

AAL

ESB

ENERGY

STUDY PROGRAMMES

BSC GUEST PROGRAMMES IN ENERGY ENGINEERING
2-YEAR MSC PROGRAMMES IN ENERGY ENGINEERING



AALBORG UNIVERSITY
AALBORG ESBJERG

CONTENTS

WELCOME	3
BACHELOR'S PROGRAMME FOR INTERNATIONAL GUEST STUDENTS	4
MASTER'S PROGRAMMES	5
YOU CAN STUDY ENERGY ENGINEERING IN AALBORG AND ESBJERG	7
OVERVIEW	7
CAMPUS AALBORG	8
ELECTRICAL POWER SYSTEMS AND HIGH VOLTAGE ENGINEERING	8
POWER ELECTRONICS AND DRIVES	9
WIND POWER SYSTEMS	10
MECHATRONIC CONTROL ENGINEERING	11
THERMAL ENERGY AND PROCESS ENGINEERING	12
FUEL CELLS AND HYDROGEN TECHNOLOGY	13
CAMPUS ESBJERG	14
PROCESS ENGINEERING AND COMBUSTION TECHNOLOGY	14
OFFSHORE ENERGY SYSTEMS	15
ADVANCED POWER ELECTRONICS	16
CAREER OPPORTUNITIES	17
MEET GRADUATES IN ENERGY ENGINEERING	18
PROBLEM BASED LEARNING	19
STUDY IN AALBORG	20
STUDY IN ESBJERG	21
PRACTICAL INFORMATION	22
CONTACT INFORMATION	24



WELCOME

AAL

ESB

Imagine a world without oil, coal, and gas. This would result in a lack of electricity and heat. We would not be able to drive our cars or take a bus – and flying would be out of the question, as we would not have any fuel. We would not be able to turn on the TV, cook dinner, charge our cell phones, or turn on the lights and the heat. What would we do?

We do not know how long our oil and coal reserves will last. At the same time, we are polluting the Earth with the use of oil and coal. We need to replace the sources of energy such as oil, coal, and gas with alternatives like wind, sun, and wave energy. These sources of energy do not pollute the Earth, and they will not run out.

By studying Energy Engineering programmes at Aalborg University, you can become part of the future team of engineers who are going to ensure our environment and our climate through the use of alternative sources of energy which do not pollute and at the same time optimise the energy system and efficient apparatus so that we save energy.

The Energy Engineering programmes are offered internationally and are therefore taught in English.

KNOWLEDGE
FOR THE
WORLD

BACHELOR'S

PROGRAMMES FOR INTERNATIONAL GUEST STUDENTS

At our Bachelor's programmes in Energy Engineering, international students may enroll as guest students on the 5th semester and/or 6th semester in Aalborg or Esbjerg.

The Bachelor's programme in Energy Engineering provides you with a broad theoretical basis and solid practical tools.

You will work in-depth in different areas such as new energy production systems, energy usage, and efficiency enhancement. Overall, you will work with modelling and analysis of energy systems and control of energy conversion systems.

IN AALBORG you choose a specialisation in one of the following three areas:

- Electrical Energy Engineering
- Thermal Energy Engineering
- Mechatronics

IN ESBJERG you choose a specialisation in one of the following two areas:

- Thermal Processes
- Dynamic Systems

In addition to our Energy Engineering programme, Aalborg University in Esbjerg also offers the Applied Industrial Electronics programme which is a wide ranging programme within the electronics, electrical machines, control and power electronics area.

On page 7 you will find an overview of the study programmes including the Master's programmes for which these specialisations qualify.

Please visit en.aau.dk/education for more information.



MASTER'S PROGRAMMES



Aalborg University offers a variety of specialisations in the field of Energy Engineering. With a Bachelor's degree in Energy Engineering, you can enroll in the Master's programme in Energy Engineering in Aalborg or in the Master's programme in Sustainable Energy Engineering in Esbjerg.

IN AALBORG you choose a specialisation in one of the following six areas:

- Electrical Power Systems and High Voltage Engineering
- Wind Power Systems
- Power Electronics and Drives
- Fuel Cells and Hydrogen Technology
- Thermal Energy and Process Engineering
- Mechatronic Control Engineering



IN ESBJERG you choose a specialisation in one of the following two areas:

- Offshore Energy Systems
- Process Engineering and Combustion Technology

or a Master's programme in

- Advanced Power Electronics

All programmes are characterised by a high degree of interaction with industrial partners and energy supply companies. The companies take an active part in providing project proposals for the problem-oriented project work, guest lectures and visits to the companies.

The teaching in the programmes takes place in an innovative, dynamic and challenging environment through a combination of research-based courses, teambased project work, and a high degree of interaction with industrial partners and companies. The companies take an active part in providing project proposals for the problem-oriented project work, guest lectures and visits to the companies.

Please visit et.aau.dk/laboratories/ for more information about our well-equipped, modern test laboratories.

