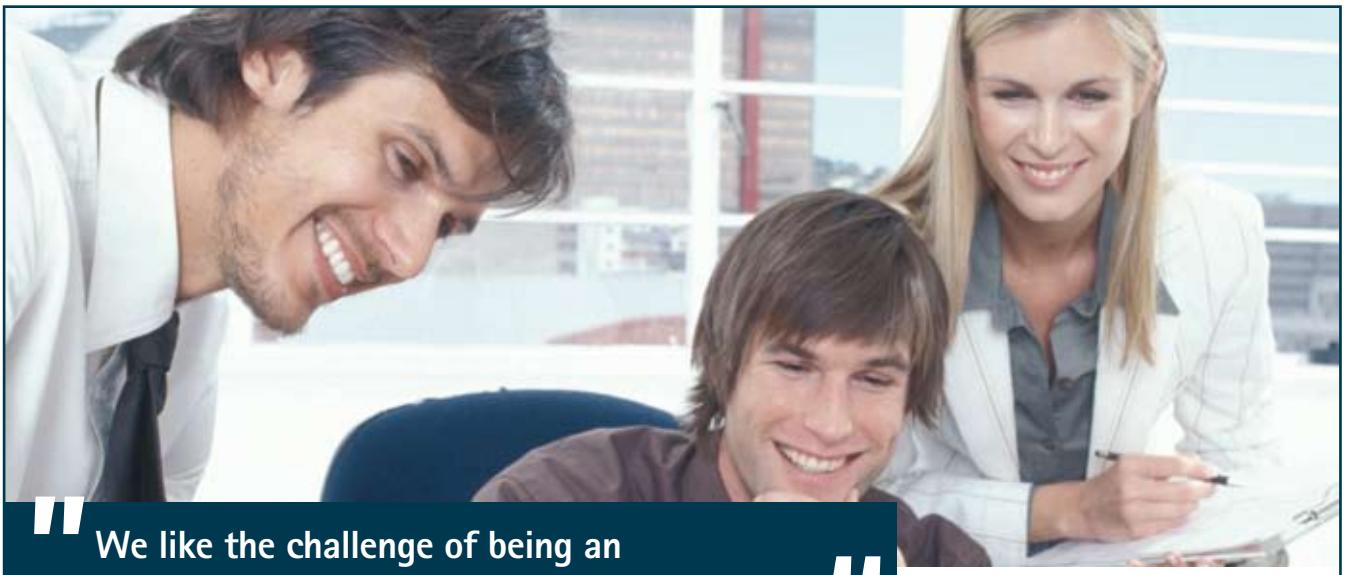
Hochschule Aachen

Studying at the FH Aachen



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Dear Prospective Student,

Are you interested in studying at a university? I am convinced that the FH Aachen would be a good choice!

Universities of Applied Sciences have nearly 40 years of experience in enabling students to earn their degrees with a practical approach and in a relatively short time. They educate almost 70 percent of all German engineers. Employers appreciate that our alumni are not destined for Ivory Towers, but rather, as a result of their application-oriented education, after their initial training will quickly become highly valuable employees. Naturally, we are very proud of this reputation.

For your benefit, the FH Aachen has developed an attractive and forward-thinking programme through constructive dialogue with business and industry. This offers you a broad spectrum of practical degree programmes in step with today's job market – from Engineering to Design to Business Studies.

Aachen and Jülich have distinguished themselves by the high level of research and renowned scientific institutions operating in the region. In both of these locations you will find the campuses of the FH Aachen, as well their centres of expertise and institutes.

As a graduate of our university, you will find an attractive and commensurately compensated position in a relatively short time. The engineering professions offer especially excellent opportunities for our female graduates.

A wise man once said that the only place where "success" comes before "work" is in the dictionary. The FH Aachen is well-known for the demands of its curriculum. But we don't only challenge our students, we cultivate them.

I wish you Godspeed in choosing your degree programme and future university. This brochure was created in order to help you make a well-considered decision. Further information can be found at www.fh-aachen.de.

I would be very pleased to welcome you in the near future to our university.

Prof. Dr. Manfred Schulte-Zurhausen

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Aachen

Aachen is the westernmost city in Germany and lies at the point where Germany, Belgium and The Netherlands meet.

Approaching Aachen by car, you will not see the silhouette of a huge metropolis before you, but a charming city nestled in a verdant landscape – even though Aachen has a population of about 250,000. When you get to know this city beloved by its residents, you will see how diverse its attractions are: a colourful pub scene, the student quarter, concerts and open-air events in the summertime, Carnival in its typical Aachen version, the famous Christmas market...even day-to-day life in Aachen has a special flair. Let yourself be enchanted by a stroll through the historic Old City, walk by the medieval City Hall and the famous Cathedral, cheer on a horse and its rider at the internationally famous CHIO World Equestrian Festival or the players of Alemannia Aachen at the Tivoli Stadium – Aachen has something to offer everyone.

Of course, this also includes studying and career: It's impossible to miss the fact that Aachen is a university town. This naturally has an impact on the city's economy. With its universities rich in tradition and its current population of around 40,000 students, Aachen has become one of the most innovative places for high tech. A large number of companies and major corporate research institutions take advantage of its scientific environment and well-educated workforce.

In recent years, well-known companies like Ericsson, Ford, Matsushita and Mitsubishi have located facilities in Aachen. Other long-established companies such as Philips, Zentis, Talbot, Continental, Saint Gobain, Uniroyal, Grünenthal, Lambertz, Lindt & Sprüngli, as well as major enterprises in the service sector, have domiciles in the City of Charlemagne.

Aachen lies within a broad valley surrounded by fields, forests and hills. Where the three borders meet, you will find the High Venn moor nature preserve, as well as Eifel National Park. This makes Aachen the ideal starting point for excursions throughout the region.

The Euregio Rhine-Maas is Europe in miniature. With its five regions, three nations and three languages it has a rich cultural heritage, enormous economic potential, forward-looking economic structures, diverse landscapes and – last, but not least – concrete experience living and working together with European neighbours. Whether its Cologne or Dusseldorf, Maastricht, Amsterdam, Brussels or Paris – in Aachen the whole of Europe is right at your doorstep.

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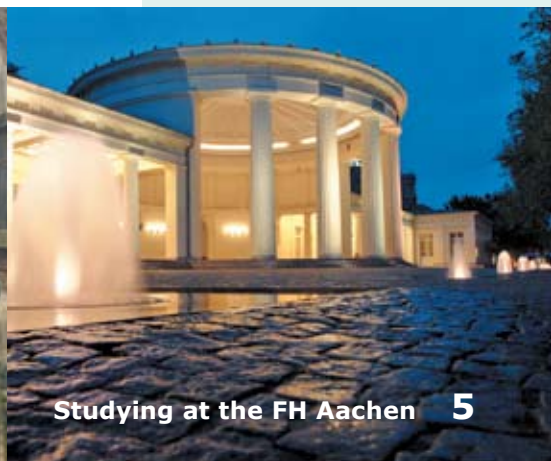

Jülich

Jülich in the beautiful Ruhr-Eifel region offers much more than just history.

A major renovation of the city centre in the mid-80s gave Jülich a new, modern look. The centre offers harmoniously integrated residential neighbourhoods with traffic-reduced zones, offering a high quality of life. The market place, church and castle square, as well as the pedestrian zone, offer shopping, restaurants, stylish cafes and bars for every taste and occasion.

Two-thousand-year-old Julich was characterized by Alessandro Pasqualini as the ideal Renaissance city. And you can still find relics of the 16th Century city between the Witches Tower (Hexenturm) and the castle square. Wide streets, smooth facades and uniform roofs represent the ideal of the Italian High Renaissance, which the curious visitor can experience even today.

Jülich also offers a diverse cultural mix. Special attractions include the 16th Century Citadel, the Brückenkopf Fortress, the Witches Tower and the Aachen Gate, as well as concerts, theatre and exhibitions.

Jülich is also a city of research and science. In addition to the Jülich campus of the FH Aachen, the region is characterised by top-class research institutes with which the university has many cooperative ventures.

The Jülich Research Centre is one of Germany's 16 major research institutions and one of the largest in Europe. Here, 4,300 people are working on cutting edge projects encompassing environmental technology, biotechnology, materials research, information technology and energy. The Jülich Technology Centre (TZJ), a member of the Aachen Technology Region, is a leading centre for technology transfer among universities and research institutions throughout the region. A 175-acre industrial park close to the research centre and TZJ offers innovative companies ideal conditions. Because of the TZJ, students at the FH Aachen's Jülich campus have many opportunities for practical training and their diploma theses, not only in the state-of-the-art laboratories at the campus institutes, but also through the cooperation of the university and the TJZ companies.

→ For more information about Jülich:

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verein@stadtmarketing-juelich.de

Jülich on the web:
www.juelich.de

The university system in Germany

In Germany, students can choose from different types of university. Essentially, the difference is between traditional universities and universities of applied sciences. Both kinds of universities offer academic degrees. Traditional universities tend to be more oriented towards scientific research, whereas universities of applied sciences provide a more practical or application-oriented education. Some universities of applied sciences, for example the FH Aachen, are also very focused on research. The most important difference is that universities of applied sciences may only offer doctoral degrees in cooperation with traditional universities.

Universities of applied sciences are uniquely German. Since their beginnings in the 1970s, they have quickly grown in popularity. Today, about one-third of all first-year students in Germany are enrolled in a university of applied sciences, and 32 percent of all graduates earn their degrees at one. Also since then, about 70 percent of those employed in the engineering professions have graduated from universities of applied sciences.

There are about 150 universities of applied sciences in Germany, and most are supported by the German federal states. A small number are church-supported or private. Many universities of applied sciences have arisen from facilities that were oriented towards particular subject areas, such as schools of engineering or scientific secondary schools. This is why some of the faculties at the FH Aachen can look back upon a 100-year old history. The German Framework Act for Higher Education of 1976 raised universities of applied sciences to the same level as traditional universities.

The Right Decision:

FH or University?

"Should I pursue my studies at a university of applied sciences or a traditional university?" Many pupils interested in higher education ask themselves which is the "right" university to attend.

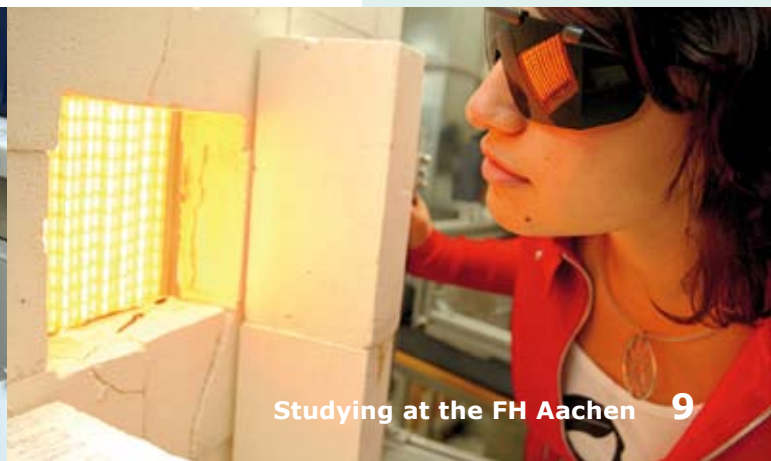
What are the reasons in favour of studying at a university of applied sciences?

- **The technical, individual supervision and intensive support** by professors eases students' orientation during their studies and encourages academic success. For example, in Mechanical Engineering degree programmes the dropout rate at universities of applied sciences is much lower than at traditional universities.
- **Its practical approach and application-oriented education** offers the university of applied sciences graduate very good opportunities in the job market. In many degree programmes, students solve a concrete, practical problem within the framework of their final thesis. An integrated practical training semester, which is offered in some degree programmes, allows for further practice-oriented immersion in the study content. The university's many contacts create opportunites for students during their search for an appropriate company for completing their final thesis and the practical training semester.
- **The opportunity to apply and utilise the course contents** is the basis of the teaching approach. Universities of applied sciences are up-to-date, continually adapting their degree programmes to technical, economic and social developments. The name "universities of applied sciences" underscores this profile as institutions of higher education providing scientific knowledge and methods for solving business problems.
- **Direct entry into the working world** is the goal of the bachelors degree programmes at universities of applied sciences. At the FH Aachen, all of the bachelor degree programmes are accredited and offer professional qualifications. In this way, universities of applied sciences meet not only an important requirement of the European Minister for Education, but also an explicit requirement of companies.
- The application-oriented masters degree programmes at universities of

applied sciences offer an intentional **alternative to the highly theoretical programmes** of many traditional universities. This doesn't mean that theoretical perspectives are given short shrift. Rather, they have the benefit of being systematically integrated with practical issues, which also makes a masters degree from a university of applied sciences very attractive to companies and business. Of course, a masters degree programme also opens the door to a doctorate.

