of Quality and Project Management Systems, Supply Chain Operations, Manufacturing and Supply Chain Systems, Business Intelligence and Global Manufacturing Management.

#### COMPETENCES

- Be able to work independently with a project on a specific problem within their field of interest on the highest possible level within their specialisation
- Be able to take part in both discipline-specific and interdisciplinary cooperation
- Be able to take part in development and research in the field of specialisation
- Be able to direct the technical management of development projects in manufacturing companies
- Be competent to solve new and complicated technical problems by the use of advanced mathematics, scientific, economic, organisational and technological knowledge.

#### TYPE OF INSTRUCTION

In this module, the Master's Thesis is carried out. The module constitutes independent project work and concludes the programme. Within the approved topic, the Master's Thesis must document that the level for the programme has been attained.

#### EXTENT AND EXPECTED WORKLOAD

Since this is initially a 30 ECTS project module, the expected workload is 900 hours for the student (please see additional information).

## EXAM

### EXAMS

Name of exam	Master's Thesis
--------------	-----------------

Type of exam	Master's thesis/final project
ECTS	30
Assessment	7-point grading scale
Type of grading	External examination

## ADDITIONAL INFORMATION

Students are given the possibility of extending the master's thesis to up to 60 ECTS from third semester.

## FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	M-OSM-K4-1
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Kjeld Nielsen</a>

## ORGANISATION

Study Board	Study Board of Industry and Global Business Development
Department	Department of Materials and Production
Faculty	Faculty of Engineering and Science