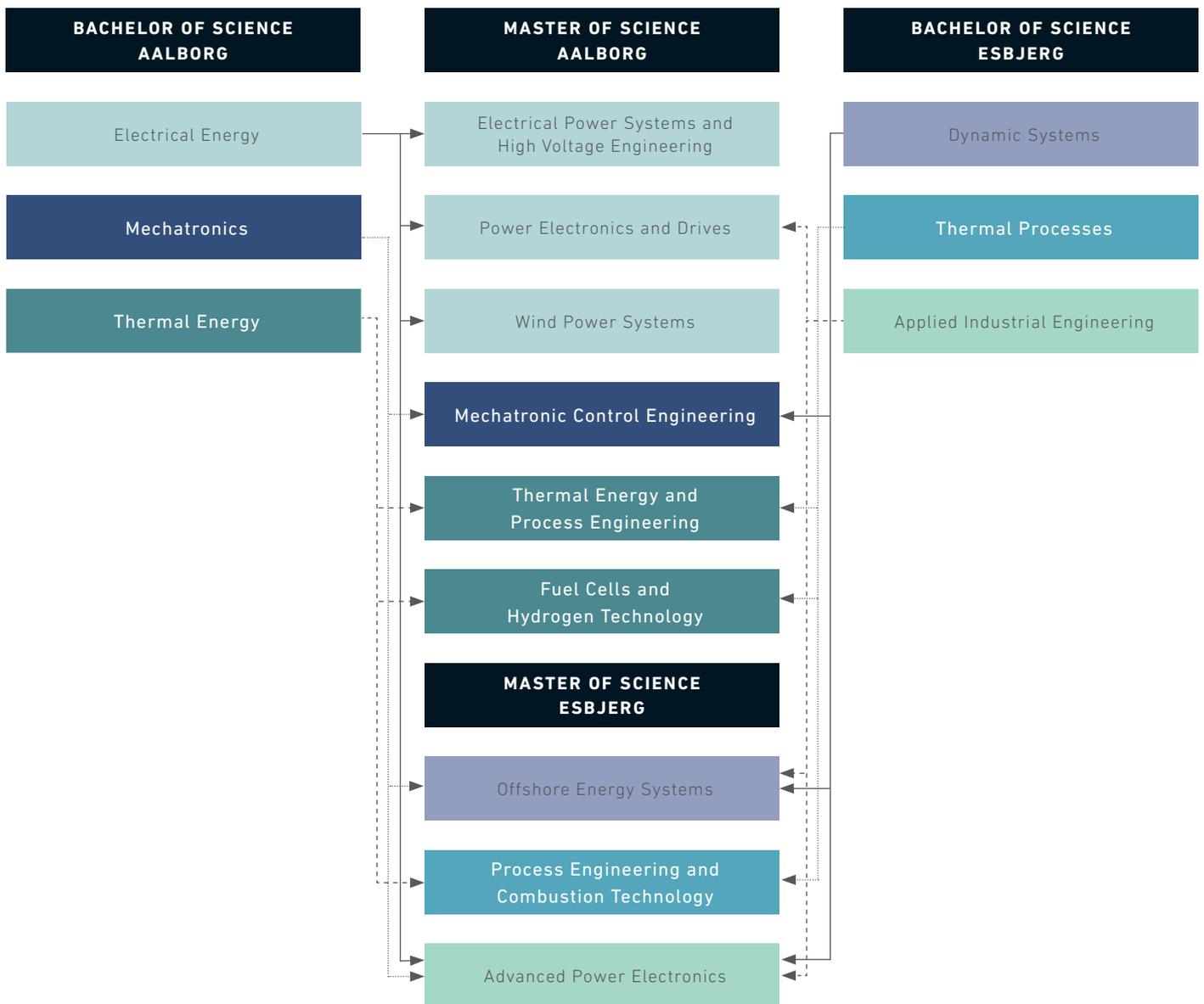
After the overview page you will find detailed descriptions about the specialisations. You may choose to study at Aalborg University during the entire programme which gives you 120 ECTS, or you may study as a guest student for one or two semesters. Depending on the programme you choose, you will study in either Esbjerg or Aalborg.

You can read about the many opportunities in the following.



YOU CAN STUDY ENERGY ENGINEERING IN AALBORG AND ESBJERG

Below you will find the structure of the Energy study programmes and how you can combine a Bachelor's programme and a Master's programme. Your options for the Master's programmes depend on the Bachelor's specialisation you have chosen. Please visit en.aau.dk/education for more information.



CAMPUS AALBORG

ELECTRICAL POWER SYSTEMS AND HIGH VOLTAGE ENGINEERING

AALBORG

The electrical energy production and the network grid structure have evolved significantly in recent years and will continue to do so in the future. More dispersed renewable generation units, such as photovoltaic (PV) systems, biomass systems and small wind turbines are being connected to the grid at the distribution level. Furthermore, at the distribution level new loads interact with the transport, thermal and gas sectors via electrical vehicles, heat pumps, electrolysers, etc.

Simultaneously, there is an increasing focus on the connection of large offshore wind farms, reinforcement of the transmission grid, replacement of overhead lines by underground cables and more HVDC connections at the transmission level. These offer potential financial, environmental and technical benefits, but they also present a great number of challenges and uncertainties.

If you want to work with future power supplies and the structure of future electrical systems, you should consider choosing this MSc specialisation where you will have the opportunity to solve problems like:

- Can the entire high voltage network be laid in cables? How should this be done?
- What will the smart grid network structure look like including decentralised supply units and active loads, and which control strategy is required?
- Would it be possible to have the distribution network run independently (i.e. disconnected) from the transmission network in the future?
- How do we control the balance between production and consumption, and maintain the grid stable, in a future network supplied by sustainable energy sources with fluctuating production and consumption?
- How can we develop and use new materials that are environmentally friendly and still fulfil the high voltage requirements?



By studying Electrical Power Systems and High Voltage Engineering, you will be able to meet the challenges of the future smart and intelligent power system networks.

