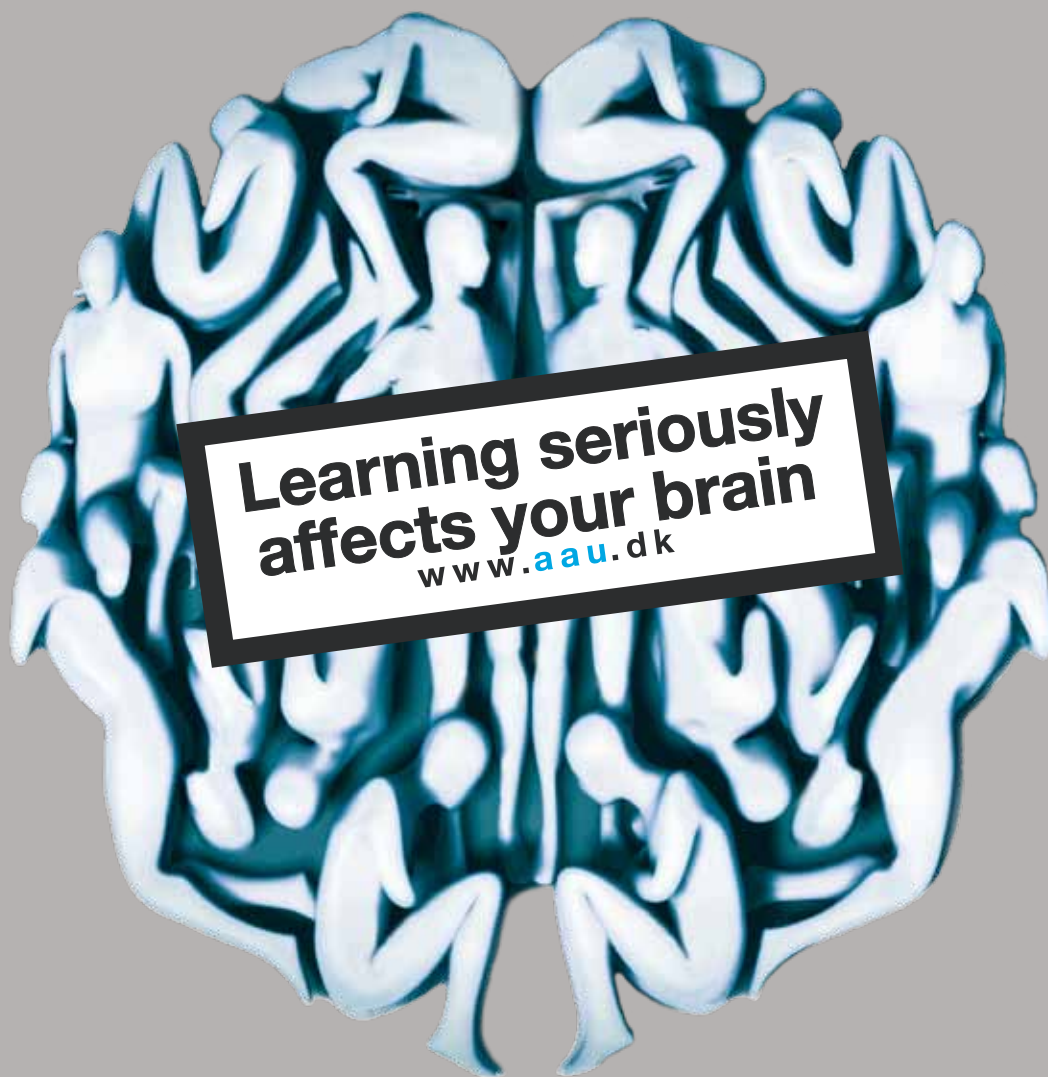




AALBORG UNIVERSITY



**Learning seriously
affects your brain**
www.aau.dk

Welcome to Aalborg University

The Faculty of Medicine
and the Faculty of Engineering and Science



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Welcome to Aalborg University

- the Faculty of Medicine and the Faculty of Engineering and Science

Aalborg University (AAU) is a young and modern university which over the years has grown to become a large, well-established research and teaching institution. The University offers a range of both traditional and untraditional educational programmes and research opportunities in the fields of Humanities, Social Sciences, Medicine, Natural Sciences, and Engineering. Since its establishment in 1974, Aalborg University has expanded to include two other campuses: Esbjerg in 1995 and Copenhagen in 2003. Close to 16,000 students are enrolled at Aalborg University, ranging from students taking

preparatory courses, to those following bachelor's and master's programmes, professional programmes, and PhD students. Of these, more than 10 percent are international students from all over the world.

Aalborg University has all the facilities that define a modern university. The laboratories are state-of-the-art and the university libraries provide students access to thousands of English-language journals and technical books. An additional feature of the university is that most students have their own group room. The group room is your base where you can work on your project undisturbed. These features, along with the project-organised, Problem Based Learning strategies employed at Aalborg University build the foundation for true greatness, and will challenge you to create interesting solutions to the problems of today.

The Aalborg campus

The Aalborg Campus is the main campus of Aalborg University with the largest variety of programmes. Here you can study anything from Software Engineering to Sports Technology to Environmental Management. Students make up approximately 20 percent of the population of Aalborg, so it is a young and vibrant city and one that is uniquely connected to the university.

The Copenhagen campus

The Copenhagen campus is the youngest of the campuses at Aalborg University and has expanded rapidly since its inception. Within two years, the number of students has doubled and the Copenhagen campus is moving into new buildings in September 2012 – only ten minutes away from the city centre. Unique programmes in Copenhagen include IT, Commu-

nication and New Media and Sustainable Biotechnology where students and professors are working together with the aim of finding a path away from fossil to sustainable fuels.

The Esbjerg campus

What makes the Esbjerg campus a special place to study is its relatively small (though growing) size, which makes for a great feeling of unity among the students – also across disciplines – a high level of service, and close cooperation among students, teachers and staff. On the Esbjerg campus, you're not just a number. Positioned on the coast of the North Sea, Esbjerg is close to Danish offshore industries such as oil and wind and thusly able to offer unique programmes such as Oil and Gas Technology and Wind Power Systems



Learning Seriously Affects Your Brain

Welcome to Aalborg University where we look forward to seriously affecting your brain. We want you to be able to solve the problem of the continuing use of fossil fuels, create new forms of architecture through modern means, or develop the future of advanced assistive technology. This, we believe, is done best through Problem Based Learning (PBL) – the teaching model we use at Aalborg University. Through PBL you will learn how to analyze problems, how to work in a result-oriented manner and most importantly how to work successfully within a team. Each semester you will join a group and together you and your groupmates will use your academic knowledge to work with real-life situations

that include collaboration with companies, associations, and research organisations. Since group work is key at AAU, we make sure to have the facilities to support it. Therefore, each project group is allocated work space, typically a group room, which is equipped with one or two computers with access to the network, printing facilities and other valuable resources. Your group's work space is located in the same building as teachers' offices and you will have 24-hour access.

Although studying is important, it isn't everything. At AAU we strive to give you the best possible start not only academically, but also socially. Therefore, we offer services to help you find accommodation in ad-



vance of your coming to Denmark¹. Once you get here, we will greet you in the airport or at the railway station, and after a couple of days you will meet your buddy – a student already studying at AAU who can help you out with all the practical things and show you the best place to shop, eat, and go out. If you want to get to know the Danes better or if you're thinking about staying after you have finished your studies, both the university and the

municipalities offer free Danish language courses where you can not only learn the Danish language, but also gain insight into the Scandinavian culture and ways of living.

We hope studying at Aalborg University will not only change your way of thinking but also your view of life. Looking forward to affecting *your* brain!

*Everybody at
Aalborg University*



**Tell me and I'll forget;
Show me and I may remember;
Involve me and I'll understand²**

¹ Aalborg University has three campuses: Aalborg, Copenhagen and Esbjerg. In Aalborg and Esbjerg we can guarantee accommodation if you meet the deadlines. In Copenhagen unfortunately we are unable to give the same guarantee. However, we are constantly working on developing more housing in Copenhagen and will do our very best to help anybody who wants it. For more information please have a look at page 11

² Chinese proverbs use as to describe the PBL model



Problem Based Learning

Having been interested in new and alternative approaches to education since its inception, Aalborg University is a world leading proponent of what is referred to as Problem Based Learning (PBL). A large part of each semester's teaching and student work revolves around complex and real life problems. This educational vision informs the development of study programmes and curricula, influences the faculty members and students who comprise the institution, and shapes relationships with key constituents.

Known specifically as the Aalborg PBL model, teachers at Aalborg University are meant to act more as initiators and facilitators in the collaborative process of knowledge transfer and development, while stu-

dents play a far more active role in determining the focus and scope of their studies. PBL is driven by challenging, open-ended, ill-defined, and ill-structured problems which engage students in constructing knowledge in their own minds, by themselves.

Designed to integrate theory and practice, foster a team-based approach, and be highly collaborative among students and external businesses, PBL is meant to encourage students to incorporate knowledge from across traditional disciplines to analyse and solve field of study relevant problems.

All programmes include credit-bearing academic courses that introduce and orient students to the problem and project based educational model. In addition to this course load,

Tuition-free studies

Students from inside the EU/EEA do not have 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.

NB: 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:

<http://www.apply.aau.dk/how-to-apply-undergraduate/tuition-fee>

<http://www.apply.aau.dk/how-to-apply-postgraduate/tuition-fee>

Aalborg University does, however, grant tuition waivers to non-EU/EEA students. Unfortunately, the number of tuition waivers is very limited. Students cannot apply for these scholarships but will be nominated by the faculties of Aalborg University when they apply to Aalborg University.

the focus of each semester is a project for which the student is responsible to demonstrate the relevance to both their study programme and the

learning objectives of that semester. With this method you will quickly get to know your fellow students as functioning as a group is an imperative part of your success. While a member of the faculty is appointed as a supervisor of the project, and in that capacity ensures that problem formulations (through alignment with the theme and overall goals) provide sufficient context for achieving the learning objectives, the project otherwise is largely self-directed.



English language requirement

Undergraduate degree programmes offered in English at Aalborg University require that you have a command of the English language equivalent to the Danish English level B.

Danish English level B - general entry requirement - compares to:

IELTS (academic test): 6.0 or

TOEFL (paper-based): 550 or

TOEFL (computer-based): 213 or

TOEFL (internet-based): 79- 80 or

Cambridge CEF: B2

The official language requirements for international students applying for a postgraduate programme at Aalborg University, be it as a guest,

Erasmus or ordinary student are:

IELTS (academic test): ** 6.5 www.ielts.org or

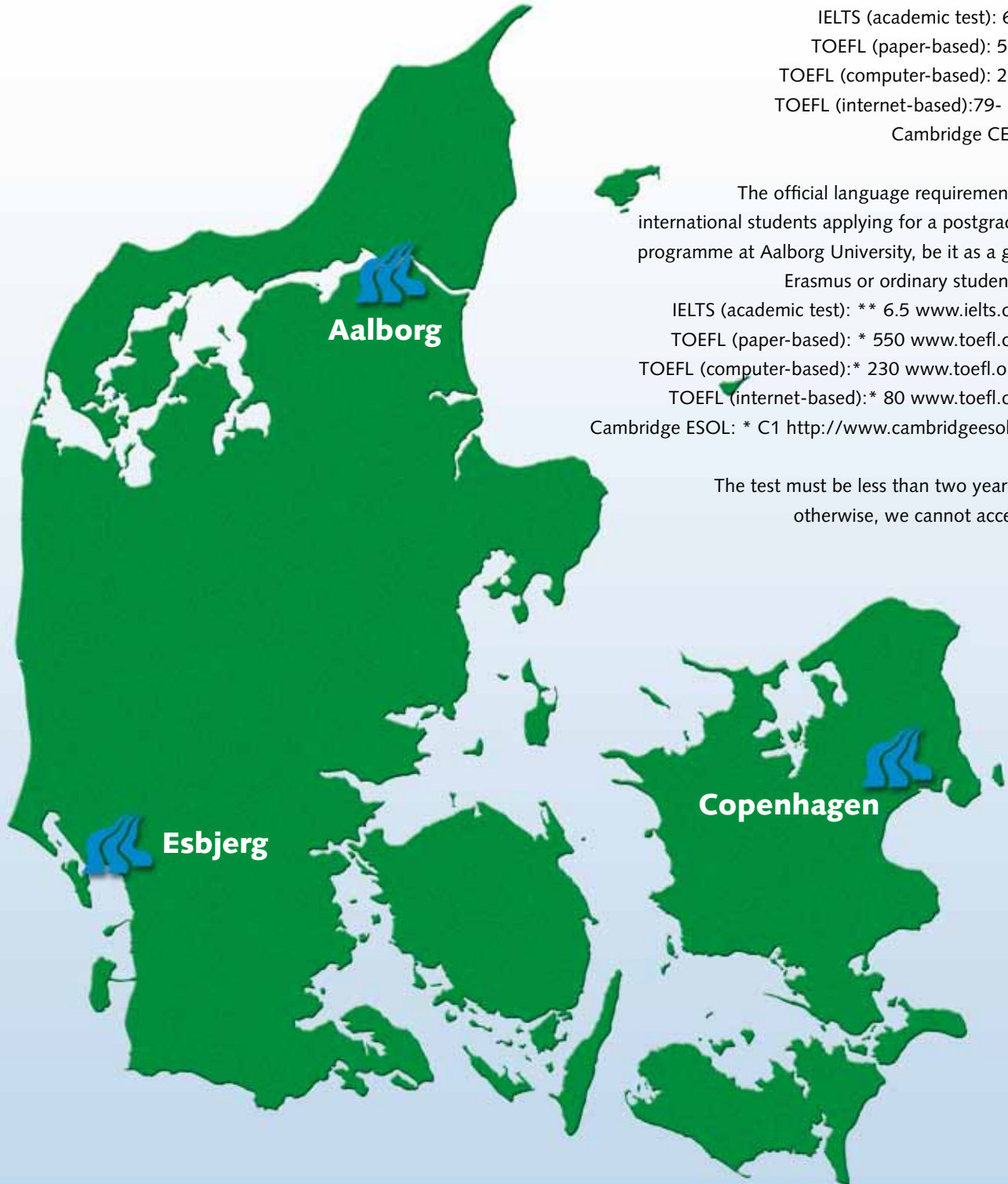
TOEFL (paper-based): * 550 www.toefl.org or

TOEFL (computer-based):* 230 www.toefl.org or

TOEFL (internet-based):* 80 www.toefl.org or

Cambridge ESOL: * C1 <http://www.cambridgeesol.org/>

The test must be less than two years old; otherwise, we cannot accept it.



Aalborg

Esbjerg

Copenhagen



Why Study in Denmark?

Denmark is a relatively small country of 5.3 million people, but despite its modest size, Denmark has a great deal to offer international students. Denmark is ranked among the countries in the world with the highest standard of living and Danes rank very high on annual lists of the happiest people in the world. With an extensive welfare system that ensures equal rights and access to public services for all, and with one of the lowest crime rates in the world,

Denmark is a safe and peaceful country. In Denmark you will find serene and unspoiled nature from the beautiful countryside to the more than 5000 km of wide sandy beaches. Danes emphasise equality and human rights. The belief is that everyone is equal and must have the same rights regardless of gender, social or ethnic background, or sexual orientation. Danes put a strong focus on their personal freedom and the rights of the individual.

Language classes

Danish language courses for adult foreign nationals are offered at language centres located nationwide. Here, free instruction in the Danish language and culture is provided to help recently arrived foreign citizens operate in Danish society. The courses are divided into three courses that are designed to match the participants' level of education with each level being divided into six modules that are passed upon completion of a Danish language exam. As many of your fellow students will be similarly enrolled in Danish language classes, it serves as another point of contact and can help to foster relationships with other international students.



Aalborg

The municipality of Aalborg has a population of close to 200,000 making it the third most populous municipality in Denmark. With a history that stretches back nearly 1000 years, Aalborg's location by the Limfjord made it an important harbour during the Middle Ages, and an industrial centre later. Today, the city is in transition from a manufacturing city to a knowledge-based one, with nearly a fifth of the population being made up of students from various universities and institutions of higher learning. This young populace is clearly evident in the social scene erupting around town. From the Tall Ships Races to the annual carnival, Aalborg is a fun and interesting city in which to live, study, work, and play.

- Studenterhuset, which translates to the student house, is the popular spot for students enrolled in any of the various colleges and universities and provides a central location for gathering in the city. Run almost entirely on a volunteer basis, Studenterhuset is the place to go for concerts and



social events throughout the year. It hosts an international night once a week which is well attended by the roughly 20 percent international student population, as well as many of the native Danes. Rooms are available to rent for parties, or simply stop in for a game of pool or table football with other students. Speak with any of the representatives inside for more information about volunteering your time or services.

- KUNSTEN Museum of Modern Art, built in 1972, was designed by Elissa and Alvar Aalto and Jean-Jacques Barué. The museum holds a large private collection consisting of

approximately 1500 paintings, sculptures and mixed media works dating from 1900 to the present day, which forms the nucleus of the museum's permanent collection. KUNSTEN also hosts an international evening, featuring a guided tour focused on interesting subjects and screenings of relevant films. A pop-quiz sometimes follows, after which many participants end up in the café with friends.

- Nordkraft is a repurposed coal-fired energy plant which ceased operation and has since been converted into one of Europe's biggest and most impressive culture and activity centres. With theatres, a ci-

nema specialising in independent film, and concert facilities, Nordkraft provides a striking setting for many cultural events including art and sport exhibitions. Directly across the street, a classical concert hall called Musikkens Hus, designed by Coop Himmelblau, is currently under construction.

- The Aalborg Zoo, open since 1935, typically houses over 1200 animals across its verdant 8½ acres. Dedicated to nature preservation, the zoo is heavily engaged in international breeding partnerships and promotes education about endangered species around the world.



Copenhagen

Copenhagen, as the capital and largest city in Denmark, and with a history that dates back to 1043, is a city full of historic landmarks, significant buildings, and interesting sights. Repeatedly recognised as one of the cities with the best quality of life, Copenhagen is a green city with many big and small parks and one in which 36 percent of all citizens commute by bicycle. Although Copenhagen itself bridges the islands of Zealand and Amager, as well as a number of natural and artificial islets, and as such is crisscrossed by picturesque canals and

waterways. Several light rail and bus systems make the city exceedingly easy to navigate. The Copenhagen campus of Aalborg University is rapidly growing and constantly evolving to offer new opportunities. Combining innovative research and education as well as state-of-the-art facilities for studies and lab work, the Copenhagen campus of Aalborg University is a world class institution in an amazing city.

- Tours of the city and its distinctive architecture, both by foot and by boat, are very popular, as are the 100-year-

Cost of living

Living expenses in Denmark will, of course, vary according to personal requirements and standards. Renting a room is normally between EUR 260 and 400 per month and rented flats are between EUR 350 and 540. Basic food expenses are approximately EUR 200 to 270 per month.

old amusement park, Tivoli, and Amalienborg Palace, the home to the royal family.

- Copenhagen Jazz Festival, the largest music event of its kind in Europe, serves as a rendezvous for jazz enthusiasts and culture-minded people in general. Welcoming over 250,000 guests attending 1000 concerts and events in

as many as 100 venues every year, Copenhagen Jazz Festival takes place all over the Danish capital in the first week of July.

- Nyhavn, originally a busy commercial port teeming with sailors and merchants, Nyhavn is now packed with partying people, restaurants, and bars. The perfect place to enjoy a drink or a spot of al fresco dining, many of the colourful buildings have not been altered for over 300 years.

- Ørestad, a new part of Copenhagen, was established when the bridge between Denmark and Sweden was completed. A short ten minute train ride will find you in this new "green" neighbourhood, complete with several examples of prize-winning architecture including buildings which have won the World Architecture Festival best housing prize in 2008 and in 2011.





Esbjerg

Established in 1868, Esbjerg is the fifth largest city in Denmark. From its numerous parks and gardens to the varied museums and galleries, Esbjerg offers all the comforts of city life but does so in a quaint and idyllic setting. As a young and active city situated on the North Sea, tourists contribute greatly to the identity of the city, which has a lively shopping and culture center and features areas of natural beauty and attractive beaches right on its doorstep.

- Huset is a venue for students in Esbjerg. It hosts concerts, lectures, art exhibitions, dining and movie nights.

Admission is usually free or very inexpensive. Quiz nights are especially popular, where lots of Danish and international students meet for a nice evening.

- Studiebyen Esbjerg is a collaborative effort among all educational institutions in Esbjerg, whose purpose is to fill your time here in Esbjerg with lots of experiences. Studiebyen Esbjerg organizes more than forty free events every year – everything from football matches with the city's football team at the new giant stadium, to bowling nights, cinema trips, concerts, etc.
- Tobakken is home to many

Transport

Transport in Denmark is developed and modern. While the road system is very well established and easy to use, the majority of people utilise mass transit such as trains and buses. The Danish railway system is connected to Sweden by bridge or ferry and Germany by land which allows for easy travel amongst neighbouring countries. Airports in Copenhagen, Aalborg, Aarhus, and Billund provide a variety of domestic and international connections while ferries provide services to the Faroe Islands, Greenland, Iceland, Germany, Sweden, Norway and the United Kingdom as well as routes to the Danish islands.

interesting cultural events and features top class concerts as well as comedy and other performance events. Tobakken also hosts a creative workshop where people can explore artistic pursuits under the tutela-

ge of volunteers and local artists. The attached restaurant hosts several theme nights and a brunch that is not to be missed.

- Southern Denmark's Music Academy and Musikhuset Esbjerg offer a wealth of musical experiences with everything from opera or classical music to the Thursday cafe where students from the Music Academy show off their talent.

- Esbjerg offers plenty of good sports facilities, such as Denmark's largest swimming facility, sports clubs, fitness centers, ice rinks, etc. Esbjerg's location on the North Sea also allows for water sports like windsurfing, kite surfing etc.



Accommodation

It can be intimidating to go to a foreign country where everything is new and different. That is why we at Aalborg University do our very best to guarantee that you have housing when you arrive. At our campuses in Aalborg and Esbjerg you will have a place to live once you arrive as long as you remember to apply for accommodation and pay the deposit in due time. In Copenhagen, the accommodation situation is slightly different and it may be a bit more difficult to find a place to stay. However, so far we have been able to find accommodation for practically all of our international students.

Housing in Denmark

In Denmark, we traditionally do not have housing on cam-

pus which is why you will find very little accommodation on any of our three campuses. Instead, you will find yourself living, for example, in the city centre or elsewhere in the city. This is a great opportunity to get to know the city you study in and to become acquainted with the Danes where they live.

How to apply

Once you are accepted or conditionally accepted then you will receive the pamphlet "Arrival", in which you will find the link to the webpage where you can apply for accommodation in Aalborg. Please refer to: <http://www.studyguide.aau.dk/study-in-aalborg/accommodation/> However, for accommodation in Esbjerg or Copenhagen please contact:

Welcome Services

Attending university in a foreign country can be trying, and as such Aalborg University has recently introduced a program on certain campuses where new students are welcomed at the airport and train station in hopes of easing the transition. A current student will be on hand to provide information about the bus and train schedule and routes, as well as a map of the downtown area that will guide you to your destination at the student house for registration. A shuttle service will also be run on a first-come, first-served basis to escort students directly to the student house should they so choose.

Copenhagen:

Simon H.R. Clemmensen

<http://www.studyguide.aau.dk/study-in-copenhagen/accommodation/>

Esbjerg:

Peter Kringhøj

<http://www.studyguide.aau.dk/study-in-esbjerg/accommodation/>

All three campuses work on the principle of "first received - first served" so we recommend that you apply as soon as possible.

Usually, the housing deposit is equal to approximately two months' rent but can also be three months' rent. You must pay approximately EUR 270 in advance and the remainder of the deposit on arrival.

