MATERIALS TECHNOLOGY

2-YEAR MASTER OF SCIENCE IN ENGINEERING PROGRAMME  •  EN.SES.AAU.DK

AALBORG UNIVERSITY
DENMARK
MATERIALS TECHNOLOGY

In our high-tech society there is a great need for advanced knowledge about materials as the materials to a high degree are crucial to a product’s capacity. Space travel, oil drilling and medical use are all examples of areas where development of materials’ properties are crucial for both application and development.

During the Master’s programme in Materials Technology, you will gain a profound knowledge of different engineering materials such as plastic, ceramic materials, composite materials, alloys and steel while you also gain a solid competence profile in fields such as deformations and calculation of strength of materials.

You will achieve a scientific understanding of the problems that industrial production companies, consulting engineering companies, certification companies and research institutions meet in connection with the production and use of materials. Moreover, you will be able to transform this knowledge into professional practise. The programme is interdisciplinary and contains elements from physics, chemistry, nanotechnology and traditional mechanical engineering.

The teaching is carried out in English, and the study programme alternates between lectures, laboratory work and project work.
During the Master’s programme in Materials Technology, you will work with advanced engineering materials. Among other things, you will work with steel, metal, polymers and composite materials. The project work is often carried out in close collaboration with high-tech companies, and you will go into complex and often interdisciplinary problems in depth. Also, the Master’s programme offers you the opportunity to stay abroad – you can either study at a foreign university or work as an intern in a foreign company.

1ST SEMESTER

On first semester, you will study metals and alloys. Among other things, you will follow courses in subject areas such as continuum mechanics, fracture mechanics and fatigue. When carrying out the project, you will continue to work on these subjects. For instance, you can work with analysis of failure of mechanic components or metallurgic consequences of welding.

2ND SEMESTER

Throughout the second semester, you will work with polymers and composites. The courses will provide you with knowledge of polymer chemistry, modelling of materials behaviour, polymers and their composites. The contents of the courses will be integrated into the project work where you can work with different subjects. For instance, you can work with the modification of nanoparticles in order to increase their adhesion of a given polymer or the modelling or examination of the influence of a composite material’s microstructure on its overall properties.

3RD SEMESTER

On this semester, you have the opportunity to define your own semester. You may e.g. do an internship in a Danish company or abroad, or you may study one semester at a foreign university.

Just as Aalborg University has a number of collaboration agreements with universities around the world, the professional environment behind this study programme also has a wide range of international contacts concerning agreements with companies.

4TH SEMESTER

The Master’s programme in Materials Technology is ended with a large scientific project work - the Master’s thesis. The Master’s thesis is bigger than the projects you have worked on so far. When making your final thesis, you have the opportunity to combine all the skills you have acquired throughout the programme. The Master’s thesis can be in nature of industrial development work, further development or actual research.
JOB AND CAREER

As a Master of Science in Engineering in Materials Technology, you will be able to work in private or public companies where a central part of the job requires a profound knowledge of the properties of materials, knowledge of manufacturing and processing methods and the interaction between these. Among other things, you can work as development or production engineer, specialist, project manager, production or development manager.

You can work in both Danish and international industrial production companies, consulting engineering companies, certification companies and research institutions.
Aalborg University is internationally known for its unique problem based teaching method, which also influences the project work. This method of working is recognised by both the business community and the students. When carrying out project work, using the problem-based learning method, you will experience that it is you as a student, who to a large degree define the problems, you wish to solve. In other words, you will not receive a ready-made problem, which you have to solve. Instead, based on your own interests you have the opportunity to define a project, which you find interesting. However, you are not given completely free rein. On each semester there is a certain and often broad topic, which has the purpose of assuring that you as a student achieve the necessary competences.

TEAMWORK

The project work is most often carried out in groups. Through cooperation and delegation of work, group work gives you the opportunity to solve larger and more complex problems than what you would be able to do individually. At the same time, the group work has a social function in the way that you quickly get to know your fellow students and feel at home at the university. Sometimes, it will call for a little extra effort for instance when you have to convince your fellow students that your idea is the best, or when you have to reach a compromise. However, through these experiences, you acquire a very important competence in teamwork, which both you and your future workplace will benefit from.

COOPERATING WITH THE INDUSTRY

In connection with the project work, it is tradition at Aalborg University that the students cooperate with private companies and public institutions. Thereby, you have the opportunity to acquire some work experience and work with real-life problems even before you finish your study. Through many years, Aalborg University has built up a close cooperation with the industry which means that many projects are often written for the companies and in cooperation with the companies.

YOUR LECTURER IS A RESEARCHER

The teaching at Aalborg University is research-based which means that your lecturers conduct research in the subject area in which they teach. In that way, you have access to the most recent knowledge and lecturers who are engaged and dedicated. Therefore, the educational material not only comprises books but also current articles from journals or the like.
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

As an international student at AAU, your chances of finding accommodation in Aalborg are great. 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 studyguide.aau.dk
APPLICATION AND REQUIREMENTS

Following Bachelors qualify you for the Master’s programme in Materials Technology:

- Bachelor (BSc) in Engineering (mechanical engineering and manufacturing)
- Bachelor (BSc) in Engineering (nanotechnology)
- Bachelor of Engineering in Industry and Manufacturing
- Bachelor of Engineering in Nanotechnology
- Bachelor (BSc) in Physics
- Bachelor (BSc) in Chemistry

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

DEADLINES
Application deadline:
- 1 April

COMMENCEMENT OF STUDY
The Master’s programme in Materials Technology starts 1 September

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
If you have questions about how to apply or general questions about studying in Denmark and life at Aalborg University, please contact:

ADMISSIONS AND CONTINUING EDUCATION
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 mp.sg@ses.aau.dk

STUDYGUIDE.AAU.DK
EN.SES.AAU.DK