STUDENT PROJECTS

The purpose of this MSc study programme is to provide you with knowledge and skills in subject areas related to Electrical Power Systems and High Voltage Engineering using courses and project work. You will work with the following project themes:

1ST SEMESTER:

Dynamics in Electrical Energy Engineering

2ND SEMESTER:

Modern Electrical Power Systems Analysis

3RD SEMESTER:

Advanced project in Electrical Power Systems and High Voltage Engineering

4TH SEMESTER:

Self-selected topic (Master's Thesis)



A lot of new companies are looking more and more into the potential for renewables in power generation, and many dilemmas arise from this, that need to be solved. The programme itself has courses and semester projects in cooperation with these companies with the intention to understand and solve these said dilemmas with integration of renewables in the electrical grid. Working alongside industry in these real world cases, I believe, is the best thing about the programme.

GABRIEL LEITE

MSc STUDENT IN ELECTRICAL POWER SYSTEMS
AND HIGH VOLTAGE ENGINEERING



POWER ELECTRONICS AND DRIVES

AALBORG

In this programme, you will study efficient and intelligent energy conversion by means of power electronics technology and electrical machines. You will study these topics analytically, numerically and experimentally in an innovative research environment.

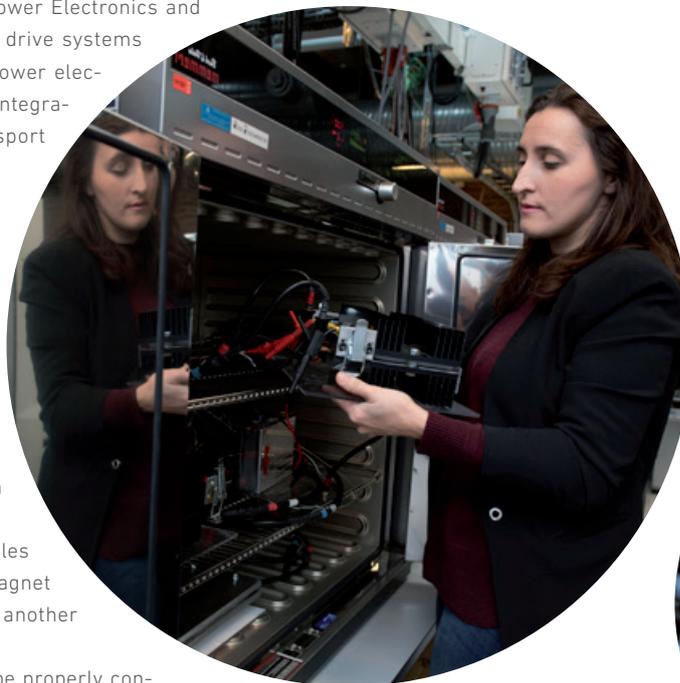
This specialisation combines contemporary technologies with classic technologies such as power semiconductor devices, electronics, electromagnetics, digital signal processors, control theory, EMC and energy technology. This gives you an understanding of the technologies and scientific disciplines involved in electric energy conversion by means of power electronic converters and electric machines.

Studying this specialisation, you learn how to model, analyse, synthesise and develop power electronics and drive systems, and you will also learn how these interact with externally connected components or systems.

During the specialisation in Power Electronics and Drives, you will study electric drive systems and learn about generators, power electronics, control systems, and integration of drive systems in transport and industry.

You will explore questions such as:

- How do we ensure production using the lowest possible energy consumption?
- How do we design a power electronics system with lowest cost, highest efficiency and reliability in a given application?
- Should future electrical vehicles be driven by a permanent magnet motor, an induction motor, or another type of motor?
- How should a drive system be properly controlled to meet the required steady state and dynamic performances in an industrial application?
- How do we foresee new development trends in power electronics, electrical machines and drives?



STUDENT PROJECTS

The purpose of this MSc study programme is to provide you with knowledge in subject areas related to Power Electronics and Drives using courses and project work. You will work with the following project themes:

1ST SEMESTER:

Dynamics in Electrical Energy Engineering

2ND SEMESTER:

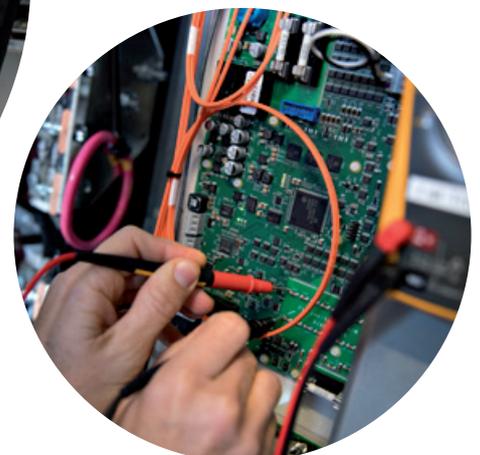
Control of Power Electronic Systems

3RD SEMESTER:

Advanced project in Power Electronics and Drives

4TH SEMESTER:

Self-selected topic (Master's Thesis)



WIND POWER SYSTEMS

AALBORG

The wind power industry is developing rapidly with many new technologies frequently being designed and implemented. Also, new problems are revealed due to the many different wind power systems in the electrical grid. Some of the future wind installations will be very large offshore wind farms that will act as power plants and support the electrical grid in terms of stability and power balance with services like active power reserve, frequency support, reactive power.

In the future, it is expected that many small wind turbines will be installed, perhaps as plug and play units at the household level. These wind turbines could be both vertical and horizontal axis turbines. This will create many new challenges for wind power engineers.