You can get a room in student halls of residence, share an apartment with other students, or get a single room in a private home. It all depends on availability and your wishes. The prices vary from approximately EUR 270 to EUR 540 per month.



- At Aalborg University you will always have a home



BUDDY Student jobs

Buddy Programme

You've got a friend ;-)

When you travel on your own to a foreign country - perhaps for the first time in your life - things may seem a little overwhelming and sometimes perhaps even frightening. That's when you need a friend more than anything. Therefore, we have a well-developed Buddy Programme for international students so you feel as comfortable as possible when embarking upon life at Aalborg University.

A buddy is a Danish or an international student who is allocated to you as your contact person and who will assist you in getting settled during your first couple of weeks in Aalborg. Your buddy will help you take care of practical issues such as getting registered at the Municipality, show you the cheapest supermarket, the best place to eat, and the most fun place to go out. A buddy can be everything from a helpful person getting you started in a new country or end up being a friend for life.

You will meet your buddy at the Introduction Course. All buddies are English-speaking, and some speak other languages as well, such as French, German, Spanish, Italian, etc.

At Aalborg University you will always have a friend.



Student jobs

Getting a student job in Denmark can be challenging. However, learning Danish and acquiring a Danish network will increase your chances.

If you get a student job, we recommend that you do not work more than 15 hours a week during a semester. We consider studying a job which demands a lot of you. With that in mind, in order for you to be successful, focus should be on your studies and not your part-time job.

To learn more about where to find a student job, how to apply, laws about working in Denmark, please have a look at the following link: <http://www.careers.aau.dk/>



Bicycles

Bicycling infrastructure is a dominant feature of both city and countryside planning in Denmark, with an extensive network of bicycle routes covering more than 12,000 kilometres (7,500 mi) nationwide. Most Danes own and regularly use their bicycle for recreation as well as daily transport and as such, in both small towns and large cities, cycling is the most common means of getting around. Easy, cheap and ecologically friendly, cycling makes an excellent alternative to driving, and you will certainly be getting into the Danish way of life if you pedal yourself about. There are several options for finding cheap used bicycles online, and most Danish cities participate in city bike programs where bicycles can be used for a refundable fee



Summer School

The Summer School at Aalborg University is a unique possibility for undergraduate students to acquire theoretical and methodological skills at a high level. At the same time students will improve their English proficiency skills remarkably, make new friends and experience the renowned AAU project organised and problem based model.

The Summer School covers courses within many different topics, such as mobile phone programming, sensor networks, future energy systems and many others. The Summer School runs for 3 weeks during July and August, and the total number of ECTS credits is 5. You will attend lectures by internationally recognized researchers and apply the theories and methods for solving real world problems. You will collaborate with co-students in small groups. Scientists from Aalborg University will offer their assistance during the Summer School to help students achieve

great results. Furthermore each group will have their own group room, access to top-level laboratories and a library with a large collection of high quality books, journals and other holdings.

The Summer School will also include a memorable social programme. Local guides will show you Aalborg, also the 'strange' parts of the city! You will be challenged to taste local specialities and experience the bright summer nights in Denmark. Furthermore, we

Testimonial

The Summer School at Aalborg University was a great experience. It was really great. I'll do it again if I can!

Despoina Pavlidi, Greece



organise trips to some of the most beautiful beaches in Europe located close to Aalborg. There will be plenty of options to challenge your fellow students in games and sports. Don't be surprised if you make lifelong friendships during the Summer School. Our social programme will be

adapted to your wishes to ensure an unforgettable stay in Aalborg and Denmark.

Who can apply?

Students must have completed at least 1 year of a relevant bachelor education with a satisfactory result.



<http://summerschool.aau.dk>

When and How to Apply for Undergraduate Programme

If you wish to enrol in an undergraduate programme (from the first year) you must fulfil the entry requirements and apply for admission via the Coordinated Enrolment System (KOT). KOT is a joint registration system where you can apply for admission to several study programmes of higher education in Denmark listed in order of priority.

Application form

When applying, please download the application and priority forms from the admission portal of the Danish Ministry of Education: <http://www.optagelse.dk>

Also available at the site are step by step guides to filling out the priority form and the application form.

Submitting an application

Please use this checklist before submitting your application: <http://www.apply.aau.dk/how-to-apply-undergraduate/>

Enclose a verified copy of your secondary school diploma, proof of English proficiency in the form of a recognised language test, and verification of number of hours of instruction in each subject during upper secondary school copy of passport etc.

Application deadline

By *15 March* applications for an undergraduate programme must be received at:

Aalborg University
Att.: The Admissions Office (Studiekontoret)
Fredrik Bajers Vej 5
DK-9220 Aalborg East

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www.aau.dk

www.studyguide.aau.dk

When and How to Apply for an Postgraduate Programme

• Guest/exchange/Erasmus student:

An international student wishing to study at Aalborg University for 1 or 2 semesters as an integral part of a study programme at an institution or higher education in another country

Or as a

• Degree student:

An international student wishing to pursue a degree from Aalborg University

Deadlines for applicants requiring visa:

- *15th of March* when applying for the *September* intake
- *15th of August* when applying for the *February* intake

Deadlines for applicants with EU/EEA citizenship and applicants from partner/co-operating institutions:

- *1st of May* when applying for the *September* intake
- *1st of October* when applying for the *February* intake

For entry requirements:

- See web page

<http://www.apply.aau.dk/how-to-apply-postgraduate/entry-admission-requirements>

<http://www.apply.aau.dk/how-to-apply-exchange-student/entry-admission-requirements>

<http://www.apply.aau.dk/how-to-apply-Erasmus-Erasmus-Mundus-student/entry-admission-requirements>

For further information:

Feel free to contact us directly or find us at:

<http://www.en.tek-nat.aau.dk/>

(Faculty of Engineering and Science)

<http://www.medicine.aau.dk/> (Faculty of Medicine)

Niels Jernes Vej 10

DK-9220 Aalborg East, Denmark

Tel: + 45 9940 9940

Email: ins@adm.aau.dk

UNDERGRADUATE PROGRAMMES



Sustainable Biotechnology

Mineral oil still constitutes the most important source of liquid fuels, but it is also an important raw material for the production of plastics, chemicals, pharmaceuticals etc. During the coming decades, we need to exploit alternative sustainable resources to compensate for the forthcoming depletion of mineral oil but also to deal with greenhouse gases and the associated climate effects.

We offer a state-of-the-art bachelor's programme in Sustainable Biotechnology incorporating the newest technologies and scientific results within these rapidly expanding fields.

Career opportunities

The programme qualifies you for employment within a number of fields where the transition to sustainable technologies and resources

has been initiated or will be initiated. After the bachelor's programme you have the opportunity to begin on a two-year master's programme in Sustainable Biotechnology where you can specialise in molecular biotechnology or process biotechnology.

Who can apply?

Students holding an upper secondary school exam, mathematics at A-level, physics at B-level and chemistry at B-level/ biotechnology at A-level, English B-level and an acceptable IELTS score may apply for this bachelor's programme. International students are welcome to apply and are evaluated for admission on an individual basis (see details on www.apply.aau.dk).

Programme structure

The programme has been structured to ensure a clear technical and scientific pro-

gression in which you will obtain competences within molecular biology, biotechnology, microbiology, biorefineries, sustainability and other science and engineering research areas. Through the choice of projects, you will have the opportunity to focus on either molecular biological biotechnology or process-oriented sustainable biotechnology.

In the first semester, you will obtain an overview of current biological production (food production, pharmaceuticals, enzymes, ingredients and chemicals) and how it can be uncoupled from fossil resources.

In the second semester, the weight is put on biochemistry and cell biology in an applied perspective. Together with the first semester, this first year establishes the biological knowledge foundation of the programme.

The organisms and their products are the focus of the third semester. The project deals with biofuels combining the knowledge of the organisms, their diversity and their pro-

cesses.

In the fourth semester, you will work with the processes involved in sustainable biotechnology. Your biological skills will be expanded with genetics and molecular biology and the focus will be modification of organisms for biological production.

The fifth semester is devoted to the design of a sustainable biotechnological process. This is supported by courses in biotechnological process techniques, mathematical modelling of biotechnological processes, and statistics.

The major part of the last semester is the bachelor's project which you can carry out in collaboration with a company or as a research project in our group. In the theory of science course you will be introduced to ethical problems and to the history of biotechnology. Finally, you have 10 optional ECTS credits that can be used for other AAU courses or for courses at e.g. a university abroad.



Electronics and Computer Engineering

The Electronics and Computer Engineering programme is a full bachelor's programme. Students will gain knowledge and insight into fundamental theories, methods and practical subjects within the fields of electronics and computer science, and they will be able to utilise up-to-date scientific methods, tools and techniques to analyse and solve complex real-time problems. Upon graduation, students are furthermore able to handle complex situations that arise in research and/or development related environments, and they can work independently as well as in collaboration with others across technical fields.

The programme features a variety of courses and projects. Topics involve construction and experimentation with software making sure that students can construct a functionality that allows a computer to interact with its surroundings. Students will also acquire competencies within concepts and principles of database design. They will also touch upon analysis, design and construction of mechatronic systems such as robots, precision machinery etc.

Topics like software design and implementation, programming, control engineering and operating systems and networks will also be part of the curriculum.

Career opportunities:

Graduates are in high demand. A number of graduates continue on at the master's level. Others pursue a career in a national or an international company in Denmark or elsewhere.

Programme overview:

Electronics and Computer Engineering is a three-year bachelor's programme (180 ECTS credits). Students can pursue from a single semester up to the full programme. The programme has a strong focus on theoretical, methodological and practical skills acquired through Problem Based Learning.

1st semester: Technical project work, monitoring and programming, imperative programming, linear algebra.

2nd semester: Analog and digital electronics, calculus, electrical engineering, digital design and sensors.

3rd semester: Mechatronics, algorithms & data structures, mathematics, microprocessors and programming.

4th semester: Basic control engineering, object oriented software engineering, fundamental control theory and modeling, embedded software design.

5th semester: Distributed computing, numerical methods, signal processing, OS & Network Data Communication

6th semester: Control engineering, embedded real-time signal processing, distributed systems, programming language, probability theory and stati-

stics, matrix computation and convex optimization, database, language & compilers, theory of science and entrepreneurship, distributed computing.

Admission:

Upper secondary education. The programme's specific requirements are English (level B and an acceptable IELTS or TOEFL or Cambridge score), Mathematics (level A), Physics (level B) and either Chemistry or Biotechnology. To learn more, please consult www.studyguide.aau.dk or studievejledning@esbjerg.aau.dk.



IT, Communication and New Media

Become an IT engineer with a human interface

A bachelor's degree in IT, Communication and New Media (ITCOM) gives you a very attractive profile with competencies that are in high demand by employers around the world. You will have the opportunity to work with advanced information and communication technologies, enabling new applications based on Internet, mobile and broadcast (radio & TV) platforms. You will gain a profound understanding of the technologies and their potential, and you will learn how to apply technology in practice and develop innovative services, applications and solutions that target specific user needs. The education is interdisciplinary, and as such, a detailed understanding of software

and network technologies will be seamlessly integrated with studies of economic theory, organisational theory and management.

Carrier opportunities

ITCOM is designed as the bachelor basis for the postgraduate programme in Innovative Communication Technologies and Entrepreneurship, ICTE (see p. 38).

With a bachelor's in ITCOM or a master's in ICTE you are qualified for a job within the IT, telecommunications, and media sectors, training and research institutions and public administration, and consultancy. You will be able to use your skills for development of new concepts, services, and solutions, and you can act as a link between development

Testimonial

What I love most about this education is the practical approach to problem solving, together with gaining sufficient theoretic knowledge about the technologies involved. It makes it much more interesting to learn when you can try things out yourself. If you like programming, then you will like this education. It looks at a wide range of technologies and their applications in today's society, but the education also looks at problems from a wider perspective, as it takes economic, social, and global issues into consideration. I think that this very important when it comes to being prepared for jobs in the real world, rather than obtaining skills which lack relevance in an actual working environment.

Robert Gutke, Germany



and sales & marketing functions.

Who can apply?

The entry requirements for international applicants are:

- Upper secondary school exam
- English B and an acceptable IELTS or TOEFL or Cambridge score
- Mathematics A
- Physics B
- Chemistry C or Biotechnology A
- IT-systems in a market perspective.
- System development and User Interaction
- Distributed systems and communities
- Communication and Media Technologies
- Application Development and Security

All applicants to IT, Communication & New Media meeting the admission requirements will be admitted.

Programme Structure

ITCOM is a three years bachelor's programme. Each semester includes three courses and a project. The project themes include:

- IT-systems in a market perspective.
- System development and User Interaction
- Distributed systems and communities
- Communication and Media Technologies
- Application Development and Security
- IT, Communication and New Media.



Medialogy

Are you interested in design and the technologies used in film, sound, computer games, digital animations and graphics?

To be successful in today's media society, you should be able to bridge the gap between technology and creativity. At Medialogy your creativity is what starts the process...

You will gain knowledge about film, animation and music technology and learn how design and computer science go hand in hand in today's and tomorrow's media productions. You will gain insight into the creative processes and thinking that precedes any media production.

You will also learn how to use

technological advances in the engineering sciences in design and in the production of computer games, computer-generated animated films, 3D worlds and digital art.

Career opportunities

You will have an huge advantage in the job market by developing your skills in a specialised area and creating a portfolio of creative work or technical research. Graduates typically find work where they are engaged in the development of computer programmes and computer games, animation, virtual reality systems, digital design, test development, project management and media production, typically in the film, entertainment and IT industry.

Admission

As a higher secondary school graduate with Math level B and English level B and an acceptable IELTS, TOEFL or Cambridge ESOL test result, students can apply for admission to the 3-year Medialogy bachelor's programme.

To learn more, please contact our student study counselors vejil-medialogi@aaauk.dk or visit our webpage: www.studyguide.aau.dk

Programme structure

Medialogy is a full Bachelor's programme (180 ECTS credits).

1st Semester: Programming, graphic design, and Problem Based Learning.

2nd Semester: Interaction and physical interfaces.

3rd Semester: processing, more in-depth programming methods and audio-visual production

4th Semester: Sound synthesis, music computing and interaction.

5th Semester: Computer generated visual world: cinematography, gaming and computer generated films.

6th Semester: Interactive system design and real-time interaction.

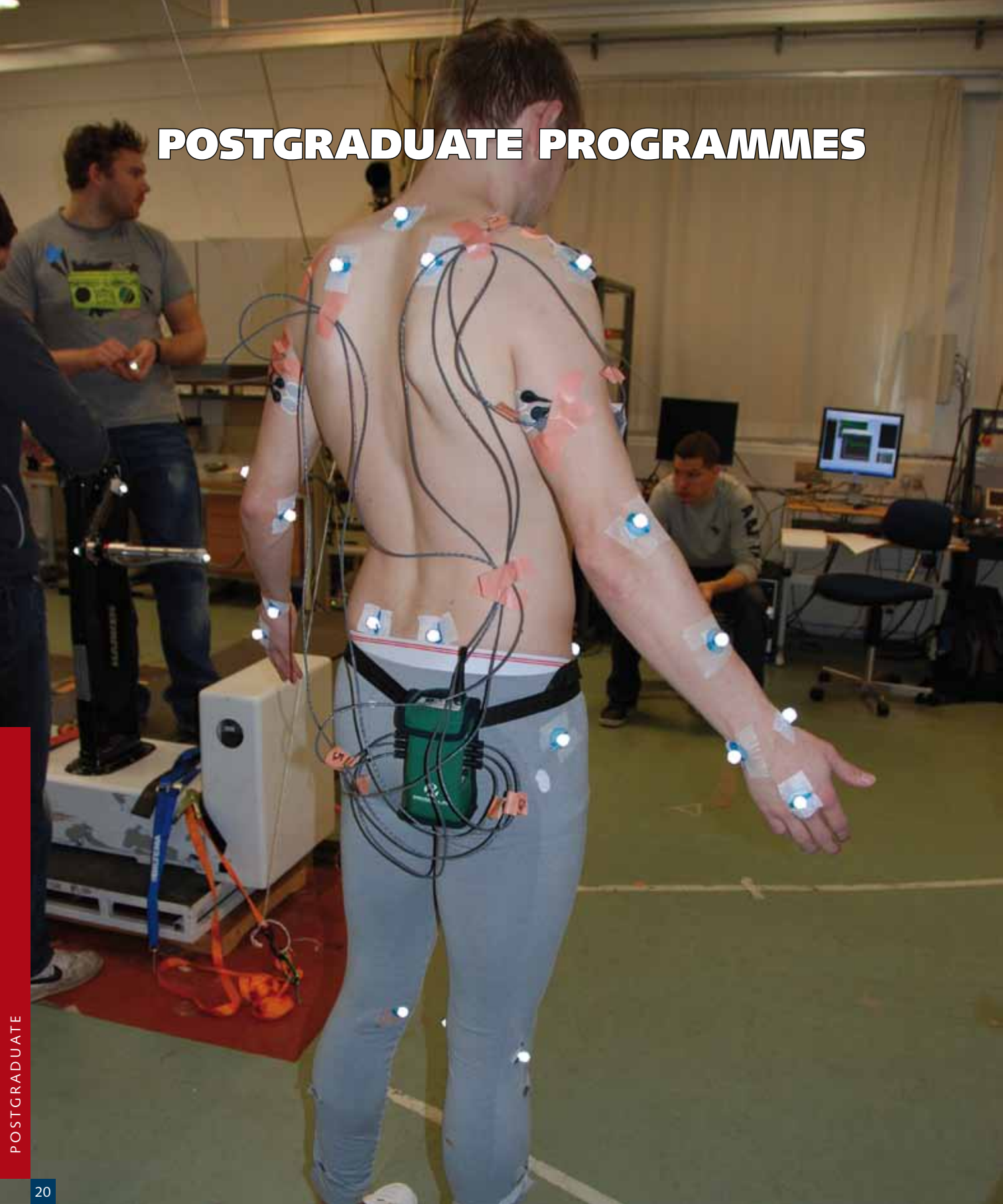
Testimonial

"Medialogy offers an education where you are the one setting the limits of your creativity, whether you want to create artistic installations, entertainment or programmes for companies. Medialogy is an programme where you can express yourself creatively in the digital world. It appeals to those who wish to educate themselves in computer games, sound design, animation and graphical interfaces."

Iben Schandel, 5th semester student



POSTGRADUATE PROGRAMMES





Sports Technology

Technology has become an inherent part of sports. The development of sport and leisure activities has opened possibilities for the integration of technology, not only for participants in elite sports but also for the population in general. Simultaneously, the acceptance of sports activities as an important factor for general health has been fully recognised. This has made sports a significant field of interest for the industry.

The master's programme in Sports Technology focuses on the development of technological equipment and the interplay between equipment and human performance. In the projects, you may work

with development and testing of advanced sports and health related products such as sports equipment, shoes, rackets, flooring and apparel. The project work is combined with courses modelling of human function and applied technology in sports.

The master's programme includes a scientific communication course, and it is possible to organise a semester abroad in the third semester, before the final thesis.

Career opportunities

With a Master of Science in Sports Technology, you hold a unique competence profile with very good job opportunities within development of sports, training and rehabilitation equipment or as a tech-



nical consultant. You will be able to perform highly qualified functions in various sports organizations and companies. Moreover, the programme provides prerequisites for research such as the PhD programme.

Who can apply?

In order to apply, you should hold a bachelor's degree in Sports Science. However, if you hold a related bachelor's degree (e.g. physiotherapist) you have the possibility to qualify if supplementary courses within relevant scientific areas have been attained and a specific academic assessment has been made.

Programme structure

Sports Technology is a two-year master's programme - 120 ECTS credits. The programme is implemented as Problem Based Learning with group projects.

1st Semester:

Instrumentation and physical performance.

2nd Semester:

Interplay between athlete and equipment.

3rd Semester:

Scientific methods in sports technology; optional - semester abroad

4th Semester:

This semester is devoted to the master's thesis.

Website:

www.studyguide.aau.dk



Testimonial

The Sports Technology programme matches my interests in developing sport equipment and natural science in general.

Among other things, I have measured the strength in the ankle joint during sideways movement in handball players. In that way, optimal shoes can be developed and tested and thereby the number of ankle injuries may be reduced.

Frederik Heinen,

Sports Technology, 4th Semester, 2012

Biomedical Engineering and Informatics

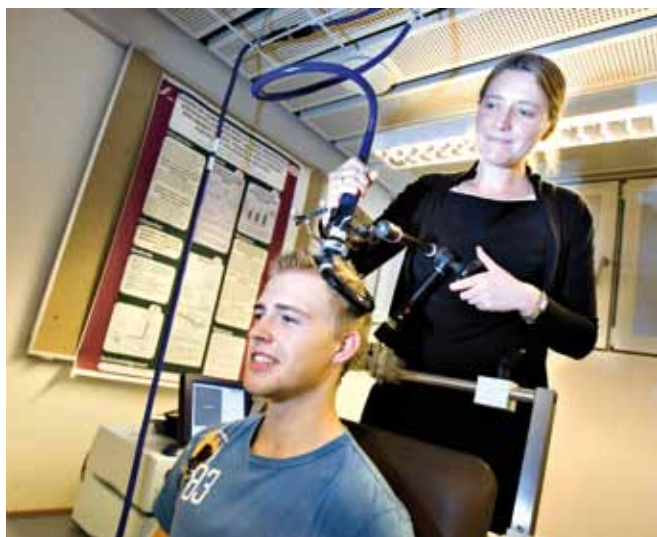
Biomedical Engineering at Aalborg University is an interdisciplinary programme with focus on electrophysiology and human sensory motor physiology. Potential candidates are students with a bachelor's in biomedical engineering, electrical engineering or an equivalent degree within information technology. High level courses within medical technology, neurophysiology, signal processing, scientific communication and rehabilitation technology are offered. Large projects carried out in groups of students are a substantial part of the programme, where students design and implement solutions

to real life problems.

Career opportunities

The area of Biomedical Engineering holds many job opportunities. Approximately fifty percent of our graduates are employed at hospitals and in companies in research, development or the sale of biomedical equipment. Twenty-five percent are employed as consultants in development of IT solutions in the health sector.

The last twenty-five percent are employed as research assistants or PhD students, for instance, at Aalborg University, where Biomedical Engineering is a large and internationally recognised research field.



Testimonial

The semester in Aalborg has been amazing! Working with projects in teams lets you learn how to use your theoretical knowledge in practice and how to listen to opinions of others instead of going on only with your own vision. Studying that closely together with other students allows you to experience the working reality. I had a lot of fun with my groupmates, and to be integrated in this way for an Erasmus student is something very special, which is difficult to find at other universities! I think that Aalborg is the best choice for an international experience!

Alessandra Scarton, Italy



Who can apply?

Are you ready for language, cultural and maybe climate changes? Did you study Biomedical Engineering or a similar programme at your home university? If you can confirm the above, you may be eligible to apply for one or two semesters at Biomedical Engineering and Informatics. If in addition you hold a bachelor's degree in Biomedical Engineering, you can apply as a degree student to study a full master's programme. Read more about the programme, admission and entry requirements at www.studyguide.aau.dk.

Programme structure

Biomedical Engineering and Informatics is a two-year Master's programme - 120 ECTS credits. The programme is implemented as Problem Based Learning with group projects.

1st Semester: Biomedical signals and information, scientific methods and communication, a.o.

2nd Semester: Biomedical information systems.

3rd Semester: Applied Biomedical Engineering and Informatics project – optional - semester abroad

4th Semester: Master's thesis

Website:

www.studyguide.aau.dk

Architecture

The master's programme in Architectural Design at Aalborg University takes its focal point in a number of current and future challenges in the field of architecture. By way of a solid and professional foundation in subjects, methods, theories and disciplines pertaining to architecture and engineering, the master's programme in Architectural Design ensures an interdisciplinary competence profile aimed at designing the architectural projects of the future within the fields of tectonic design, sustainable architecture and the application of research and evidence based knowledge in an integrated design process. It is a competence

profile that is applicable in architecture and engineering professions.