- **A network of partner universities on nearly all continents** not only permits students to spend a study semester or practical training semester abroad, but also provides the possiblity of an additional degree from another European university. In this way, universities of applied sciences ensure their students' competitiveness in the international job market and support their intercultural competence.
- Universities of applied sciences have integrated into their degree programmes **training in key qualifications which are growing in importance:** making complicated decisions under deadline pressure, communicating with business and project partners, organising and leading team problem-solving, and much more.

The clear structure and practical approach of the university of applied sciences, as well as its "familiar atmosphere" ensure that the students are often more satisfied with their courses of study than students at other universities. The drop-out rate is meaningfully lower as well. The internationally approved six- and seven-semester bachelor degree programmes offer, in a relatively short time, a university degree with professional qualification. In most sectors today the graduates of both types of university can also expect the same levels of compensation.



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FH Aachen – University of Applied Sciences

In 1971, the FH Aachen was created from the consolidation of several universities of applied sciences and professional training institutions. It boasts a more than 100-year-old tradition of practice-oriented education.

Theory and practice are closely connected throughout the entire programme of study. This focused orientation toward practical professional experience among the 220 professors and 450 academic and research employees guarantees students a professionally oriented and research-based education.

More than 8,000 students are benefitting from this situation. The FH Aachen offers a first-class education in modern and future-oriented professions. Close cooperation with regional and international businesses as well as well-known research institutions such as the Jülich Research Center (FZJ) is reflected in the quality of programmes offered. The current requirements of business practice are viewed as an opportunity to continually improve and expand the content of the programmes.

Today, prospective students can choose from 29 bachelors and 14 masters degree programmes in the areas of Engineering Science, Business and Design. In addition, several degree programmes are offered as dual and occupational degree programmes.

The location of Aachen and Jülich within the Euregio directly bordering Belgium and The Netherlands offers additional benefits. For example, cooperation with universities in the region led to creation of the Communication and Multimedia Design Degree Programme, offered in the fourth or fifth semester at the International Faculty in Maastricht, The Netherlands.

This international approach to lessons and courses of study is an important characteristic of the FH Aachen. We make it possible for our students to prepare themselves for the requirements of a globalised work world and to develop the skills necessary for international cooperation. For this reason, we support the mobility of our students and teachers in joint projects, as well as through international degrees within the framework of cooperation with our partner universities. For example, a dual programme is offered in "Business Studies/Anglophone Countries", where students receive a degree from the FH Aachen and a partner university in Great Britain, Ireland, Australia or the United States. Additional partnerships with universities worldwide, for example the Politecnico di Milano (Italy), the Polytechnic of Namibia (Namibia), Tianjin University (China), and the Universiti Putra Malaysia (Malaysia), offer international exchange. The proportion of students from other countries is currently more than 21 percent. These students also enrich the academic life of our university.

The FH Aachen in Aachen and Jülich

In Aachen, seven of the ten faculties have more than 6,000 students:

- Architecture
- Civil Engineering
- Design
- Electrical Engineering and Computer Science
- Aerospace Engineering
- Business
- Mechanical Engineering and Mechatronics

In addition, the Rectorate, central administrative offices and main library are located in Aachen.

Three faculties, along with more than 2,000 students, are located in Jülich:

- Chemistry and Biotechnology
- Medical Engineering and Technoinformatics
- Energy Technology

All services for students, such as Student counselling, the Department of International Affairs, Office of the Registrar, faculty libraries, student housing and meals are available in Aachen as well as in Jülich.

While Jülich offers more of a campus feeling, with all facilities located in one place, the Aachen location is not a campus university. Its facilities can be found throughout the city in seven buildings, some with a long tradition.

girls@fh-aachen!

Female Engineering: Career of the Future

Professions in the field of Engineering Sciences offer attractive career and salary opportunities – for both men and women.

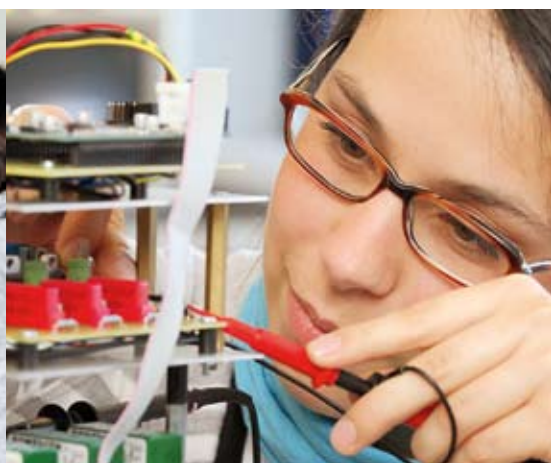
The demand for young professionals in engineering sciences will increase dramatically in the near future. At the same time, there are too few graduates available to fill these positions, making studying engineering sciences an investment in the future.

Until now, these careers of the future have been dominated by men. Even though girls have on average better grades and secondary school diplomas, they don't exploit the career opportunities available to them. Due to demographic developments, there is an increasing lack of qualified young people, especially female, to enter the technical and related fields.

It's not only in the IT branch that there is unprecedented demand for women! Soft skills, such as strong communication abilities, organisational talent, cooperativeness and creativity, but also courage and perseverance, characterise the work of engineers, male and female. They advise, mediate, develop, organise, sell and analyse, and can therefore be employed in many different occupations. At the same time, many companies today offer flexible working models, the possibility of working from a home office, and even internal child care facilities, to make combining work and family possible.

Studying at the FH Aachen offers an industry- and practice-oriented education in small groups. A bachelors degree can be earned in just three years. A masters degree (which takes about two years) offers immersion in a specialised area of study and the possibility of continuing to a doctorate. Nothing stands in the way of pursuing a scientific career!

Andrea Stühn
Equal Opportunity Officer



Competence Platforms

Behind the somewhat vague label, "Competence Platform" (Kompetenzplattform – KOPF), is a network of scientists from different branches of study and various universities working together on research projects.

Interdisciplinary research guarantees a sustainable and durable research infrastructure, creating strategic and content-oriented systems. In addition, this kind of network offers an outstanding opportunity for spinning off companies. It should not only improve the quality of the research undertaken, but should also be closely aligned with course content. For you, as a future student at the FH Aachen, the Competence Platforms not only offer the possibility of starting your own business after graduation, but also enhance the quality of your education because the latest scientific findings flow directly into the course content. For example, within the context of your final thesis, you can also actively participate in this research discussion while still at university.

With the goal of encouraging Competence Platforms at universities, a program of the government of North-Rhine Westphalia supports 20 such platforms. The FH Aachen is home to four of the 20, the highest number among all universities in the state.

Competence Platform for
Bioengineering

Biological sciences and related disciplines are developing into one of the most important areas of innovation of the 21st Century. The creation of the state-supported Competence Platform for Bioengineering at the FH Aachen and the University of Applied Sciences Bonn-Rhine-Sieg reflects this new development. With the most advanced technically equipped laboratories, including a gene technology facility, it offers ideal conditions for developing a platform founded on the expertise of 10 branches of study, an attractive partner for both industry and nearby universities. Jülich and Rheinbach already have an excellent position within the Federal Minsitry of Education and Research supported "BioRegion Rheinland", which is characterised by a unique combination of research, implementation by young biotechnology companies, and the development of a modern range of course offerings at participating universities. This offers enormous advantages for students due to the course content being continually adapted to the latest research findings. Because of this, you as a future student are offered an education tailored to the changing demands of the job market.

→For more information:
www.biomedtech.de

Competence Platform for
Energy and the Environment

Within the framework of sustainable development, climate and environmental protection are playing an increasingly important role. Greenhouse gas emissions, caused in large part by the production and use of energy, are the greatest threat to the environment today. In order to control global warming, which threatens the future of the human race, while at the same time fulfilling global energy needs, efficient alternatives must be found. In addition to political decision-makers and economic stakeholders, university research plays a central role in this.

The Competence Platform for Energy and the Environment is primarily focused on renewable energy (solar thermal, wind and photovoltaic), as well as the area of Industrial Energy Technology and Energy Efficiency (block heat and power plants, micro gas turbines and energy management). The future-oriented fields of biomass utilization and effective production of biogas are also subjects of research. As a link between technical research and market-oriented application, research into carbon-trading schemes and their effects on regional economies is being conducted at the Competence Platform for Energy and the Environment.

The two institutes cooperating within the Competence Platform are NOWUM-Energy, which is focused on efficient and economical energy conversion through the combination of innovative and conventional techniques, and Solar-Institut Jülich, which with 31 employees is the largest institute of its kind at a German university of applied sciences.

→For more information:
www.kompetenz-eundu.fh-aachen.de

Competence Platform for

Polymer Materials

Along with the pharmachemical industry, which employs about 50,000 people and has turnover of about 80 billion euros, polymer materials is the largest sector in the chemical industry. Parts of the plastics research field in North Rhine-Westfalia are among the best internationally. Applications of polymer materials can be found in almost every area of life, such as the automotive and aircraft industries, electronic components, in the construction industry and medicine. In the area of materials development, polymers and polymer composite materials have the greatest potential for innovation. The significance of the scientific and business branches of polymer materials will continue to increase dramatically. The interfaces of the different natural scientific disciplines (chemistry, physics, medicine, biotechnology) with technology (mechanical and electrical engineering) require interdisciplinary cooperation.

This is the jumping off point for the Competence Platform for Polymer Materials: Within the framework of KOPF, the FH Aachen and the University of Applied Sciences Bonn-Rhine-Sieg combine their polymer research competencies in order to develop new polymer materials in cutting-edge, innovative research fields with a practical relevance for application, forming a link between technical research and market-oriented application. In technically excellent laboratories researchers work, for example, on the development of high-performance polymer materials, the development of renewable raw materials, and medical applications for polymer materials.

The aims of the Competence Platform for Polymer Materials are to undertake research and development by consolidating and expanding in a meaningful way the research cooperation which has until now been part of the Polymer Sciences Masters Degree Programme, to create a comprehensive polymer materials curriculum, and to ensure a sustainable and durable research infrastructure.

Kompetenzplattform Polymere Materialien

→For more information:
www.polymere.fh-aachen.de

Competence Platform for

Synergetic Automotive/ Aerospace Engineering

Are there really synergies and mutual influences between such different industrial branches as aerospace and automotive technology? Both industries were founded at about the same time and, despite the differing distribution of their products, have many similarities in the most crucial elements that drive them. This includes the conservative use of resources, environmental friendliness, vehicle and aircraft safety, traffic engineering and economic profitability. The Competence Platform for Synergetic Automotive/Aerospace Engineering deals with precisely these topics. The FH Aachen is the only one in North Rhine-Westfalia which can make use of the teaching and research expertise available in both high-tech areas. Experienced engineers work in this platform in top-class test facilities on topics such as "lightweight construction for efficient transport performance" and "alternative drive systems for aircraft", resulting in the creation of short development cycles for developing market-ready, high-quality services and products.

FORSCHUNGS-KOMPETENZPLATTFORM Synergetic Automotive & Aerospace Engineering

→For more information:
www.fh-aachen.de/kopf_saae.html

Institutes

The Institutes are scientific facilities of the FH Aachen. Within them, the competencies of one particular or several specialisations are combined in order to pursue intensive research and development.

This takes place in cooperation with the institutes of other universities in Germany and abroad, with research institutions, and often with industry as well. Students profit in various ways: Because they work side by side with engineers in the institutes, student assistants and interns can participate directly in research and development. Moreover, within the scope of research projects, students can complete their final thesis papers. The practical orientation of the courses of study is reinforced by laboratory courses in the institutes.