The specialisation in Wind Power Systems focuses on the electrical aspects of wind power systems, ensuring a thorough knowledge of areas such as generators, power electronics, control engineering and power system technology related to wind power applications. These focus areas will be experienced by the graduate student covering both the theoretical and practical parts, spending a major part of the time in our state of the art equipped laboratories used for experimental validation.

You will explore questions such as:

- How do we design the control system of a wind turbine connected to the grid?
- How do we ensure electric network stability when a large wind turbine park is connected to the electrical system?

- How do we integrate wind turbine systems together with other renewable sources and storage systems?
- Should direct current (DC) or alternating current (AC) transmission be applied to offshore wind parks of the future?
- What type of generator provides the highest efficiency in a given application?
- How can a wind turbine be protected against lightning?

STUDENT PROJECTS

The purpose of this MSc study programme is to provide you with knowledge in subject areas related to Wind Power Systems using courses and project work. You will work with the following project themes:

1ST SEMESTER:

Dynamics in Electrical Energy Engineering.

2ND SEMESTER:

Interaction between Wind Power Generation Units and Electrical Loads or Power System

3RD SEMESTER:

Advanced project in Wind Power Systems

4TH SEMESTER:

Self-selected topic (Master's Thesis).



MECHATRONIC CONTROL ENGINEERING

AALBORG

What is mechatronics? Most often people refer to mechatronics as the combination of mechanical and electrical elements to form a component or a system, but actually, it is much more than that. Mechatronics as an engineering discipline is the synergic combination of mechanical, electronic, control and computer engineering to design fully optimised systems and components. A key factor in this respect is integration of the disciplines during the design process and the ability to select the best technological solution for a given problem.

As an example of a mechatronic product, think of a car engine. Previously, much of the functionality was placed in mechanics. Today's functionality has shifted to microcontrollers controlling e.g. the fuel injection through small, electronically activated valves. Design of these new multi-disciplinary systems not only requires knowledge of proper mechanical design principles, but also electronics, embedded computer control hardware, software, sensors and control in order to design the optimal product.

The specialisation in Mechatronic Control Engineering is designed to give you a solid background for solving these multidisciplinary problems, combining different fields of engineering and enabling you as a design engineer to choose the optimal technology solutions for a given problem. Focus is on modelling, analysing, designing, and optimising mechatronic components and systems with emphasis on the core disciplines and with special focus on the control aspect.

You will explore issues such as:

- How to model, analyse and design complex mechatronic systems
- How to design advanced control systems for e.g. wind turbines and wave energy systems
- How to design mechatronic systems, like e.g. fully optimised robots
- How to choose the best technological solutions, when dealing with multidisciplinary problems

During the specialisation in Mechatronic Control Engineering (MCE), you will extend your existing knowledge from the classic engineering disciplines like mechanical, electronic, control and computer engineering, but also develop a thorough understanding of a synergistic combination of these technologies when designing fully optimised systems and



products. The studies will therefore enable you to perform analyses, design and control all types of energy systems and advanced electro-mechanical products, with special focus on modern and advanced control methods. You will learn to implement solutions in the laboratory, and you will learn to work with multi-disciplinary projects and communicate with team members from other disciplines.

The purpose of this MSc study programme is to provide you with knowledge in subject areas related to Mechatronic Control Engineering using courses and project work. You will work with the following project themes:

1ST SEMESTER:

Control of a Hydraulic Actuated Mechanical Structure

2ND SEMESTER:

Advanced Control of Electrical Machines

3RD SEMESTER:

Mechatronic Systems

4TH SEMESTER:

Self-selected topic (Master's Thesis)



I chose to study Mechatronic Control Engineering because I love system engineering. Studying mechatronics made it possible for me to optimise systems and not just within a specific domain like hydraulics, electronics or programming. Mechatronics allow me to understand these domains and how they interact so I can find optimum solutions across traditional domain/technology boundaries.

It was my career dreams when I graduated to build a company that carries out challenging mechatronic projects all over the world. Places like Russia, Iceland, Austria and China. Then I want to have my own development projects that co-operates with researchers to solve challenging problems and build them into products. I graduated in 2012 and today I've realised that dream.

THOMAS SCHMIDT, GRADUATE



THERMAL ENERGY AND PROCESS ENGINEERING

AALBORG

The exhaustion of fossil fuel resources and the environmental issues associated with the utilisation of these require novel engineering solutions. New efficient energy conversion technologies for heat and power production and clean fuel production technologies must be developed based on renewable energy sources such as wind and solar energy.

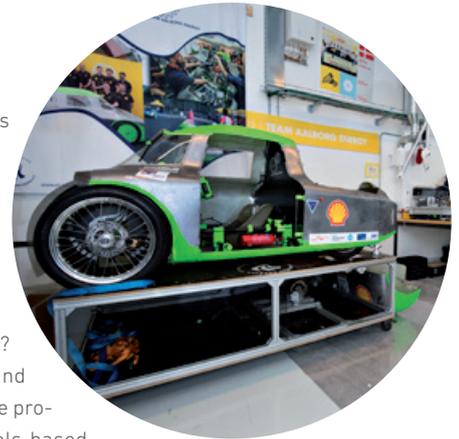
The specialisation in Thermal Energy and Process Engineering focuses on these alternative energy technologies and educate engineers in this field. The ability to design new, innovative energy technologies and systems will be decisive in the future where competition both in terms of efficiency and environmental issues will be fierce in order to meet market and society requirements.