Programme structure

Architectural Design is a two-year master's programme which gives you 120 ECTS.

1st semester: Tectonic Design & Nordic Architecture - authenticity of architectural expression by ensuring a continuity and integrity between form and construction.

2nd semester: Sustainable Architecture - develop architectural concepts for zero-energy architecture.

3rd semester: Architectural Research & Development or internship/external study/ long master's thesis.



4th semester: This semester is devoted to the master's thesis.

Website:

www.studyguide.aau.dk or architecturaldesigner.dk/

Career opportunities

As an architect from Architecture & Design you have a well-rounded set of skills aimed directly at linking the different actors in the professional field. The combination of the architect's design expertise and the engineer's professionalism makes our candidates highly

qualified for a wide range of positions. A degree in Architectural Design at Architecture & Design prepares you for a range of careers, including private architectural firms, engineering consultancies, and research and entrepreneurship.

Who can apply?

Both international and Danish students with a relevant bachelor's degree can apply. To learn more about general admission requirements, please visit the following webpage: <http://apply.aau.dk>

Testimonial



The programme of Architecture has given me valuable experience working in larger and smaller groups and presenting ideas and projects for others. I have learned to work with integrated design – to combine functional, aesthetic and technical aspects, so they melt together into a whole. These qualities are important for the job as project developer and engineering manager, which requires good leadership, ability to work in a team and multidisciplinary qualifications.

Lill-Ann Sildelid, Stavanger, Norway



Industrial Design

The master's programme in Industrial Design at Aalborg University focuses on an integrated process of concept design, construction and product development. Aesthetical competencies are combined with knowledge of construction, product development, ergonomics, materials, environment, design management and economy. The projects are often done in collaboration with different companies, as design engineers should be able to understand the progress in a strategic perspective from the company's angle.

Programme structure

Industrial Design is a two-year master's programme which gi-

ves you 120 ECTS credits.

1st Semester:

Scandinavian Design – an opportunity to practice competencies in actual design and innovation management in a client and market context.

2nd Semester:

Advanced Integrated Design - generate design driven, network oriented company concepts.

3rd Semester:

Researching design or internship/external study/long master's thesis

4th Semester: *This semester is devoted to the master's thesis.*

Career opportunities

The combination of design, engineering, and business perspectives will enable you

Testimonial

My master's degree in Industrial Design has given me the unique opportunity to work with both engineering and design.

I am able to participate in the design process all the way, not only in the initial stages, but also in the later stages regarding development, material science, etc., creating products with much higher complexity and at the same time ensuring that my customer's initial idea is expressed in the final product.

This enables me to work together with both marketing departments, engineers and other groups, because I am able to communicate with and understand these groups, and let them understand how I want the product to be.

*Aske Korsgaard Hejlesen,
Industrial Designer, entrepreneur*



to navigate in a large field of industries and professions on an international scale. The careers of former graduates show the broad span of your

future possibilities, e.g. design engineering, user experience design, service design and design entrepreneurs.

Who can apply?

Both international and Danish students with a relevant bachelor's degree can apply. To learn more about general admission requirements, please visit the following webpage: <http://apply.aau.dk/>

Website:

www.studyguide.aau.dk or industrialdesigner.dk/



Urban Design

The master's programme in Urban Design at Aalborg University takes its point of departure in a number of current and future challenges in the field of urban development and urban design. You will get a solid and professional foundation in subjects, methods, theories and disciplines spanning from urban building design and technologies to knowledge about modeling and user involvement. The programme offers each student a creative combination of Problem Based Learning and realistic projects with hands-on challenges that

equip the student to address issues pertaining to issues such as climate change, temporary urban development projects, urban mobility, projects and strategies of the culture city, the urban landscape and city growth.

Programme structure

Urban Design is a two-year master's programme which gives you 120 ECTS credits.

1st Semester:

Designing Urban Mobility – work with the contemporary network city and the urban mobility systems and their relation to the city.



2nd Semester:

Designing for Urban Transformation – the role of urban design in the transformation process from the functional planned city to more experience based urban design strategies.

3rd Semester:

Scandinavian Urban Design Strategies or internship/external study/long master's programme

4th Semester:

This semester is devoted to the master's thesis.

Career opportunities

Urban Design combines the architect's design expertise and the engineer's professionalism with insight into sociological processes. Urban Design graduates are needed all

over the world to work with the organisation of construction developments and city spaces to provide city dwellers with exciting and new urban experiences. This can be done, for example, in private architectural firms, urban planning practices, design studios or engineering consultancies.

Who can apply?

Both international and Danish students with a relevant bachelor's degree can apply. To learn more about general admission requirements, please visit the following webpage: <http://apply.aau.dk/>

Website:

www.studyguide.aau.dk or urbandesigner.dk/

Testimonial

The core of my studies in Urban Design has been work in the intersection between sociology, architecture and city planning as well as creative work on technical aspects. This has given me an understanding of the importance of interdisciplinary work, and of the tools used for that. I am still using the problem-nased approach to new projects that was an essential part of the education at Aalborg University. Everything I do is founded in theoretical and methodical principles. The approach is heavily inspired by my training at Architecture & Design and has already led to successful and innovative results.

Aslaug Tveit, Norway



Environmental Management and Sustainability Science

In the Master of Science Programme in Environmental Management & Sustainability Science you will work with a broad range of topics related to sustainability and environmental management. The programme is designed to meet the new challenges of sustainable development by integrating inputs from the social and human sciences into the study of planning and engineering. The focus is on how as an environmental manager at firms, governments, and other organisations you can support sustainable development.

Some of the main areas that we cover are tools for companies to work with sustainability and different methods for environmental, social and health impact assessments. The

tools and methods are seen in relation to the political and organisational context and the different actors surrounding them.

Career opportunities

Graduates from the programme have many possible career paths, in companies, public authorities and NGOs, and have well-developed skills for collaboration across disciplines and cultures. Examples of where our graduates work:

- Project manager, Airbus
- Environmental planner, Rødovre Municipality
- Environmental consultant, NIRAS.

Who can apply?

You must have a bachelor of science degree in engineering, geography or natural sciences.

Also, you must hold an English proficiency test – see details on apply.aau.dk

Programme structure

EMSS is a two-year master's programme which gives you 120 ECTS credits. The programme is PBL-based (see p. 5).

1st semester: Focuses on sustainability management and tools in companies and orga-

nisations

2nd semester: Focuses on sustainability management in an institutional and societal perspective

3rd semester: Traineeship or study abroad

4th semester: This semester is devoted to the master's thesis.

Website:

www.studyguide.aau.dk

Testimonial

I graduated from the master's Environmental Management Programme at Aalborg University in 2007. At present, I am working as an environmental planner at Rødovre Municipality, Denmark. I have certainly applied the knowledge and experiences gained during my study period to my work. The Environmental Management Programme has provided me not only with theoretical knowledge but also valuable experience in problem solving through team work. The group work concept is outstanding as it provides the opportunity for applying theoretical knowledge to problem solving in practice. I learned how to co-operate in an intercultural group. I also carried out my research at a consultancy in Denmark during my internship period. For me, graduating from the Environmental Management Programme at Aalborg University opened opportunities for an exciting career in the environmental field.

*Tina Thomsen,
Environmental Planner, Rødovre Municipality, Denmark*



Geoinformatics

The Master of Science Programme in Geoinformatics at Aalborg University is directed at science and engineering students who are interested in understanding concepts and having the skills necessary to manage various kinds of geographic information. Students will also learn to disseminate information with an emphasis on utilisation of different technologies, methods and management theories.

During this specialisation, students will work professionally with spatial information, digital management and e-government, and geo-communication and visualisation. The field of concerns the use of new technologies within spatial analysis and modelling, in order to solve projects of planning, environmental management and property.

Focus is on spatial information infrastructures, organisation, implementation, modern digital communication and problem solving.

On the basis of traditional Problem Based Learning methods, the students will participate in project work (50%)

and in course work (50%). Approximately half of the courses given here will be individual courses with a dedicated curriculum and an exam. The rest of the courses are given as a supplement to the project work and will be evaluated through the project.

Career opportunities

GIS experts in private companies, utilities, etc., develop and maintain geographical information systems in an IT-based environment.

Who can apply?

Applicants must hold a relevant bachelor's degree from a recognized institution. Degrees from international institutions are evaluated based on their academic equivalency to that Aalborg University. Also, you must hold an English proficiency test. To know more about tests and scores, please find out more at apply.aau.dk

Programme structure

Geoinformatics is a two-year master's programme which gi-

ves you 120 ECTS credits. The programme has a strong focus on PBL (see p. 5)

1st semester: Geoinformatics Technology and Information Systems

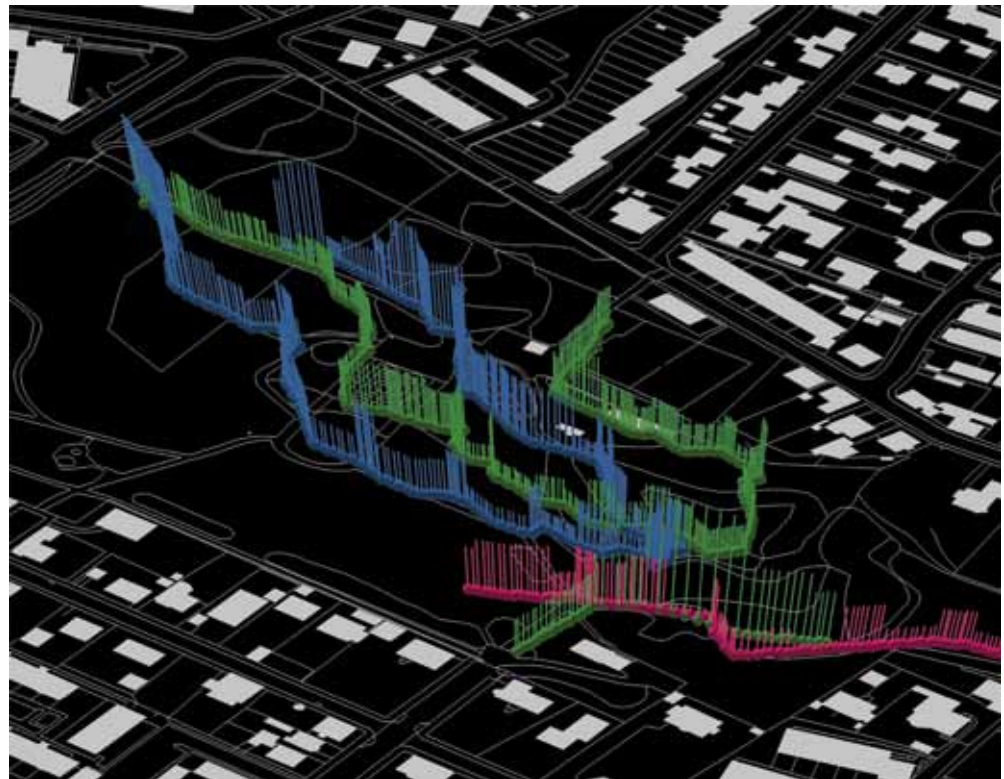
2nd semester: Geoinformatics – Integration, Applications and Society

3rd semester: Professional Development

4th semester: This semester is devoted to the master's thesis.

Website:

www.studyguide.aau.dk



Integrated Food Studies

The Master's Programme in Integrated Food Studies (IFS) has a holistic and interdisciplinary approach towards the study of food systems, food sociology, meal science and design. This master's combines three different professional approaches: Food networks and innovation, public health nutrition, and design and gastronomy. Each of these approaches will be presented in separate modules and combined in the projects on each semester. The combination is very important in order to be able to cross traditional borders of professions since this will offer a new way of thinking and acting towards innovative solutions and ideas for the future of food production and consumption.

One of the aims of the IFS Programme is to strengthen the analytical competences at different societal levels related to food (institutional or individual approaches), thereby strengthening the ability to act competently in relation to complex problems in the area. This will be done by discussion of the scientific understand-

ings represented in the three professional approaches described above. At the same time the IFS programme will give the students knowledge of the methodologies attached to the three professions.

In the profession modules some of the subjects to be taught are food policy, actor-network analysis, change management, organization theory, intervention methodology or strategic design, while the projects will be based on real life food systems or food companies.

Career opportunities

Graduates will find jobs in public administration at both state and municipal levels and in private food companies or companies with focus on food as a way to raise the employee's well-being. Other options includes private consultancy companies, NGOs or academic institutions.

Who can apply?

Applicants with a professional bachelor's degree in Global Health and Nutrition or Nutri-

tion and Health as well as a bachelor's degree from other food related programmes at Danish or foreign universities may receive direct admission. In specific cases, an individual assessment will be made.

Programme structure

Integrated Food Studies is a two year master's programme (120 ECTS credits). The study will be based on Problem Based Learning (PBL) which means that each semester is divided into courses and group projects. Applicants with a professional bachelor's degree in Global Health and Nutrition or Nutrition and Health as well as a bachelor's degree from other food related programmes at Danish or foreign universities may receive direct admission. In specific cases, an individual assessment will be made. The third semester project will be worth 20 ECTS credits and the fourth semester will be dedicated to the master's thesis. Each semester will give professional knowledge about the three areas covered.

1st semester courses (15 ECTS credits): History and Mapping of Meals and Spaces, Actor Mapping in Food Networks, Public Food Systems & Technology.

Project (15 ECTS credits): Observing experiments.

2nd semester courses (15 ECTS credits): Governance and Room for Manoeuvring in Food Systems, Food Design and Meal Experience. Strategic Design, Public Health Nutrition.

Project (15 ECTS credits): Doing Navigation – Action Lab/ Taking Action.

3rd semester courses (10 ECTS credits): Strategic Communication and Staging, Results-oriented Food Projects Management (elective).

Projects (20 ECTS): Integrated Food – Next Practices
a) Changing Public Food Systems
b) Innovation in Food Management
c) Food Design.

4th semester: This semester is devoted to the master's thesis. (30 ECTS credits).



Land Management

Land management is an essential part of shaping the places where we live, as well as agreeing on and managing how we use them. We therefore talk about land management as a key factor in 'place-making'. Focus is on how to manage land and natural resources, and the way people relate to land in both urban and rural areas.

Key areas in land management include land registration, tenure security, land value and economics, land governance, land use strategy-making and planning, natural resource management as well as land and property development. This spans from dealing with global challenges, such as climate change and the rapid growth of urban regions, to the details of local area development, such as community-led processes aiming at changing land use on the scale of individual properties. The professional commitment is focused on improving people's living conditions through economic growth, social stability and an improved natural and built environment.

The aim of the programme

is to provide state-of-the-art knowledge and competence in dealing with land management issues and processes. This includes attention to land administration systems and spatial governance as an infrastructure to implement land-related policies and land management strategies. It also implies careful consideration of the interaction between public authorities, private developers and businesses, land owners and citizens.

Career opportunities

Land Management graduates from Aalborg University acquire jobs throughout the world within a broad range of fields and employers, such as private surveying and consultancy companies, national, regional and local administrations, NGOs or research institutions. They often assume project leadership and managing positions.

Who can apply?

Students, from Denmark as well as abroad, with a background and Bachelor degree in land management, spatial planning, geography or associated

fields are encouraged to apply online to Aalborg University, either as a:

Degree student: Full enrolment to the entire 2-year programme.

Guest/Exchange student: 1 or 2 semesters as an integral part of the study programme.

Learn about entry requirements on apply.aau.dk.

year master's programme (120 ECTS credits in total).

1st semester: Land Development and Law

2nd semester: Spatial Development and Planning

3rd semester: Internship, study abroad or project

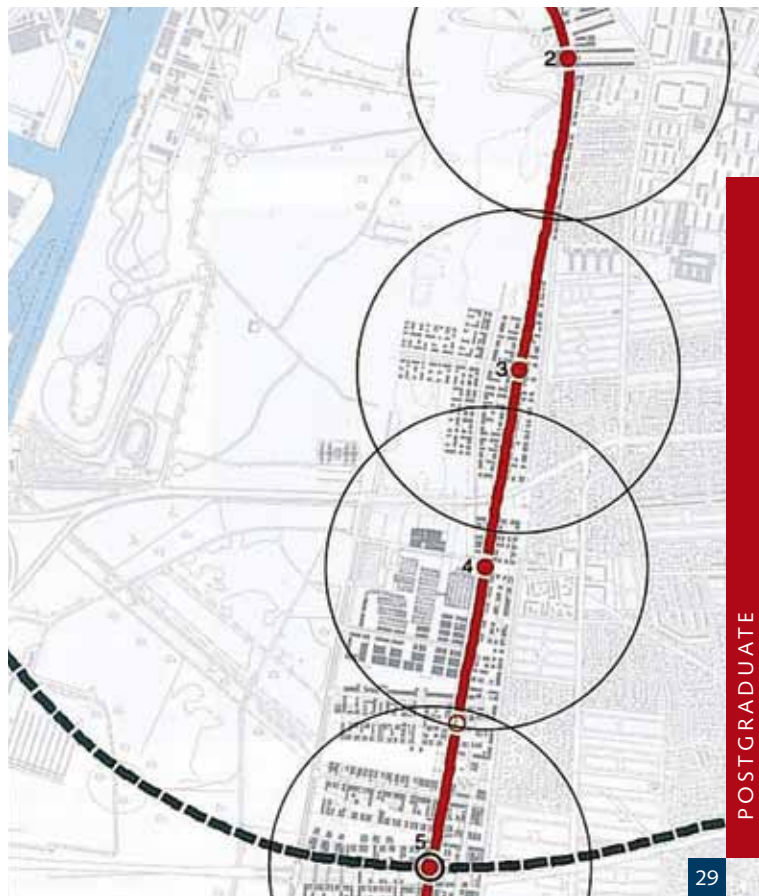
4th semester: This semester is devoted to the master's thesis.

Website:

See Land Management on www.studyguide.aau.dk.

Programme structure

Land Management is a two-



Sustainable Cities

Internationally, cities and business pose a significant challenge to sustainable development, not only environmentally, but socially and economically. In the future, up to 70-80% of the world population will live in cities, and thus it is important to handle the challenges they pose. It is significant that planning is done across sectors and professions such as energy, water, waste, urban planning etc. Thus, it is necessary to be able to think

across sectors, analyze consequences in multiple areas and include stakeholders like citizens, companies and environmental organisations. The master's programme will cover engineering issues such as waste, energy, water resources and transport as well as political science, green growth and different forms of impact assessment. Graduates will be capable of creating the framework for the sustainable cities of the future, where

economic, social and environmental issues are integrated in new ways.

Examples of projects are:

- How is mitigation and adaptation to climate change handled in cities?
- How do we secure more environmentally friendly transport in future cities?
- How can private companies contribute to sustainable development of cities?

It is a priority for us that you have the opportunity to work with external partners, for instance, in your semester projects, which can be carried out in cooperation with authorities, companies, NGOs etc. This way you get to work on real life problems, preparing you for your professional career. Beyond this, the master's programme offers the opportunity of an internship in an organisation in Denmark or abroad.

Career opportunities

Graduates from the programme are expected to have many possible career paths, for example within:

- Energy companies and lo-

cal authorities, creating the basis for renewable energy systems in cities

- Local authorities, companies and consultancies working with mobility management in urban areas
- NGOs and research centres working with behavioral change in users and consumers in relation to sustainable construction or energy efficient products.

Who can apply?

You must have a Bachelor of Science degree in engineering or natural sciences. Also, you must hold an English proficiency test – see details on apply.aau.dk.

Programme structure

1st semester: Courses and semester project with focus on sustainable urban development in an organisation and company perspective

2nd semester: Courses and semester project with focus on sustainable urban development in an overall societal perspective

3rd semester: Internship

4th semester: This semester is devoted to the master's thesis.



Sustainable Energy Planning and Management



Testimonial

AAU offers a richly interdisciplinary education at the nexus of engineering, environmental science, and economics to provide students with the tools to make sound sustainable energy planning and management decisions. I particularly liked the student driven project-based approach to teaching which gives students the creative freedom to explore their interests based on real world problems. The unique methods and focus of the AAU education prepared me for research at national labs investigating bioenergy resource assessment, supply, logistics, and potential economic and environmental impacts in the U.S. In short, AAU offers a learning experience unique in methods and scope that creates palpable insight into real world problems.

Ethan Davis, USA

In Sustainable Energy Planning and Management you will build a broad base of knowledge within engineering, economics, and energy systems management which will prepare you for a leading role in the energy market of the future.

The integration of techno-economic energy system analyses, policy analyses and institutional analyses is our main area of expertise. We have created an innovative environment for the development of various techno-economic methods, including various

software tools. We are also pioneering a methodology for analysing foreign exchange impacts and employment impacts of energy sector investments. Finally, our experience and thinking in manners of conducting feasibility studies is significant.

Career opportunities

Graduates from Aalborg University are in high demand among energy sector stakeholders around the world. Some examples of where our graduates work are:

- Development adviser,

- Greenland Power Company
- System analyst, Vattenfall
- Climate change consultant, WWF
- Energy consultant, Ramboll
- Wind and site engineer, Vestas Chile.

Who can apply?

You need a bachelor's degree in in engineering, geography or natural sciences. Also you must hold an English proficiency test. To know more about tests and scores, please check apply.aau.dk.

Programme structure

SEPM is a two-year master's programme which gives you

120 ECTS credits. The programme is PBL-based (see p. 5).

1st semester: Projects, technologies, and companies – focus on specific projects and energy technologies from a business economic point of view.

2nd semester: Systems, institutions, and society – focus on entire energy systems, including institutional, policy and societal perspectives.

3rd semester: Internship or guest semester abroad

4th semester: This semester is devoted to the master's thesis.

Website:

www.energyplanning.aau.dk



Surveying and Mapping



The master's programme in Surveying and Mapping is directed at science and engineering students who are interested in methods and technologies used for positioning and/or mapping of objects on or near the surface of the earth. The aim of the programme is to provide the students with theories and practical knowledge on how to use positioning/mapping technologies. Examples of these technologies include satellite positioning, photogrammetry, remote sensing and laser scanning. After completing the programme, the students will be able to analyse and solve

real world problems related to positioning/mapping.

Career opportunities

Graduates are working in a wide range of companies, for example:

- The National Survey and Cadastre
- Private surveying companies
- National and international engineering companies
- Consultancy companies
- Oil and gas industries

Who can apply?

You must have a bachelor's degree in Surveying and Mapping or a similar degree.

You must also hold an English

Testimonial

I chose Aalborg University mostly because of its unusual style of teaching. I believe it has enriched my study experience and has given me a good basis for my future career.

I'm glad I had the chance to work with a wide range of specialised equipment and devices. Further, I had the opportunity to meet and socialise with other people from all over the world, to learn and understand their cultures and to make friendships that can last forever.

I have spent only one short semester at AAU, but it gave me more than spending a year anywhere else. I know that choosing Aalborg University was one of the best decisions I've ever made in my university life.

*Josef Sobek, exchange student, Czech Republic
8th semester Measurement Science*



proficiency test. To find out more about which tests and scores, please have a look at: apply.aau.dk.

Programme structure

Surveying and Mapping is a two-year master's programme which gives you 120 ECTS credits. The programme has a strong focus on PBL (see p. 5)

1st semester: Collecting Spatial Data – focus on Spatial Data Infrastructure, Land Administration Systems, GPS, Photogrammetry, Statistics and Least Squares Adjustment

2nd semester: Sensor and Data Integration – focus on Coordinate systems, Coordinate Conversion, Object Recognition and Modelling, Integration of Positioning Sensors, Photogrammetry and Remote Sensing

3rd semester: Traineeship, study abroad, or "prolonged project period"

4th semester: This semester is devoted to the master's thesis.