Institute for Applied Polymer Chemistry (IAP)

IAP Institut für Angewandte Polymerchemie

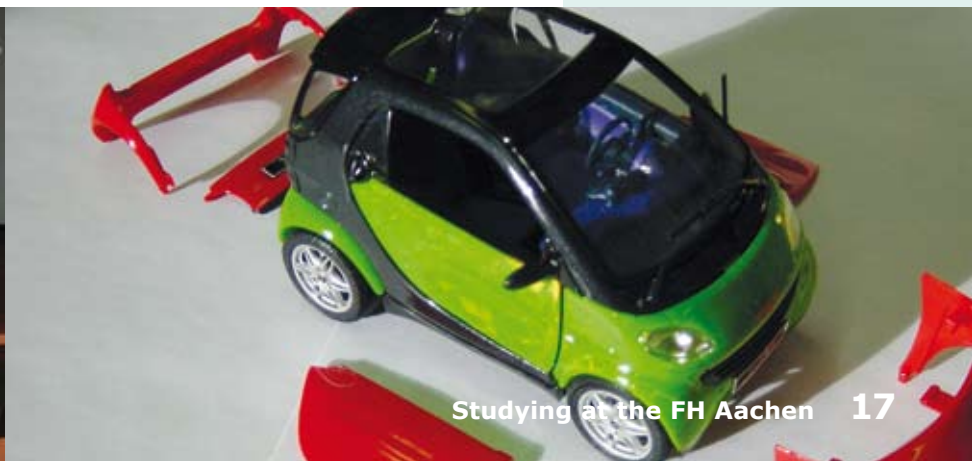
Polymers are substances integral to modern daily human life. For example, they touch our lives through different types of plastics used in packaging and automobiles, but also through wind turbines and medical instruments. The demand for plastics in new applications is constantly increasing. This means the demand for polymer experts will experience sustained growth, in addition to the current need for such experts in the global plastics industry. This clearly offers good job opportunities for you as a future graduate!

In 2004, the FH Aachen anticipated this future need with the founding of the Institute for Applied Polymer Chemistry, which grew out of the former Faculty of Chemical Engineering. The masters degree programme in Applied Polymer Science was introduced in Winter Semester 2006/2007.

The IAP provides the resources for the degree programme, which takes place in both Aachen and Jülich. The Institute supervises and instructs students in the areas of polymer chemistry and plastics technology. Along with the practical course content, the second emphasis of the IAP is transfer-oriented research and development which is integrated into the expertise network of the German Federal Ministry of Education and Research's Plastics Innovation Centre Aachen.

Instruction and research at the IAP are not confined within geographical borders: The IAP has close contact with universities in Germany and abroad, research institutes and industry, and organises cooperative hands-on training with Dutch and Belgian universities. State-of-the-art laboratories and a technical centre guarantee a practical-oriented programme of study through research and development in cooperation with the institute on the one hand, and, on the other hand, through visiting industry experts who offer future polymer scientists a glimpse into industrial and business applications. This eases the transition from studies to professional life for our graduates.

→For more information:
www.fh-aachen.de/iap.html



Institute for Bioengineering (IfB)

→For more information:
www.fh-aachen.de/ifb-home.html

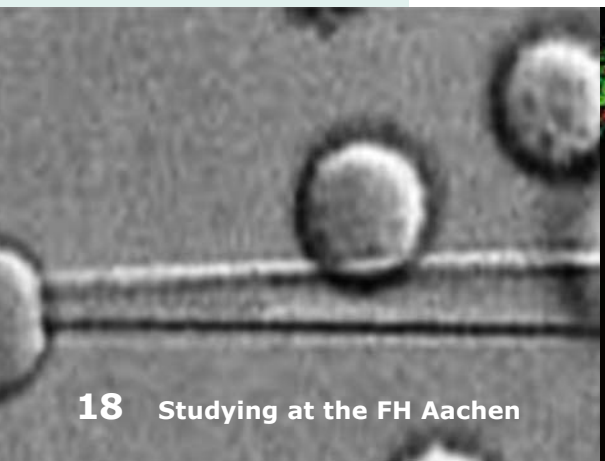
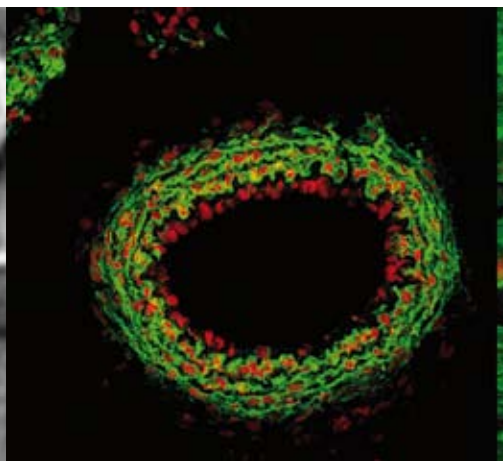
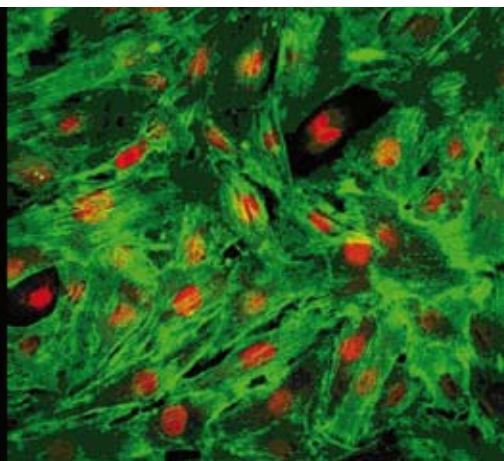
The biological sciences and related disciplines are developing into one of the most important areas of innovation for the 21st Century. The importance of bioengineering is demonstrated by its many uses in the areas of Medicine, Pharmacology and Biochemistry. Bioengineering applies principles of engineering and the natural sciences to organs, tissue, cells and molecules, and through this method develops technical solutions for the most current issues in health research.

In this interdisciplinary subject area, the Institute for Bioengineering combines the competencies of the FH Aachen in biophysics, mechanics, materials theory, molecular medicine, and cellular, molecular and microbiology, as well as in the development of cytological measurement procedures. One research focus of the institute is biomechanics which, among other areas, includes rheology, materials theory, Finite Element Method (FEM) and optimisation as mathematical procedures of remodelling, parameter identification, multi-body simulation (MKS) and load and input analysis in structural and fracture mechanics, and the development of rheological and mechanical measurement and testing procedures.

The second area of focus of the IfB encompasses cell biophysical basic research and the development of cell and tissue research procedures. In addition, the institute offers biomedical services, such as (micro-) biological testing of instruments in health care, Cell Based Drug Screening Assays, as well as instrument development for examination of molecules, cells and tissue. Other services of the institute include development of cell biological measurement procedures, materials theory and biological substances, numerical simulations and analysis (FEM, MKS), mechanical measurement, medical and molecular biology, as well as cellular, molecular and microbiology.

Within these areas of focus, the IfB cooperates with German and international projects with partners from industry, as well as educational and research institutes. Moreover, the institute is a member and supervising coordinator of the Centre of Expertise for Bioengineering housed within the FH Aachen, where twelve professors from the universities of applied sciences of Aachen and Bonn-Rhine Sieg combine their bioengineering expertise.

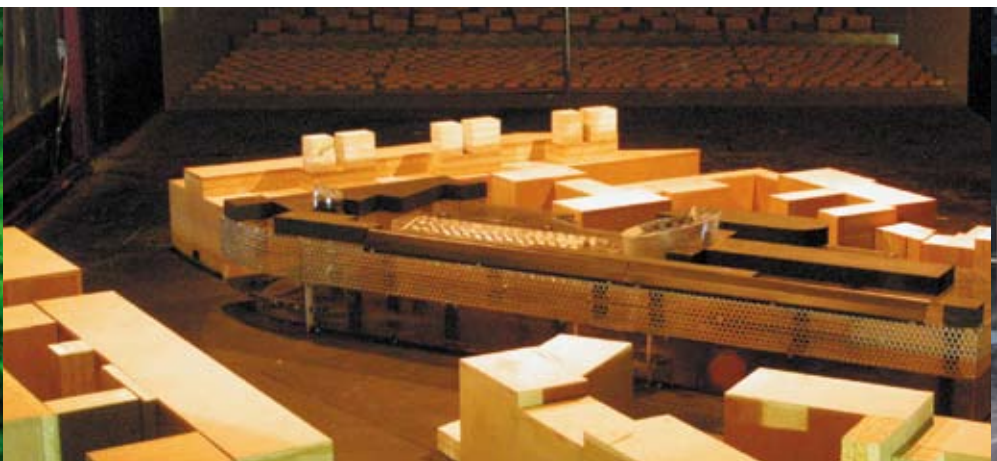
Along with a large number of students, an average of four post-graduate students pursuing doctorates and varying numbers of guest scientists are conducting research at the institute at any given time.

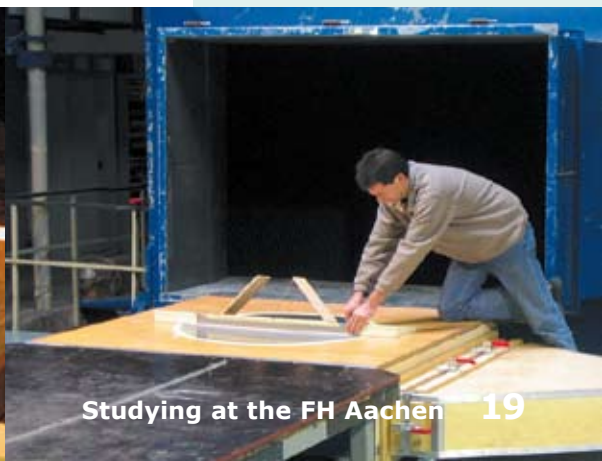




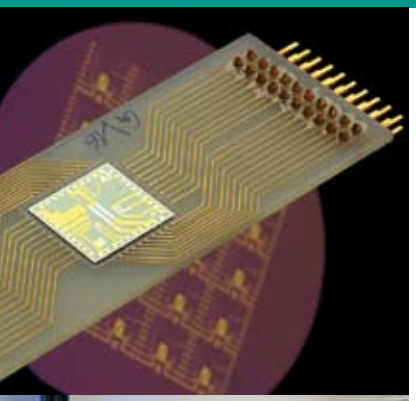
Institute for Industrial Aerodynamics (I.F.I.)

The Institute for Industrial Aerodynamics was recognised in 1990 as an institute of the FH Aachen by the North Rhine-Westphalia Ministry of Innovation, Science, Research and Technology. It was the first associated research institute of a university of applied sciences in North Rhine-Westphalia. The name "Institute for Industrial Aerodynamics" was intended to underscore its operation in the fields of aviation aerodynamics. Major areas of activity of the I.F.I. are building aerodynamics, vehicle aerodynamics, wind tunnel technology and fluid dynamics. Fluid dynamics research and the field of fire prevention, especially smoke extraction studies and real fire simulation, are important related areas of building dynamics. Along with planning and development work using physical models and CFD studies in the above fields, the I.F.I. offers testing according to German and European standards, for example for smoke and heat chimneys, laboratory fume hoods and mechanically attached roof sealing. In accordance with German law governing building materials, the I.F.I. is notified in Europe as a recognised testing location.

→For more information:
www.ifi-aachen.de







Institute of Nano- and Biotechnologies (INB)

"Biology meets microelectronics" – this oft-cited phrase emphasises the increasing importance of interdisciplinary and trans-disciplinary research. When topics dealt with in traditional disciplines such as Physics, Electrical Engineering, Chemistry, Biology and Materials Science converge, this creates multidisciplinary interfaces and a fascinating research environment with a high potential for innovation. Nanotechnology is an excellent example of a field where biologists, chemists, engineers and physicists must work together to realise this potential. In this realm, new materials are being developed, sandwich structures are being designed at nanoscale revealing previously unknown attributes, individual atoms and molecules are being studied and much more. Nanotechnology has enormous potential for innovation in electronics and opto-electronic applications, and is nearly indispensable in fields from information technology to automotive engineering to pharmaceuticals.

Nanotechnology plays an even more vital role when it comes to information exchange between animate and inanimate materials, for example in the construction of biosensors, which use biological components such as enzymes, DNA or whole cells to identify certain molecules or chemical substances.