Studying Thermal Energy and Process Engineering, your primary focus is on thermal energy technologies and systems. You will work with advanced aspects of energy system modelling, heat and mass transfer, control engineering and experimental work with focus on different thermal components and energy system aspects.

The specialisation is multidisciplinary and covers the integration of general engineering disciplines, such as thermal systems, fluid- and aerodynamics, control engineering and electrical engineering.

You will explore questions such as:

- How can we develop energy efficient processes for production of heat and power capable of balancing intermittent renewable energy production systems?
- Can we develop efficient and sustainable methods for the production of bio-/electro-fuels based on renewable energy?
- How can we develop sustainable chemical process systems and industrial energy systems capable of delivering the products we need in the future?
- How should we supply heat and cooling in the future using heat pumps and district heating/cooling systems?
- How do we design cyclic processes for exploitation of solar energy to produce electricity?



STUDENT PROJECTS

The purpose of this MSc study programme is to provide you with knowledge in subject areas related to Thermal Energy and Process Engineering using courses and project work. You will work with the following project themes:

1ST SEMESTER:

Fluid-Mechanical Analysis Methods

2ND SEMESTER:

Modelling and Optimisation of Energy Systems.

3RD SEMESTER:

Optimisation, Analysis and Control of Thermal Energy and Processing Systems

4TH SEMESTER:

Self-selected topic (Master's Thesis)

FUEL CELLS AND HYDROGEN TECHNOLOGY

AALBORG

To enable a sustainable and clean energy supply in the future, we need to depend less on fossil fuel reserves. This is because it is more environmentally sustainable to promote the development of automotive, stationary and consumer applications powered by fuel cells. Fuel cells and hydrogen systems are important technologies, which may make a positive impact on the global energy situation utilising hydrogen produced from renewable energy sources. Fuel cells are already used commercially in a wide range of applications in products. Electrolysis systems will play a major role in the future energy system with many intermittent renewable energy sources.

The specialisation in Fuel Cells and Hydrogen Technology covers energy system modelling, heat and mass transfer, control engineering, and experimental work related to fuel cells and hydrogen related systems. You will also learn about different hydrogen and fuel cell related components and energy system aspects.

The specialisation in Fuel Cells and Hydrogen Technology gives you an in-depth understanding of the technologies of fuel cell systems and hydrogen production, fuel production from hydrogen and chemical energy storage systems. The programme is multidisciplinary, integrating general engineering disciplines, such as thermal systems, fluid dynamics, control engineering and electrical engineering.

Explore questions such as:

- Should future hybrid vehicles be based on hydrogen propulsion systems?
- How can the most cost-effective, energy optimised, hydrogen and fuel cell systems be developed?
- Can we replace our present oil supply infrastructure with a hydrogen supply infrastructure or electro-fuels based on hydrogen from electrolysis?
- How can hydrogen and fuel cell systems be included in and help stabilise the future energy supply system?
- Which types of fuel cells and electrolysis systems are the most suitable for given applications?

Excellent laboratories are available so you have the opportunity to construct and operate fuel cell-based technologies in real applications.

The purpose of this MSc study programme is to provide you with knowledge and skills in subject areas related to Fuel Cells and Hydrogen Technology using courses and project work. You will work with the following project themes:

1ST SEMESTER:

Fluid-Mechanical Analysis Methods

2ND SEMESTER:

Modelling and Optimisation of Fuel Cell Systems

3RD SEMESTER:

Optimisation, Analysis and Control of Fuel Cell and Hydrogen Technology Systems

4TH SEMESTER:

Self-selected topic (Master's Thesis)



CAMPUS ESBJERG

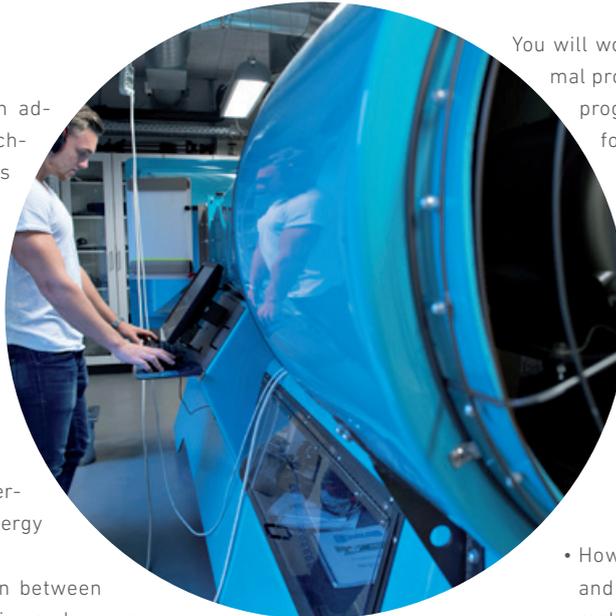
PROCESS ENGINEERING AND COMBUSTION TECHNOLOGY

ESBJERG

The specialisation primarily focuses on advanced competences in combustion technology, thermal energy systems, process system and systems for Heat, Ventilation, Air condition and Control (HVAC), including Computational Fluid Dynamics (CFD) and process simulation. The specialisation provides opportunities to focus on both bioenergy and offshore oil and gas systems.

