ENTREPRENEURIAL ENGINEERING

2-YEAR MASTER OF SCIENCE IN TECHNOLOGY PROGRAMME
(CAND.TECH) • EN.SES.AAU.DK

AALBORG UNIVERSITY
DENMARK
CREATE NEW BUSINESS OPPORTUNITIES
MAKE YOUR COMPANY STRONGER AND YOUR JOB MORE FUN
OR MAKE YOUR OWN COMPANY

The Entrepreneurial Engineering programme develops mindset and skills that enable you to create and realise new value for people and organisations. You and your fellow students will bring different - mostly - technical competences into the programme, and the purpose is to creatively combine these technical competences with business savvy in order to create new value. With your technical background as a point of departure, you will learn to generate, develop and realise ideas. From idea to reality - from thought to action.

Business creation and business development competences are keys to the global business arena of the future. Furthermore, these competences are a requisite for a range of organisations, from large private and public companies to small and medium-sized companies, start-up companies, as well as public service and knowledge-based organisations. Through the Master’s programme in Entrepreneurial Engineering, you have the opportunity to acquire the tools, methods, knowledge of processes, as well as an organisational and managerial understanding of innovation and entrepreneurship that will allow you to make a difference.

Entrepreneurial Engineering is a new study programme, designed by an interdisciplinary team of dedicated people from some of the most innovative and creative environments at Aalborg University when it comes to business innovation.

After having acquired fundamental knowledge of entrepreneurial engineering, the study programme offers you the opportunity to work on establishing your own business during the last two semesters, and thereby graduate with your own company.

THE MASTER OF SCIENCE IN TECHNOLOGY

The Master of Science in Technology programme in Entrepreneurial Engineering is a full-time Master’s degree at the same academic level as for example Master of Science in Engineering. However, the students in this particular programme often have a more diverse background, which creates a dynamic environment. Carrying out this programme requires that you are skilled, exploratory and prepared to take initiatives on your own.
Entrepreneurial Engineering is a two-year full-time Master’s programme (120 ECTS) consisting of four semesters and a minimum of 6 courses (of 5 ECTS).

The programme and the semesters are structured around three generic activities which are part of the process of creating new value: Discovery, Incubation and Acceleration. Discovery concerns new opportunities, Incubation is about developing and testing new concepts and Acceleration deals with realising new value. The study programme emphasises a natural progress, which is why you will work with Discovery on the first semester, Incubation on the second and Acceleration on the third semester. When carrying out the Master’s thesis, you can work with all three subjects at the same time as you can add whichever perspective you might find interesting to the project.

Each semester has an “Intro” (introduction) and an “Outro” (reflection), and the first three semesters have inspiring and supportive courses to underpin the team-based project work.

The illustration below provides an overview of the structure of the programme:
1ST SEMESTER

During the first semester, your journey takes you through theory, workshops and training in exploring needs/opportunities, idea generation and development, concept development and business development processes, methods, tools and validation methods. The semester is initiated with an introduction to the whole programme.

The courses in this semester will provide you with a basic understanding of entrepreneurship theory and practice, training in entrepreneurial processes and business planning as well as insight into corporate innovation and business development.

“Entrepreneurial Practice” is the theme of the first semester project which is carried out in teams of students with different backgrounds. The purpose is Discovery, and the aim is to develop your professional curiosity, an explorative mindset, understanding of users, and abilities to find/generate ideas and figure out why ideas are good.

The following are examples of projects from the first semester:

• A conceptual solution for a new mobile cruise terminal for the Port of Aalborg
• GigSpark is an event crowdfunding web platform and mobile app that allows venues and event organisers to minimise the risks when planning events
• A ‘dating concept’ for people with ideas and designers or artist

Projects can be carried out in collaboration with different partners such as companies, research projects, public organisations, and the partners can be involved at various levels and in various length of time. All semesters end with an “outro” - an evaluation and reflection on the semester work processes and results.

2ND SEMESTER

During the second semester, the following question is explored: How is the idea going to create value and business?

The keywords are prototyping, experimenting, incubation, and the aim is to use these means to maximise learning about market/users and technology/service.
Is there a potential need, does the idea work, and can it be realised?

Through the courses, you will obtain knowledge of advanced theories, methods and tools. Also, you will be trained in fast prototyping and design thinking, co-development, market research and resourcing of new business. Ultimately, you will be able to combine all these subjects by working with business modelling.

