Curriculum for the Master of Science Programme in Machine Intelligence

Aalborg University
September 2016
Preface:
Pursuant to the Danish (Consolidation) Act no 261 of March 18, 2015 on Universities (the University Act) with subsequent changes, the following curriculum for the Master’s programme in Machine Intelligence is stipulated. The programme also follows the Joint Programme Regulations and the Examination Policies and Procedures for the Faculty of Engineering and Science.

AAU, October 2015
Lone Leth Thomsen
Chairman of Study Board for Computer Science

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Chapter 1: Legal Basis of the Curriculum, etc.

1.1 Basis in ministerial orders
The Master’s programme in Machine Intelligence is organized in accordance with the Ministry of Higher Education and Science’s Ministerial Order no. 1520 of December 16, 2013 on Bachelor’s and Master’s Programmes at Universities (the Ministerial Order of the Study Programmes) and Ministerial Order no. 670 of June 19, 2014 on University Examinations (the Examination Order) with subsequent changes. Further reference is made to Ministerial Order no. 258 of March 18, 2015 (the Admission Order) and Ministerial Order no. 114 of February 3, 2015 (the Grading Scale Order) with subsequent changes.

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

1.3 Board of Studies affiliation
The Master’s programme falls under the Board of Studies for Computer Science.

1.4 Body of external examiners
Body of external examiners for Computer Science

Chapter 2: Admission, Degree Designation, Programme Duration and Competence Profile

2.1 Admission
Admission to the Master’s programme in Machine Intelligence requires a Bachelor’s degree in computer science, software or a closely related discipline.

Students with another Bachelor’s degree, upon application to the Board of Studies, will be admitted after a specific academic assessment if the applicant is deemed to have comparable educational prerequisites. The University can stipulate requirements concerning conducting additional exams prior to the start of study.

All students applying must document English language qualifications comparable to an 'English B level' in the Danish upper secondary school (minimum average grade 02).

2.2 Degree designation in Danish and English
The Master’s programme entitles the graduate to the designation cand.scient. (candidatus/candidata scientiarum) i maskinintelligens. The English designation is: Master of Science (MSc) in Machine Intelligence.

2.3 The programme’s specification 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.

2.4 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 on the basis of 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.

2.5 Competence profile of the programme:

The graduate of the Master’s programme:

Knowledge

- has knowledge in several subject areas related to Machine Intelligence, which in at least one area, such as
  1. Probabilistic Reasoning
  2. Decision Making under Uncertainty
  3. Machine Learning
  4. Agent Technology
  5. Intelligent Web-based Systems
  
  is based on the highest international research in the area.

- Can reflect on a scientific basis over scientific problems within Machine Intelligence

Skills:

- excels in the machine intelligence scientific methods and tools and general skills related to employment within machine intelligence
- can evaluate and select among the machine intelligence scientific theories, methods, tools and general skills and, on a scientific basis, advance new analyses and solutions
- can communicate research-based knowledge and discuss professional and scientific problems with both peers and non-specialists

Competences

- can manage work and development situations that are complex, unpredictable and require new solutions.
- can independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility.
- can independently take responsibility for own professional development and specialisation

Chapter 3: Content and Organisation of the Programme

The programme is structured in modules and organized as a problem-based study. A module is a programme element or a group of programme 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 programme 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
- reflection
- portfolio work