The range of application for these sensors is manifold and encompasses medical engineering, food technology, process technology and environmental analysis. A few current examples include research on determining the concentration of phenol and heavy metals in water, the sugar content in the blood of diabetes patients, research on congenital defects and metabolic diseases with the help of DNA-chip technology, and detecting the concentration of alcohol in beverage manufacturing. The focus is on ever smaller and ever more effective measurement systems, so-called "labs-on-a-chip" or µTAS (micro total analysis systems). Ideally, an entire analytical laboratory can fit onto a single silicon chip.

Against this exciting background, the Institute of Nano- and Biotechnologies (INB) brings together the FH Aachen's existing competencies in the fields of semiconductor technology, nanoelectronics, chemo- and biosensors, microbiology, botanical biotechnology and cell culture technology.

The research activities of four laboratories are focused on the full future-looking spectrum of nano and biotechnologies, a rich and exciting area of research that is fostering the creation of fundamentally new ideas and products that will change our future everyday lives.

Students also benefit from this combination of fields of expertise: The latest research and development findings can be directly incorporated into their education. Course content is always up-to-the-minute.

Close cooperation with the Jülich Research Centre and the Fraunhofer Institute for Molecular Biology and Applied Ecology in Aachen ensures the highest level of research.

→For more information:
www.fh-aachen.de/inb.html

ITP Institute for Thermal Processes

Thermal processing is a key technology for modern industrialised nations but it is also extremely energy intensive. A typical example of this high level of energy use is the industrial manufacture of metallic semi-finished products (belts, lamination, pipes and profiles), which must be heat-treated in order to attain the desired material properties such as solidity, plasticity or electrical conductivity. As a result of rising prices for energy and raw materials, as well as the issue of CO_2 emissions, it is essential that industrial facilities become more energy efficient through the use of new technologies. The focus of R&D is on the total conceptual design of energy-efficient heat treatment facilities, energy recovery during cooling down, the application of combined heat and power generation technologies (for example, block heating stations and mini gas turbines) and the improvement of components (for example, hot gas ventilators). The ITP is working on these issues both experimentally in its Technikum and on-site for industrial customers, as well as with computer-aided methods.

Together, Aachen-based equipment manufacturer, WSP GmbH, and the Faculty of Aerospace Technology at the FH Aachen have founded the "ITP Institute for Thermal Processes". Through its cooperation with the university, WSP GmbH will also be able to incorporate students' creative ideas into its development process.

→For more information:
www.itp-aachen.de

Research for our future: NOWUM-Energy

Energy is a finite, expensive and precious "material", which therefore must be used cost-effectively. A secure, clean and efficient supply of energy is the vision of the NOWUM-Energy Institute, which was established in 1997 at the FH Aachen with Professor Dr.-Ing. Klaus-Peter Dielmann as director.

The institute's primary concern is innovative energy management encompassing all of its facets. Its primary focus is research projects related to energy management in cooperation with small and medium-sized businesses. The department also conducts its director's major research and is a Competence Platform for Energy and Environment funded by the state of North Rhine-Westphalia. Furthermore, NOWUM-Energy offers consulting and detailed design and project management services concerning the use of both conventional and innovative energy management.

Partners are typically companies, usually from the environmental or research fields, which are planning to launch new energy management technologies.

Research projects involving the testing or optimisation of innovative energy management techniques are also implemented here. The institute's advantage lies in its multidisciplinary course offerings, as well as its laboratories at the Jülich campus. Multidisciplinary subjects can easily be pursued. Committed engineers and students work hand in hand on the NOWUM-Energy team and, so far, more than 10 projects and studies have been carried out.

From testing methods for the production of biogas to services offered to companies involved in emissions trading and research into possible fields of operation for a micro gas turbine from the USA, the institute's research activities are diverse and cover various scientific areas.

The institute team is very international. In addition to German students, students from all over Europe and the world take part in scientific research here. Several studies on energy management related topics in the former Soviet Union, Australia, Chile and Southern Europe have been conducted or are in progress.

→For more information:
www.nowum-energy.com

Solar-Institute Jülich (SIJ) – Studying first hand

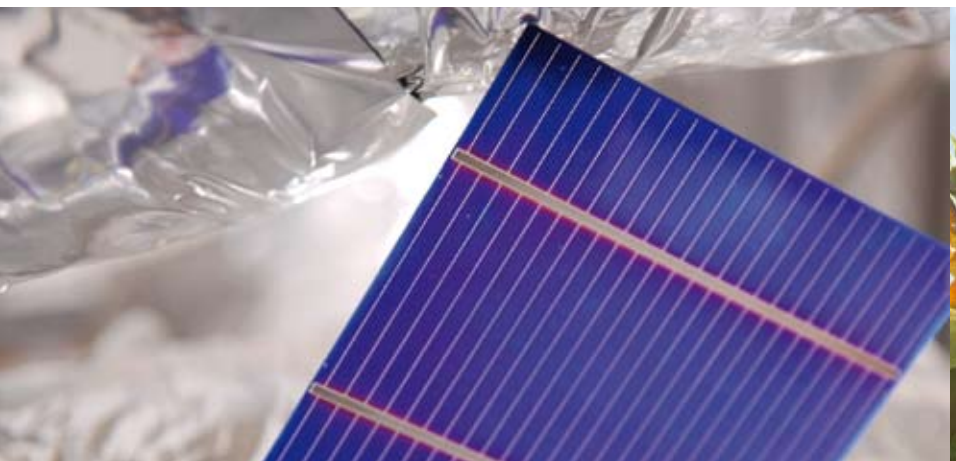
Solar-Institut Jülich

Solar research at the Jülich campus of the FH Aachen can look back upon a long tradition. Based initially on research and development projects beginning in 1988, the Solar-Institute Jülich was created with the assistance of the Working Committee Solar NRW (AG Solar) in 1992 as the central scientific organisation of the FH Aachen. At a time of rising energy costs and climate change, as well as decreasing availability of raw materials, the institute's goal is becoming more and more important to society: The development of application-oriented technical solutions in the renewable and efficient use of energy for both developed and developing countries.

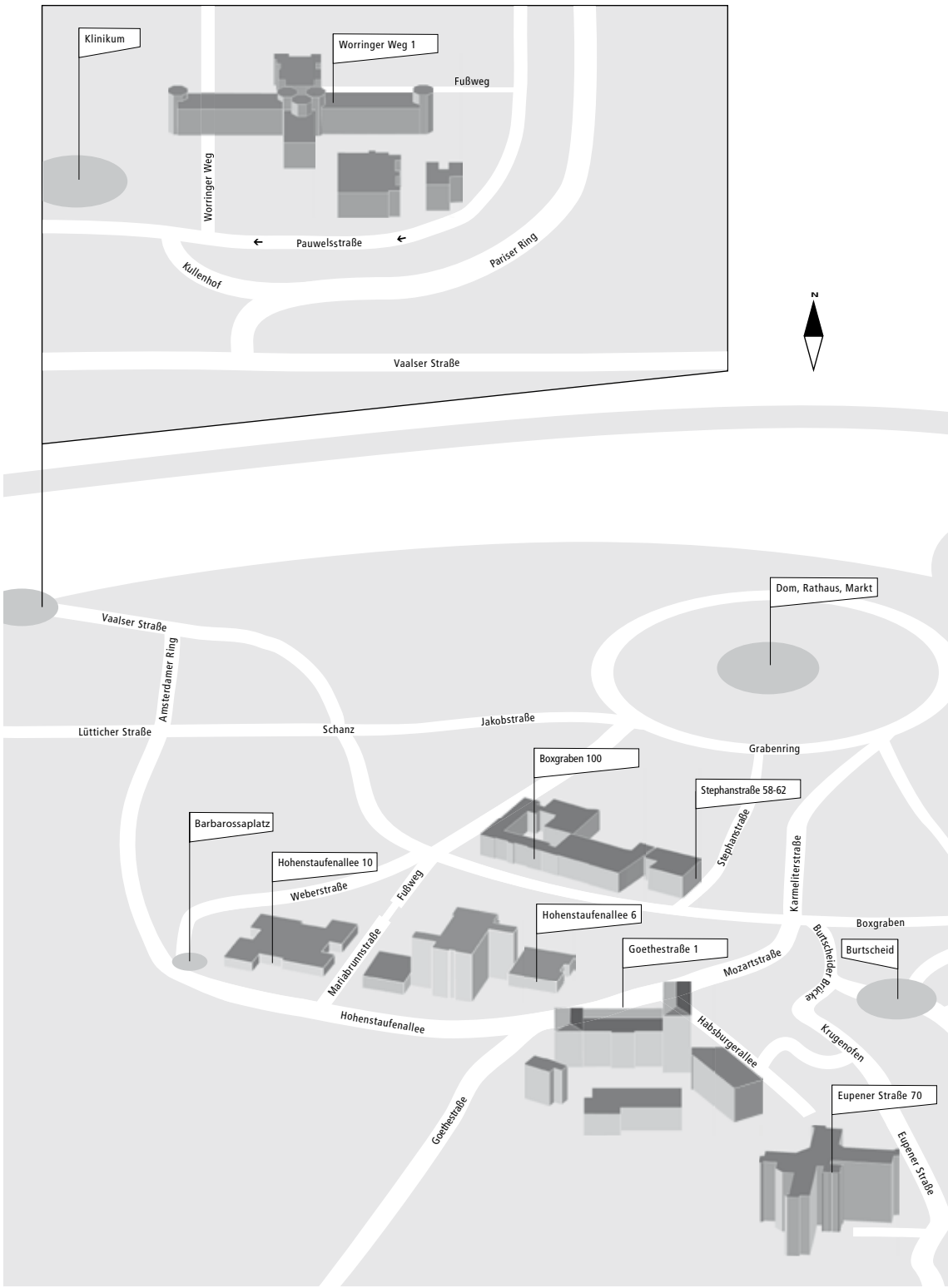
This is in step with the university's philosophy of teaching and research with a highly practical component. New developments take place in direct cooperation with industry, as well as with national and international partners at universities and research facilities. As a result, professors from different areas of the FH Aachen are involved in this research, which transcends any one discipline. Students are involved as well: Alongside the SIJ's specialist engineers and experts, they develop solutions to problems important to technical fields as well as business.

As a prospective student, you have the unique opportunity not only for theoretical study, but also to benefit from an up-close approach at the SIJ's extensive laboratory facilities. An example of this was the SIJ's significant involvement in the initiation, construction and energy surveying of the Solar-Campus Jülich.