Examples of projects in the second semester, “Entrepreneurial Tactics”:

• Incubate a business based on a new wave energy principle in collaboration with the inventor-company Crestwing.
• An app for safe communication between your closest friends
• The development of a new and improved magnetic coupling with Sintex A/S - a case of disruptive innovation.
• FloWatch - a concept for water and energy savings through shower control.

You will be part of Aalborg University’s exciting WOFIE event and most likely engage in other new, innovative projects.

During the first two semesters, you will be able to develop your creativity through Creative Camps, facilitation of creativity through project work, theory on creativity and a daily training programme for enhancing and sustaining creativity in your work and everyday life.
3RD SEMESTER

The third semester emphasises the important and challenging issues of implementation and how to accelerate the business. During the semester, you will work with questions such as: How can the business be scaled (ramped up) and developed? These activities often include large investments.

For this reason, you have the opportunity to work more closely with different external partners or to work towards establishing your own knowledge-based business. You can for instance collaborate with an established corporate business development setting, an entrepreneurial firm or a small/medium sized company or a public organisation. Essentially, any partner who is willing to let you become part of the learning processes concerning innovation and entrepreneurship.

Examples of semester activity include such variety as:

- Internship in own company Absolute Liquid Solutions ApS; Starting to implement own product in collaboration with AAU tech-trans-office based on a patented idea.
- Developing a consultancy service for monitoring and enabling the firm’s innovation process
- Developing strategy for moving from B2B to B2C markets with PFA in combination with courses at the university
- Internship; producing and marketing efficient solar water heaters for an entrepreneurial firm AquaSol

The flexible design of the third semester allows you to do an internship in Denmark or abroad or to carry out a regular project.

During this semester, you are expected to draw on knowledge obtained in the previous semesters. Moreover, you can choose up to 15 ECTS points through course work. Alternatively, the third semester can be part of a one year Master’s thesis, allowing more time to cope with innovation processes, which are often lengthy of nature. You may choose to do an internship in Denmark or abroad or to study abroad at a relevant university. Especially third semester will be suitable for this.
4TH SEMESTER

The fourth semester is devoted to the Master’s thesis. When carrying out the Master’s thesis, you have the opportunity to document the knowledge, skills and competences you have acquired throughout the study programme.

Besides demonstrating the knowledge you have obtained in the Master’s programme, you also add a specific perspective to the thesis or elaborate on a specific area of own interest. The thesis may, as mentioned before, also be an extension of the third semester project where you have the option of creating and building your own business.

Always being the entrepreneurial spirit, the programme in Entrepreneurial Engineering was the natural progression for my professional and personal life. This Master’s programme has not only helped me develop myself professionally when it comes to innovation, management and entrepreneurship, but it has also given me a valuable set of skills that I can make use of regardless of my life choices. For instance when it comes to learning how to sell, how to work effectively in mixed groups, how to be persuasive, how to think analytically, how to develop a business mindset, and how to execute a project concept.

During the programme, we constantly work with real-life companies, organisations and startups, and we can develop our own startups with paying customers during the course of a semester project. These are all perfect initiatives to be able to apply all the knowledge that our teachers and guest lecturers have taught us in practice.

ANDREI BENO FROM ROMANIA

Studying Entrepreneurial Engineering
The job options are multiple. Your skill profile as a Master in Entrepreneurial Engineering is attractive for many types of companies/organisations in need of business development, including large private and public companies, small and medium-sized companies, startup companies, as well as municipalities, regions and governmental agencies.

During the study, you also have the opportunity to create your own company.

Last but not least, your English language and communication skills will be developed through your participation in an international study environment where you will work with international theories. In that way, you are prepared for future work in an international context.
PROBLEM BASED LEARNING

As a student at Aalborg University, you will work closely together with your fellow students by way of problem based project work.

Aalborg University is host to a successful UNESCO Chair in Problem Based Learning in Engineering Education and a Centre for PBL and Sustainability approved by UNESCO. The Aalborg Centre for Problem Based Learning in Engineering Science and Sustainability under the auspices of UNESCO will build upon and develop the work of the UNESCO Chair and Centre for PBL and Sustainability, and is keenly supported by Aalborg University and the Danish Ministry of Science, Innovation and Higher Education.

When writing your problem based project, you will typically be part of a group consisting of 4-5 students. Once you have formed a project group, you need to define a problem together that you want to examine. This problem forms the basis of your project, and you are to a great extent responsible for defining it yourselves within an often very broad theme frame. The group work ensures a great variety of approaches and perspectives, which results in a sound and thoroughly prepared project. Together, you are able to discuss the details thoroughly. At the same time, you are able to solve larger and more complex problems than if you were studying on an individual basis.