**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).

<table>
<thead>
<tr>
<th>Semester</th>
<th>Module</th>
<th>ECTS</th>
<th>Assessment</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI7</td>
<td>From Reality to Machine Intelligence Models</td>
<td>15</td>
<td>7-point scale</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>Web Intelligence</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>Machine Intelligence</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
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<td></td>
<td><strong>One of the following:</strong></td>
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<tr>
<td></td>
<td>Advanced Topics in Databases</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>Web Engineering</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
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<tr>
<td>MI8</td>
<td>Applying Machine Intelligence Models in Reality</td>
<td>15</td>
<td>7-point scale</td>
<td>External</td>
</tr>
<tr>
<td></td>
<td>Advanced Topics in Machine Intelligence</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
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<tr>
<td></td>
<td>Advanced Algorithms</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
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<td><strong>One of the following:</strong></td>
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<tr>
<td></td>
<td>Advanced Programming</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
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<td></td>
<td>Advanced Topics in Semantic and Verification</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
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<tr>
<td>MI9</td>
<td>Pre-Specialisation in Machine Intelligence</td>
<td>20</td>
<td>7-point scale</td>
<td>External</td>
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<td></td>
<td>Specialisation Course in Machine Intelligence</td>
<td>5</td>
<td>7-point scale</td>
<td>External</td>
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<td><strong>One of the following:</strong></td>
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<tr>
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<td>Advanced Topics in Databases</td>
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<td>7-point scale</td>
<td>Internal</td>
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<tr>
<td></td>
<td>Web Engineering</td>
<td>5</td>
<td>7-point scale</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurship</td>
<td>5</td>
<td>Pass/Fail</td>
<td>Internal</td>
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<tr>
<td>MI10</td>
<td>Master’s Thesis</td>
<td>30</td>
<td>7-point scale</td>
<td>External</td>
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<td></td>
<td><strong>Total</strong></td>
<td>120</td>
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1. semester, MI7

Title: From Reality to Machine Intelligence Models (Fra virkelighed til modeller med fokus på maskininligens)

Scope: 15 ECTS (project)

Prerequisites: Mandatory course modules on MI7 are followed

Objective: Knowledge
Students who complete the module should:
- have knowledge about how to represent a real-world problem scenario using one or several specialized Machine Intelligence modelling techniques, such as
  - Probabilistic Graphical Models
  - Clustering or Classification Models
  - Learning conceptual models from Web data
  - Models for data mining and machine learning
- Know how to use these Machine Intelligence models to solve learning, inference or prediction tasks.
- Obtain a deep understanding of fundamental Machine Intelligence methodologies.

Skills
Students who complete the module should:
- be able to implement a Machine Intelligence model and inference algorithms, and empirically evaluate the performance of the model, e.g., using statistical analysis or user studies.

Competences
Students who complete the module should be able to:
- identify a problem within computer science research or applications
- contribute to a solution of the problem through modelling based on computer science theories
- analyse and evaluate the contribution
- analyse and evaluate applications of relevant models for solving the problem

Type of instruction: Project
As an integrated part of the project work, the student must participate in the problem-based learning and project management workshop (1 ECTS). Approved participation is required to register for the project exam. See enclosure 1.

Exam format: Oral exam

Assessment: Internal assessment, 7-point scale

Evaluation criteria: See the Joint Programme Regulations
Title: Web Intelligence
(Web Intelligence)

Scope: 5 ECTS (course)

Prerequisites: General prerequisites for admission to the study programme

Objectives: 
Knowledge:
Students should achieve knowledge and skills within web intelligence techniques, such as:
- Application of web intelligence techniques
- Web agents and web services
- Web information retrieval
- Web navigation support
- Recommender systems
- Intelligence for social web
- Presentation of knowledge and semantic web
- User modelling, adaptation and personification
- Computational natural language processing for web

Skills:
The student should achieve the following skills:
- Demonstrate knowledge about web intelligence methods and techniques
- Chose relevant concepts and techniques within a given web system problem
- Use correct notation and terminology for web intelligence.

Competences:
The student should be able to apply web intelligence methods and techniques, including design and implementation of web systems.

Teaching form: Course
Exam form: Oral or written exam
Assessment: Internal assessment, 7-point scale
Evaluation criteria: Are stated in the Joint Programme Regulations

Title: Machine Intelligence
(Maskinintelligens)

Scope: 5 ECTS (course)

Prerequisites: General prerequisites for admission to the study programme.

Objective: Knowledge:
Students should achieve knowledge on the following theories and methods:
- demonstrate knowledge of basic techniques and methods in machine intelligence including their theoretical foundations and practical applications
- use correct technical notation and terminology
Skills:
The student should achieve the following skills:
- use basic techniques presented in the course to solve a specific problem
- use correct technical notation and terminology in both writing and speech
- explain the key principles and algorithms presented in this course

Competencies:
The student should be able to evaluate and compare different techniques and methods in machine intelligence based on a specific problem.