→For more information:
www.sij.fh-aachen.de



Map

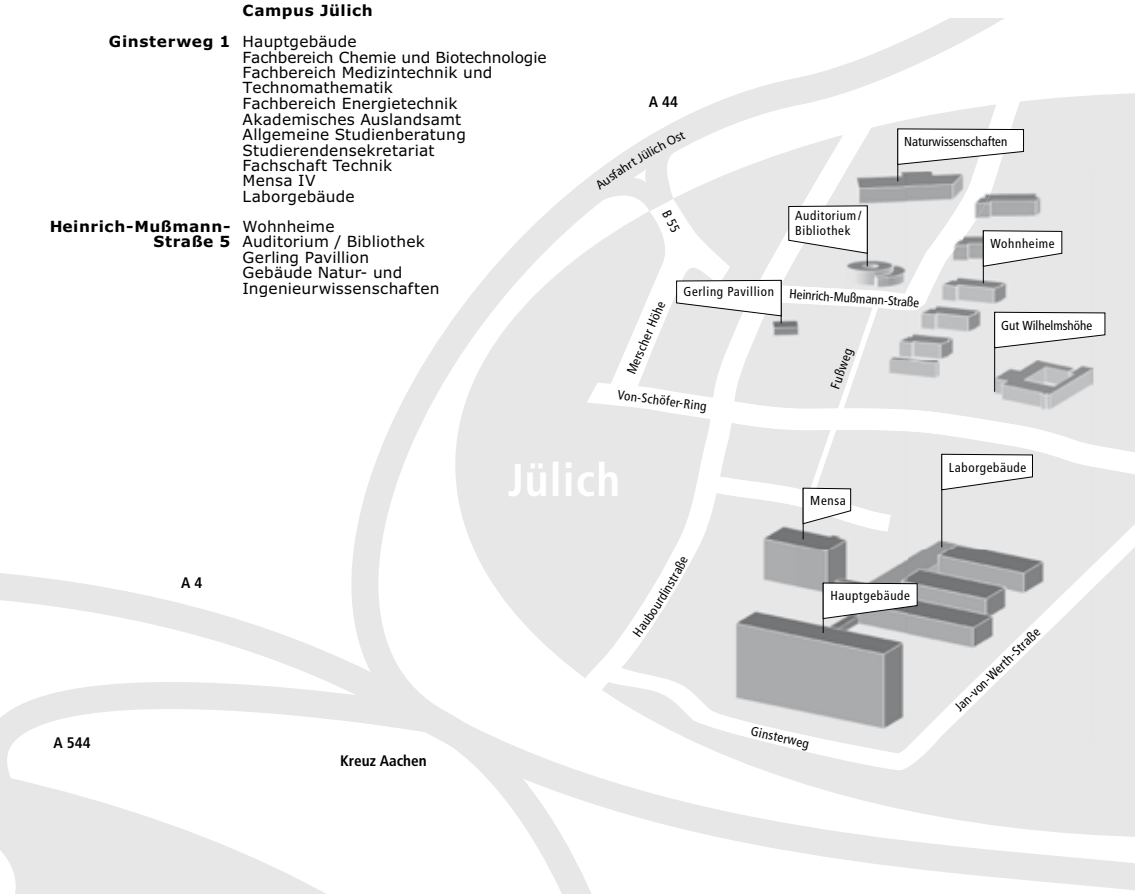

Klinikum
Worringer Weg 1
Fußweg
Worringer Weg
Pauwelsstraße
Kullenhof
Pariser Ring
Vaalser Straße
N
Dom, Rathaus, Markt
Vaalser Straße
Amsterdamer Ring
Lütticher Straße
Schanz
Jakobstraße
Grabenring
Boxgraben 100
Stephanstraße 58-62
Barbarossaplatz
Hohenstaufenallee 10
Weberstraße
Fußweg
Stephanstraße
Karmeliterstraße
Hohenstaufenallee 6
Boxgraben
Goethestraße 1
Burtscheid
Burtscheider Brücke
Mozartstraße
Mariabrunnstraße
Hohenstaufenallee
Habsburgerallee
Krugenofen
Eupener Straße 70
Goethestraße
Eupener Straße

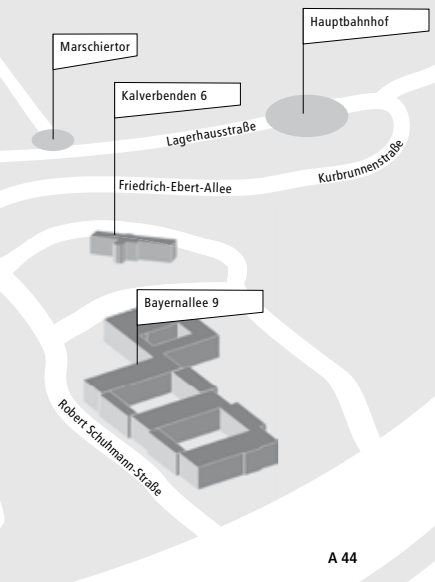
Standorte der Fachhochschule Aachen

Campus Jülich

Ginsterweg 1
Hauptgebäude
Fachbereich Chemie und Biotechnologie
Fachbereich Medizintechnik und Technomathematik
Fachbereich Energietechnik
Akademisches Auslandsamt
Allgemeine Studienberatung
Studierendensekretariat
Fachschaft Technik
Mensa IV
Laborgebäude

Heinrich-Mußmann-Straße 5
Wohnheime
Auditorium / Bibliothek
Gerling Pavillion
Gebäude Natur- und Ingenieurwissenschaften





Campi und Standorte in Aachen

Bayernallee 9
Fachbereich Architektur
Fachbereich Bauingenieurwesen
Mensa III
Fachschaft Bau

Boxgraben 100
Fachbereich Design
Fachschaft Design
Prüfstand Automotive (Flugzeughalle)

Eupener Straße 70
Fachbereich Elektrotechnik und Informationstechnik
Fachbereich Wirtschaftswissenschaften
Mensa EUPS
Hochschulbibliothek
Fachschaft Elektrotechnik und Informationstechnik
Fachschaft Wirtschaft
Gleichstellungsbeauftragte
International Faculty Office
ECTS-Koordinationsstelle

Goethestraße 1-3
Fachbereich Maschinenbau und Mechatronik
Fachschaft Goethestraße
Mensa GastroGoethe

Hohenstaufenallee 6
Fachbereich Luft- und Raumfahrttechnik

Hohenstaufenallee 10
Studierenden-Service-Center mit Akademischem Auslandsamt, AStA und Allgemeiner Studienberatung

Kalverbenden 6
Zentralverwaltung
Hochschulleitung

Stephanstraße 58-62
Studierendensekretariat

Worringer Weg 1
Labore des Lehr- und Forschungsbereichs Chemieingenieurwesen

Highlights of studying at the FH Aachen

Internationally Oriented Courses of Study

The FH Aachen offers you the unique opportunity to complete a course of study partly in English. The so-called Internationally Oriented Courses of Study (AOS) are taught in English in the first two semesters and in following semesters in German. As a result, the admissions requirements with regard to the German language, at least for the first academic year, are not as high as for other degree programmes. After the first year, the courses are taught in German, so that during the first two semesters of study students can participate in German courses.

Without question, this dual language aspect provides graduates with long-term benefits: They broaden their opportunities to begin a career in international branches of business in which working, negotiating and communicating in English is essential.

In addition, the FH Aachen offers ten masters degree programmes given either partly or completely in English.

You can also find an international focus in the Business Studies/Anglophone Countries, Business Studies/German-French, as well as the European Business Studies Courses of Studies in the Faculty of Business. In these programmes, students complete several semesters at an English-speaking or at a French university, for example at two European partner universities. Study abroad, which is an integral part of the programmes, is designed to stimulate the international mindset and mobility of participating students. Through this experience, graduates are able to communicate in two languages and work across borders.

Information Days

When you are ready to embark upon your studies in Germany, the following special events may be of interest to you in order to be informed in advance.

The most important information and extensive advice about all courses of study and faculties at the university – It's all waiting for you at the beginning of each year at the **University Information Day (HIT)** at the FH Aachen. The exact date is available at: **www.fh-aachen.de**

At the annual **Girls'Day**, a nationwide programme, the FH Aachen opens its doors to girls in the 5th through 10th classes. On the fourth Thursday in April every year participants can experience for themselves just how interesting and exciting technical studies can be. **www.girls-day.de**

The various faculties also offer assistance in making a decision regarding studies. Pupils in classes 11 through 13 have the opportunity to get to know what being a student is like at the annual **"In-University Week" at the Jülich campus.** For one week they can attend lectures, tutorials and laboratory classes to gain an impression of technical studies. This programme takes place regularly during the autumn break. Find out more at **www.fh-aachen.de/schnupperstudium.html**

The **Faculty of Civil Engineering** also offers an **information day** twice a year. Throughout a full day, prospective students can attend lectures, visit laboratories and participate in a question-and-answer session in order to find out, not only if they have what it takes to become a house-builder, but also a traffic infrastructure supervisor, design engineer for construction, or even manager of a water and waste engineering facility. The current dates are available at: **www.bau.fh-aachen.de**

During the F**aculty of Business Info-Day,** you can visit the faculty in the Eupenerstraße and get answers to all of your questions about applying and studying there. In addition to general information about studying (for example, applications and internships), participants can experience first-hand the national and international courses of study and can also make first contact with current students by attending lectures and participating in discussion sessions with them. **www.fh-aachen.de/wirtschaft.html**

It is also possible to make an appointment with any of the faculties in order to schedule events for groups of pupils, consultations with individual pupils or guided tours for school groups. All of the information can be found at: **www.fh-aachen.de/schueler.html**

First semester orientation

First semester orientation should make your entrance into student life easier. Orientation begins before your studies and continues throughout the first two semesters. Important elements of the first semester programme are the Orientation Days during the first week of studies, the first semester trip, as well as continuing support of new students by trained student tutors and mentors among the instructors. We recommend that you take part in all the offerings related to orientation: You will receive information, dates and contacts when you register.

Corporate succession – entrepreneurship coaching – the first step to having your own business.

Are you playing with the idea of working independantly or starting your own business after completing your studies? Corporate succession and entrepreneurship coaching from the Faculty of Business offer essential support on the journey from university to independence. Students in all faculties who have innovative ideas they would like to implement can find competent and individual counselling: from presentation of the idea in a well-crafted business plan and analysis of its chances for success, to offering contacts for potential business loans and investors, you have a personal business coach available to you. Everything worth knowing to make your idea as a potential entrepreneur successful can be found here!

→Corporate succession-entrepreneurship coaching contact:

Prof. Dr. rer. oec. Bernd P. Pietschmann

Telephone: +49 241 6009 51964

E-Mail: pietschmann@fh-aachen.de

Projects within the faculties

Project-oriented instruction means learning and doing research under real conditions. In the following we offer you examples of this practical teaching approach of the FH Aachen.

→Concrete Canoe Project contact:
Prof. Dr.-Ing.
Hans Paschmann
Telephone:
+49 241 6009 51109
E-Mail:
paschmann@fh-aachen.de

→Millport Excursion contact:
Prof. Dr. rer. nat.
Marcus Baumann
Telephone:
+49 241 6009 53192
E-Mail:
baumann@fh-aachen.de
www.fh-aachen.de/baumann.html
www.fh-aachen.de/millport0.html

Faculty of Civil Engineering:

The Concrete Canoe – Out into the cold wet

To embark upon the open sea on a boat you've built with your own hands – this desire can become real for students in the Faculty of Civil Engineering. As part of the concrete canoe project led by Prof. Dr.-Ing. Hans Paschmann, professor of materials science, students design and build their own canoe. In this project, they are fully supported and encouraged by Prof. Paschmann and his colleagues. Of course, the project culminates in the testing of the canoes. Even if the sea journey does not take place on the open sea – a competition against students of other universities in the German Concrete Canoe Regatta is nonetheless a high point for the project participants.

Participation is voluntary, and everyone is given the opportunity to achieve ECTS Points in the area of general competencies.

Faculty of Chemistry and Biotechnology:

Millport Excursion: Biotechnology students swim to the front

Prof. Dr. Marcus Baumann, professor of biotechnology, specifically environmental engineering in Faculty 3, makes it possible for his students to do ocean research on site. Every year the students and the professor travel to a marine biology station in Millport, Scotland for two to three weeks in order to experience marine biotechnology firsthand near the Isle of Cumbrae. As part of this marine experience students go into the open sea and experience for themselves how samples are taken and analysed in a well-equipped laboratory directly at the station. For students, this means intensive research and hard work under the heading of "problem-based learning" leading to a high level of learning, but also a lot of fun.

Solar-Institut Jülich (SIJ):
Summer School
Renewable Energy at the SIJ

Every summer, about 50 students pitch their tents at Solar-Campus in Jülich. The "Summer School Renewable Energy" has been a tradition of the FH Aachen Solar-Institut Jülich (SIJ) for more than 20 years. In the space of two weeks, highly motivated students from Germany and abroad work hard with a comprehensive overview of capability, technology and application possibilities for renewable energies and rational energy applications. Through lectures, practical training, excursions and a project, participants acquire the most current knowledge in the area of innovative and sustainable energy systems. The fundamental idea of this broadly designed seminar is to combine diverse disciplines and to inspire the students to develop links between ideas and action.

Faculty of Design:
sub-art: Water as Inspiration

The "sub-art" art and design group was founded in 1996 by Professor Ivo Dekovic in the Faculty of Design. The workshop takes place every year on the Dalmation Coast in Razani, Croatia, Prof. Dekovic's hometown. Students as well as guest artists from Aachen, Düsseldorf and Berlin create work, making use of diving equipment and underwater cameras. Film and photography, but also installations and sculpture are created on-site. The basic theme of the artwork is the element of water, which is the basis and inspiration for free and experimental creativity. The feeling of weightlessness in deep water, the experience of going to the limit and the opening of another dimension create the ideal conditions for expansion of the awareness and creative field of the artist. "sub-art" connects art and design with natural sciences and the latest technology. The creative field includes drawing, photography, video, drafting, performance, sculpture and fashion design, interior design up to the development of "wavefront" trade fair booths. The results are presented in museums, galleries and film festivals and, directly in line with the interdisciplinary demands of art, for many years the boat trade show in Düsseldorf. The students' own booths are arranged in unity with their contents.