Each of you has the opportunity to shape the project because group work requires a contribution from everyone. If you have any academic questions, you may also discuss these with your friends in the group. The project work is completed with an exam. While working on your project, you will also need to do individual exams in your subjects. Together with lectures, literature and cooperation with the corporate sector, the project work will help you gain a deeper insight into the subject you are examining than if you had been working on your own.

With group work, you will quickly realise that you might have different opinions about how to solve a problem. Group work means that you have to compromise, and you will learn a lot about how to cooperate. Group work is very popular in the modern labour market so both you and your future workplace will benefit from the skills in cooperation you have acquired at Aalborg University.

RATED FOR EXCELLENCE

Aalborg University is rated for excellence in the QS-ranking system. Aalborg University has received five stars certifying the world-class position of the university based on cutting-edge facilities and internationally renowned research and teaching faculty.

Within Engineering and Technology, Aalborg University ranks as number 71 in the world in 2014.
Aalborg is Denmark’s fourth largest city and has approximately 125,000 inhabitants. As a student at Aalborg University, you can enjoy Aalborg’s many opportunities with regard to cultural experiences, sports, and spare time activities. In recent years, Aalborg has undergone a transformation from an industrial city to a city of knowledge and culture.

The city’s development is particularly apparent at the harbour promenade where a lively urban and cultural life with cafes, cultural event venues and sports facilities has replaced factories and smoking chimneys. As an international student at AAU, your chances of finding accommodation in Aalborg are also great.

**ACCOMMODATION IN AALBORG**

Before you arrive in Aalborg, Aalborg University’s International Accommodation Office (IAO) will assist you in finding a place to live in order to begin your studies at AAU.

The types of accommodation offered to you by AAU’s International Accommodation Office include a single room in a private house, a room in a hall of residence rooms or a large flat shared with other students.

The rent and location vary according to the type of housing. You can find more information about accommodation in Aalborg at en.aau.dk/education

**FREE DANISH CLASSES**

Learning the Danish language will significantly improve your chances of getting a job in Denmark after graduation. The municipality in Aalborg offers free Danish classes for this purpose.
APPLICATION AND REQUIREMENTS

Following Bachelors qualify you for the Master’s programme in Entrepreneurial Engineering:

- Architecture and Design
- Bachelor of Architectural Technology and Construction Management
- Bachelor of Technology Management and Marine Engineering
- Civil Engineering
- Computer Systems
- Electronics and Computer Engineering
- Health Science and Technology
- ICT Engineering
- Internet Technology
- Mechanical and Manufacturing Engineering
- Medialogy
- Software
- Urban, Energy and Environmental Planning

Students with another Bachelor’s degree may upon application to the Board of Studies be admitted following a specific academic assessment if the applicant is considered as having comparable educational prerequisites.

Furthermore, you have to meet the official language requirements for international students applying to Aalborg University. You must complete and pass one of the following:

- IELTS (academic test): 6.5 or www.ielts.org
- TOEFL (paper-based): 560 or www.ets.org/toefl
- TOEFL (internet-based): 88 or www.ets.org/toefl
- Cambridge Certificate of Proficiency (CPE) www.cambridgeenglish.org
- Certificate in Advanced English (CAE) www.cambridgeenglish.org
- Cambridge First Certificate with the grade B www.cambridgeenglish.org

The test must be less than two years old to be accepted.

TUITION-FREE STUDIES

Students from EU/EEA countries are not required to pay a tuition fee.

With the exception of students from partner universities outside the EU/EEA, a student from a non-EU/EEA country will need to pay a tuition fee.

For more information, please see: apply.aau.dk/how-to-apply-postgraduate

DEADLINES

Application deadline: 1 April.

COMMENCEMENT OF STUDY

The Master’s programme in Entrepreneurial Engineering starts 1 September.
If you have questions about how to apply or general questions about studying in Denmark and life at Aalborg University, please contact:

INTERNATIONAL OFFICE IN AALBORG

Aalborg University
Fredrik Bajers Vej 5 · DK-9220 Aalborg East · Denmark
Phone: (+45) 9940 9940
E-mail: incoming-student@adm.aau.dk

If you have questions regarding the study programme, please send an e-mail to gbe.sg@ses.aau.dk

en.aau.dk/education
en.ses.aau.dk