Website:

www.studyguide.aau.dk

Urban Planning and Management

In the Urban Planning and Management programme, you will be introduced to the newest theories and methods within the field of urban planning. You will learn how to produce concrete proposals for plans and interventions in real-life urban planning situations. The Urban Planning and Management programme recognises that planning and managing cities has as much to do with communication and interaction as with technical and theoretical skills, combining the best from engineering and social sciences. Focusing on a solid ability to build and sustain personal relationships means fusing professionalism

with personal identity, offering a master's programme that points to a lifelong engagement with the fascinating world of urban planning.

Career opportunities

Urban Planning graduates from Aalborg University are employed in private consultancies, non-governmental organisations, public governance institutions from the local to the European level, as well as internationally recognised research institutions and universities.

Examples of workplaces of our graduates:

- Midttrafik, Light Rail Sekretariat, Denmark



- Grontmij GfL GmbH, Germany
- Aalborg Municipality, Denmark
- Feet First (non-profit organisation), Seattle, USA

Who can apply?

Students seeking to enrol in the programme must have a bachelor's degree in planning, engineering, architecture, geography, social science or the equivalent. You must also hold an English proficiency test. To find out more about tests and scores, please look at apply.aau.dk.

Programme structure

UPM is a two-year master's programme which gives you

120 ECTS credits. The programme has a strong focus on PBL (see p. 5).

1st semester: The complex city: Evaluate a particular urban context, strategy or plan and suggest alternative solutions

2nd semester: Planning and power: Conduct in-depth power analysis of a topical national or international urban or infrastructure development project.

3rd semester: Internship or study abroad

4th semester: This semester is devoted to the master's thesis.

More details can be found on www.studyguide.aau.dk and the programme's website: www.urban.aau.dk.

Testimonial

One of my main areas of work is to design, guide, moderate and evaluate public participation processes for urban planning projects such as European "Shared Space" projects or city development plans. At Aalborg University I learned to understand the different views and interests of stakeholders in planning processes. This is a beneficial skill in managing planning processes with differing private and public interests in daily business.

*Maren Friederike Ritter,
Urban Planner, Grontmij GfL GmbH, Germany*

Acoustics

Acoustics is the science of sound and embraces all aspects of generation, transmission, propagation and possible effects on humans, including how sound is perceived. This master's programme provides students with classical and modern aspects of physical acoustics, psychoacoustics, and electro-acoustics. Methods within signal processing, psychometry, building and room acoustics, tests of human hearing and perception are all integral disciplines in the programme, enabling a contemporary understanding and utilisation of the newest sound and audio technology. The programme provides students with a broad background in Acoustics and Audio Technology, with opportunities for involvement in our research activities. Students will

have access to facilities of a very high standard, including anechoic rooms, standard listening rooms, listening cabins, audiometry room, infrasound chamber, an auditory virtual reality workbench, and high quality measurement equipment and signal processing equipment.

Many international (and Danish) students have followed one or all semesters of our master's programme in Acoustics since 1997. Their interest and general success worldwide encourage us to continue and expand the programme, most recently with a revision in 2011.

Career opportunities

Graduates pursue careers in consulting, development and research engineering in various fields of acoustics in the industry for sound and audio products, for instance loudspeakers, hearing aids, mobile phones, audio equipment and measurement equipment.

Who can apply?

Students with a Bachelor of Science degree in Electronic Engineering or the equivalent.

Testimonial

"I've always been interested in sound and signal processing. The programme at Aalborg University was therefore a natural choice for me. During the study I could develop a profile within my personal interests in a good study environment with good facilities. Today I work with electro-acoustic system design for hearing aids. The programme in Acoustics at Aalborg University can be used broadly within audiology, signal processing and hardware development."

Jesper Krogh Christensen, Oticon A/S (2003 graduate).



Applicants with other bachelor's degrees (e.g. Mechanical Engineering, Physics, Media Technology, etc.) will be subject to individual evaluation. Proficiency in English is a prerequisite.

Programme structure

Acoustics and Audio Technology is a two-year Master's programme (120 ECTS credits) with Problem Based Learning, group work and a new supervised project each semester (15 ECTS credits).

1st Semester:

Courses and projects on fundamentals of acoustics, transducers and advanced measurement techniques, including methods for stochastic signal

analysis and processing, and machine learning.

2nd Semester:

Courses and projects on audio engineering, human hearing and sound perception, including 3D sound, sound field control, quality of reproduced sound and more.

3rd Semester:

Courses and projects on multi-modal interaction, architectural acoustics and environmental noise, advanced signal processing and methods for multi-dimensional scaling of perceptual attributes.

4th Semester:

Master's thesis (30 ECTS credits) by personal preference, either individually or in pairs.





Control and Automation

Intelligent systems are automated systems that through smart control are able to navigate in a complex environment. An example is an intelligent car that can drive along the motorway on its own without being driven by a person. Such intelligent systems must operate autonomously and make control decisions entirely on the basis of perception of the environment through sensor and without relying on human intervention. The programme in Control and Automation provides education related to the development of intelligent control systems capable of unsupervised operation in noisy, dynamic, unknown, non-linear, real-time environments. The students will gain skills and abilities related to the development and application of advanced intelligent control techniques to the design and construction of autonomous vehicles, wind turbines, power plants, production lines, cooling and heating systems, and many other complex systems.

With a master's degree in Control and Automation your skills within Electrical Engineering

are focused on system-level design with in-depth competences in estimation and control. Companies working with complex electronic and electromechanical systems will value your skills in handling complex design and development.

Who can apply?

A background in electronics, computer engineering, electrical engineering, mathematics or equivalent is required. Proficiency in English is a prerequisite. To learn more, please con-

sult www.studyguide.aau.dk

Programme overview

Control and Automation is a two-year master's programme (120 ECTS credits). Students can also choose to pursue one or two semesters. The programme has strong focus on Problem Based Learning.

1st Semester:

Courses on distributed real time systems, multivariable control, and stochastic processes. Projects on control systems in a network.

2nd Semester:

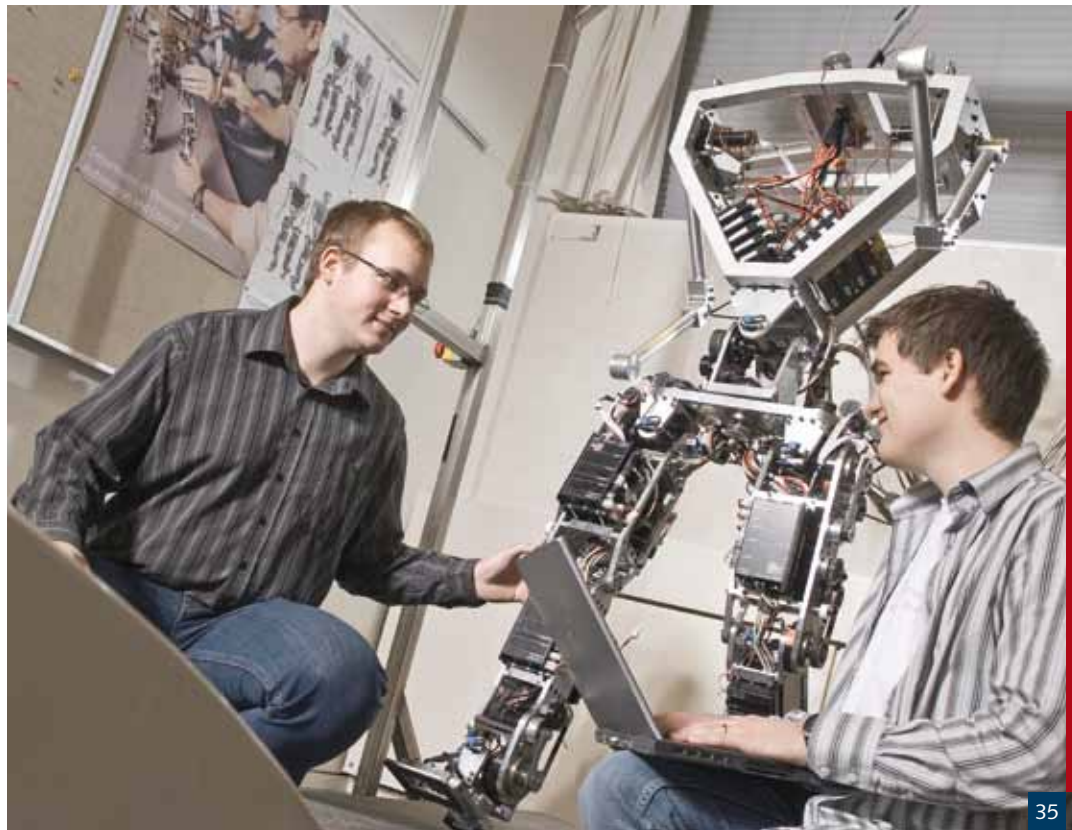
Courses on modeling of mechanical and energy systems, optimality and robustness, robot vision and fault detection and isolation. Projects on multivariable control.

3rd Semester:

Courses on systems of systems, machine learning, and non-linear control. Projects on complex systems.

4th Semester:

This is devoted to work on the Master's thesis.



Data Engineering

Foto: Lars Horn

The data engineering program covers a range of topics in the field. Today's software systems manage large amounts of traditional and non-traditional data including temporal, spatial, spatio-temporal, and multi-dimensional data. The program focuses on technologies for managing this kind of data covering conceptual modelling and database design, data models, query languages, query processing and optimisation and indexing. The program features traditional courses as well as projects that typically involve construction and experimentation with software prototypes. While the program provides strong theoretical foundations, it also emphasises entrepreneurial values, enabling students to become highly valued staff at their future employer, both in

industry and academia. The program is managed by the Center for Data-Intensive Systems, Daisy (www.daisy.aau.dk) at the Department of Computer Science. Daisy is one of the world's leading research groups within spatial, temporal and spatio-temporal data management and business intelligence (data warehousing and data mining). Student projects are usually directly related to the current cutting-edge research conducted at Daisy. In addition, projects are done in collaboration with local and national industry.

Career opportunities

Candidates are in high demand. A number of graduates continue their careers as PhD students; others become system developers in their home countries or in Denmark.

Testimonial

I have a bachelor's degree in computer science from Lithuania. For my final degree I chose the Department of Computer Science at Aalborg University. When I arrived at AAU I was pleasantly surprised with the differences in education compared to the studies back home. The study environment at AAU is quite attractive; for example, each semester you and your project group are given a room at department that you can access 24/7. As computer science students you have access to the servers of the department that you can use interactively or for heavy computations. The free access to world class research material is just your student login away. Lastly, but most importantly, I am very satisfied with the level of education I've received from AAU. *Donatas Saulys, Software Engineer, Infineon.*



Who can apply?

Students with a relevant Bachelor degree in computer science, natural sciences or engineering can apply. Proficiency in English is a prerequisite. To learn more, please consult www.studyguide.aau.dk

1st semester:

Projects, data mining and data warehousing, distributed systems, programming paradigm, complexity and computability, query languages and algorithms.

2nd semester:

Data engineering, database systems, software engineering, software innovation.

3rd and 4th semester:

This year is devoted to the Master's thesis. A seminar course on advanced data engineering is held in the third semester

Programme structure

Data Engineering is a two-year Master's programme (120 ECTS credits). Students can also choose to pursue one or two semesters. The programme has a strong focus on PBL (see p. 5).



Foto: Jiri Srba

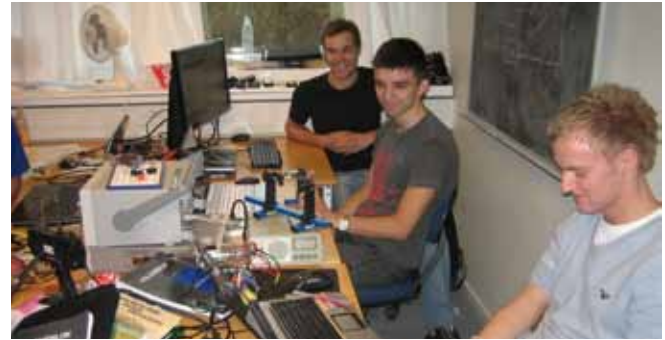
Embedded Software Engineering

The focus of this master's programme is on software development for embedded systems, networks and distributed systems. The programme is intended for software development in general, and with special emphasis on software for consumer electronics as well as transport, control, telecommunication and security systems. Both practical and theoretical aspects are covered. The programme is conducted with a combination of courses and project work.

The first semester focuses on the practical realisation of selected aspects of a distributed system – e.g. distributed web services or a toy control system

based on Lego Mindstorm. The second semester focuses on modelling, validation and verification of software with special emphasis on embedded systems. Project examples include modelling and verification of network protocols, scheduling systems as well as automatic synthesis of control programmes. The third and the fourth semester are devoted to work on the master's thesis.

The master's programme is managed by the Distributed and Embedded Systems Group, which is one of the leading research groups on tools for analysis, verification and testing based on models for embedded systems. The group has substantial connections



to the Danish IT industry with the research centre CISS (www.ciss.dk). This gives students the opportunity to work with companies during their project and thesis work.

Career opportunities

Candidates are in high demand and career opportunities are wide ranging. Former students have continued their careers as researchers at the university and others work as project managers or specialists in private or public companies all over the world.

Who can apply?

Students with a relevant Bachelor degree in computer science, natural sciences or engineering can apply. Proficiency in English is a prerequisite. To learn more, please consult www.studyguide.aau.dk

Programme structure

Embedded Software Engineering is a two-year master's programme (120 ECTS credits). Students can also choose to pursue one or two semesters. The programme has strong focus on PBL (see p. 5).

1st Semester:

Project on practical development of embedded systems and courses on distributed systems, complexity and computability, semantics and verification, real-time software, programming paradigms.

2nd Semester:

Projects on distributed systems semantics, database systems, software engineering, software innovation, semantics and verification.

3rd and 4th Semester:

This year is devoted to a pre-specialisation project and associated courses, and the master's thesis.

Testimonial

Embedded Software Engineering was a natural continuation of my previous studies. I was very satisfied with the ESE programme and the programme content.

Group work was a challenge at first, but I learned a lot and today I think that Problem Based Learning is the most agile style of education in today's dynamic world. Today I work as a postdoc at the department and I enjoy life on campus and life with my wife and two kids.

Marius Mikucionis



Photo: Lais Horn

Innovative Communication Technologies and Entrepreneurship

Information and communication technologies such as the Internet, mobile communication and advanced e-services are evolving rapidly and are increasingly influencing our lives. The technologies are combined in new ways and create exciting opportunities for new services and applications. If you would like to learn about these developments, understand what is happening "behind the scenes", and learn about how new technologies can help to address user needs and create new business opportunities then you should choose the Innovative Communication Technologies and Entrepreneurship (ICTE) programme.

Through this programme you

will become an engineer with a very attractive profile. You will gain in-depth knowledge and experience with advanced communication technologies and applications, which are the foundation for the future Internet and mobile communication. You will learn how to transform this knowledge into innovative services, applications, and solutions, targeting specific needs in people's lives.

Career opportunities

The programme's interdisciplinary profile addresses the growing need for engineers who are capable of combining knowledge from different disciplines. You will be able to use your skills for development of new concepts, ser-



Testimonial

I chose the ICTE master's programme because of the combination of in-depth technical knowledge, entrepreneurship and market aspects. The four semesters fully lived up to my expectations. Working in a team is challenging, but rewarding. During my studies I visited HUAWEI in China and I have just presented a paper based on my master's thesis at an international conference in Hungary. I am currently studying for my PhD.

Andrei Lucian Stefan



vices, and solutions, as well as for analysis, strategy and business development. With your broad profile you could act as a link between research and development and sales and marketing functions.

Who can apply?

Students are required to have a bachelor's degree in Computer Engineering, Computer Science, Electronic Engineering or equivalent. Proficiency in English is a prerequisite.

Programme structure

ICTE is a two-year Master's programme (120 ECTS credits). With specializations in Converging Media Technologies (Copenhagen) and Telecom Infrastructures (Aalborg).

The programme has strong focus on project and Problem Based Learning.

First, you will acquire a deep understanding of platforms, technologies, services and applications, building on competences from your bachelor's education. We focus on the interplay between technology, entrepreneurship, users, market and business.

During the programme you choose one of the following tracks: Service development, business development, secure services and technologies, cognitive radio or eHealth. Different tracks are offered in Copenhagen and Aalborg. To learn more: www.studyguide.aau.dk

Intelligent Information Systems

This programme is targeted at students with a bachelor-level education in computer engineering, electrical engineering, or a closely related field of study. The programme features a variety of courses and projects within the areas of information system design and development. Candidates will acquire competencies in applying computing techniques that involve searching for optimal solutions in large solution spaces. Furthermore they will be able to creatively and innovatively identify and propose new business solutions that are scalable and involve some form of computational intelligence. The programme is structured in modules and organised as a problem-based study.

Career opportunities

Graduates in Intelligent Information Systems are in high demand. A number of graduates continue their careers as Ph.D. students, others pursue a career in a multinational company in their home countries or in Denmark.

Programme structure

Intelligent Information Systems is a two year researched based master's programme (120 ECTS credits). Students can also choose to pursue one or two semesters. The programme has a strong focus on Problem Based Learning.

1st Semester:

Project on Intelligent Systems. Intelligent systems, Fuzzy Logic, Knowledge Representation and Management

2nd Semester:

Project on information retrieval

and mining and courses on information retrieval and mining, information retrieval and search engines, scalable information systems, socially intelligent computing

3rd Semester:

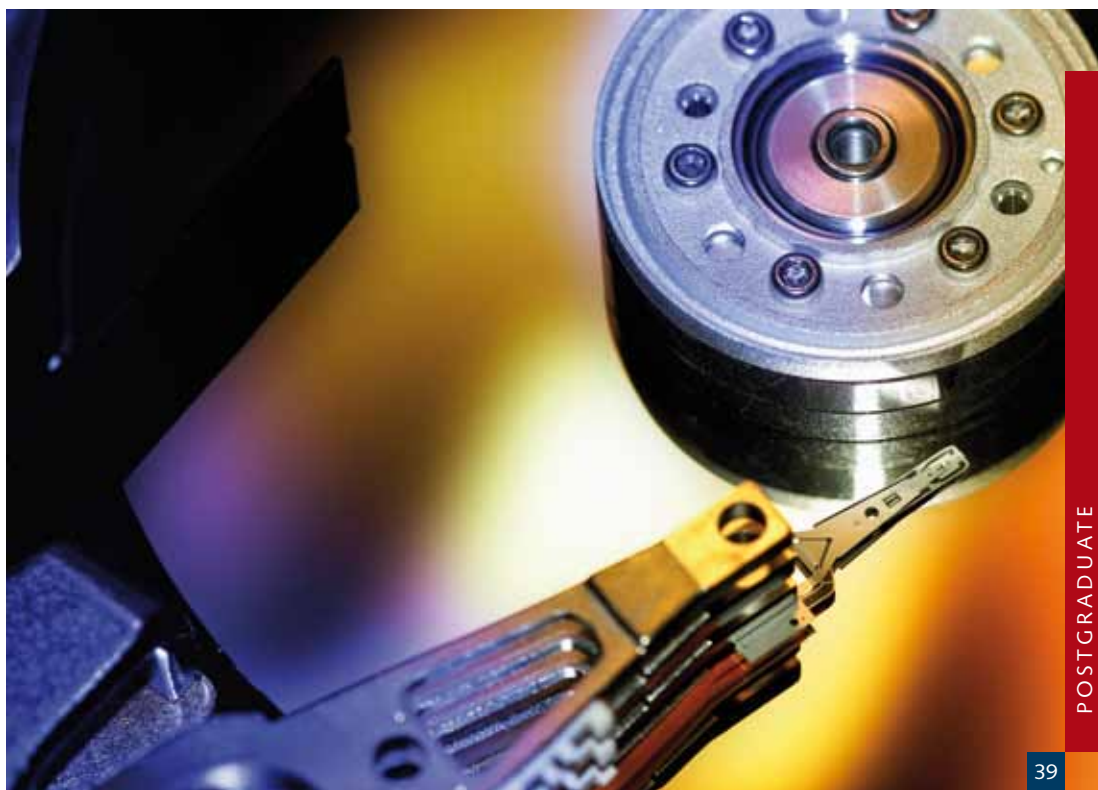
Project on applied intelligent information systems and courses on state-of-the-art within intelligent information systems, machine learning, machine intelligence.

4th Semester:

Master's thesis.

Admission

A bachelor's degree is required in in Electronics and Computer Engineering, or Electronics and IT, Electronics and IT, Internet Technologies and Computer Systems. Students with another bachelor's degree can be admitted upon application to the board of studies. Proficiency in English is a prerequisite. To learn more, please consult www.studyguide.aau.dk or studievejledning@esbjerg.aau.dk.



Intelligent Reliable Systems

The Department of Software and Media Technology at Aalborg University Esbjerg, in conjunction with two partner universities, offers this International Masters level degree targeted at students with a bachelor-level education in computer engineering, electrical engineering, or a closely related field of study. The programme features a variety of courses and projects within the areas of intelligent reliable systems. Candidates will acquire competencies within system identification and identification and its application in engineering systems including comprehension of probability, statistic and stochastic processes. Students will also touch upon fault diagnosis and reliability analysis. Upon graduation they will be able to creatively and innovatively develop and design intelligent reliable systems. The program is structured in modules and organized as a problem-based study.

Career opportunities

Graduates in Intelligent Reliable Systems are in high demand. A number of graduates

continue their careers as Ph.D. students, others pursue a career in a multinational company in their home countries or in Denmark.

Programme structure

Intelligent Reliable Systems is a two year research-based master's programme (120 ECTS credits). Students can also choose to pursue one or two semesters. The programme has a strong focus on Problem Based Learning.

1st Semester:

Project on, system identifi-

cation and estimation, and courses on probability theory, statistics and stochastic processes, system identification and diagnosis, modeling of dynamic systems, Kalman filter theory and its application

2nd Semester:

Fault diagnosis and reliability analysis, and courses on control and surveillance processes and systems, fault detection and diagnosis techniques, reliability modeling and analysis.

3rd Semester:

Project on design of intelligent

reliable systems, and courses on adaptive and optimal control, intelligent control and reliability-orientated design.

4th Semester:

Master's thesis

Admission

Admission requires a relevant bachelor's degree in Electronics and Computer Engineering, Electronics and IT, or the like. Proficiency in English is a prerequisite. To find out more, please consult www.studyguide.aau.dk or studievejledning@esbjerg.aau.dk.



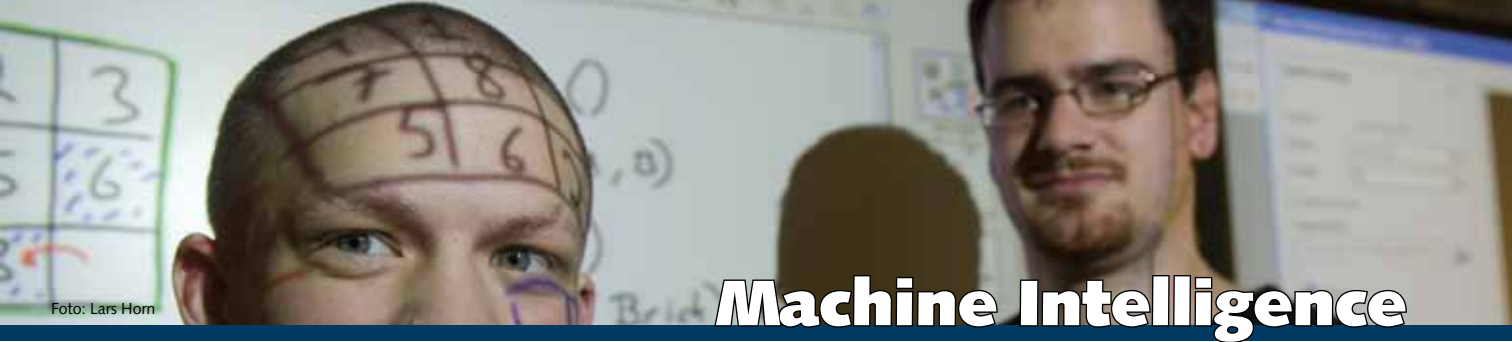


Foto: Lars Horn

Machine Intelligence

Intelligent computer systems need to be able to handle uncertain information, incomplete data and unreliable inputs. Methods for dealing with these forms of uncertainty are of particular importance in many areas of artificial intelligence, including natural language processing, intelligent agents, robotics, machine learning and data mining. This master's programme focuses on probabilistic and statistical methods for intelligent decision making and learning. Courses provide the necessary foundation in machine intelligence as well as other core subjects for a graduate level computer science education.