You will explore topics such as:

- Design, modelling and optimisation of thermal energy systems used in various energy production applications
- Operation, functionality and interaction between the various components of key combustion and process technologies
- Systems integration with respect to both system efficiency and engineering aspects of thermal energy systems
- Development, construction and operation of combustion technologies and process systems in laboratory and in real applications
- Practical realisation and implementation of thermal energy technologies and systems concerning both innovative aspects, business planning and economic considerations



You will work with energy systems based on thermal processes or combustion technologies. The programme covers thermal energy systems for heat and power, fluid mechanics and flow systems as well as offshore oil and gas systems.

The programme provides you with knowledge of how to design, analyse and simulate devices for process and combustion systems.

You will explore questions such as:

- How do we design efficient systems for thermal processes and combustion systems?
- How do we optimise process parameters and minimise operational problems in thermal systems?
- How do we improve the design of cleaning systems for facilities to meet environmental demands?

1ST SEMESTER:

Fluid Mechanical Analysis Methods

2ND SEMESTER:

Combustion and/or Process Systems

3ED SEMESTER:

Advanced Combustion and Process Systems

4TH SEMESTER:

Self-selected topic (Master's Thesis)



I have always been happy to think creatively and innovatively, which the energy sector in Denmark needs today if we are to overcome the transition from fossil fuels, to renewable energy technology, in a stable and safe way. For me the Energy Engineering Programme at Aalborg University Esbjerg seemed to meet these requirements, focusing on: sustainability, innovation, development and research within energy systems.

EMIL KENNEMANN CHRISTENSEN, GRADUATE



OFFSHORE ENERGY SYSTEMS

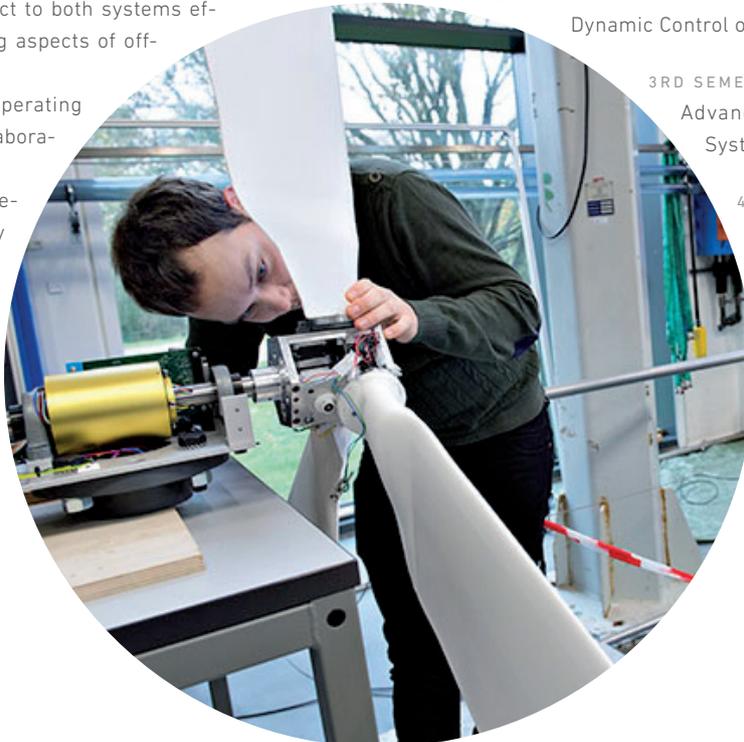
ESBJERG

In this study programme, you learn about design, analysis and modelling of offshore energy systems and the system component interaction. You get to work with fluid and water wave mechanics, offshore energy system including electrical and mechanical systems, together with control, optimisation and diagnosis of offshore energy systems.

The specialisation gives you insight into various technologies for energy transfer, harvesting and control of offshore energy systems. Also, you gain knowledge of how to design, analyse and model mechanical systems, fluid power systems and electrical systems with complex dynamics and elements with non-linear behaviour.

You will work with topics such as:

- Design, modelling and optimisation of energy systems used in various offshore energy applications
- Operation, functionality and interaction between the various components of offshore energy systems
- Systems integration with respect to both systems efficiency and control engineering aspects of offshore energy systems
- Developing, constructing and operating offshore energy systems in the laboratory and in real applications
- Practical realisation and implementation of offshore energy systems concerning both innovative aspects, business planning and economical considerations



This programme provides you with knowledge of how to design, analyse and model mechanical systems, fluid power systems and electrical systems with complex dynamics and elements with non-linear behaviour.

You will learn

- how to analyse and design subsystems for offshore wind turbines
- how to model complex offshore energy systems
- how to develop advanced control algorithms for offshore energy systems

STUDENT PROJECTS

The purpose of this MSc study programme is to provide you with knowledge in subject areas related to Offshore Energy Systems using courses and project work. You will work with the following project themes:

1ST SEMESTER:

Modelling and Identification of Offshore Systems

2ND SEMESTER:

Dynamic Control of Offshore Electrical Systems

3RD SEMESTER:

Advanced Control of Offshore Energy Systems

4TH SEMESTER:

Self-selected topic (Master's Thesis)

ADVANCED POWER ELECTRONICS

ESBJERG

The study programme in Advanced Power Electronics combines contemporary technologies with classic technologies such as electronics, power electronics, electrical machines, control engineering with artificial intelligence, reliability and maintenance issues. This gives you an understanding of the technologies and scientific disciplines involved in the advanced power electronic area and its application in apparatus and systems.

Studying this programme, you learn how to model, analyse, synthesise and develop advanced power electronic apparatus and systems, and you will learn how power electronics and drives interact with externally connected components or systems.