Teaching form: Course
Exam form: Oral or written exam
Assessment: Internal assessment, 7-point scale
Evaluation criteria: Are stated in the Joint Programme Regulations

Title: Advanced Topics in Databases
(Avancerede emner indenfor databaser)
Scope: 5 ECTS (course, elective)
Prerequisites: General prerequisites for admission to the study programme.
Objective: Knowledge:
The student will acquire knowledge on the following topics in advanced databases:
- concepts and techniques in multidimensional databases, such as data warehousing, On-Line Analytical Processing, and Data Mining
- concepts and techniques in spatial and spatiotemporal databases, including indexing and processing of queries
- concepts and techniques of complex data in databases, such as XML, Semantic Web, etc.

There will also be one or more optional subjects within data-intensive systems, including (but not limited to):
- concepts and techniques in temporal databases

Skills:
The student must achieve the following skills:
- able to explain concepts and techniques in advanced databases
- able to identify and discuss relevant concepts and techniques for a given problem in advanced databases
- able to apply relevant concepts and techniques for a given problem in advanced databases

Competencies:
The student must be able to apply concepts and techniques from advanced databases, including the design and implementation of advanced databases

Teaching form: Course
Exam form: Permitted aids and exam form will be determined by the course lecturer
Assessment: Internal assessment according to 7-point scale
Evaluation criteria: Are stated in the Joint Programme Regulations
Title: Web Engineering  
(Web engineering)

Scope: 5 ECTS (course, elective)

Prerequisites: General prerequisites for admission to the study programme.

Objective: **Knowledge:**
The student should gain knowledge of developing web applications:
- types of web applications and their use (e.g. Data-intensive, service-oriented collaboration, integration, social)
- types of web technologies
- methods for developing web applications
  - Requirements, design, implementation and testing techniques
  - Patterns for web applications
  - Development of web applications
- advanced topics in web development, for example:
  - Service-oriented architecture
  - Semantic web
  - Rich Internet Applications
  - New trends

**Skills:**
The student should achieve the following skills:
- demonstrate knowledge of web applications, web development and web architecture
- perform model-based analysis of web applications
- apply methods for developing web applications, including requirements, design, implementation and testing techniques

**Competencies:**
The student should be able to apply concepts and techniques from Web engineering, including web applications and development and architecture, requirements, design, implementation, and testing techniques.

Teaching form: Course

Exam form: Oral or written exam

Assessment: Internal assessment, 7-point scale

Evaluation criteria: Are stated in the Joint Programme Regulations
2. semester, MI8

Title: Applying Machine Intelligence Models in Reality  
(Fra modeller til virkelighed med fokus på maskinintelligens)

Scope: 15 ECTS (project)

Prerequisites Mandatory course modules on MI8 are followed

Objective: Knowledge  
Students who complete the module should:  
• have a deep understanding of how to apply advanced Machine Intelligence Models in reality, e.g., for  
  • the construction of recommender systems  
  • autonomous agent design  
  • intelligent data analysis  
  • the construction of intelligent web-based systems  
  • construction of decision support systems

Skills  
Students who complete the module should:  
• be able to identify applicable Machine Intelligence Techniques for solving real world problems that involve the need to deal with, e.g.,  
  • large and complex data sets  
  • the implementation of web-based systems  
  • computationally highly complex problems

Competences  
Students who complete the module should be able to:  
• identify a problem within computer science research or applications  
• contribute to a solution of the problem through modelling based on computer science theories  
• analyse and evaluate the contribution  
• analyse and evaluate applications of relevant models for solving the problem

Type of instruction: Project

Exam format: Oral exam

Assessment: External assessment, 7-point scale

Evaluation criteria: are stated in the Joint Programme Regulations

Title: Advanced Topics in Machine Intelligence  
(Avancerede emner inden for maskinintelligens)

Scope: 5 ECTS (course)

Prerequisites: General prerequisites for admission to the study programme.

Objective: Knowledge:  
The student should gain knowledge of advanced topics dealing with methods
and application of machine intelligence, e.g.:
- advanced techniques in data mining
- advanced methods for reasoning and decision making under uncertainty
- agent-based design of intelligent systems
- intelligent web-based systems

**Skills:**
Students should achieve skills to identify and use advanced techniques from machine intelligence for constructing intelligent systems.