A significant part of the studies consists of projects conducted in small groups of students. A project will typically include more in-depth study of particular methods and techniques, and practical application of these techniques to a problem in multi-agent systems or data mining. The programme is managed by the Machine Intelligence Group, one of the world's leading research groups on uncertainty in artificial intelligence. In particular, the group is very strong on graphical models (e.g. Bayesian networks). The master's programme in machine intelligence satisfies academic curiosity in particular fields, while at the same time providing a



sufficiently broad education in general computer science.

Career opportunities

Graduates in Machine Intelligence are in high demand and career opportunities are wide ranging. Former students have continued their careers as PhD students; others work as project leaders or system developers in private or public companies all over the world.

Who can apply?

Students with a relevant Bachelor degree in computer science, natural sciences or engineering can apply. Proficiency in English is a prerequisite. To learn more, please consult www.studyguide.aau.dk

Programme structure

Machine Intelligence is a two-year master's programme

(120 ECTS credits). Students can also choose to pursue one or two semesters. The program has a strong focus on PBL (see page 5).

1st Semester:

Project on model-based machine intelligence, and courses on artificial intelligence, data-mining, autonomous agents.

2nd Semester:

Project on machine intelligence in reality and courses on database management systems, real-time systems, datamining, business intelligence.

3rd Semester:

Specialization, courses on multi-agent system agents, intelligent web systems, data mining, machine learning, graphical models.

4th Semester:

Master's thesis.



Testimonial

I am the founder and CEO of a software house developing network management solutions for mobile network operators.

We see that mobile network operators are under a great deal of pressure to lower the cost of running the network, and this demands automation. The research at Machine Learning/Aalborg University is world leading and extremely relevant for modern process automation solutions like ours.

Lars Moltsen, Founder and CEO, 2operate.

Medialogy

Are you interested in design and the technologies used in film, sound, computer games, digital animations and graphics?

To be successful in today's media society, you should be able to bridge the gap between technology and creativity. At Medialogy your creativity is what starts the process...


You will gain knowledge about film, animation and music technology and learn how design and computer science go hand in hand in

today's and tomorrow's media productions. You will gain insight into the creative processes and thinking that precedes any media production.

You'll also learn how to use technological advances in the engineering sciences in design and production of e.g. computer games, computer-generated animated films, 3D worlds and digital art.

Career opportunities

You will have a huge advantage in the job market by de-



Testimonial

"Medialogy offers an education where you are the one setting the limits of your creativity, whether you want to create artistic installations, entertainment or programs for companies. Medialogy is an programmes where you can express yourself creatively in the digital world. It appeals to those who wish to educate themselves in computer games, sound design, animation and graphical interfaces."

Iben Schandel, 5th semester student

veloping your skills in a specialised area and creating a portfolio of creative work or technical research. Graduates typically find work where they are engaged in the development of computer programmes and computer games, animation, virtual reality systems, digital design, test development, project management and media production, typically in the film, entertainment and IT industry.

Medialogy full Master's programme (120 ECTS credits)

In the 2-year master's programme, students can specialise in one of the following areas:

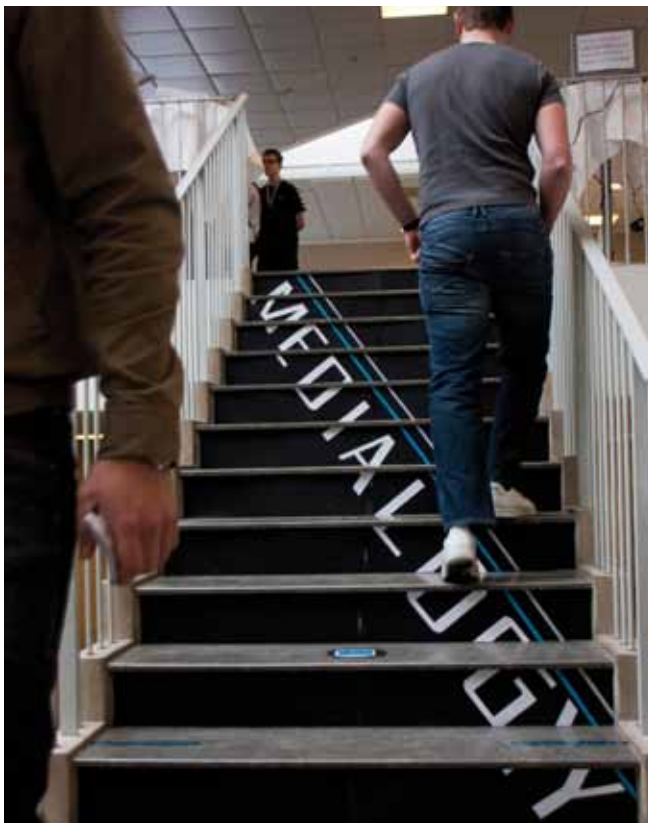
- Games
- Interaction

- Sound and Music
- Computer Graphics
- Medialogy

In the 9th semester there are opportunities for an internship in both Denmark and internationally and to study abroad at other major universities.

It is also possible to participate in DADIU's (The National Academy of Digital Interactive Entertainment) game development course as part of the Medialogy Master's programme under DADIU's game programmer profile.

To learn more, please contact our student study counselors vejl-medialogi@aauk.dk or visit www.studyguide.aau.dk



Networks and Distributed Systems

Do you find satellites, collaborating robots, safety-critical networks between cars and fighting cyber terrorism interesting? Do you want to master advanced technology and obtain a strong technical competence profile, while also learning about team work? And would you like to combine theory with practice? Then you should consider the master's in Networks and Distributed Systems (NDS).

NDS is a master's in engineering, with several specialised courses in computer networks, network modeling and

performance analysis methods, network planning and management, fault tolerance and reliability study in the field of distributed systems.

The courses give you a broad foundation within subjects such as:

- Traffic theory and modelling
- Wired and wireless networks
- Security and management.

In the projects, you are working in-depth with problems of your own choice, often in close cooperation with researchers and/or industrial partners.

You will become familiar with project-based learning, and in addition to the technical con-

tent, you will also learn about project management and planning. Moreover, we focus on systems design, where you will design a distributed system to solve a real existing problem. Part of the system will also be implemented and tested.

Career opportunities

Throughout NDS you will work with various applications of your own choice, giving you an excellent opportunity to design your own competence profile. Previous students have found many different jobs, including System architect/developer, Network consultant, Network planner, Network specialist, Project Manager or a career in research.

Who can apply?

Students with a relevant bachelor's degree in electrical engineering, computer science, computer engineering or a similar degree. Proficiency in English is a prerequisite. To learn more, please consult studyguide.aau.dk.

Programme structure

NDS is a two-year master's programme (120 ECTS credits). Students can also choose to pursue one or two semesters. The programme has strong focus on PBL.

1st Semester:

Project on networks and distributed processing, and courses on Stochastic Systems, Distributed Real Time Systems and an elective course within e.g. communication networks.

2nd Semester:

Project on Distributed Systems Design, and courses on Wireless Systems Performance, Fault detection, isolation and modeling, and Network Performance and Applications.

3rd Semester:

Project on Performance Analysis or Network Planning, and courses on Complex Systems, and either Machine Learning or Non-linear Control.

4th Semester:

This semester is devoted to work on the master's thesis.

Testimonial

"Aalborg University (AAU) offered exactly what I wanted to study. AAU is one of the few universities that offers a master's programme in Networks and Distributed Systems in its Electronic Systems Department. Moreover, the university follows the Problem Based Learning method which has definitely changed my way of dealing with problems. Furthermore, in order to carry out the projects assigned to us by our professors, we work with our teammates as one group to find a solution to the problem."

Ahmed Shawky,

Graduate from NDS in 2009 and current PhD student



Service Systems Design

At Service Systems Design you will learn about planning and organisation of people, infrastructure, communication, media and components of a service, in order to improve its quality, the interaction between service provider and customers and the customers' experience

In the private sector, service design is increasingly considered an important competitive factor in existing services and a support to the introduction of new services. Service design consultants are often required in the sectors of travel, healthcare, information services, bank and financial services and retail services. Also the public sector has recently emphasised the im-

portance of service design in creating new citizens services and increasing the quality of existing public services. Service designers are increasingly requested by public authorities to reorganise healthcare services, tourist services, traffic and parking services, and public administration.

The master's programme in Service Systems Design is the first programme that specifically addresses the demand for this professional competence.

Career opportunities

With a master's in Service Systems Design you will have employment opportunities in private companies (e.g. banks, hotels, logistic and transport and telecommunica-

tion companies) in the service sector as well as in service-related departments of product manufacturing companies (e.g. IT and electronics) and in design consultancies. Increasing job opportunities are also emerging in the public sector, including services for healthcare, tourism, transport and public administration.

Who can apply?

Bachelor programmes from different disciplinary areas give access to the master's programme in Service System Design, such as: Medialogy, Experience Design, Industrial Design, Global Business Informatics and bachelor programmes within It-communication, digital media, software development and economics.

Programme overview

The programme will provide you with professional competences within the following disciplines:

Industrial design

- products, services, and environments in which back and front offices of a service are physically placed
- touchpoints, i.e. material aspects, timing and environmental conditions in which users meet the service
- aesthetics, emotion, experience and communication, especially in relation to interactions
- user-involvement and participation in value creation

Information technology

- fundamentals of programming
- interaction between users and service providers
- information and communication support to the service

Engineering and management

- evaluation of service quality
- functional and organisational structure that support the service in the back office as well as in the front office
- service strategy and business.





Signal Processing and Computing

The programme focuses on theories, methods and algorithms for advanced signal processing applied to a variety of application domains, such as wireless communication, speech recognition, hearing aids, positioning, gaming, audio and video, and health care. The programme aims at bridging the gap between 1) signal processing theories, 2) programming of parallel off-

line simulation environments, and 3) real-time hardware/software architectures in order to achieve small physical size, high data throughput, and low energy consumption. Mastering design- and simulation-procedures for advanced signal processing algorithms, and their real-time implementation in resource optimal hardware/software, are all crucial skills for engineers designing state-of-the-

art signal processing systems. You will learn how to make the right decisions in a signal processing design trajectory. Furthermore, you will learn how to improve the interaction between signal processing algorithms and computer architectures, in order to minimize the gap between the ever growing computational complexity and the requirements for smaller physical size and longer battery lifetime.

typically find jobs in industries where digital signal processing and computing is naturally applied in order to provide signal analysis, signal modification, or signal transmission.

Who can apply?

Students with a bachelor's degree in electronics, electrical engineering, computer engineering, mathematics or similar degree can apply. Proficiency in English is a prerequisite. To learn more, please consult studyguide.dk

Programme structure

In the four semesters, the programme addresses the following themes; Signal Analysis, Scientific Computing or Reconfigurable Computing (elective), Signal Processing and Computing, and the Master's thesis.

Career opportunities

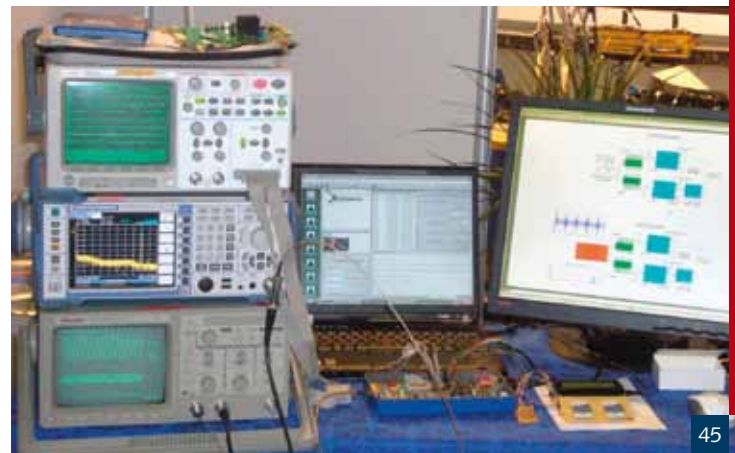
The skills learned pave the way for a very broad range of job opportunities found within domains such as wireless and mobile communication, consumer audio and video, multimedia, medical aids, instrumentation, automotive applications, avionics, and navigation. In general, graduates



Testimonial

With the huge amount of career opportunities within the world of Signal Processing, choosing this subject for my master's studies was not difficult at all. I graduated in 2006 after having conducted my Master's thesis at the American company D2Audio, Austin, Texas. I looked into the design and implementation of smart signal processing algorithms for Class D amplifiers – techniques appreciated by true HiFi enthusiasts. Combining the Problem Based Learning model with the possibility of work in an industrial environment was a great experience, and after having obtained my MSc degree I decided that I wanted to learn even more in terms of a PhD project focusing on tools for flexible design of signal processing systems. For me, the combination of signal processing and computing has been a great experience and I have no doubt that I can use my skills and competences in this interdisciplinary domain for continuous development of my career.

Andreas Popp



Software Development

The two-year full-time programme in Software Development is designed to prepare students for the practice of contemporary software development in leading-edge software organisations and research institutions. Its major themes are agility, innovation, software engineering, and human-computer interaction. Students are expected both to develop extended working software prototypes addressing real-world problems and to contribute to research on the programme's themes. The programme combines the latest advances in research and practice knowledge in a four-semester structure. The focus in the first semester is model-driven and agile software development practice. The second semester deals with user-centred, sketching-based and innovative development of complex soft-

ware systems. In the third and fourth semesters, students study the research methods that are relevant for studying the program's themes, and research and write the master's thesis. The thesis addresses a topic at the frontier of practice research: students work with problems critical for software firms and software-dependent businesses, in collaboration with leading researchers and experienced developers. Graduates will be well placed for a development career with a business or innovation facing software organisation, or for a research career in the information systems discipline.

Career opportunities

Graduates in Software Development are in high demand and some can continue their careers as PhD students; others work as project leaders or system developers in priva-

te or public companies all over the world.

Who can apply?

Students with a bachelors degree within social sciences, humanities, design, architecture or similar can apply. Proficiency in English is a prerequisite. To learn more please consult www.studyguide.aau.dk

Programme structure

Software Development is a full master's programme (120 ECTS credits). Students can also choose to pursue one or two semesters. The program has a strong focus on PBL (see page 5).

1st Semester: Project on development of a software system, and courses on system analysis and design, design and evaluation of user interfaces, programming.

2nd Semester: Projects on user-centered and innovative software development, and courses on software engineering, software innovation, databases.

3rd Semester: Project on empirical research development processes in software development, and courses on software development research methods.

4th Semester: Master's thesis.

Testimonial

This new programme focuses on user-driven innovation, software development, user orientation, interaction design, project management and usability. "We are going to bring several professional competencies and qualifications into play", says one of the founders of the programme, Professor Peter Axel Nielsen, and continues "for that reason we are also going to spend a lot of time guiding the students and there will be very close cooperation between the students and their supervisors. Our aim is to recruit students from all over Europe and our graduates will be prepared for jobs in public and private companies all over the world."

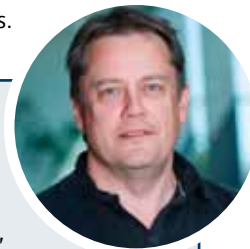


Foto: Lars Horn



Foto: Jiri Srba



Vision, Graphics and Interactive Systems

How is your camera able to detect whether the person in front of it is smiling or not? How is it possible to create non-real figures, such as Gollum from Lord of the Rings, and insert them into a film? Why are some products so appealing and easy to use, while others are not? The answer to the first question is Computer Vision - that is, to automatically make a computer understand what it sees. The answer to the second is Computer Graphics - that is, to make a computer automatically visualise a virtual object. The answer to the third question is a deep understanding

of user needs and user experience design. Together, these three topics form the core of the Vision, Graphics and Interactive Systems (VGIS) programme.

The VGIS programme is research-based and combines theory and practical project work, where you can apply the theories introduced in the lectures. Through the projects you will be designing and building software systems within the fields of Computer Vision, Graphics and Interactive Systems.

Career opportunities

On completing the program-

Testimonial

"As a student on VGIS you are working with state-of-the-art methods and techniques which make VGIS an exciting and relevant master's degree. You can work within different sub-fields of your choosing and thereby gain more knowledge of what you think is interesting".



me, your employment possibilities range from vision systems for automatic quality control and handling of objects within a production facility to designing intuitive and user friendly systems and all the way to the entertainment industry, where the knowledge and skills you learn can be applied in games and special effects for films.

Who can apply?

Students are required to have a Bachelor of Science degree in Electronic Engineering, Computer Engineering, computer science, mathematics or the equivalent. Proficiency in English is a prerequisite. To learn more, please consult www.studyguide.aau.dk

Programme structure

Vision, Graphics and Interactive Systems is a two-year master's programme (120

ECTS credits). Students can also choose to pursue one or two semesters as exchange students. The programme has strong focus on Problem Based Learning.

1st Semester:

Project on computer graphics together with courses on machine learning, graphics programming and user experience design.

2nd Semester:

Project on computer vision with courses on robot vision, image analysis, visualisation and scientific computing.

3rd Semester:

Project on interactive systems design together with courses on multi-modal processing and an elective course.

4th Semester:

This semester is devoted to work on the master's thesis.



Wireless Communication Systems

The master's programme in wireless communication systems aims to graduate engineers with competencies within wireless communication systems and associated connectivity concepts. Particular focus is given to small terminal behaviour and system radio resource control under dynamic radio channel and traffic conditions. The supporting topics include radio wave propagation and antenna systems processing, wireless communication signals and access techniques, application adaptation and user device interaction and wireless communication systems and deployment. The programme is supported by the strong research environment at Dept. of Electronic Systems. Consequently, you will have ample possibility to work with the newest and most challenging theoretical and practical wireless communication topics.

In today's networked world, wireless communication plays an essential role. We are all quite familiar with personal mobile communication devices, but wireless communication can enhance the functionality of about any everyday product, from passive wireless systems for product identification to networked and autonomous wireless systems on a small or large scale.

Career opportunities:

Your role will be to help develop new communication solutions for wireless connectivity, plan wireless systems or devise procedures for their operation, and possibly assist with specialist knowledge on integration of wireless connectivity for new applications and products. Like many of our previous candidates you will have opportunities with large international companies who seek the expertise that this education gives you, work

Testimonial

"The set of courses offered at Aalborg University are very important. Because of the nature of wireless communications, the skills to be gained from the courses are relevant everywhere in the world. English-speaking students from anywhere intending to make a career in the wireless communications sector will benefit from the programme. This is because the content is developed from a leading centre of excellence in communications techniques, and conducted by staff that has been successful with theoretical, practical and commercial solutions in technologies which are used globally".

Jørgen Bach Andersen, Professor, Life Fellow IEEE



with start up R&D initiatives- or pursue an academic research career.

Who can apply?

Students with a bachelor's degree in electronics, computer engineering, telecommunication, computer science or equivalent.

Programme structure

Wireless Communication Systems is a two year master programme (120 ECTS credits). Students can also choose to pursue one or two semesters

1st Semester:

Courses on Wireless funda-

mentals and Stochastic processes. Project on fundamental Wireless radio transmission.

2nd Semester:

Courses on Wireless System Performance. Project on radio systems and/or antenna systems for Wireless communications in dynamic settings.

3rd and 4th Semester:

Courses on Multi Agent Wireless Radio and Antennas & Propagation. Project on Multi agent wireless systems (either separate 3rd and 4th semester projects or a single extended master's thesis covering two semesters).



Mathematics

Studying mathematics at Aalborg University will give you a new experience and perspective. For more than 30 years, we have successfully carried out Project-Organised Education in mathematics and statistics combining education at a high academic level with the development of additional teamwork skills highly valued in the professional world. Each group of students has its own office with up-to-date IT facilities.

Career opportunities

Our graduates obtain employment in a wide range of companies and at public authorities. Some examples of where they are now:

- PhD
- Teaching
- Statistics
- Novo Nordisk

Who can apply?

For admission, you will need documentation for a progressive range of skills:

- 3rd semester: Calculus, Linear Algebra
- 4th semester: Group Theory, Mathematical Analysis
- 5th semester: Probability Theory
- 6th – 8th semester: Please consult the programme coordinator, associate professor, Martin Raussen raussen@math.aau.dk.

In addition, you must take an English proficiency test – see apply.aau.dk.

Testimonial

The project-oriented group work has greatly benefitted me, because the combination of theory and application has given me a solid foundation for my work at Novo Nordisk where I work as a statistician. Another aspect of my master's programme at Aalborg University is that it gives an excellent transition from school to industry because the education focuses on both theory and practise.

Wan Hui Ong Clausen, China



The mathematics programme is usually combined with two semesters within a second discipline (computer science, physics, engineering, biology, sports or within social sciences or humanities), either during the bachelor's or the master's programme.

3rd semester - Project Area: Extrema, Theory and Practice Courses:

- Algebra 1: Groups
- Analysis 1: Convergence and Continuity
- Linearity and Differentiability

4th semester – Project Area: Symmetry Courses:

- Algebra 2: Rings and Fields
- Analysis 2: Metric Spaces
- Probability Theory
- Complex Analysis

5th semester, from autumn 2012 - Project Area: Statistical

Modelling and Analysis Courses:

- Geometry
- Computer Algebra
- Statistical Inference for Linear Models

6th – 8th semester:

These semesters are more specialised and prepare the students to do independent mathematical work aimed at the master's thesis.

The 6th semester introduces the students to a particular focus area within one of the following fields: Applied Mathematical Analysis and Geometry, Discrete Mathematics and Mathematical Statistics.

During the last year (7th and 8th semester), the students concentrate on their chosen subject and write their master's thesis supported by a supervisor from the faculty.



Applied Physics

This programme aims at combining practical engineering skills with a fundamental physical understanding of underlying principles. For example, design of electronic circuits, semiconductor devices and optical components can be greatly improved via proper understanding of the physical laws governing electric fields and materials. The master's Degree in Applied Physics is focused on practical and theoretical studies of devices and technologies including fabrication, characterisation and simulation.

Knowledge

You will obtain knowledge based on the highest level international research in fields such as solid state physics, optics, semiconductor physics, properties of materials and components on the nanoscale, and you will be able to understand and reflect on theory, methods and applications within these areas mentioned.

Skills

You will be able to use basic scientific methods and tools within the field of physics and

to select appropriate physical theories, methods and tools to solve practical problems. You will be able to communicate research-based knowledge and discuss professional scientific problems with both peers and non-specialists.

Competencies

You will be able to manage complex and unpredictable work and development situations, requiring new solutions, to independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility, and to independently take responsibility for your own professional development and specialisation.

Who can apply?

Students with a relevant bachelor's degree in electrical engineering, materials science or natural science can apply. It is expected that you have a knowledge of mathematics and physics.

Programme structure

This is a two-year master's programme consisting of four semesters. During the first

three semesters, you will split your time equally between courses and projects. The courses will give you the basic knowledge and the projects will allow you to dig deep into the matter and strongly focus on particular subjects.