You will work with topics such as:

- Off-shore wind turbine converters and control
- Power electronics application for sub-sea robotics and drones
- Diagnostic of power electronic and electrical machine installations
- Optimal control of drives
- Predictive maintenance of industrial electronic systems
- Control of renewable energy systems
- Electric propulsion systems for modern ship and vehicle
- Condition monitoring and maintenance of power electronic systems
- Reliability analysis of power electronics systems



You will explore:

- How to extend the lifetime of a wind turbine power converter
- How to make a drive system for the future electrical vehicle
- How to design reliable power electronic system
- How to estimate the lifetime of a power electronic converter using artificial intelligence
- How to implement predictive maintenance for industrial electronic systems
- How to implement intelligent control for industrial electronic systems

STUDENT PROJECTS

1ST SEMESTER:

Diagnosis and Maintenance

2ND SEMESTER:

Control of Power Electronic Systems

3RD SEMESTER:

Advanced Control in Industrial Electronics

4TH SEMESTER:

Self-selected topic (Master's Thesis)



CAREER

OPPORTUNITIES

The world needs energy engineers, and you will have a wide range of job opportunities. As an energy engineer, your future workplace can be any company that has to do with energy – whether it concerns planning, production, control of or the use of energy. You can work with all kinds of renewables within the electrical or thermal field, and you can work with optimisation of new energy apparatus and systems, taking energy efficiency, cost and performance into account. The workplace can be anywhere in the world, and many different industries and utilities employ energy engineers to ensure better products and better distribution of the energy with fewer losses.

Your potential future job title could be for instance:

- Project engineer
- Research, development, or operation engineer
- Mechanical engineer
- Electrical engineer
- Thermal engineer
- Control engineer
- Process engineer

Examples of where graduates in Energy Engineering work include:

- Siemens Gamesa Renewable Energy
- Vestas Wind Systems
- Ørsted
- Rambøll
- ABB
- Vattenfall
- Grundfos
- Vestas AirCoil
- KK Wind Solutions A/S



MEET GRADUATES

IN ENERGY ENGINEERING

”

Collaboration with industrial partners offer great opportunities to study highly relevant – and real-life problems that the companies experience. In my opinion, collaboration with industrial partners gives a good perspective and highlight of the relevance of the topics within the study programmes.

After graduating, I got a job in DEIF in their R&D department, and I find it very exciting, fun and challenging. In an R&D job, you really get to use every aspect of being an engineer. For example, I get to be involved more or less from start to finish in the design process of new products. For me, this job type offers good opportunities to ensure continuous self-development, and I could see myself in a job position like this for a long time.

MARTIN TROLLE ARENTSEN, DENMARK

MSC IN ELECTRICAL POWER SYSTEMS AND HIGH VOLTAGE ENGINEERING
ELECTRICAL ENGINEER, R&D PLATFORM SOFTWARE, DEIF A/S

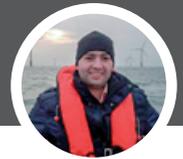
”

The Master's Programme at Aalborg University is a well thought educational programme that perfectly balances theory and practice. Moreover, you will be part of an international environment that will open-up your mind, and it has prepared me well for my current career by offering me the chance to build a strong theoretical background and at the same time to develop my inter-personal skills. Also, the team work mentality that has been developed during the various group work assignments has meant a lot to me.

Now I work with developing and constructing wind power projects, and I have continuously used in my daily work the wind power knowledge accumulated during the Master's Programme.

IULIAN VRANCEANU, ROMANIA

MSC IN WIND POWER SYSTEMS
ELECTRICAL PACKAGE MANAGER IN VATTENFALL A/S



”

I am currently working as an Electrical Grid Planning specialist with n1 netselskabet. My work comprises of grid planning and its protection. My study programme has highly contributed in this regard: It enabled me to enhance my knowledge on topics like power flows in the grid, protection devices, transient analysis, wind turbines, etc. Moreover, the opportunity to implement these concepts in the semester projects have helped me perform in my job. The semester projects have taught me how to approach any given problem and instilled the confidence in me to solve the problem.

ANURAG BOSE, INDIA

MSC IN ELECTRICAL POWER SYSTEMS
AND HIGH VOLTAGE ENGINEERING
NET PLANNER, PLANNING, NETSELSKABET N1



”

As a student at Aalborg University, you are exposed to various opportunities and choices in a relaxed environment, which helps in the long run. Furthermore, the degree structure allowed me to tailor my education to my interests.

Apart from the technical knowledge, the project based learning approach used in Aalborg University also helped me develop skills in project management and problem solving and in addition to this, I learned the ability to work in small and large teams to efficiently accommodate the demands of the industry, as this is emphasised as part of the project-based learning system.

ARAVAZHI ANBARASU, UNITED KINGDOM

MSC IN POWER ELECTRONICS AND DRIVES
GE POWER CONVERSION



PROBLEM BASED LEARNING

Aalborg University is famous for its problem based learning where you work in a team on a large written assignment often collaborating with an industrial partner. This study method is also called "The Aalborg Model for Problem Based Learning". The method is highly recognised internationally, and the 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 problem based project work at Aalborg University gives you a unique opportunity to acquire new knowledge and competences at a high academic level in an independent manner. You get to apply theory to practice when you work to solve real-life problems, and you will be well prepared for your future career.