Faculties of Design and Aerospace Technology:
Capro – Connecting competencies

"Capro" is the name of a close-to-production sports car with individual design and innovative engineering. That is the modest goal of the twelve-member student team of the FH Aachen. In March 2005, the "Capro" student project came into being. Originally, the idea behind it was to develop a sports car called "Vision 2015" as a study project with an inter-faculty student team under the supervision of professors and experienced business people. The design was developed by students in the Faculty of Design, and students from the Faculty of Aerospace Technology concentrating in Lightweight Construction and Body Engineering were responsible for the engineering.

→Summer School contact:
Solar-Institut Jülich der FH Aachen
Dipl.-Ing. Carola Schneiders
Telephone: +49 241 6009 53506
E-Mail: schneiders@sij.fh-aachen.de
www.sij.fh-aachen.de

→sub-art contact:
Prof. Ivo Dekovic
E-Mail: dekovic@fh-aachen.de
www.sub-art.de

→Capro contacts:
Prof. Dr.-Ing. Thilo Röth (FB 6, Lightweight Construction and Body Engineering)
Telephone: +49 241 6009 52933 or +49 241 60833 0
E-Mail: roeth@fh-aachen.de

Prof. Dipl.-Des. Manfred Wagner (FB 4, Interior-Design)
Telephone: +49 241 6009 51540
E-Mail: m.wagner@fh-aachen.de
www.capro.fh-aachen.de

→Flight measurement weeks contact:

Prof. Dr.-Ing.
Peter Dahmann
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+49 241 6009 52360
E-Mail:
dahmann@fh-aachen.de
www.fh-aachen.de/fmp.html

→COMPASS-1 contact:

COMPASS-1-Project
Telephone:
+49 241 6009 52370
E-Mail:
cubesat@fh-aachen.de
www.raumfahrt.fh-aachen.de

→Microtechnology excursion contact:

Prof. Dr.
Klaus-Peter Kämper
Telephone:
+49 241 6009 52325
E-Mail:
kaemper@fh-aachen.de

Faculty of Aerospace Technology:
Flight measurement weeks – Classes in a "flying laboratory"

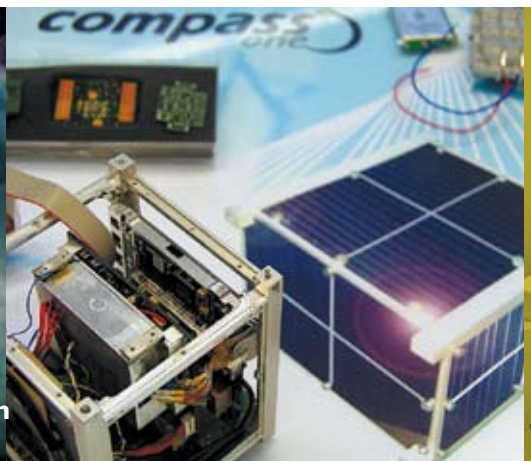
Through flight-mechanical practical training, students in the Faculty of Aerospace Technology take off in the real sense of the word: In the aircraft construction and flight service technology areas of study, the characteristics and benefits of aircrafts, as well as theoretical descriptions, are demonstrated through practical test flights. As part of this, students sit in the cockpit to supervise the tests or to conduct them themselves. In gliders and motorised aircraft or motorised gliders, students take various measurements. They conduct tailspin research, measure air flow or calculate runway length – and afterwards analyse the test results.

Day of the Pico Satellites:
The "Compass-1 Project"

Students of Aerospace Technology want to go higher: In early 2008 they did! The first student-developed small satellite was launched into space. The CubeSat COMPASS-1 measures only 10cm³, which is why it is called a Pico Satellite. The COMPASS-1 project has connections with teams from other universities around the world and, beyond that, with high-level partners such as the German Aerospace centre. The satellite is used to observe the Earth using a webcam. Amateur radio operators or pupils can, for example, pick up data from the satellite and analyse it themselves. The follow-up project, COMPASS-2, is already getting started. The advantages for the students participating in such a project are varied: Many write their final thesis about this area, make important contacts with well-known partners and, as a result, learn how to work on an interdisciplinary team.

Faculty of Mechanical Engineering and Mechatronics:
"Hands on High-Tech" – Grasping microtechnology

Microsystems Technology is one of the most important key technologies of this century, without which there would be no inkjet printers, or computer hard drives, beamers or modern motor management and security systems for automobiles such as airbags and ESP. In cooperation with the Kaiserslautern University of Applied Sciences at Zweibrücken, students experience mechatronics during a week-long microtechnology excursion: With the most advanced microtechnology production techniques students can produce a silicon pressure sensor themselves in a clean room on site. For the preparation, they prepare in Aachen during an intensive training using realistic computer simulations in a virtual technology laboratory. Here students learn to operate the complex machines in the clean room almost completely independently. The direct contact with the fascinating world of microsystems impresses and creates enthusiasm: Following the excursion, many participants decide to write their final thesis about an aspect of this area.



Bachelors and Masters Degrees

The FH Aachen offers Bachelors (Bachelor of Engineering, Bachelor of Science and Bachelor of Arts) and Masters (Master of Engineering, Master of Science, Master of Arts and Master of Business Administration) Degree Programmes.

The goal in introducing this multi-level academic model in Europe is the creation of a uniform European Higher Education Area, shortening the duration of study time and increasing the practical aspects of the studies. The introduction of multi-level degree programmes is part of one of the most radical changes to the German educational system within the framework of the Bologna Process. This should ameliorate the, on average, relatively long duration of study and the extremely high drop out rate that has been common until recently. It should also lead to graduates better qualified for the job market and make all European degrees internationally compatible. The introduction of the multi-level degree programme in Germany should be complete in 2010. It has already been successfully implemented at the FH Aachen.

Bachelors Degree

The Bachelors Degree is the first academic level and the most basic professional qualification offered by universities (universities of applied sciences, traditional universities and universities of cooperative education) after completing a scientific course of study. The standard period of study is between six and eight semesters. According to the European Credit Transfer System (ECTS), students must complete 180 credits in six semesters (210 in seven semesters and 240 in eight). The bachelors degree from universities of applied sciences and traditional universities also qualifies students for subsequent masters degree programmes. At the masters degree level, students can choose to continue or consolidate the same course of study or pursue a broader interdisciplinary course of study (consecutive). They can also change to a professional discipline, where the masters programme is not a continuation of the former course of study (non-consecutive). A bachelors degree programme at the FH Aachen is organised in such a way that it meets the technical requirements of the particular discipline and prepares graduates for the demands of the professional field. It is distinguished by its strongly practical component and is closely linked with the requirements of business. The courses of studies are structured in scaffolded modules which create a meaningful organisation of the degree programmes, both in their individual components and as a whole. Modules have measureable

Detailed information about bachelors and masters degree programmes is available on the homepage of the FH Aachen:

www.fh-aachen.de/ects.html

and the NRW Ministry of Innovation:

www.innovation.nrw.de/StudierenInNRW/FAQ/index.html

learning results, which describe the skills the students should have upon completion of the module. In terms of theme and content, they are discrete academic units, which can be combined through lectures and seminars in a content-meaningful way, and are oriented to the qualifications for different professions. The introduction of the bachelors degree improves the transparency of the German university system. A bachelors degree earned at a university of applied sciences qualifies students for a masters degree at a university of applied sciences, subject to the university's individual admission requirements.

Masters Degree

A masters degree from the FH Aachen offers a specialized education and leads to a stronger research or application-oriented university second degree. A masters degree qualifies the graduate for scientific work and methodology, provides theoretical-analytical skills and trains them to adapt to new situations in open-minded and creative ways. Admissions requirements for a masters degree include a university degree providing a professional qualification (for example, a bachelors degree or the diploma degree in use previously). Many masters degree programmes are highly selective and each university develops its own admissions requirements.

The skills learned in the first level of university study or in relevant professional practice should be consolidated, specialised and broadened during masters level studies. One can decide between consecutive masters degree programmes, which contain content that builds upon a specific bachelors degree programme, and non-consecutive programmes, which are adaptable to any previous degree programme. In addition, there are masters degree programmes, such as a Master of Business Administration (MBA), which are targeted to those already working in their chosen profession. After that, it is possible to pursue a doctorate.

The standard period of study for a masters degree programme is at least one year and not more than two years, and requires between 60 and 120 credits. For a consecutive course of study, the standard period for a masters may not exceeed five years (300 credits).

The European Credit Transfer System (ECTS)

The European Credit Transfer System is a system for accrediting, transfering and accumulating study performance, with the goal of creating a uniform academic currency throughout Europe. Universities need ECTS in order to continue developing their programmes, and to both assure and continue improving the quality of their programmes. Students are required to earn 60 ECTS points annually. These points indicate the amount of time a student needs to achieve a defined learning result. Sixty ECTS points can be compared to 1,800 hours. The ECTS points were calculated using the average student workload, the learning goals prescribed in the module descriptions, and the types of examinations given. ECTS points can only be given following the successful completion of a module. They assign value to all components of a degree programme, such as lectures, seminars, laboratory, examination preparation, term papers and final theses, and studying at home.

The „Studentische Online Workload Erfassung der Aachener Hochschulen" (StOEHn), a cooperative project of the FH Aachen, the RWTH Aachen and the the Association of Universities and other Higher Education Institutions, was created in order to record the actual workload and the associated ECTS points rewarded.

StOEHn scrutinizes how realistically achievable the new bachelors and masters degree programmes are, and the distribution of the workload within one semester, a specified module as well as the entire degree programme. This process began at the FH Aachen as a pilot project with students in their first semester in Winter Semester 2007/2008.

For more information go to:
www.stoehn.fh-aachen.de

Academic programmes offered by the FH Aachen

Bachelors degree programmes

- Angewandte Chemie
- Applied Chemistry*
- Architektur
- Bauingenieurwesen
- Betriebswirtschaft/Business Studies
- Betriebswirtschaft PLuS (Praxisverbund Lehre und Studium)
- Biomedizinische Technik
- Biomedical Engineering*
- Biotechnologie
- Business Studies/Anglophone Countries
- Business Studies/Deutsch-Französisch
- European Business Studies
- Communication and Multimedia Design (C-MD)
- Elektrotechnik (Aachen)
- Elektrotechnik-Energietechnik (Jülich)
- Fahrzeugintegration/Karosserietechnik
- Informatik
- Kommunikationsdesign
- Luft- und Raumfahrttechnik
- Maschinenbau (Aachen)
- Maschinenbau (Jülich)
- Mechanical Engineering*
- Mechatronik
- Physikingenieurwesen
- Physical Engineering*
- Produktdesign
- Prozesstechnik (berufsbegleitend)
- Scientific Programming (ausbildungsbegleitend)
- Wirtschaftsingenieurwesen