**Competencies:**
The student should be able to understand advanced methods for the design of intelligent systems and to analyze their applicability and efficacy in solving specific tasks.

**Teaching form:** Course
**Exam form:** Oral or written exam
**Assessment:** Internal assessment according to 7-point scale
**Evaluation criteria:** Are stated in the Joint Programme Regulations

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**Title:** Advanced Algorithms (Avancerede algoritmer)

**Scope:** 5 ECTS (course)

**Prerequisites:** General prerequisites for admission to the study programme.

**Objective:**

**Knowledge:**
Students should achieve knowledge on the following theories and methods:
- algorithm design techniques such as divide-and-conquer, greedy algorithms, dynamic programming, back-tracking, Branch-and-limit algorithms and plane-sweep algorithms
- algorithm analysis techniques such as recursion, amortized analysis, analysis of the anticipated complexity and experimentation with algorithms
- a set of core algorithms and data structures for solving some problems from different computer science areas: algorithms for external memory, multiple-threaded algorithms, search in text, advanced graph algorithms, heuristic search and geometric calculations

There will also be one or more optional subjects in advanced algorithms including, but not limited to: approximative algorithms, randomized algorithms, linear programming and number theoretic algorithms such cryptosystems.

**Skills:**
The student should achieve the following skills:
- ability to explain the principles behind the main algorithm design and algorithm analysis techniques
- select and apply the algorithm design and algorithm analysis techniques for a given problem
recognize a number of problems from different computer science fields and select the most appropriate algorithms and data structures for solving them

• Argue about the correctness of selected algorithms, in particular, selected dynamic-programming, greedy, and approximation algorithms

Competencies:
When faced with a non-standard computer science problem, the student should be able to:
• develop efficient algorithms and data structures for solving the problem
• analyze the developed algorithms

Teaching form: Course
Exam form: Oral or written exam
Assessment: Internal assessment, 7-point scale
Evaluation criteria: Are stated in the Joint Programme Regulations

Title: Advanced Programming (Avanceret programmering)
Scope: 5 ECTS (course, elective)
Prerequisites: General prerequisites for admission to the study programme. Knowledge about language design and compiler construction is important.

Objective: Knowledge:
The student should gain knowledge of advanced programming technologies and techniques, including elements of the programming language that supports these techniques. The course will focus on both new trends in programming, and on classic advanced themes. Possible topics include:

• advanced libraries
• library design
• syntactic abstraction (macros) and language extensions
• declarative programming
• generic programming
• concurrent, parallel and distributed programming
• reactive programming
• typed and typeless programming
• scripting
• module concepts
• different hardware platforms
• resource
• optimizations
• performance studies

Skills:
Students should achieve skills in selecting appropriate programming tools for a given task. The student should be able to write correct, efficient and
maintainable programs. The student should be able to assess use of resource and to perform optimisations and performance studies.

**Competencies:**
The student should be able to solve advanced programming tasks.

**Teaching form:** Course

**Exam form:** Exam form is defined and described by the lecturer in the semester planning.

**Assessment:** Internal assessment according to 7-point scale

**Evaluation criteria:** Are stated in the Joint Programme Regulations

**Title:** Advanced Topics in Semantic and Verification

**(Avancerede emner inden for semantik og verifikation)**

**Scope:** 5 ECTS (course, elective)

**Prerequisites:** General prerequisites for admission to the study programme.

**Objective:**

**Knowledge:**
Students should achieve knowledge of recent research on advanced mathematical models for the formal description and verification of programmes, software systems and programming languages. E.g. Binary Decision Diagrams (BDD), SAT-algorithms, predicate logic, Petri nets, temporal logician and mobile process calculi.

**Skills:**
The student should achieve the following skills:
- the ability to explain course concepts and important theories precisely using the terminology and notation of the discipline
- apply methods for specification and verification based on formal models
- be able to make use of the necessary writing skills in these contexts

**Competencies:**
The student should be able to use formal models and associated verification tools for description, analysis and verification of software systems.

