AALBORG UNIVERSITET

CURRICULUM FOR MASTER IN PROBLEM BASED LEARNING IN ENGINEERING AND SCIENCE - 2013 (VERSION 2) - AALBORG

MASTER
AALBORG

Curriculum for Master in Problem Based Learning in Engineering and Science - 2013 (Version 2) - Aalborg

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Curriculum for Master in Problem Based Learning in Engineering and Science, 2019

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§ 1: PREFACE

Pursuant to Act 652 of June 24, 2012 on Universities (the University Act) with subsequent changes, the following curriculum for the Master's programme in Problem Based Learning in Engineering and Science is stipulated. The programme also follows the Framework Provisions and thec v Examination Policies and Procedures for The Technical Faculty of IT and Design.

§ 2: BASIS IN MINISTERIAL ORDERS

The Professional Master's Degree programme is organised in accordance with the Ministry of Science's Order no. 1187 of December 7, 2009 on Professional Master's Degree Programmes with subsequent changes, Ministerial order no. 1188 of 7. December 2009 (the Part-Time Order) 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. 114 of February 3, 2015 (the Grading Scale Order) with subsequent changes.

§ 3: CAMPUS

The programme is offered in Aalborg.

§ 4: FACULTY AFFILIATION

The Masters's programme falls under The Technical Faculty of IT and Design, Aalborg University.

§ 5: STUDY BOARD AFFILIATION

The Master's programme falls under Study Board of Techno-Anthropology and Sustainable Design.

§ 6: AFFILIATION TO CORPS OF EXTERNAL EXAMINERS

The Master's programme is associated with the external examiners corps on Nationwide engineering examiners (Mathematics, Physics and Social Science).

§ 7: ADMISSION REQUIREMENTS

Admission to the MPBL programme presupposes a relevant higher education, at least at Bachelor level and at least two years of relevant professional experience in teaching or similar occupation following completion of the qualifying exam.

Relevant bachelor educations are, for example: Bachelor of Engineering or Bachelor of Science within any field of engineering or science; Bachelor of Education.

Other admission requirements are

- English language proficiency at level B2 (CEFR), 6 (IELTS), 550 (TOEFL, ITP), or similar, i.e. written and oral command of English, sufficient to participate in online group discussions.
- Ability to and experience with synchronous and asynchronous communication using ICT.

Aalborg University may allow admission to applicants who do not fulfil the admission requirements but who are considered to have the necessary prerequisites to accomplish the study programme. The requirement of relevant professional experience cannot be exempted.

§ 8: THE PROGRAMME TITLE IN DANISH AND ENGLISH

The Master's programme entitles the graduate to the Danish designation Master i problembaseret læring i ingeniør- og naturvidenskab. The English designation is: Master of Problem Based Learning in Engineering and Science.

§ 9: PROGRAMME SPECIFICATIONS IN ECTS CREDITS

The master education is a research based continuing education, equivalent to a one-year full-time study (60 ECTS credits) and offered as a part-time study lasting two years, divided into four semesters and credited with 15 ECTS pr. semester. The first three semesters consist of one project of 5 ECTS and 2 courses of 5 ECTS each while the last semester is the Master's thesis (15 ECTS).

The master programme should be completed at the latest 4 years, excluding leave of absence, after its commencement.

§ 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: EXEMPTION

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

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

The Master's project must include an English summary. If the project is written in English, the summary can be in Danish. The summary is included in the evaluation of the project as a whole.

§ 14: REQUIREMENTS REGARDING THE READING OF TEXTS IN A FOREIGN LANGUAGE

The language of teaching in the MPBL programme is English and all teaching material is in English. Written assignments may be handed in, written in English or Danish, with possibility of exemption for another language, provided that facilitation and assessment in the language concerned is available

§ 15: COMPETENCE PROFILE ON THE DIPLOMA

The following competence profile will be evident from the diploma:

A Master has competencies that have been acquired through a course of study based on an integration of research results and practical experience.

A Master is able to fulfil highly qualified functions in businesses, institutions and the like, through scholarship-based personal and academic competencies.

§ 16: COMPETENCE PROFILE OF THE PROGRAMME

The overall aim of this Master's programme is to support participants in achieving competences that will allow them to act as change agents in the introduction of problem based and project organised learning at the level of a single course as well as at the level of a curriculum or an institution within the context of engineering and science education, addressing diverse groups of students.