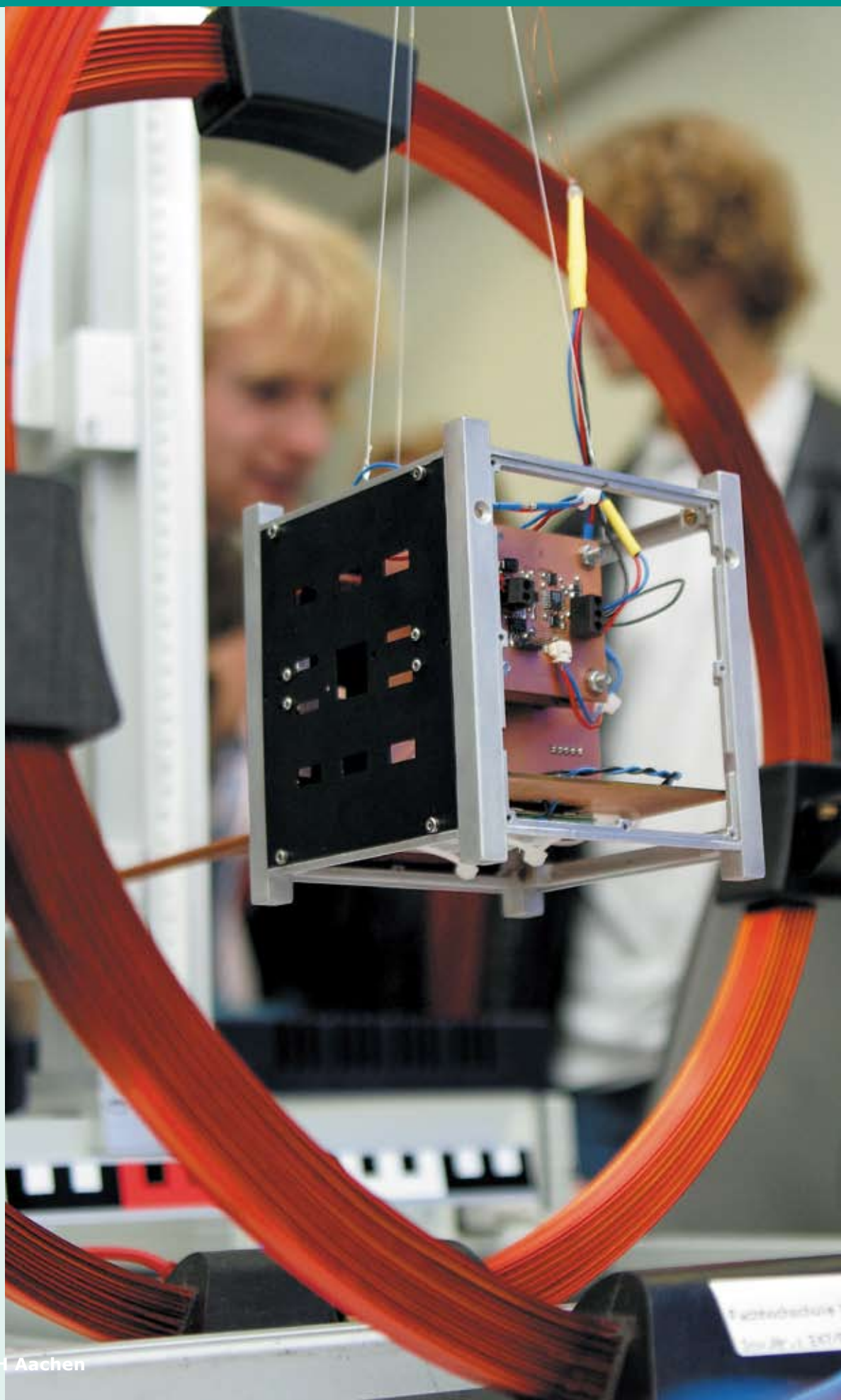
Masters degree programmes

- Aerospace Engineering
- Angewandte Polymerwissenschaften
- Architektur und Städtebau
- Automotive Vehicle Integration/Power-train and Chassis Engineering
- Bauingenieurwesen
- Biomedical Engineering
- Energy Systems
- Entrepreneurship
- Facility Management
- International Business Management
- Mechatronics
- Nuclear Applications
- Service Management
- Technomathematik

*AOS degree programmes
(Internationally Oriented Courses of Study)

Information about all degree programmes is available in the degree programme brochures at General Academic Counselling and in the individual faculties as well as on the Internet at:

www.fh-aachen.de/broschueren_stg.html



ANGEWANDTE CHEMIE (APPLIED CHEMISTRY)

Chemistry is an integral part of our lives. We ourselves are made of chemical substances, we are exposed to chemical influences in our environment and practically every industrial process, and every product has something to do with chemistry. As a result of this, there are applications for chemistry in different industries and fields. Along with the chemical, pharmaceutical and plastics industries, chemists also work in the machine and food industries, environmental and medical technology, and even in fire departments and insurance companies. They develop and optimise new, innovative products and materials and ensure their quality with testing methods. Moreover, the development and optimisation of chemical production processes can also be part of their field of activity, as well as the application and further processing of chemicals and materials, including all corresponding processes such as analysis, testing and quality assurance. In addition to product quality, there are business applications, such as occupational and environmental safety. The great economic importance of the chemical industry as one of Germany's leading fields and the employment of chemists in a wide variety of areas, guarantees graduates of this degree programme a range of professional opportunities with better than average employment possibilities.

This degree programme is structured in such a way that you will receive an education in all of the important branches of modern chemistry, offering depth as well as completion within a timely manner. Along with the basics of inorganic, organic, physical and technical chemistry, analytic methods and biochemistry, polymer and plastics technology are taught. Depending upon your aptitude, you can choose elective courses with a concentration in one of these areas. Possible areas of specialisation for graduates are environmental chemistry and environmental technology, life sciences, food and consumer protection, as well as nuclear chemistry. Learning and practising practical manual skills in modern-equipped laboratories plays a central role in enabling graduates to apply their knowledge later in professional life. You can complement these with further qualifications such as rhetorical skills, language competence, communication and teamwork skills and the acquisition of management skills. You can decide in which areas you wish to be qualified.

→Faculty:
Chemistry and Biotechnology

→Degree:
B.Sc.

→Languages of instruction:
German

→Standard period of study:
6 semesters

Applied Chemistry*

→Faculty:
Chemistry and Biotechnology

→Degree:
B.Sc.

→Languages of instruction:
1st-2nd semesters English, 3rd-6th semesters German

→Standard period of study:
6 semesters

→Academic counsellors:

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ARCHITEKTUR (ARCHITECTURE)

→**Faculty:**
Architecture

→**Degree:**
B.Sc.

→**Languages of instruction:**
German

→**Standard period of study:**
6 semesters

→**Academic counsellors:**
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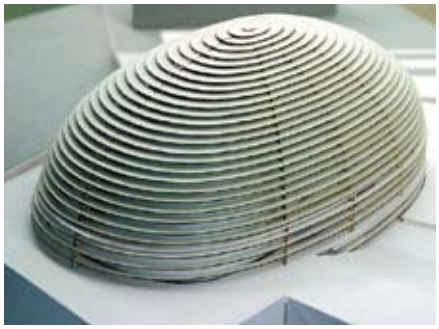
Since time immemorial, architecture has been a field of conflict between art and construction, function and beauty. "To make beauty serviceable, useful and functional is the task of architecture," wrote Karl Friedrich Schenkel in his architecture textbook. It may be precisely this linkage with beauty that explains the consistently high level of interest in the architecture degree programme–this despite its dependence on a cyclical job market.



Besides an extensive amount of basic knowledge of construction engineering, students in this degree programme are provided with broad knowledge of architecture and urban planning. Because of this, graduates are widely employable in independant firms and public authorities.

The assignments encompass construction and project and construction site management. The theme of the bachelors degree programme curriculum is "Quality in everyday architecture and the city", offering additional up-to-date professional fields within architecture such as construction management, environmental planning, process management, multimedia interior design and virtual design. The bachelors degree, as the basic degree in the scaffolded degree programme, does not qualify you to work as an architect or to register or be licensed through the architectural assocation. It allows you to pursue a masters degree in the same or a related discipline.

The dual focus of the programme is, first, architecture, and second, urban and regional planning. During the course of your studies you will acquire competence in design and visualisation, drafting, urban and regional planning, as well as construction. In additon to the history and theory of architecture and construction, you will also learn about the execution of construction work and management.

This degree programme offers a diverse spectrum and the fundamental knowledge and methodological competencies of important core areas.

Along with philosophy, psychology, sociology, moderating and presenting, study and work habits and foreign languages, you can also acquire important key qualifications.

BAUINGENIEURWESEN (CIVIL ENGINEERING)

That civil engineers plan and construct buildings, bridges and dams is evident for the world to see. Just as important, however, are the "unseen" results of their work, for example our supply and disposal systems for water and waste. Due to structural changes in the field, new tasks for civil engineers have recently arisen. Besides the core business of planning and building, civil engineers are taking more and more responsibility for the full life cycle of buildings and facilities. This means that they are also increasingly active in the areas of project development, financing and facility management.

With its orientation toward the basics of the classic areas of construction operation, construction engineering, traffic systems and water and waste engineering, the Civil Engineering Bachelors Degree Programme meets the current requirements of the job market and offers graduates great opportunities for beginning their careers in a field which is once again experiencing high demand. In addition to this basic knowledge, practical aspects such as in-company training and field trips, as well as topic-specific immersions in one of the four specialisations of civil engineering are part of the course of study. The goal of the programme is that, given an existing situation, students can identify the need for optimisation and can put practical solutions into place, taking into consideration the technical and economic parameters.

The civil engineers of the future will find a wide field of activity in their

profession. These can be found in construction firms, consulting offices, operating companies for buildings of all kinds, in private and municipal sanitation authorities, national and municipal authorities, as well as associations and public advocacy groups. The basic practical abilities learned in this programme make possible direct participation in technical projects, as well as starting the subsequent masters degree programme.

After more than ten difficult years, the future of the construction industry is looking brighter. Those who begin the Civil Engineering Course of Study now will have very good chances, together with the few recent graduates, to find civil engineering positions awaiting them upon graduation.

Civil Engineering with practical training semester

It is also possible, during the advanced period of study, to choose a practical training semester. In this case, the standard period of study consists of seven rather than six semesters, with the practical training taking place in the fifth semester.

→Faculty:
Civil Engineering

→Degree:
B.Eng.

→Language of instruction:
German

→Standard period of study:
6 semesters/
7 semesters (with practical training semester)

→Academic counsellors:
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BETRIEBSWIRTSCHAFT/ BUSINESS STUDIES

→Faculty:
Economics

→Degree programme:
B.A.

→Language of instruction:
German

→Standard period of study:
6 semesters

In the Brothers Grimm fairy tale, coins called "star talers" come falling down from the heavens. However, a closer look at the story reveals that the heroine only earns her reward of golden coins because she has utilised her available resources: In the language of business, she "invested" those resources. Investment in many forms is the basis of ambitious companies, our national economy and the entire global economy. One can invest in people, machinery, raw materials, patents and other tangible and intangible assets.

The Bachelors Degree Programme in Business Studies is all about investing wisely. It includes solid, practical knowledge in business economics, such as marketing, logistics, organisation, personnel, finance, accounting, taxes and controlling, but also other areas important to business such as macroeconomics, computer science, law, mathematics and statistics. The advanced period of study offers specialised knowledge in three subjects, which create a foundation for further development and can be chosen depending on aptitude and career aspiration. Graduates of this programme master methods and procedures which allow them to independently describe, analyse and develop solutions to current managerial problems. Students also acquire other key abilities including communication, teamwork and language skills, as well as cross-cultural competencies, which permit them to confidently present and implement solutions. As a result

of working together in small groups on practical tasks, and through intensive course guidance, tutorials and mentoring in the first semesters, graduates learn the ins and outs of teamwork.

Equipped with these wide-ranging qualifications, graduates have excellent prospects on the employment market and generally find an appropriate position quickly. These excellent qualifications mean that our graduates stand out in the job market, even in times of crisis. Seminars focused on specific companies, the commitment of professors with many years of extensive practical experience, lectures by experienced working business people, practical projects and bachelors theses offered in cooperation with companies, as well as required internships, guarantee students a course of study that prepares them for the rigours of professional life. International competence can be acquired through a semester abroad or through classes at one of our many partner universities throughout Europe and beyond. An extensive range of language courses offered by the faculty is another aspect of this preparation.

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BETRIEBSWIRTSCHAFTS PLuS (BUSINESS STUDIES PLuS)

You don't want "one or the other". You want both: a practical approach and a professionally qualifying education with your own income. You are willing to work hard, you want to take responsibility at an early stage and you are not afraid to take on an additional burden. Then you can combine your bachelor of arts degree with the Industrial Business Management Assistant professional qualification. This integration creates synergies which, in comparison to pursuing the studies consecutively, make it possible to significantly shorten the required time to four years. The special "PluS" of this course of study is that during the in-company training phases you can apply the knowledge you have gained during your studies and experience the relevance of this knowledge to the company over and over again. On the other hand, the longer you work in a company, the more you will learn to recognise and formulate what business requires from science. During the six-semester course of study at the university of applied sciences, experienced professors will provide you with fundamental, solid, practice-oriented knowledge of business, for example about marketing, logistics, organisation, human resources, finances, accounting, taxation and controlling. In addition, other scientific areas important to business such as macroeconomics, computer sciences, law, mathematics and statistics are covered. The advanced period

of study offers specialised knowledge in three subjects, which create a foundation for further development and can be chosen depending upon aptitude and career aspiration. Graduates of the Business Studies PLuS Degree Programme master methods and procedures which allow them to independently describe, analyse and develop solutions to current managerial problems.