**Teaching form:** Course

**Exam form:** Oral or written exam

**Assessment:** Internal assessment according to 7-point scale

**Evaluation criteria:** Are stated in the Joint Programme Regulations
3. semester, MI9

Title: Pre-Specialisation in Machine Intelligence (Forspecialiserings i Maskinintelligens)

Scope: 20 ECTS (Project)

Prerequisites: MI7 and MI8 project and course modules and that the Specialisation Course in Machine Intelligence is followed simultaneously with project work.

Purpose: The student should gain insight into a current research problem in machine intelligence and be able to communicate this problem so that the student can make his/her thesis on this basis.

Reason: University educations are research based educations. On the master programmes, all students must achieve in-depth insight into current research issues and methods.

Objective: Knowledge:
After having completed the project module, the student should be able to:
• demonstrate in-depth knowledge and overview of a current problem within the research area of machine intelligence.

Skills:
After having completed the project module, the student should be able to:
• use and reason about relevant concepts and techniques within the discipline
• use and create theories within the discipline in the formulation and analysis of a problem within the research area
• communicate a current computer science problem as well as the related concepts in the research area framework

Competencies:
After having completed the project module, the student should be able to:
• apply concepts and reasoning within the discipline to formulate and analyze a current issue within the research area

Teaching form: Project work, including:
• formulation and analysis of a problem in a current issue in the research area
• reasoned reflection on solving this problem

Exam form: Oral exam based on project report

Assessment: External assessment according to 7-point scale

Evaluation criteria: Are stated in the Joint Programme Regulations

Title: Specialisation Course in Machine Intelligence (Specialiseringskursus i maskinintelligens)

Scope: 5 ECTS (Course)

Prerequisites: MI7 and MI8 or similar.

Objective: Knowledge:
The student should achieve in-depth insight into key issues in contemporary
research in machine intelligence, e.g. data mining and machine learning, graphical models, agent-based systems and intelligent web systems

Skills:
Based on a scientific article in the course's central themes, the student should be able to:
• give a clear and understandable presentation of the article's key compensation issues, including its premises, issue(s), theory, methods, results and conclusions
• explain relevant / key theories, methods and arguments presented in the article

Competences:
Based on a scientific article in the course's central themes, the student should be able to:
• relate the theories, methods and results presented in the article to the course topics
• assess the proposed solutions, results and/or conclusions of the article as well as assess their qualities and practicality and put them into perspective.

Teaching form: Course
Exam form: The student gives a lecture of 30 minutes on a defined scientific subject area (typically in the form of an article) in relation to issues addressed in the course. The selection of subject area and the framing of the task to each student are made by the course lecturer, usually in consultation with the student's project supervisor. The student is given 7 days of preparation. After the lecture, the examiner and censor can ask questions related to the student's presentation of the theme. This does not normally exceed 10 minutes.
Assessment: External assessment, 7-point-scale
Evaluation criteria: Are stated in the Joint Programme Regulations

Title: Advanced Topics in Databases (Avancerede emner indenfor databaser)
Scope: 5 ECTS (course, elective)
See description for MI7

Title: Web Engineering (Web engineering)
Scope: 5 ECTS (course, elective)
See description for MI7
Title: Entrepreneurship (Entreprenørskab)

Scope: 5 ECTS (Course, elective)

Prerequisites: General prerequisites for admission to the study programme.

Objectives:

Knowledge:
The student should achieve knowledge about entrepreneurship and business development related to software (information and communication technologies) including typically:
- different scientific approaches to entrepreneurship, including effectuation
- intra-/entrepreneurship
- competition and market conditions
- business models and business plans
- intellectual property rights
- market development and marketing
- growth strategies
- open entrepreneurship

Skills:
The student should achieve the following skills:
- the ability to explain course concepts precisely using the professional terminology of the discipline
- the ability to use those concepts to explain practical and empirical (case based) contexts

Competencies:
The student should be able to formulate, develop and present their own software-related business ideas to a qualified audience.

Teaching form: Course

Exam form: Written or oral examination

Assessment: Internal assessment, pass/fail

Evaluation criteria: Are stated in the Joint Programme Regulations
4. semester, MI10

Title: Master's Thesis (Kandidatspeciale)

Scope: 30 ECTS (Project)

Prerequisites: Project and course modules at MI7-MI9

Purpose: That students are able to formulate, analyze and help solve a current research problem in machine intelligence in an independent, systematic and critical manner through the use of scientific theory and methodology.