When doing project work, you work closely in groups with other students. This gives you the opportunity to cooperate, share knowledge and to explore larger and more complex academic problems than what you would have been able to do on your own. Furthermore, the groups serve a social purpose and make it easier for you to get to know your fellow students and feel more at home at the university.



RANKING OF AALBORG UNIVERSITY

In recent years, Aalborg University has risen up the international lists of university rankings. Aalborg University appears on the great majority of ranking lists, and is among the top two percent of the world's 17,000 universities.

AALBORG UNIVERSITY GETS FIVE OUT OF FIVE STARS

Aalborg University participated in a very comprehensive QS rating-project and gained five out of five stars, which puts Aalborg University on a par with Harvard, Oxford, Cambridge and Stanford.



STUDY IN AALBORG

Aalborg is Denmark's fourth largest city and has approximately 115,000 inhabitants. About 25,000 of these are students. As a student at Aalborg University, you can enjoy Aalborg's many opportunities for cultural experiences, sports, and other 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 have replaced factories and smoking chimneys.

ACCOMMODATION IN AALBORG

Aalborg University's International Accommodation Office (IAO) will assist you in finding a place to live. The types of accommodation offered to you by Aalborg University's International Accommodation Office include a single room in a private house, a room in a student accommodation or a large flat shared with other students. The rent and location vary according to the type of housing.



STUDY IN ESBJERG

Situated by the sea, Esbjerg is a town with more than 72,000 inhabitants characterised by wind energy, the oil industry, and shipping. As a student at Aalborg University's campus in Esbjerg, you can enjoy the city's many opportunities for cultural experiences, sports, and other spare time activities. Aalborg University Esbjerg is located only about 3 kilometres from Esbjerg's city centre and transport options, such as bus or bike, are great between the city centre and campus. Therefore, you have easy access to the many cultural experiences and spare time activities that Esbjerg offers.



ACCOMMODATION IN ESBJERG

Accommodation is normally easy to find and the price level is lower than in most other university cities in Denmark. In recent years, we have succeeded in providing accommodation for all international students and this, we continue to strive for.



WE HELP YOU TO A CAREER!

In our work we support the university and the study environment with a number of activities that have been developed to give you a good study time in Esbjerg and a subsequent career here. We will make an effort to make your study time both academically but also socially interesting. As an aid to creating contacts with the business community, we hold an annual career fair that gives you the opportunity to get in touch with business, both here in Esbjerg, but also in the southwestern Jutland area. We can therefore only recommend that you choose to study Energy Engineering at Aalborg University Esbjerg and become part of the "Energy Metropolis Esbjerg".

KARSTEN RIEDER

HEAD OF BUSINESS, BUSINESS ESBJERG

PRACTICAL

INFORMATION

APPLICATION AND REQUIREMENTS

Admission to the BSc guest programme in Energy Engineering presupposes 1st to 4th semesters of a BSc degree in Electrical or Mechanical Engineering or similar.

You can also study as a guest student on the MSc study programme in Energy Engineering or as a MSc student following the entire two-year degree programme.

Admission to the MSc programme in Energy Engineering presupposes a BSc degree in Electrical Energy, Thermal Energy, or Mechatronics or similar. Admission to the MSc programme in Sustainable Energy Engineering presupposes a BSc degree in Thermal Processes or Dynamic Systems or similar.

Admission to the MSc programme in Advanced Power Electronics presupposes a BSc degree in Applied Industrial Electronics or a BSc degree in Electrical Engineering or Dynamic Systems.

In order to apply you must document basic written and spoken English. The official language requirements for international students applying to Aalborg University are:

- IELTS (academic test): 6.5 www.ielts.org
- TOEFL (internet-based): 88 www.ets.org/toefl
- C2 Proficiency (CPE): 180 www.cambridgeenglish.org
- C1 Advanced (CAE): 180 www.cambridgeenglish.org
- ECPE: Passed test including certificate www.michiganassessment.org

The test must be less than two years old to be accepted. For more information, please refer to: apply.aau.dk

TUITION-FREE STUDIES

Students from EU/EEA countries are not required to pay a tuition fee. However, all students must pay all other costs related to studying in Denmark: for example costs related to books, living expenses, and accommodation. With the exception of students from partner universities outside the EU/EEA, an international student from a non-EU/EEA country will need to pay a tuition fee.

DEADLINES

Application deadline for guest students in Bachelor's programmes:

1 April, (September intake)
15 October, (February intake)

Application deadline for Master's programmes:

1 March (September intake)
15 October (February intake), guest students only.







CONTACT

CONTACT INFORMATION

IF YOU HAVE QUESTIONS ABOUT HOW TO APPLY OR GENERAL QUESTIONS ABOUT STUDYING IN DENMARK AND LIFE AT AALBORG UNIVERSITY, PLEASE CONTACT:

STUDENT GUIDANCE

Questions regarding the study programmes
E-mail: energy.sg@et.aau.dk

INTERNATIONAL OFFICE IN AALBORG

Aalborg University
Fibigerstraede 10
DK-9220 Aalborg East
Denmark
Phone: (+45) 9940 9940
E-mail: internationaloffice@aaau.dk

INTERNATIONAL OFFICE IN ESBJERG

Aalborg University Esbjerg
Niels Bohrs Vej 8
DK-6700 Esbjerg
Denmark
E-mail: international@esbjerg.aau.dk

EN.AAU.DK/EDUCATION

KNOWLEDGE
FOR THE
WORLD



AALBORG UNIVERSITY
AALBORG ESBJERG