1st Semester:

You will become experienced in advanced methods for synthesis and characterisation of materials from macro to the nanoscale. Focus is on optical spectroscopy, nanolithography and advanced microscopy (e.g. electron microscopy and scanning probe microscopy). The courses cover materials chemistry, synthesis and characterisation as well as semiconductor physics.

2nd Semester:

You will obtain experience with advanced methods for creation of functional mate-

rials and nanostructures. In addition, possible applications and materials properties (electronic, magnetic, chemical, etc.) will be investigated. Through application of micro- and macroscopic modelling, you will be able to describe the properties and functionality of nanostructures. The courses cover surface science and nano-optics.

3rd Semester:

You will apply physics to a chosen technological area. Focus is on applied aspects of nanotechnology. You will use different tools from physics to find solutions to an actual problem. The courses cover continuum mechanics, nano-electronics and optoelectronics.

4th Semester:

This semester is devoted to the master's thesis.

**Learning seriously
affects your brain**
www.aau.dk

Biotechnology



Testimonial

To study biotechnology at Aalborg University was one of the best choices that I have ever made. Being in Denmark at Aalborg University, collaborating and working with international researchers and a good team in well-equipped scientific laboratories was a great experience. Not only gaining experience for an academic career but also being in Aalborg gave me the opportunity to meet people from all over the world, experience new cultures and traditions and new ways of life. I will never forget the warm-hearted and smiling faces of the Biotechnology Department.

I had wonderful time and returned to my country personally and academically more mature and self-confident.

Arife Candas Adigüzel, Turkey

at the master's level requires a bachelor's degree in relevant natural science and engineering disciplines. In addition, you must take an English proficiency test – see details at apply.aau.dk.

Programme structure

The 1st and 2nd semesters consist of problem-oriented project work carried out in groups of three to six students and supported by relevant lectures and exercises. The overall themes of these two semesters are:

- Molecular Biology
- Protein Science

During the last two semesters, students specialise in a subject of their interest and individually carry out their master's thesis. The areas of specialisation are typically within:

- Environmental Biotechnology
- Protein Sciences
- Functional Genomics
- Bioprocess Technology

All project-oriented work is carried out in close collaboration between students and their supervisors, and often in collaboration with external partners from industry, other universities or research institutions.

Do you want to work with biological molecules, gene technology, micro-organisms and cell cultures? Biotechnology combines biology, chemistry and engineering science to develop new products such as enzymes to improve laundry detergents, textiles and food products. You will acquire the skills and knowledge to grow natural and genetically modified microorganisms, to produce proteins, other bio-molecules and pharmaceuticals and to use advanced techniques to characterise genes, proteins, cells and mi-

crobial consortia with respect to composition and function.

Career opportunities

You will be qualified to work in research, development, management and production in the biotechnology industry as well as in food or pharmaceutical industries, or you can start your own company. Successful graduates will also be qualified to apply for further PhD studies.

Who can apply?

Admission to the international programme in Biotechnology



Chemical Engineering

The aim of this programme is to provide you with solid knowledge of the chemical process industry and its organisation. You will obtain knowledge and understanding of the key processes and equipment in chemical-related production. Moreover, you will be able to apply mathematical models to describe and simulate relevant processes and equipment as well as use modelling tools for planning and optimisation.

Career opportunities

As a chemical engineer, you may obtain employment in

areas such as the chemical industry, in the medical industry or in the oil industry. In addition, you have the opportunity to work in the food industry, in a consulting engineering company or in public administration. Examples of tasks could be: development of new materials, optimisation of chemical productions or inspecting the quality of foods. With an master's in Chemical Engineering from Aalborg University, your job options are many and varied.

Who can apply?

Candidates who wish to regi-

Testimonial

The project during my 9th semester was written during a stay abroad in Glasgow and the subject of the project was to examine new methods for determining the photocatalytic activity of TiO₂ film. Photocatalysis is used for example in self-cleaning window glass. The benefit is that window glass coated with TiO₂ is activated by the sun's UV rays resulting in the forming of reactive components which break down the organic material on the window glass.

Morten Simonsen, Denmark

ster for the master's programme should have a bachelor's degree or equivalent in Chemical Engineering awarded by a recognised university or institution of higher education. In addition, you must take an

English proficiency test – see details on apply.aau.dk.

Programme structure

Themes:

1st Semester: Process Development and Process Design

2nd Semester: Process Analysis and Modelling

3rd Semester: Specialisation in Chemical Engineering

4th Semester: Master's thesis in Chemical Engineering.

The final semester is devoted to full time work on the master's thesis. No courses are given in this semester. The thesis work is very often a continuation of the project from the third semester. It is carried out individually, or in small groups of two to three students.





At Aalborg University, you are not merely educated in chemistry. Students at AAU learn chemistry through Problem Based Learning in groups. This gives you unique training in problem solving and improves your collaborative skills.

This programme provides you with solid knowledge and expertise in chemistry. The programme contributes to developing your ability to:

- Resolve practical problems related to chemical engineering
- Innovate, design and optimise production processes of chemicals and materials,

- Develop new materials and new processes
- Discover and model new scientific phenomena

It is recommended that the students conduct industry-related or problem-oriented projects proposed by teachers in collaboration with external partners from industry and research institutions.

Career opportunities

Graduates from the Chemistry programme have many possible career paths such as process chemist, residue chemist, plastics and polymer chemist, service chemist and analytical chemist.

Testimonial

In my master's thesis, I collaborated with LEGO A/S on developing better plastic. In order to achieve this goal, I used the opportunity to work with other parts of Aalborg University. In this regard, I was involved in an interdisciplinary cooperation with the Department of Production as they have much expertise from which I could benefit. I chose to write my master's thesis over two semesters (3rd and 4th) in order to be able to concentrate on my subject. This way, I also felt that my collaboration with my partners was enhanced. Concerning my future, I hope for a PhD scholarship for which AAU provides great opportunities.

Peter Jacobsen, Denmark

Who can apply?

In general, admission to the chemistry studies at the Master's level requires a bachelor's degree in relevant natural

science and engineering disciplines. In addition, you must take an English proficiency test – see details on apply.aau.dk.

Programme structure

Themes:

1st Semester:

Materials Technology

2nd Semester:

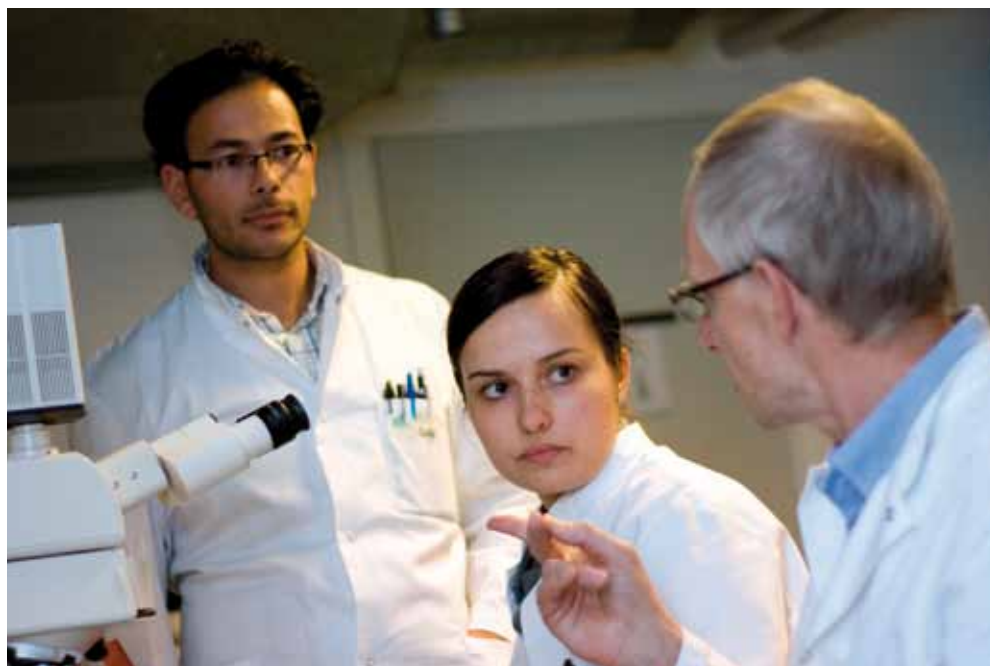
Controlled Release and Functional Polymers

3rd Semester:

Specialisation in Inorganic Materials, Controlled Release, Functional Polymers, and Solid-separation

4th Semester:

Master's thesis in Chemistry



Offered from
September 2013

Combustion Technology

The master's specialisation in Combustion Technology (CT) primarily focuses on advanced competences in combustion technology, bioenergy systems, fluid mechanics and flow systems, including CFD and multiphase flows. The programme covers energy system modelling, control and diagnostic of these systems. The programme is multidisciplinary and covers the integration of general engineering disciplines, such as thermal systems, fluid and aerodynamics, control engineering and electrical engineering.

Career opportunities

The knowledge gained enables the graduate to work in project engineering, research, development and management in Danish and international industries or public institutions, e.g. energy companies, process engineering companies, a wide range of producers of high efficiency energy devices and counselling companies involved in energy technology and systems.

Who can apply?

Admission to the master's programme in Combustion Tech-

nology presupposes become requires a bachelor's degree in thermal energy engineering. In addition, you must take an English proficiency test (IELTS, TOEFL or Cambridge ESOL test) – see details on apply. aau.dk.

Programme structure

Combustion Technology is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-based project work and 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.

1st Semester:

The purpose of the project is to contribute to students' attainment of knowledge about project-organised, Problem Based Learning and how to

design, analyse and model units for combustion of fossil and biomass fuels and gases.

2nd Semester:

The project focuses on how to design, analyse and model bioenergy systems and how to optimise the refining and the combustion process. The project should be based on full scale bioenergy systems under development. System analysis, process monitoring and optimisation and new technology development should be included.

3rd Semester:

The project will consider optimisation, control or diagnostic systems for combustion systems. First, the system is to be modelled and different system identification methods can be applied to determine the parameters of the system. Second, the system model is verified by simulations and data time series from either a real system or a laboratory set-up.

4th Semester:

This semester is devoted to work on the master's thesis.



Design of Mechanical Systems

Global competition has increased the demands for efficiency and functionality in industrial products. Therefore, the world needs engineers who can develop advanced and competitive mechanical systems, machines and products. The master's programme Design of Mechanical Systems (DMS) prepares you for meeting such challenges.

The programme offers courses and projects within the following fields:

- Stress and deformation analyses of load-carrying structural elements
- Continuum mechanics (the-

ory of elasticity, plasticity and micromechanics)

- Finite element methods
- Fracture mechanics and fatigue
- Energy and various methods with applications
- Multi-body system analysis
- Engineering design optimisation
- Mechanics of composite materials and structures
- Engineering design of mechanical systems

The project work is focused on putting theory into practice. You will do your project work in cooperation become collaboration with a company, a great opportunity to try out



your ideas and knowledge in a real life-situation.

Project examples:

- Crash simulation, Ford, Germany
- Bio-mechanical analysis of ligament injuries
- Failure analysis of a wind turbine blade
- Simulation model of a dumper

Career opportunities

Graduates from the programme have many possible career paths. Examples of where our graduates work:

- Wind turbine industry: Vestas, Siemens, LM Windpower, Suzlon
- Companies such as Grundfos, Danfoss, B&O, NKT, Man B&W, FLS, Novo Nordisk, Danisco
- All industrial companies designing products

- The composite and polymer industry.

Who can apply?

You are required to have a bachelor of science degree in engineering. In addition, you must take an English proficiency test – see apply.aau.dk.

Programme structure

DMS is a two-year master's programme which gives you 120 ECTS. The programme is PBL-based (see p. 5)

1st Semester:

Stress and Deformation Analysis of Load Carrying Structural Element

2nd Semester:

Engineering Design of Mechanical Systems

3rd Semester:

Traineeship or study abroad

4th Semester:

This semester is devoted to the master's thesis.

Testimonial

I graduated as a mechanical engineer in "Design of Mechanical Systems" from Aalborg University in 2008. Since my graduation, I have been employed as an industrial PhD at Liftra in Aalborg. Liftra is developing special lifting and transportation equipment for the wind turbine industry. Most Liftra projects are about prototype development, which assume creative and technical skills. In my daily work, I use my background from Aalborg University when doing structural calculations and mechanical designing.

Rasmus Mørk, Denmark

Electrical Power Systems and High Voltage Engineering

The master's programme in Electrical Power Systems and High Voltage Engineering (EPSH) enables you to meet the challenges of the future smart and intelligent power system networks. The study includes:

- Computer simulations of transient and steady-state phenomena, including power flow
- Application of advanced control and surveillance strategies
- Stability, reliability and power quality in the future network grid
- Compensation systems both for local distribution networks and for the transmission network

- Network planning, including stochastic planning tools
- Fault calculation and localisation and relay protection
- High voltage technology

Career opportunities

Upon completion of this programme, you are able to work in production, transmission, distribution and utilisation of electrical energy. Moreover, you will be able to apply different analysis and synthesis methods for design and simulation of various electrical energy systems.

Who can apply?

Admission to Electrical Power Systems and High Voltage Engineering assumes a bachelor's degree in Electrical Energy Engineering, power

Testimonial

I once did a project together with four other students. We used an entirely new calculation method that we had programmed ourselves from scratch. The project gave me so much because we made things work, and we found out something new which had never been examined before.

Unnur Stella Gudmundsdottir, Iceland



systems or the like. In addition, you must take an English proficiency test – see details on apply.aau.dk.

Programme structure

Electrical Power Systems and High Voltage Engineering is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-based project work and 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.

1st Semester:

Project-organised, Problem Based Learning including a technical problem related to the dynamics of electrical energy systems or electrical apparatuses.

2nd Semester:

The project will study a component, an application or a process involving control or surveillance of electrical power systems (digital SRO-systems).

3rd Semester:

The project will consider optimisation, control or diagnostic systems for electrical power systems or a high voltage system.

4th Semester:

This semester is devoted to work on the master's thesis.



Electro-Mechanical System Design

The master's programme in Electro-Mechanical System Design (EMSD) produces graduates who are able to engineer systems and devices where mechanics, electronics and intelligent control systems are tightly integrated. As a graduate of the programme, you have a broad knowledge within the areas of mechatronic system design, modelling and analysis of electro-mechanical systems, information technology and control theory. This enables you to take part in interdisciplinary technical development and research projects.

Project work

The project work is focused on putting theory into practice. You will typically do your project work in cooperation with a company; this is a great opportunity to try out your ideas and knowledge in a real-life situation.

Project examples:

- Integration of electric and combustion engine in a Mercedes S400 Hybrid car
- Design and control of power take-off system for wave-energy power plant
- Modelling and control of



hydraulically actuated servo robot

In addition, you must take an English proficiency test – see apply.aau.dk.

Career opportunities

Graduates from the programme have many possible career paths. Many pursue a technical career in either industry/academia, whereas others favour project management positions. A few examples of where our graduates work include:

- Vestas Wind Systems
- Grundfos
- Siemens Wind Power
- MAN B&W.

Who can apply?

You are required to have a bachelor's degree in engineering.

Programme structure

EMSD is a two-year Master's programme which gives you 120 ECTS credits. The programme is PBL-based (see p. 5)

1st Semester:

Electric and fluid power servomechanisms

2nd Semester:

Design and control of power transmission systems

3rd Semester:

Traineeship or study abroad

4th Semester:

Master's Thesis.

Testimonial

During my EMSD education, I have obtained a broad technical profile which makes me capable of solving problems within a number of exciting engineering fields. For me, this profile opens up a range of career possibilities where I can work with motivating and challenging problems, and I would recommend the EMSD programme to anyone interested in mechatronic engineering. For example, during my education, I have been involved in constructing and controlling an automated labyrinth game and a Segway, both of which can be reviewed on YouTube: <http://www.youtube.com/user/DanielBeckRomer>

Daniel Beck Rømer, Denmark





Environmental Engineering

This programme aims to give you the knowledge and skills to provide solutions to the environmental problems facing us today and to prevent new problems in the future.


Our programme is based on a unique combination of theoretical courses and practical project work designed to give you not only theoretical knowledge but also hands-on experience with solutions to real problems in collaboration with companies outside the university. You will learn to use biological, chemical and physical knowledge in combination with technical design

to handle environmental challenges.

Career opportunities

With a degree in Environmental Engineering you may become a consulting engineer or you may work in the industry managing environmental issues for a major manufacturer. Many of our graduates also work in the environmental sections of municipalities or counties. Several of our graduates have started their own companies within consulting or manufacturing often based on an idea they developed during their studies at Aalborg University. If you are intere-

Testimonial



I had already been working a year in Denmark when I decided to start a master's degree in Environmental Engineering. It was both a challenge to start with a new programme and a great opportunity to focus on environmental issues which are among the major concerns nowadays.

Studying at AAU was a new experience, as the way of learning is really different from my previous university. We were studying in groups on different projects. The group work is perfect training to begin one's working life; and it is both fun and efficient. Responsibilities were shared among group members and all results and divergences were discussed. Concerning the projects, we were always confronted with real-life situations, and it was really motivating to match both theoretical and practical challenges. Having the possibility to combine field, laboratory and modelling work to build up a solution is very exciting.

Elise Rudelle, France



sted in further scientific work, you may also consider our PhD programme.

Who can apply?

In general, admission to the Environmental Engineering studies at the master's level requires a bachelor's in relevant natural science and engineering disciplines. In addition, you must take an English proficiency test – see details on apply.aau.dk.

Programme structure

Themes:

1st Semester:

Soil science and groundwater

2nd Semester:

Wastewater treatment and aquatic pollution

3rd Semester:

Topics in environmental engineering

4th Semester:

This semester is devoted to the master's thesis.



Fuel Cells and Hydrogen Technology

The specialisation in Fuel Cells and Hydrogen Technology (HYTEC) covers advanced aspects, including energy system modelling, heat and mass transfer, control engineering and experimental work. The specialisation also involves different hydrogen and fuel cell related components and energy system aspects. We have a new laboratory, giving you the possibility of constructing and operating fuel cell-based technologies in real applications.

The themes of the study in Fuel Cells and Hydrogen Technology give you an in-depth understanding of the technologies of fuel cell systems and hydrogen produc-

tion and storage. The programme is multidisciplinary, integrating general engineering disciplines, such as thermal systems, fluid dynamics, control engineering and electrical engineering.

Career opportunities

The graduate is able to work in project engineering, research, development and management in Danish and international industries or public institutions, e.g. companies involved directly in fuel cells and hydrogen technology, energy supply companies and other thermo-mechanical companies.

Who can apply?

Admission to the master's programme in Fuel Cells and Hydrogen Technology assumes a



bachelor's degree in Thermal Energy Engineering or the like. In addition, you must take an English proficiency test – see details on apply.aau.dk.

Programme structure

Fuel Cells and Hydrogen Technology is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-based project work and 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.

1st Semester:

Project-organised, Problem Based Learning including a technical problem related to a thermal or fluid dynamical problem.

2nd Semester:

The project focuses on modelling and optimisation of a physical fuel cell or related hydrogen system.

3rd Semester:

The project will consider optimisation, control or diagnostic systems for fuel cell or hydrogen systems.

4th Semester:

This semester is devoted to work on the master's thesis.



Testimonial

Working with students from a number of different countries opened my mind to new ways of thinking, and I can't say enough about the supervisors in the department. They were always there to help and empowered the students by sharing their knowledge and showing genuine interest in the projects being completed.

Leanne Ashworth, Canada

Offered from
September 2012

Global System Design

Competition is intensifying between global markets. In order to be successful, companies must be highly innovative, be able to ensure high quality and sustainable products and services, generate satisfied customers and employees, and ensure a sustainable financial situation.

The master's programme in Global System Design enables you to handle modern day business complexity. You will be able to analyse and model specific business processes as well as complete product, service and production systems. You will learn to develop, simulate and cost-benefit-evaluate solutions and simplification proposals as well as standardisation and automation of work procedures and processes.

In the programme, we take

an engineering approach; hence, you will be working with application of modern calculation, automation and IT technologies which can contribute to enhanced resource utilisation amongst other things.

Career opportunities

As a graduate, you will be prepared for working in industry and to contribute to developing and maintaining competitive workplaces and production systems. You will be able to map and optimise processes, market and production data, and, based on analysis of such data, you will be able to simplify, automate and optimise business processes across industrial fields. You may work as a production manager, Lean Six Sigma consultant, IT consultant or logistics manager – to mention but a few.

Who can apply?

The programme is aimed at students who have finished their bachelor's degree, and a wide range of academic backgrounds merit admission: Bachelor of Engineering, Bachelor of Engineering and Science, and bachelor's degrees in Economics and Health Science. All applicants will receive individual assessment.

Programme structure

This is a two-year Master of Science and Technology programme divided into four semesters with 30 ECTS credits per semester.

1st Semester:

You will be working with the following subjects:

- Introduction to Problem Based Learning and scientific methodology
- Development and design of product and service systems from different perspectives (customer focus, finance, logistics and sustainability)
- Analysis and modelling of business systems and processes
- Business economics and statistics

- Design of production and logistics systems and control of associated materials, capacity and resources

2nd Semester:

The following subjects are addressed:

- Automated and intelligent production systems
- Analysis, advanced simulation and optimisation of processes as well as formulation and implementation of product, service, business and production strategies
- Process excellence, Lean Six Sigma philosophies and tools, project management and organisational change

3rd Semester:

In this semester, you have the opportunity to define your own semester. You may, for example, acquire industrial experience via a traineeship in an international company, study at a foreign university or specialise within a specific area through project work.

4th Semester:

This semester is dedicated to the master's thesis. You will work independently on solving a business, production related or logistics problem.



Indoor Environmental and Energy Engineering

Testimonial



Long before my arrival in Denmark, I had heard about the masters programme in Indoor Environmental and Energy Engineering. At that time, I was studying at Poltava Technical University in Ukraine, and one of the professors kept telling us that if we wanted to learn from the best within this field, it was a good idea to study Indoor Environmental and Energy Engineering at Aalborg University. We were trained in independent thinking and to not just accept rules and words at face value. The project subjects were always up-to-date, and the course material included updates on the newest results, exactly as my Ukrainian professor had told us.

Olena Kalyanova, Assistant professor, former PhD and degree student at Indoor Environmental and Energy Engineering

An engineer specialising in Indoor Environmental and Energy Engineering is responsible for creating an ideal environment for work as well as leisure, that is, an environment that considers the need for well-being and comfort of the individual. Construction and operation of buildings are responsible for more than 40 percent of the energy and material consumption in the world today. An engineer specialising in Indoor Environmental and Energy Engineering can reduce this

consumption considerably by optimal design of the building and the building envelope, choice of materials, utilisation of different kinds of renewable energy and optimisation of the operation of the building.

Career opportunities

Graduates from Indoor Environmental and Energy Engineering have many possible career paths, both in companies and public authorities, and have well-developed skills for working with others from different professional and cul-

tural backgrounds. Examples of where our graduates work:

- R&D in the private and public sector
- Danish Technological Institute
- Contracting industry
- Consulting Engineering companies
- In EU working with patenting

Who can apply?

You are required to have a Bachelor of Science in Engineering. In addition, you must take an English proficiency test – see details on apply.aau.dk.

Programme structure

Indoor Environmental and

Energy Engineering is a two-year master's programme which gives you 120 ECTS credits. However, you can also choose to visit us as a guest student and study one semester.

1st Semester:

Advanced Modelling of Energy Transport in Buildings and HVAC systems

2nd Semester:

Integrated Design of Buildings and Building Services

3rd Semester:

Ventilation, Airflow and Contaminant Transport in Buildings or Traineeship at an engineering company

4th Semester:

This semester is devoted to the master's thesis.