A Graduate from the MPBL programme has achieved the following knowledge, skills and competences:

Knowledge:

- Displays knowledge and understanding within the area of educational theory and practice of problem based and project organised learning, based on state of the art international research in this domain
- Understands and reflects on knowledge within the area of educational planning and implementation and is able to identify scientific issues in this field
- Continuously reflects on and improves his/her teaching competences, through studying literature on teaching and learning, in particular on PBL and documents this through collecting evidence of teaching and learning for updating his/her teaching portfolio

Skills:

- Regularly applies scientific methods and tools within the area of educational design and planning and uses general skills related to educational planning and implementation
- Designs, implements, analyses and evaluates (part of) an engineering education curriculum applying PBL principles
- Confidently applies theories and methods for evaluation and quality development within engineering education
- Routinely performs teaching roles in a PBL curriculum, including acting as a facilitator of diverse groups of students
- Regularly communicates professional issues and models to colleagues as well as to non-specialist stakeholders
- Convincingly facilitates stakeholders in a process of curriculum development

Competences:

- Independently participates in professional and interdisciplinary collaboration and takes on professional responsibility
- Manages educational change processes that are complex, unpredictable and require new models
- Discusses with stakeholders the importance of competence improvement of engineers, globally and nationally, and how the theory and practice of PBL contributes to this.

§ 17: STRUCTURE AND CONTENTS OF THE PROGRAMME

The programme is a problem-based and project organised study, structured in four semesters. One semester consists of one to three study activities which aims to give participants a set of professional skills within the fixed time frame specified in ECTS credits. A semester concludes with one or more examinations within a specific exam period. Examinations are described in the curriculum.

The academic progression of the programme is reflected in the project work. In semester 1 the participants write a personal teaching portfolio, including reflections on educational experiments. In semester 2 the project work includes design and planning of an educational experiment and in semester 3 an educational experiment is implemented, possibly the experiment planned in semester 2 but other educational experiment may be implemented. In the Master's thesis participants work on a project designed to ensure fulfillment of all programme learning outcomes, as specified in section 2.5.

A total of 20 ECTS is assessed through external examination and a total of 40 ECTS is marked according to the 7-step scale.

§ 18: OVERVIEW OF THE PROGRAMME

An overview of the programme is depicted in the table.

Offered as: 1-professional Study programme: Problem Based Learning in Engineering and Science						
Module name	Course type	ECTS	Applied grading scale	Evaluation method	Assessment method	Language
1 SEMESTER						
Teaching Portfolio (TBIPBLK17101)	Project	5	7-point grading scale	Internal examination	Written exam	English
Teaching and Learning Theories (TBIPBLK17102)	Course	5	Passed/Not Passed	Internal examination	Oral exam	English

Collaborative Learning and Scientific Writing (TBIPBLK17103)	Course	5	Passed/Not Passed	Internal examination	Written or oral exam	English
2 SEMESTER						
Design and Planning of a PBL Module (TBIPBLK17201)	Project	5	7-point grading scale	Internal examination	Oral exam based on a project	English
PBL Models and Curriculum Development (TBIPBLK17202)	Course	5	7-point grading scale	Internal examination	Written exam	English
Facilitation and Active Learning (TBIPBLK17203)	Course	5	Passed/Not Passed	Internal examination	Written or oral exam	English
3 SEMESTER						
Implementation of Change (TBIPBLK17301)	Project	5	7-point grading scale	External examination	Oral exam	English
Management of Change to PBL (TBIPBLK17302)	Course	5	7-point grading scale	Internal examination	Written exam	English
Research Methods for Educational Evaluation (TBIPBLK17303)	Course	5	Passed/Not Passed	Internal examination	Written or oral exam	English
4 SEMESTER						
Master's Thesis (TBIPBLK17401)	Project	15	7-point grading scale	External examination	Oral exam based on a project	English

Teaching format

The programme is based on a combination of academic, problem-oriented and interdisciplinary approaches to teaching and learning. Teaching formats include but may not be limited to the following methods:

- On-line lectures
- Web mediated project work
- On-line workshops
- Self-study and readings
- Web mediated exercises (individually and in groups)
- Facilitation feedback
- Self- and group reflection
- Individual portfolio work

The MPBL programme is an international, fully on-line programme; thus, in this programme advanced teaching and learning tools, including E-learning and video conferencing tools will be used intensively.

§ 19: ADDITIONAL INFORMATION

The current study regulation can be accessed on the home page of the study board for Techno Anthropology, together with more information about the programme, including examination.

§ 20: COMMENCEMENT AND TRANSITIONAL RULES

The curriculum adopted by the Study Board of Techno Anthropology and approved by the Dean of the Faculty of Engineering and Science comes into force on September 1, 2013.

Participants who wish to complete their studies under the previous study regulation for the MPBL must conclude their education no later than by the summer examination period September 2015, since examinations under the previous study regulation are not offered after this time.

In accordance with the Framework Provisions for the Faculty of Engineering and Science, Aalborg University, the curriculum must be revised no later than 5 years after its entry into force.

§ 21: AMENDMENTS TO THE CURRICULUM AND REGULATIONS

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