Reason: University educations are research based educations. On the master programmes, all students must achieve in-depth insight into current research issues and methods in a way that this insight can be brought to use in solving research problems.

Objective: Knowledge: After having completed the master's thesis, the student should be able to:

• demonstrate in-depth knowledge and overview of a current problem within the research area of machine intelligence.

Skills: After having completed the master's thesis, the student should be able to:

• use and reason about relevant concepts and techniques within the discipline
• use and create theories within the discipline in the formulation and analysis of a problem within the research area
• communicate a current computer science problem as well as the related concepts in the research area framework

Competences: After having completed the master's thesis, the student should be able to:

• apply concepts and reasoning within the discipline to formulate and analyse a current issue within the research area

Teaching form: Project work, including formulation, analysis and contribution to the resolution of a current research problem within machine intelligence and usually follows the subject of the project module on the third semester (MI9).

Exam form: Oral exam based on project report

Assessment: External assessment according to 7-point scale

Evaluation criteria: Are stated in the Joint Programme Regulations
Chapter 4: Entry into Force, Interim Provisions and Revision

The curriculum is approved by the Dean of the Faculty of Engineering and Science and enters into force as of September 2016.

Students who wish to complete their studies under the previous curriculum from 2015 must conclude their education by the summer examination period 2017 at the latest, since examinations under the previous curriculum are not offered after this time.

Chapter 5: Other Provisions

5.1 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 spelling and formulation 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 Board of Studies 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 must be in Danish. The summary must be at least 1 page and not more than 2 pages. The summary is included in the evaluation of the project as a whole.

5.2 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

In the individual case, the Board of Studies can approve successfully completed (passed) programme elements from other Master’s programmes in lieu of programme elements in this programme (credit transfer). The Board of Studies can also approve successfully completed (passed) programme elements from another Danish programme or a programme outside of Denmark at the same level in lieu of programme elements within this curriculum. Decisions on credit transfer are made by the Board of Studies based on an academic assessment. See the Framework Provisions for the rules on credit transfer.

5.3 Rules for examinations

The rules for examinations are stated in the Examination Policies and Procedures published by the Faculty of Engineering and Science on their website.

5.4 Exemption

In exceptional circumstances, the Board of Studies study can grant exemption from those parts of the curriculum that are not stipulated by law or ministerial order. Exemption regarding an examination applies to the immediate examination.

5.5 Additional information

The current version of the curriculum is published on the Board of Studies’ website, including more detailed information about the programme, including exams.

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1 Or another foreign language (upon approval from the Board of Studies).
2 The Board of Studies can grant exemption from this.
Completion of the Master’s programme
The Master’s programme must be completed no later than four years after it was begun.

Enclosure 1:

<table>
<thead>
<tr>
<th>Title:</th>
<th>Problem based learning and project management (Problembaseret læring og projektledelse)</th>
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</thead>
<tbody>
<tr>
<td>Size:</td>
<td>1 ECTS</td>
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<td>Prerequisites:</td>
<td>None</td>
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Objectives:
The objective is to make newly started Master students coming from institutions other than AAU prepared to enter the problem based learning environment at AAU and manage study projects in close collaboration with peers.

After completion of the course the student should have acquired:
- **Knowledge** about AAU as a frame of study and student life in Aalborg
- **Knowledge** to describe in own words some of the fundamental principles of Problem Based Learning (PBL) as implemented in the Aalborg PBL model at the Faculty of Engineering and Science
- **Knowledge** to identify similarities and differences between the Aalborg PBL study environment and previous study environments, incl. strengths and weaknesses in both environments
- **Skills** to structure project management activities based on a well-formulated problem formulation
- **Skills** to assess project documentation based on scientific codes of conduct.
- **Competences** to plan for effective collaborative learning in an intercultural environment and manage group conflicts
- **Competence** to reflect on, plan and manage a study project in a PBL learning environment

Type of instruction: Three half day workshops

Exam format:
The assessment is performed based on active participation in the arranged workshops.

Evaluation criteria: The criteria for the evaluation are specified in the Framework Provisions.