Manufacturing Technology

This programme provides you with competences to solve complex production-related problems and is designed to develop both theoretical understanding and practical experience. Focus is on design, development and implementation of products, manufacturing and control systems, primarily in relation to development, planning and implementation of industrial production.

You will get the opportunity to specialise within specific areas; such as virtual product and process development, material and process technology and operation and robot technology.

The programme aims at providing you in-depth knowledge within:

- Process Modelling

- Simulation
- Production Modelling and Monitoring
- Production Planning and Control
- Intelligent Manufacturing
- Engineering Optimisation
- Product Development and Modelling

Project work

The project work is focused on putting theory into practice. You will do your project work in cooperation with a company; this is a great opportunity to try out your ideas and knowledge in a real life-situation.

Project examples include:

- Barrier properties of polyester nanocomposites - in cooperation with Danfoss
- Roller hemming of magnesium automobile door panels



Testimonial

During my studies in Manufacturing Technology, I have worked with very different topics such as injection moulding of wood-polymer composites, analysis and development of error reporting procedures at a production facility, simulation of the sintering process in metal injection moulding, the development of a mobile robot and utilisation of brand new technologies within robotics. And this is exactly the strength of the Manufacturing Technology curriculum; although I have been focusing on robotics and automation in my thesis, I have gained a broad knowledge of the various production processes and planning.

Mikkel Rath Pedersen, Denmark

– in cooperation with Daimler Chrysler

- Pool Playing Robot – in cooperation with Colorado School of Mines.

Career opportunities

Graduates from the programme have many possible career paths. Some examples of where are graduates work are:

- Grundfos A/S
- Danfoss A/S
- Novo Nordisk A/S
- Simens Wind Power A/S

Who can apply?

You are required to have a Bachelor of Science in Engineering. In addition, you must

take an English proficiency test – see apply.aau.dk.

Programme structure

Manufacturing Technology is a two-year master's programme which gives you 120 ECTS credits. The programme is PBL-based (see p. 5)

1st Semester:

Production Analysis and Efficiency Improvement

2nd Semester:

Development of Manufacturing Systems.

3rd Semester:

Traineeship or study abroad

4th Semester:

This semester is devoted to the master's thesis.



Mechanical Design

Is it possible to design a lifeboat the size of a suitcase and which has a seating capacity for 150 people? Can you design a hand blender for ice crushing? How are cell phones, CDs, bicycles or fruit gum produced?

As an engineer specialising in Mechanical Design you will take part in the designing and improving a lot of the things surrounding us. It could be the largest machinery or the smallest technique that is absolutely essential in our everyday lives. If you like to work with construction and calculations, research and development, Mechanical Design would be interesting for you. During

the programme, you will obtain a high level of theoretical knowledge to solve complex problems and to invent new solutions to existing problems, for example improving the shape of wind turbine wings.

Career opportunities

Graduates from Mechanical Design have many possible career paths and have well developed skills for working with others from different professional and cultural backgrounds. Examples of work areas:

- Testing of wind turbine wings
- Maintenance of offshore installations
- Consulting

Testimonial

Upon completion of my upper secondary education, I spent a couple of years at the Royal Danish Life Guards, and thus, I lived in Copenhagen. Here, I had several opportunities regarding further education; however, I didn't doubt it for a second that I wanted to go back to Esbjerg to study. The Aalborg model caught my attention, and I chose to study Mechanical Design at Aalborg University Esbjerg. I really like the small environment where you get to know everybody. The students cooperate closely with the teachers; you are not merely another face in the crowd at lectures. I am challenged academically, because we constantly work on optimisation. It is exciting to come up with new and better solutions.

Søren Leth, Denmark

Who can apply?

You are required to have a Bachelor of Science in Engineering within Mechanical Design. In addition, you must take an English proficiency test – see details on apply.aau.dk.

Programme structure

Mechanical Design is a two-year master's programme which gives you 120 ECTS. However, you can also choose to visit us as a guest student and study one semester.

1st Semester:

Analysis and Design of Load-Bearing Structures

2nd Semester:

Offshore Structures

3rd Semester:

Analysis and Solution of an Advanced Civil and/or Structural Engineering Problem

4th Semester:

This semester is devoted to the master's thesis.



Mechatronic Control Engineering



Mechatronic Control Engineering (MCE) offers a programme that teaches you to create and control mechatronic systems and products and develop communication with team members from other disciplines. It covers the fundamental scientific principles and technologies used in the design of modern computer-controlled machines and processes, and it puts special focus on the synergies in the design process.

The emphasis of the syllabus is on application and extension of fundamental theory, e.g. in-depth modelling of specific applications, and advanced topics in control theory.

Career opportunities

Mechatronic control engineers

have a wide range of job opportunities. The knowledge gained enables graduates to work in project engineering, research, development and management in Danish and international industries or public institutions with topics such as control and development of all types of mechatronics systems and components, advanced control of systems and components in wind turbines and in the wave energy industry, and participation in multi-disciplinary development and research projects.

Who can apply?

Admission to Mechatronic Control Engineering assumes a bachelor's in Mechatronic Control Engineering or the like. In addition, you must take an

English proficiency test - see details on apply.aau.dk.

Programme structure

Mechatronic Control Engineering is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment through a combination of research-based courses, team-based project work and a high degree of interaction with industrial partners. The companies take an active part in providing project proposals for the problem-oriented project work, guest lectures and visits to the companies.

1st Semester:

Problem-based, project-organised learning with a technical problem related to a hydraulically actuated mechanical system that is to be controlled as a feedback system.

2nd Semester:

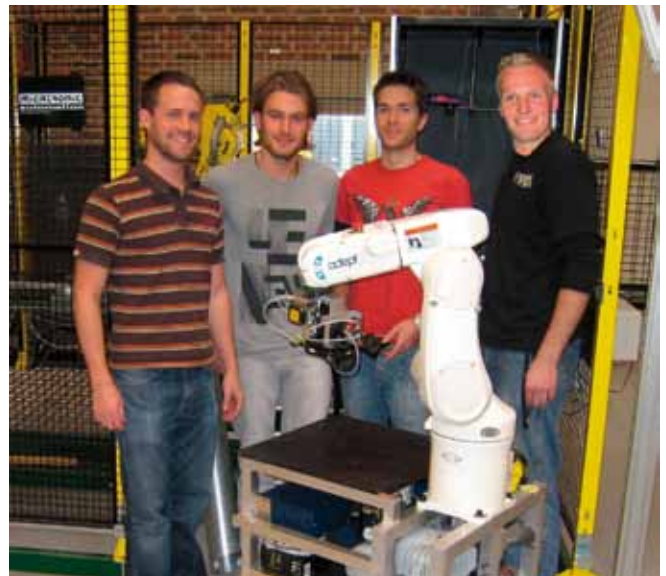
The projects study a given frequency converter-based controlled motor used to drive a mechanical load.

3rd Semester:

The projects will consider optimisation, control or diagnostic systems for mechatronic systems.

4th Semester:

This semester is devoted to the master's thesis.





Nano-Physics and -Materials

Nanotechnology is the fabrication, study and application of structures on the scale from a few to some hundreds of nanometers. On this scale, completely new material properties emerge. Thus, properties can be designed by clever choices of composition and geometry, and this makes new engineering solutions possible. Focus is on fabrication and understanding of different nanostructures and materials. The practical application of nanostructures in devices is taught with an emphasis on practical examples and lab work. You will obtain the following:

Knowledge

You will obtain knowledge in fields such as solid state physics, optics, semiconductor physics, surfaces and interfaces, properties of materials and components on the nano-scale, polymer and composite materials and nano-electronics. You will be able to understand and reflect over theory, methods and experiments within these areas.

Skills

You will obtain the ability to

use scientific methods and tools within the field of physics and materials science. And you will be able to select appropriate theories, methods and tools to solve practical problems, and to communicate research-based knowledge and discuss professional scientific problems with both peers and non-specialists.

Competencies

You will obtain the ability to manage complex and unpredictable work and development situations requiring new solutions. And you will be able to independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility, and to take responsibility for your own professional development.

Who can apply?

Students with a relevant bachelor's in natural science or materials science can apply. Some knowledge in physics, including elementary quantum mechanics, electromagnetism, solid state physics and optics is expected. Students with bachelor's degrees in

other areas of engineering or natural science may apply to the "Applied Physics" programme.

Programme structure

This is a two-year master's programme consisting of four semesters. During the first three semesters, you will split your time between courses and projects. The courses give you the basic knowledge and the projects allow you to dig deep into the matter and focus on particular subjects.

1st Semester:

You will become experienced in advanced methods for synthesis and characterisation of nanostructures and nanomaterials. Focus is on optical spectroscopy of nanostructures, nanolithography and advanced microscopy. The courses cover materials chemistry, synthesis, characterisation and semiconductor physics.

2nd Semester:

You will obtain experience with advanced methods for creation of functional nanostructures. Possible applications and properties of the created nanostructures will be investigated. Through application of micro- and macroscopic modelling, you will be able to describe the properties and functionality of nanostructures. The courses cover surface science and nano optics.

3rd Semester:

You will gain experience in applying nanotechnology within a chosen technological area. You will use different tools from physics to find solutions to an actual problem. The courses cover continuum mechanics, nano-electronics and optoelectronics.

4th Semester:

This semester is devoted to the master's thesis.





Nanobiotechnology

This masters programme provides you with knowledge in the bio-related areas within nanotechnology. You will obtain a detailed understanding and the necessary laboratory skills to match the technological challenges within biotechnological research areas focusing on design, production and characterisation and modelling of biological nanostructures.

Career opportunities

Nanotechnology operates on the interfaces of traditional scientific areas. It has already contributed substantially to the understanding of interdisciplinary phenomena within science and engineering. Therefore, it is rapidly gaining ground in the traditional engineering areas such as material science, electronics, energy, biotechnology, medicine and health science and technology

in general. With a masters degree in nanotechnology, you can enter all such engineering fields and contribute with new knowledge, methods and ideas from a new perspective helping to develop new products.

Who can apply?

Students with a relevant bachelor's in natural sciences, materials science or biotechnology can apply. Also, you must hold an English proficiency test – check apply.aau.dk.

Programme structure

Nanobiotechnology is a two-year master's programme (120 ECTS credits). Students can also choose to pursue one or two semesters.

1st Semester:

Nano-bioengineering – You will obtain the knowledge and skills to design, model and ma-

Testimonial



As a person who loves nanotechnology, I spent much time choosing the right university, and Denmark in general and AAU in particular was a smart choice for a number of reasons. At AAU, I found a dynamic environment of teamwork and scientific discussion that gave me the opportunity to improve my knowledge. The so-called Aalborg-model is way more efficient than the conventional routine methods, and it makes each student a confident scientist. What I mostly enjoy is that I am given so much freedom - and of course responsibility - to define and do my project in my own way. This freedom has improved my academic confidence and the feeling that I am really touching the essence of science.

Zeinab Esmail Nazari, Iran

nufacture different biological/organic nanostructures and be able to apply the fundamental concepts of engineering.

2nd Semester:

Characterisation of Nanobiostructures – You will gain knowledge about methods and tools and obtain the skills used for production and characterisation of biological/organic nanostructures.

3rd Semester:

Advanced Nanobiotechnology - During this semester, you will gain the necessary skills to identify and apply the

relevant scientific theories and methods to a formulated problem. The project you are doing this semester can be considered the first half of your Master's thesis where you will have a half-term evaluation and be able to continue on the same project on the 4th semester. It can also be used to give students the possibility to either go abroad or to work in collaboration with other Danish institutions/companies as part of their master's thesis.

4th Semester:

This semester is devoted to work on the master's thesis.



Offshore Energy Systems

The master's programme in Offshore Energy Systems (OES) primarily focuses on advanced competences in design, analysis and modelling of offshore energy systems and the system component interaction. The specialisation includes advanced competences regarding fluid mechanics and flow system, such as CFD and multiphase flows, fluid power and mechanical systems together with control, optimisation and diagnosis of offshore energy systems.

Career opportunities

Graduates are able to work in project engineering, research, development and management in Danish and international industries or public institutions, e.g. energy companies, process engineering companies, a wide range of producers of high efficiency energy devices and counselling companies involved in energy technology and systems.

Who can apply?

Admission to the programme in Offshore Energy Systems presupposes a bachelor's degree in Dynamic Systems,

Mechatronic Control Engineering or the like. In addition, you must take an English proficiency test - see details on apply.aau.dk.

Programme structure

Offshore Energy Systems is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-based project work and 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.

1st Semester:

The purpose of the project is to contribute to students' attainment of knowledge about project-organised, Problem Based Learning and how to design, analyse and model fluid power and/or mechanical systems used in offshore energy systems.

2nd Semester:

The purpose of the project is to contribute to students' attainment of knowledge about how to design, analyse and model offshore energy systems and relationship between the used components, including fluid power components, electrical machines as well as compressors, pumps, etc.

3rd Semester:

The project considers optimisation, control or diagnostic systems for offshore energy

systems. Based on a model, the control, diagnostic or surveillance system is set up to improve the performance of the system, either with regards to power output, energy efficiency, life time extraction or fault detections etc. The system is implemented and verified experimentally.

4th Semester:

This semester is devoted to work on the master's thesis, dedicated to topics in the field of offshore energy systems - wind, wave, oil & gas fields.



Oil and Gas Technology

The specialisation in Oil & Gas Technology takes place in the city of Esbjerg where AAU's Department of Chemistry and Applied Engineering Science is located.

The aim of the programme is to reach international engineering standards within:

- Research and development
- Planning, production and maintenance
- Exploitation, transportation and treatment considering economic and environmental aspects as well as health, safety and working environment

The programme is directed towards international as well as local employment.

Career opportunities

The job opportunities as an engineer in Oil & Gas Technology are very good. Today, engineers in Oil & Gas Technology from Aalborg University in Esbjerg work with offshore processes, reservoir engineering and biogas production.

Who can apply?

Students are admitted as degree students for the entire master's programme or as guest/exchange students for single semesters. Candidates who wish to register for the master's programme in Oil & Gas Technology should possess a bachelor's degree or equivalent in any engineering discipline (e.g. chemical, civil, electrical, process, or mecha-

Testimonial

At Aalborg University in Esbjerg, the teaching takes place as group work and the problems are solved in groups. There are more of us involved in understanding and the community is good for me. I cannot wait to explore organic chemistry and environmental chemistry in order to gain a deeper understanding of how it is all linked together. When I finish my studies, I would like to work as a laboratory manager.

Rasmus Hjorth Erichsen, Denmark

nical engineering) awarded by a recognised university or institution of higher education. In addition, you must take an English proficiency test – see details on apply.aau.dk/apply/ entryrequirements.

Programme structure

Each semester is governed by a project theme:

1st Semester:

Processes in the Oil and Gas Industry.

2nd Semester:

Process Modelling and Analysis in Oil and Gas Industry.

3rd Semester:

Operation, Production and Maintenance.

4th Semester:

Master's thesis.

The final semester is devoted to full time work on the master's thesis. No courses are given during this semester. The thesis work is very often a continuation of the project from the third semester. It is carried out individually, or in small groups of two-three students.



Operations and Innovation Management

This programme is designed to develop your international practical experience and theoretical understanding of international aspects of strategy, innovation and change processes. Focus is on development, operation and maintenance of business systems and you will obtain a balanced analytical, systemic and managerial understanding of global business development and its underpinning disciplines.

The programme aims at providing you with in-depth knowledge within:

- Strategic planning and management
- Innovation and technology management
- Integrated problem solving
- Science technology

- Planning and management of technological and organisational change
- Continuous innovation
- Organisational design
- Enterprise Engineering
- Culture

Project work

The project work is focused on putting theory into practice. You will do your project work in collaboration with a company; this is a great opportunity to try out your ideas and knowledge in a real life-situation.

Project examples include:

- Continuous Improvement (CI) project aimed at developing an improved implementation process of CI
- Implementing a self-governing organisation
- Configuration and manage-



ment of an international supply chain

Career opportunities

Graduates from the programme have many possible career paths. Examples of where our graduates work:

- Grundfos A/S - as Supply Chain Manager in Shanghai, China.
- B&O A/S – as Senior Director of Technology, Platforms and Innovation
- Vestas Wind Systems – as Team Leader of Planning and Control in Madrid, Spain
- Novo Nordisk A/S – as executive assistant to Manufacturing Development
- LEGO system A/S – as Lean Consultant.

Who can apply?

You are required to have a ba-

achelor's degree in engineering. In addition, you must take an English proficiency test – see apply.aau.dk.

Programme structure

OIM is a two-year master's programme, which gives you 120 ECTS credits. The programme is PBL-based (see p. 5)

1st Semester:

Integrated Solution – focusing on Enterprise Engineering and Design, Global Operations Development and Organisational Analysis and Design.

2nd Semester:

Global Implementation – focusing on Innovation and Change Management, Global Business Performance and Business Intelligence.

3rd Semester:

Traineeship or study abroad

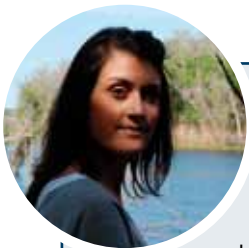
4th Semester:

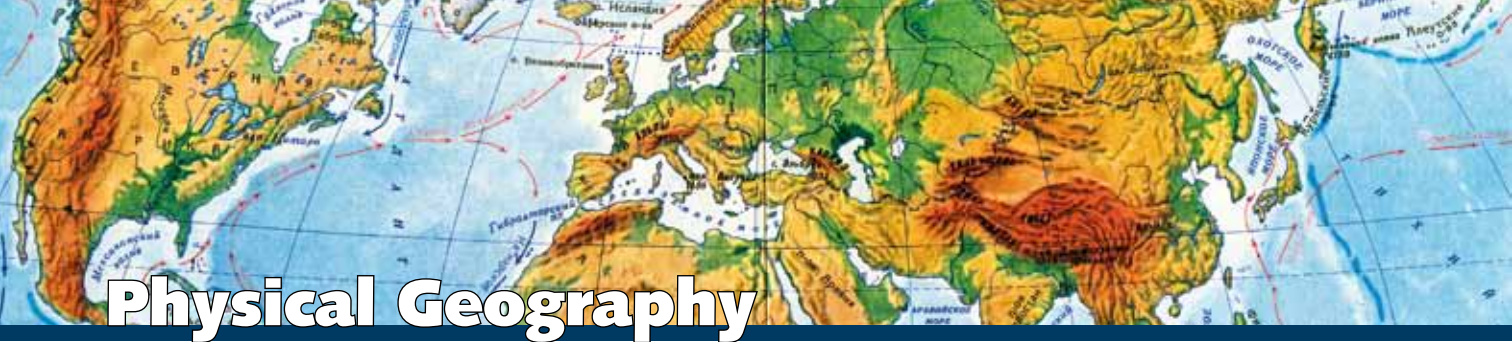
This semester is devoted to the master's thesis.

Testimonial

Studying ITL (OIM) was one of the greatest decisions I've ever made in my life. Not only would I gain insight into traditional engineering subjects such as robotics, constructing databases, programming etc.; I would also gain insight into managerial subjects such as project management, innovation management, supply chain management etc.

Alexia Jacobsen, Denmark





Physical Geography



If you love nature and want to gain extensive knowledge about natural resources, climate changes and protection of the environment, you should study Geography with specialisation in Physical Geography. With a master's degree in Physical Geography, you will be able to analyse and understand both natural and man-made processes in nature and create solutions for a sustainable environment. In order to gain a deeper understanding of the subject, research and field trips are a part of the study programme. On site, you will acquire a better understanding of the problem you are investigating, and you will be able to put your project into a context.

For further information about the programme, you are welcome to contact Morten Laugesen Pedersen, mlp@civil.aau.dk or Eva Ritter, er@civil.aau.dk.

Career opportunities

Graduates from Geography with specialisation in Physical Geography have many possible career paths, both in companies, public authorities and NGOs. They have well-developed skills for working with colleagues from different professional and cultural backgrounds. Examples of where our graduates work are:

- Danish Defence working with GIS
- Consulting Firms
- Municipalities

- Environmental Research Institutes.

student and study one semester.

Who can apply?

You can apply when you have a bachelor's in geography or similar. You must also pass an English proficiency test – see details on apply.aau.dk.

1st Semester: Climate Changes and Natural Resources

2nd Semester: Landscape, Land Use and the Environment

3rd Semester: Applied Methods in Physical Geography. Alternatively, you can do a traineeship. You may also choose to do a long Master's thesis during the 3rd and 4th semester.

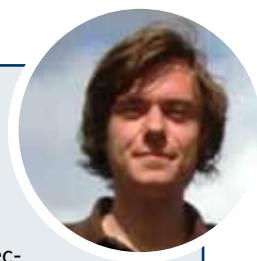
4th Semester: This semester is devoted to the master's thesis.

Programme structure

Geography with specialisation in Physical Geography is a two-year master's programme which gives you 120 ECTS credits. However, you can also choose to visit us as a guest

Testimonial

This year here at Aalborg University was full of new experiences for me. The method of studying proved to be novel; instead of attending formal and frontal lectures, as I was used to from my home university, project work in small groups provides the centre-piece of education here at AAU. The process of going through all stages of the project work was among the most intense and enriching experience I gained from here. Having experienced this very application-oriented work, I can conclude that I have gained significant self-confidence in approaching scientific problems. I believe that studying here in Aalborg offers a perfect opportunity to apply the accrued theoretical knowledge obtained over the previous years to practical applications. *Timothy Thrippleton, Germany*





Power Electronics and Drives

The Power Electronics and Drives (PED) programme studies efficient and intelligent energy conversion, employing power electronic technology and electrical machines. The specialisation combines state-of-the-art technologies with conventional technologies, for example power semiconductor devices, electronics, electro-magnetics, digital signal processors, control theory, EMC and energy technology. A large, well-equipped laboratory is available, offering you excellent opportunities for constructing and testing prototypes of electronic systems and electric machines.

Career opportunities


The knowledge gained enables graduates to work in project engineering, research, development and management in Danish and international industries or public institutions e.g. within wind energy for converter and generator design, electrical drives, high power converters for compensation or active filters or for machine design, PV systems etc.

Who can apply?

Admission to the programme in Power Electronics and Drives assumes a bachelor's degree in Electrical Energy



Testimonial



Project-based learning and the strong focus on group work distinguishes Aalborg University in Europe. At the Department of Energy Technology, a lot of emphasis is put on practical laboratory work which gives a wonderful opportunity to test your own theories or designs in the "practical world". What I liked the most was the powerful connection with industry and the fact that lots of projects are commissioned or even sometimes financed by companies.

Maciej Swierczynski, Poland

Engineering or the like. In addition, you must take an English proficiency test - see details on apply.aau.dk.

Programme structure

Power Electronics and Drives is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-based project work and a high degree of interaction with industrial partners. The companies take an active part in providing project proposals for the problem-oriented project work, guest lectures and visits to the companies.

1st Semester:

Problem-based and project-organised learning including a technical problem related to the dynamics of electrical energy systems or electrical apparatuses.

2nd Semester:

The project will study modelling, analysis, simulation and control of an electric system which must include a power electronic converter and an electric machine.

3rd Semester:

The project will consider optimisation, control or diagnostic systems for power electronic drives or converters.

4th Semester:

This semester is devoted to work on the master's thesis.

Structural and Civil Engineering

In this programme, you will be part of the realisation of large buildings and constructions. As a graduate, you will be able to determine the load on buildings and constructions, design and analysis of structures by means of theoretical, experimental and computer-based methods. During your study, you will progress from learning to analyse a simple structural part to being able to design large structures such as suspension bridges, buildings, harbour structures, the structural parts of wind turbines etc. The programme is available on both our Aalborg and Esbjerg Campus.

Career opportunities

Graduates from Structural and

Civil Engineering have many possible career paths such as in companies as consulting engineers, contractors, manufacturers, or within public authorities. You will have well-developed skills for working with others from different professional and cultural backgrounds. Examples of where our graduates work are:

- COWI Consulting Firm
- Grontmij Consulting Firm
- Vestas
- Siemens

Who can apply?

You are required to have a bachelor's degree in structural and civil engineering or similar. In addition, you must take an English proficiency test – see details on apply.aau.dk.

Testimonial

One of the reasons why I chose Aalborg University was the study method, project-oriented work in groups. You gain a lot from discussions, correcting other people's work, being corrected, studying for an exam together etc.

I have found the project-oriented study form rewarding, as you work with entire projects similar to being in the industry instead of solving problems that are just fragments of a project. This master's programme allows you to do experimental work, investigate different theories and the limitations of these theories by yourself and in that way gain a better understanding of the theory. Furthermore, you are trained in how to write a scientific report and how to make an oral presentation.

I spent my third semester of my master's programme working as a trainee at Rambøll (a Danish Engineering Company). I worked on different projects and was relieved to find that what I learned at the university could be used in the industry. It is a nice feeling that something you designed will in fact be built.

Jannie Jessen Nielsen, Denmark



Programme structure

Structural and Civil Engineering is a two-year master's programme which gives you 120 ECTS credits. However, you may also visit us as a guest student and study one semester.

1st Semester:

Analysis and Design of Load-bearing Structures

2nd Semester:

The Excitation and Foundation of Marine Structures

3rd Semester:

Analysis and Solution of an Advanced Civil and/or Structural Engineering Problem

4th Semester:

This semester is devoted to the master's thesis.

Sustainable Biotechnology

Mineral oil still constitutes the most important source of liquid fuels, but it is also an important raw material for the production of plastics, chemicals, pharmaceuticals etc. During the coming decades, we need to exploit alternative sustainable resources to compensate for the forthcoming depletion of minerals and deal with greenhouse gases and the associated climate effects.

We offer a state-of-the-art master's programme in Sustainable Biotechnology incorporating the newest technologies and scientific results within these rapidly expanding fields.

Career opportunities

This programme qualifies you for employment within a number of fields where the transition to sustainable technologies and resources has been initiated, or will be. You will be qualified for working with general biotechnology disciplines, in biotechnological and bioenergy companies, research institutions, consulting engineering companies and public institutions.

Who can apply?

Students with a bachelor's in engineering in biotechnology, biochemistry and biology may apply for this master's programme. International students and those with bachelor's degrees with other specialisations are welcome to apply and are evaluated for admission on an individual basis. In addition, you must take an English proficiency test – see details on apply.aau.dk.

Programme structure

The programme has been structured to ensure a clear technical and scientific progression and to offer the opportunity to focus on either mole-

cular biological biotechnology or process-oriented sustainable biotechnology through the choice of courses and projects.

In the first semester, a broad biological foundation with respect to sustainable biotechnology is established.

In the second semester, the complexity is increased developing molecular biology, microbiology and biochemical skills which are increasingly integrated with process technological disciplines.

In the third semester, this scientific and technical integration concludes in the pro-

jection of a complete biorefinery. To put this progression into perspective, sustainability and life cycle analyses are involved in the courses, and to maintain the application perspective, a business plan is prepared in connection with the design of the biorefinery.

The fourth semester is dedicated to the master's thesis which constitutes an independent project attached to a research group and/or a company. A more comprehensive two-semester project can be done by having the third semester project incorporated as the first part of the master's thesis.



**COPENHAGEN
AALBORG**
Offered from
september 2012

Techno-Anthropology

Programme Structure

Techno-Anthropology is a two-year, PBL-based master's programme (120 ECTS credits).

Semester	Project	Courses
1st Semester	Expert Cultures and Sustainable Technology	Corporate Culture: Organisation, Responsibility and Innovation Sustainable and Innovational Knowledge Production Elective
2nd Semester	The Anthropology of the Product	Anthropology of the Sciences Theories of Techno-Science Elective
3rd Semester	Field Study	Reflections on and Management of Empirical Material
4th Semester	Master's thesis	

The Techno-Anthropology programme presents students with theoretical accounts of knowledge production, user-driven innovation, expert cultures and social responsibility and more. It combines sustainable and responsible technological innovation with competence in carrying out anthropological studies of users of new technology as well as the experts who develop cutting-edge technology.

Career opportunities
Graduates from the programme have numerous possible career paths in companies, NGOs and different authorities. Graduates will have well developed skills for teamwork with people from different cultural, educational as well as professional backgrounds and will be equipped to navigate in specialist technological cultures, analyse these cultures, bridge cultural gaps between

technology cultures to other cultural categories, as well as to be involved in responsible technological innovation and decision-making.

The programme provides students with academic skills that enable them to act and interact professionally in cross-disciplinary and inter-cultural positions, combining and advancing insights in cutting edge technology with applied anthropology.

Students completing the master's programme in Techno-Anthropology are able to analyse and understand cultural aspects of new technology and facilitate and promote this understanding among

those outside and within technological circles. This will enable the graduate to develop responsible solutions to complex technological and social problems.

Graduates who are able to combine technological knowledge with skills enabling them to address cross-disciplinary problems are in high demand by the various kinds of companies and organisations mentioned above.

Who can apply?

In order to apply, you are required to have a relevant professional or a university Bachelor degree in areas such as Natural Science, Engineering or Health; or a Bachelor degree in areas such as Sociology, Ethnology or any other similar educational programme where acquiring the ability to make use of qualitative methods is a part.

Furthermore, you must pass an English proficiency test prior to enrolment, for more information please consult: apply.aau.dk.





Thermal Energy and Process Engineering

The master's specialisation in Thermal Energy and Process Engineering (TEPE) primarily focuses on thermal energy technologies and systems, and it covers advanced aspects of energy system modelling, heat and mass transfer, control engineering and experimental work with focus on different components and energy system aspects.

The themes for the projects are particularly focused on thermal energy and process engineering and in-depth understanding of the technologies and scientific disciplines involved in energy conversion, utilisation and transport. The programme is multi-disciplinary and covers the integra-

tion of general engineering disciplines such as thermal systems, fluid- and aerodynamics, control engineering and electrical engineering.

Career opportunities

The graduate is able to work in project engineering, research, development and management in Danish and international industries or public institutions, e.g. energy companies, process engineering companies, a wide range of producers of high efficiency energy devices and consulting companies involved in energy technology and systems.

Who can apply?

Admission to the master's programme in thermal energy



Testimonial

Through the group work, you learn to make compromises and cooperate with others. Furthermore, it prepares you for entering industry since team work is practiced and highly appreciated in many companies.

Feng Li, China

and process engineering assumes a bachelor's degree in Thermal Energy Engineering or the like. In addition, you must take an English proficiency test (IELTS, TOEFL or Cambridge ESOL test) – see details on apply.aau.dk.

Programme structure

Thermal Energy and Process Engineering is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-based project work and 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.

1st Semester:

Project-organised, Problem Based Learning including a technical problem related to a thermal or fluid dynamic problem.

2nd Semester:

The project focuses on modelling and optimisation of a physical energy system, e.g. a power plant, cooling plant or industrial process system.

3rd Semester:

The project will consider optimisation, control or diagnostic systems for a thermal energy and process engineering system.

4th Semester:

This semester is devoted to work on the master's thesis.



Water and Environment

Do you want to work with the most important resource in the world? As an engineer in the field of Water and Environment, you will work in the area of resource and environmental management with specific reference to the use of water. With your background and understanding of the way in which industrial plants, roads, buildings and other constructions impact on the natural environment, you will be a key person in evaluating the environmental effects of major installations. As a part of the study programme, you will get the opportunity to carry out experiments in the laboratory or to do measurements in the natural environment using hydrological, hydrographic, geological and hydrogeological techniques as well as advanced computer modelling.

Career opportunities

With Water and Environ-

ment as your specialisation, your job opportunities are unlimited worldwide - from planning jobs in the public sector to consulting jobs in the private sector and research jobs in R&D organisations. You get the opportunity to work within many fields - all with water as a central key element. Nature restoration and water resources, remediation of contaminated soil and groundwater, urban and rural drainage, climate change adaptation and coastal and marine pollution are some of the issues that graduates from Water and Environment are presently engaged in.

Who can apply?

You are required to have a bachelor's degree in water and environment or similar. In addition, you must take an English proficiency test - see details on apply.aau.dk.

Testimonial

"I finished the Water and Environment degree from Aalborg University in 2007 and since then, I have had the job of my dreams at the Danish consultancy firm COWI working on nature restoration and water resources. At COWI, I work on a lot of different assignments:

- Flooding analysis along rivers and impact of climate change
- Nature restoration of wetlands and rivers
- Water Frame directive related assignments
- Analysis of aquifer systems by means of pump tests.

I spent my third semester as an intern on a big airport project in Oman with COWI, working with drainage of the airport. This was a great working experience where I got a taste of working abroad on a big multidisciplinary project and it made my contact with COWI. The Water and Environment programme has given me a good basis for working with all kinds of environmental issues, and Aalborg University is a place I am inclined to go back to.

Minna Ørberg Simonsen, Denmark



Programme structure

Water and Environment is a two-year master's programme of 120 ECTS credits. However, you can also choose to visit us as a guest student and study for one semester.

1st Semester:

Soil and Groundwater Pollution

2nd Semester:

Pollution of Coastal Waters

3rd Semester:

Numerical Modelling and Experimental Methods and Advanced Urban Drainage or Traineeship at an engineering company.

4th Semester:

This semester is devoted to the master's thesis.



Wind Power Systems

Through the master's specialisation in Wind Power Systems (WPS), you will gain experience with project work in connection with problems in the areas of electrical engineering and wind generation technology, and you are going to work with the dynamics of wind generators under normal and abnormal conditions of duty. The dynamic behaviour of wind turbine systems, when connecting them to a power system with time varying loads, is analysed, and the stability in such a system is examined. Different types of wind turbines are analysed together with their control principles and the use of power electronics interface be-

tween the wind turbines and the grid.

Career opportunities

The knowledge gained enables graduates to work in project engineering, research, development and management in Danish and international industries or public institutions, e.g. in electrical transmission companies, the wind industry, the power industry, power system or electronics companies and consulting companies.

Who can apply?

Admission to the programme in Wind Power Systems assumes a bachelor's degree in Electrical Energy Engineering, power systems or the like. In addition, you must take an



English proficiency test – see details on apply.aau.dk.

Programme structure

Wind Power Systems is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-based project work and 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.

1st Semester:

Project-organised, Problem Based Learning including a technical problem related to the dynamics of electrical energy systems or electrical apparatuses.

2nd Semester:

The project will study a wind turbine system which has to be controlled under time varying loads, either as a stand-alone system or coupled to a power network.

3rd Semester:

The project will consider optimisation, control or diagnostic systems for wind power systems.

4th Semester:

This semester is devoted to work on the master's thesis.

Testimonial

Day by day I realised the differences between the system I was used to before coming to Denmark and what I was now experiencing at the Department of Energy Technology. Its education system enabled me to work in collaborative groups and delve into real industry problems. Thus, Aalborg University gives you the opportunity to link your theoretical knowledge to practical cases.

Cosmin Eugen Banceanu, Romania



Wind Turbine Systems

The master's programme in Wind Turbine Systems (WTS) primarily focuses on advanced competences within aerodynamic conditions around the wind turbine and in wind farms as well as design, analysis and control of different control systems for wind turbines. Furthermore, this specialisation includes advanced competences regarding fluid mechanics and flow system, such as CFD and multiphase flows, fluid power and mechanical systems and flow-structural interaction together with control, opti-

misation and diagnosis of wind turbine systems.

Career opportunities

The knowledge gained enables the graduates to work in project engineering, research, development and management in Danish and international industries or public institutions, e.g. energy companies, process engineering companies, a wide range of producers of high efficiency energy devices and counselling companies involved in energy technology and systems.

Who can apply?

Admission to the programme in Wind Turbine Systems presupposes a bachelor' degree in Dynamic Systems, Mechatronic Control Engineering or the like. In addition, you must take an English proficiency test - see details on apply.aau.dk.

Programme structure

Wind Turbine Systems is a two-year master's programme (120 ECTS credits). You may also study here as a guest student for one or two semesters. The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-based project work and 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.

1st Semester:

The purpose of the project is to contribute to students' at-

tainment of knowledge about project-organised, Problem Based Learning and analysis and modelling of the aerodynamic conditions around wind turbines and in wind power plants.

2nd Semester:

The purpose of the project is to contribute to students' attainment of knowledge about design, analysis and modelling of different control systems for wind turbines including systems, for instance for pitch- and stall control, control of the mechanical brake and control of the generator.

3rd Semester:

The purpose of the project is to contribute to students' attainment of knowledge about how to design advanced control-, diagnostic- or surveillance systems for wind turbine systems or wind power plants with respect to life time optimisation and optimisation of the power production.

4th Semester:

This semester is devoted to work on the master's thesis.



GUEST/EXCHANGE PROGRAMMES

As a Guest/Exchange student (incl. ERASMUS) you can either study one of the following programmes or choose from the list of programmes under Postgraduate or Undergraduate. You can study only one programme and follow that programme's courses for either one or two semesters.

Please note! If you are an EU citizen studying at a university that does not have an exchange programme with Aalborg University, you will have to pay a tuition fee. To learn more about tuition fees please look at page 5.

Please also note that if you apply for a postgraduate programme you will be expected to have obtained a full bachelor's degree in advance.

For entry requirements, please see:

<http://www.apply.aau.dk/how-to-apply-exchange-student/entry-admission-requirements>

<http://www.apply.aau.dk/how-to-apply-Erasmus-Erasmus-Mundus-student/entry-admission-requirements>

Offered from
september 2012

Undergraduate Energy Engineering

During your stay here as a guest student, the bachelor's programme in Energy provides you with a broad theoretical basis and solid practical tools. You will work in depth with different areas, for example within new energy production systems and usage as well as efficiency enhancement of energy. You will choose a specialisation within one of the two following areas:

- Dynamic systems: Focus is on knowledge about dynamics in energy systems,

e.g. wind turbines and wave energy systems and perhaps also including new hydraulic systems. Other aspects may be dynamics of energy saving apparatuses.

- Thermal Processes: Focus is on knowledge about thermal processes, e.g. renewable power production and new energy saving apparatuses, bioenergy and fuel cell systems.

Career opportunities

The primary purpose of the bachelor's programme in

Energy is to provide the necessary background to continue on one of the master's specialisations offered. The knowledge gained also enables you to work in design, consulting, development and research.

Who can apply?

In order to be enrolled, you must have completed your 1st - 4th semester (plus your 5th, if you are applying for the 6th semester) of a relevant bachelor's programme, in relation to the specialisation you are applying for. In addition, you must take an English proficiency test (IELTS, TOEFL or Cambridge ESOL test) – see details on apply.aau.dk.

Programme structure

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

5th Semester:

Dynamic systems: This semester aims for a complete dynamic system analysis of a wind turbine. Furthermore, a controller is to be developed, tested and verified by laboratory experiments.

Thermal Processes: The objective of this semester is to design and simulate thermo-mechanical energy systems. The steady-state model is to be studied and possibly verified by experiments and data for existing systems.

6th Semester:

Dynamic systems: This semester focuses on the design of wave motion compensating systems. The aim is to decrease the impact of the water waves on offshore energy systems, e.g. oil rigs, wind turbines, wave energy converters.

Thermal Processes: The objective of this semester is to provide knowledge about the construction of flow machines and components used in thermal energy systems. Environmental issues in relation to the thermal systems are considered.





Undergraduate Energy Engineering



Testimonial

This programme provides you with a broad picture of many various energy forms and applications. Students work with both improvement of well known technologies and development of and research on new energy forms. This means that you always keep abreast of the latest developments.

Project work and group work give you an opportunity to collaborate with industry and solve problems from real life.

*Lars Grundahl, Denmark
(student, Thermal Energy Engineering, BSc)*

As a guest student, the programme provides you with a broad theoretical basis and solid practical tools. You will work in depth with different areas, e.g. within new energy production systems and usage as well as efficiency enhancement of energy. You will choose a specialisation within one of the following areas: Thermal Energy Engineering, Electrical Energy Engineering or Mechatronic Control Engineering.

Career opportunities

The primary purpose is to provide you with the necessary background to continue on one of the master's specialisations offered. The programme also

enables you to work in design, consulting, development and research.

Who can apply?

In order to be enrolled, you must have completed your 1st-4th semester (plus your 5th, if you are applying for the 6th semester) of a relevant bachelor's programme. In addition, you must take an English proficiency test – see details on studyguide.aau.dk/apply/entryrequirements.

Programme structure

The programme is taught in an innovative, dynamic and challenging environment, through a combination of research-based courses, team-

based project work and a high degree of interaction with industrial partners. The companies take an active part in providing project proposals for the problem-oriented project work, guest lectures and visits to the companies.

5th Semester:

Electrical Energy Engineering: A project concerning an electrical machine to which energy is transmitted to an electrical distribution system which is either isolated or connected to the distribution network.

Thermal Energy Engineering: A project concerning a thermodynamic energy system, either a new one, or one that needs further development.

Mechatronic Control Engineering: A project concerning a mechatronic system or product that is to be analysed and modelled.

6th Semester:

Electrical Energy Engineering: A project about designing power electronic apparatus and understanding their function.

Thermal Energy Engineering: A project which focuses on flow machines and other thermal flow system components.

Mechatronic Control Engineering: A project concerning the design of mechatronic systems and components, evaluating the suitability of the different solution principles.



Undergraduate Mathematics

Studying mathematics at Aalborg University will give you a new experience and perspective. For more than 30 years, we have successfully carried out Project-Organised Education in mathematics and statistics combining education at a high academic level with the development of additional teamwork skills highly valued in the professional world. Each group of students has its own office with up-to-date IT facilities.

Career opportunities

Our graduates obtain employment in a wide range of companies and at public authorities. Some examples of where they are now:

- PhD
- Teaching
- Statistics
- Novo Nordisk

Who can apply?


For admission, you will need documentation for a progressive range of skills:

- 3rd semester: Calculus, Linear Algebra
- 4th semester: Group Theory, Mathematical Analysis
- 5th semester: Probability Theory
- 6th – 8th semester: Please consult the programme coordinator, associate professor, Martin Raussen raussen@math.aau.dk.

In addition, you must take an English proficiency test – see apply.aau.dk.

Programme structure

The mathematics programme is usually combined with two semesters within a second discipline (computer science, physics, engineering, biology,



Testimonial

The project-oriented group work has greatly benefitted me, because the combination of theory and application has given me a solid foundation for my work at Novo Nordisk where I work as a statistician. Another aspect of my master's programme at Aalborg University is that it gives an excellent transition from school to industry because the education focuses on both theory and practise.

Wan Hui Ong Clausen, China

sports or within social sciences or humanities), either during the bachelor's or the master's programme.

3rd semester - Project Area: Extrema, Theory and Practice Courses:

- Algebra 1: Groups
- Analysis 1: Convergence and Continuity
- Linearity and Differentiability

4th semester – Project Area: Symmetry Courses:

- Algebra 2: Rings and Fields
- Analysis 2: Metric Spaces
- Probability Theory
- Complex Analysis

5th semester, from autumn 2012 - Project Area: Statistical Modelling and Analysis Courses:

- Geometry

- Computer Algebra
- Statistical Inference for Linear Models

6th – 8th semester:

These semesters are more specialised and prepare the students to do independent mathematical work aimed at the master's thesis.

The 6th semester introduces the students to a particular focus area within one of the following fields: Applied Mathematical Analysis and Geometry, Discrete Mathematics and Mathematical Statistics.

During the last year (7th and 8th semester), the students concentrate on their chosen subject and write their master's thesis supported by a supervisor from the faculty.





Photos by Lars Horn, Baghuset: Page 17 (top), page 36 (top), page 37 (testimonial), page 41 (top), page 46 (testimonial).

Photo by Stig Enemark: Page 29 (top)

Photo by Niels Østergaard: Page 29 (bottom)

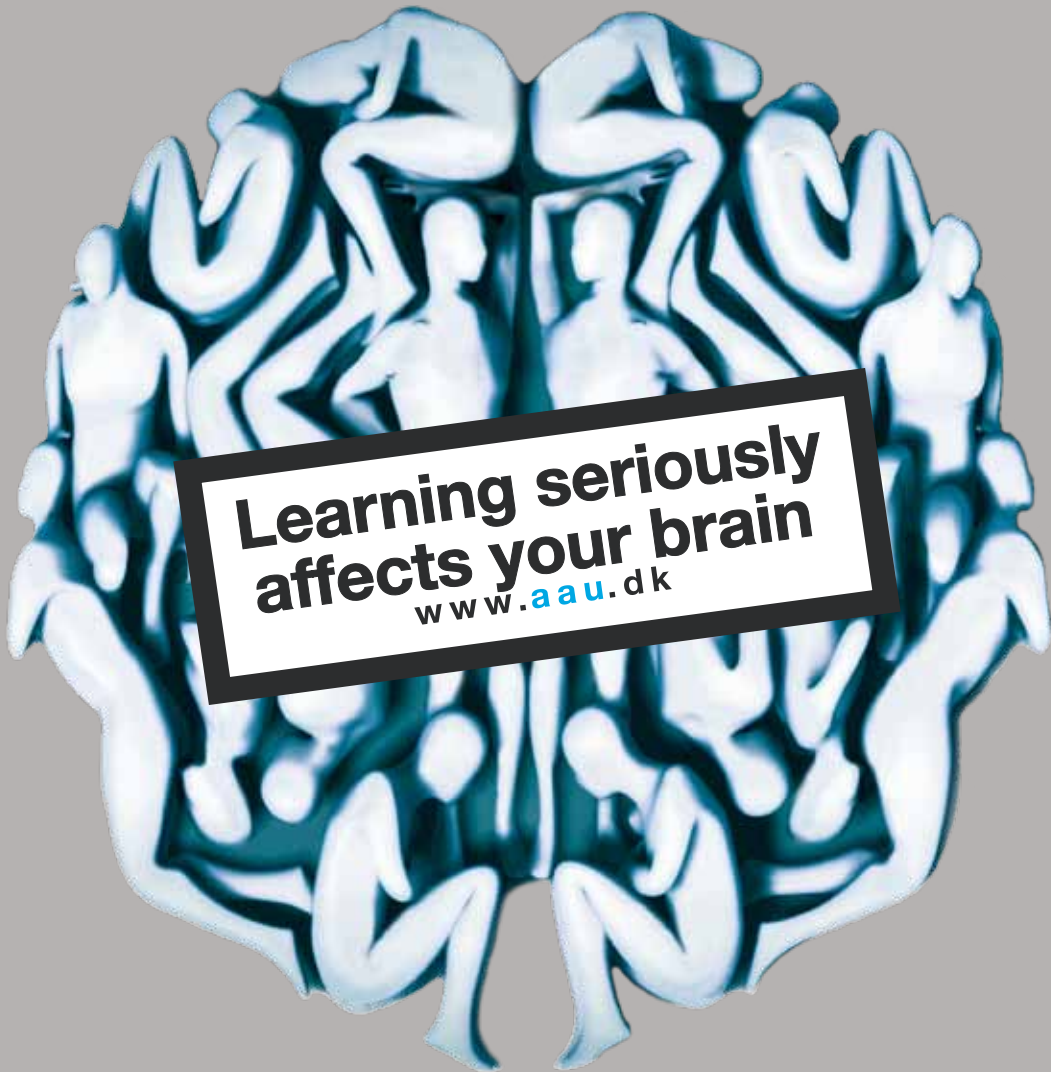
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Photo by Nels von Schnakenurg: Page 33 (testimonial)

Photos by Jiri Srba: Page 37 (bottom) and page 46 (top)

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