Students also acquire other key abilities, including communication, teamwork and language skills, as well as cross-cultural competencies, which permit them to confidently present and implement solutions.

In particular, the programme prepares you for working in mid- to large-sized companies, for which the dovetailing of scientific and practical business education at an early educational stage is a special requirement.

A requirement for admission to this programme is an apprenticeship contract with a company.

→Faculty:
Business

→Degree programme:
B.A.

→Language of instruction:
German

→Standard period of study:
8 semesters

→Academic counsellor:
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BIOMEDIZINISCHE TECHNIK (BIOMEDICAL ENGINEERING)

→**Faculty:**
Medical Technology and Technomathematics
→**Degree programme:**
B.Eng.
→**Language of instruction:**
German
→**Standard period of study:**
6 semesters

Biomedical Engineering*
→**Faculty:**
Medical Technology and Technomathematics
→**Degree programme:**
B.Eng.
→**Languages of instruction:**
1st and 2nd semesters English, 3rd-6th semesters German
→**Standard period of study:**
6 semesters

→**Academic counsellor:**
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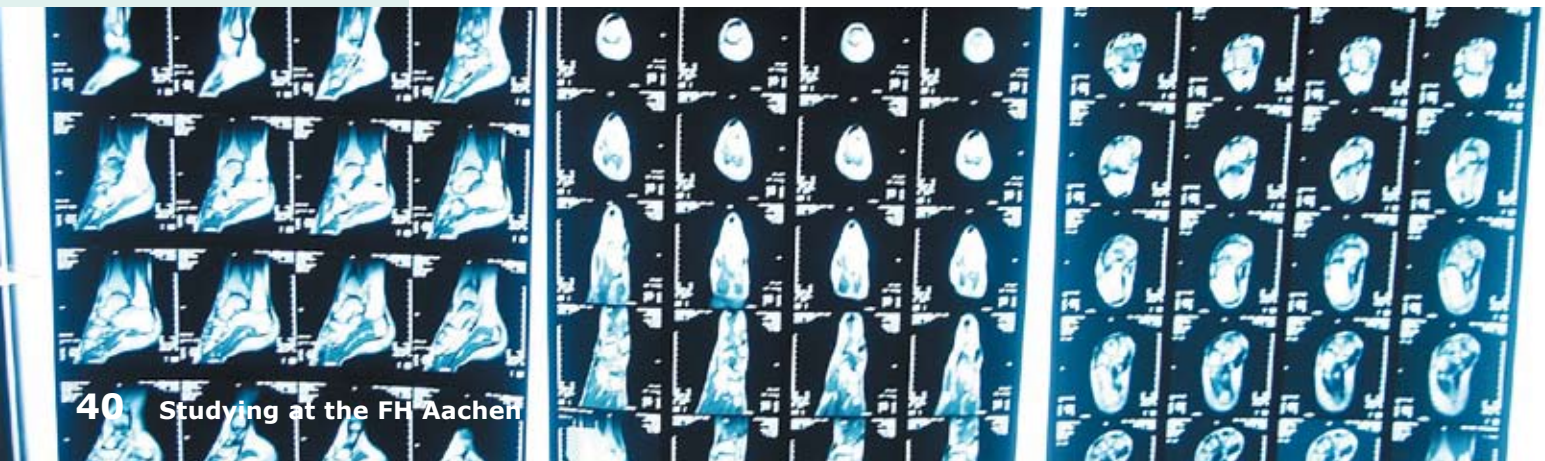
Healthy lifestyles and the desire for a better quality of life are on the rise. Despite the rising cost of health care, people want the best possible medical care. In coming years, the number of people over 80 years of age requiring medical care will triple. These are only a few reasons why biomedical engineering will be a major growth market in the future. Imaging techniques such as examinations using x-ray machines or magnetic resonance tomography, life-sustaining equipment such as artificial pacemakers and lung ventilators, as well as diagnostics of biological or chemical substances at the molecular level, including the measurement of blood sugar and DNA analysis – all of these make biomedical engineering essential.

Due to the interdisciplinary nature of this degree programme, graduates are in demand in areas where physics, chemistry, biology and engineering science intersect. Possible occupational areas include research and development, medical equipment technology and product design, biomedical applications, quality assurance, client counseling, and technical support. Through intensive research conducted in the individual areas of specialisation, your studies will be at the level of the most current standard of knowledge. After successfully completing the programme, you can deepen your level of expertise through the internationally designed Biomedical Engineering Masters Degree Programme.

During your studies you will acquire an understanding of the technology associated with medical science, as well as get a grasp on current medical questions. You will be a co-designer in the development of innovative biomedical products. Within your course of study you will encounter current topics which will also be important for beginning your career. These practical subjects include cardiotechnology and medical process engineering, imaging techniques, the physics of diagnostic methods, biomechanics, biomaterials, medical physics, biophysics, biosensors, cytology, physiology and anatomy, measurement and control technology, as well as business economics.

As a result of the university's close cooperation with the Jülich Research Centre, one of the largest research facilities in Europe, joint courses in advanced laboratories are offered. There is the opportunity to undertake final projects or internships through joint research projects.

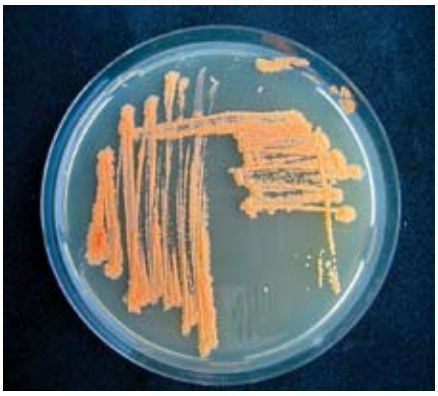


BIOTECHNOLOGIE (BIOTECHNOLOGY)

Biotechnology is one of today's most modern and innovative disciplines. In biotechnology, classical biology and technology are united. Biological principles and mechanisms are applied and implemented using an engineering approach in order to create new products. Biotechnology is well-established in many areas, ranging from life-saving insulin for diabetics to so called "functional food".

The curriculum covers all areas of modern biotechnology. Microbiology, gene technology, plant biotechnology, environmental biotechnology, cell culture technology and biochemical engineering, are just a few core disciplines you can engage in theoretically as well as practically using our extensive laboratories. In addition to the basic framework of natural scientific technology which serves as an essential basis, the diversity of this programme of study offers students competence in additional areas of biotechnology. Proficiency in these areas is the *sine qua non* for success.

Rapid progress in the area of molecular and cell biology over the past 20 years has opened up more and more innovative and exciting industrial applications and created new jobs. Graduates of the Biotechnology Degree Programme find work in an occupational area comprising life sciences in the broadest sense, including biotechnology and microbiology companies, and the chemical, cosmetics, pharmaceutical and food industries. Operational areas also include agricultural



technology, research facilities, universities and universities of applied sciences, public authorities dealing with food control, environmental agencies, and waste control and recycling. Your field of activity encompasses the implementation of scientific and research findings in production, development, technical distribution, in manufacturing, as well as monitoring and validation of production processes.

Graduates of the Biotechnology Bachelors Degree Programme also have the opportunity to begin a masters degree programme.

Biotechnology with practical training semester

During your advanced period of study, it is possible to choose a practical training semester. In this case, the standard period of study consists of seven rather than six semesters.

→Faculty:
Economics

→Degree programme:
B.Sc.

→Language of instruction:
German

→Standard period of study:
6 semesters/
7 semesters (with practical training semester)

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BUSINESS STUDIES/ ANGLOPHONE COUNTRIES

BUSINESS STUDIES/ GERMAN-FRENCH

EUROPEAN BUSINESS STUDIES

Business Studies/ Anglophone Countries
→Faculty:
Business
→Degree programme:
B.A.
→Languages of instruction:
German, English
→Standard period of study:
6 semesters

Business Studies/ German-French
→Faculty:
Business
→Degree programme:
B.A.
→Languages of instruction:
German, French
→Standard period of study:
6 semesters

European Business Studies
→Faculty:
Business
→Degree programme:
B.A.
→Languages of instruction:
German, plus two more languages
→Standard period of study:
6 semesters

American author Thomas L. Friedman has written that today "the world is flat." He describes how globalisation has once again flattened the globe. Companies benefit from this by outsourcing production to countries overseas and by using inexpensive skilled manpower in Asia. But at the same time, jobs are often lost in industrialised nations. In a flat world, global competition becomes competition among individuals and results in job losses, salary cuts and social retrenchment, mainly in the western world. One can escape this competition only by becoming one of the "untouchables", someone who, according to Friedman, possesses the right knowledge, essential skills, good ideas and self-discipline to avoid being "touched" by these developments.

Participating in the Business Studies/ Anglophone Countries, Business Studies/ German-French and European Business Studies Bachelors Degree Programmes is a first step to becoming "untouchable". Solid, practical knowledge in business economics, for example marketing, logistics, organisation, personnel, finance, accounting, taxes and controlling, and in economically important areas of other sciences such as macroeconomics, computer science, law, mathematics and statistics, provide a solid foundation. Students also gain immersion in language skills and other key areas like communication, teamwork and cross-cultural competence. During the third period of the programme, students choose from one of three specialisations, depending upon their interests and career goals.

A special feature of these three degree programmes is study abroad and a dual degree. In the Business Studies/Anglophone Countries Programme, students

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spend their second or third year in an English-speaking country, for example Great Britain, Ireland, Australia or the USA. In the bi-national Business Studies/ German-French Programme, students spend their third year of study at one of four partner universities in France. The tri-national European Business Studies programme offers students language and intercultural skills from three cultures: After three semesters at the FH Aachen, students spend their fourth semester at a European partner university and then study another language in a third country during their fifth and six semesters. After successfully finishing their studies, students receive a dual-degree, both a B.A. from the FH Aachen as well as the equivalent academic title from the partner university. This degree is also normally a B.A.

The broad basic education in business management these degree programmes offer allows students to access nearly all areas of companies in different branches of business, as well as the civil service, welfare service and even to start their own company. Individual focus can be achieved by choosing an area of specialisation. Study abroad prepares students to work in internationally active companies, both domestically and overseas. Despite strong competition, graduates have a good career outlook. According to a recent survey conducted by IW Consult, the importance of internationally skilled executives who possess extensive language skills, can think and act interculturally, and have a grasp of the comprehensive interconnectedness of today's business world is on the rise.

In addition to being able to start your career immediately upon completing the bachelors degree programme, it is also possible to continue on to a masters degree programme, which can also be completed internationally.

COMMUNICATION AND MULTIMEDIA DESIGN (C-MD)

→Faculty:
Electrical Engineering and Information Technology

→Degree programme:
B.Sc.

→Languages of instruction:
German (Aachen), English (Maastricht)

→Standard period of study:
6 semesters

Graduates of the C-MD Degree Programme have been educated to enter a professional field which only yesterday seemed futuristic but is today already "business as usual". How can you prepare someone for this fast-paced field? The best way is to provide solid tools of the trade, contextual knowledge and information about the historical development of specialised know-how. Only those who know the origins of what is important today can actively take part in shaping future developments.

And this is what its all about at C-MD. The degree programme educates generalists with specialised knowledge who, independently or as part of a team, can design, develop and apply multimedia concepts through the integrated application of knowledge of communication, design, technology, business economics and business culture in a broad range of professional fields. C-MD is the only multimedia degree programme offering this integrated concept. C-MD begins with communication, which is the centre of every social and technical interaction. The distinctive feature of C-MD is the five-pronged structure of the different fields of study linked within the programme.

The five fields of study are taught in lectures, tutorials and hands-on instruction. The goal of the hands-on instruction is implementation of lecture content, which can be practical application of theoretical content but also, depending upon the field of study, concrete utilisation of the tools and equipment which students must master in their future professional lives.

Along with the hands-on training and tutorials, it is also possible to participate in a multimedia project in the fourth semester, which allows students to apply their knowledge in a topic-based and interdisciplinary manner. This can be done in cooperation with external partners, allowing students to begin networking with a view to their careers.

In addition to the interdisciplinary nature of the programme, its international aspect is also very important. In the fourth and fifth semesters, students mostly attend the International Faculty (IF) in Masstricht, where they join the students of both partner universities – the Hogeschool Zuyd in Heerlen (NL) and the Katholieke Hogeschool Limburg in Diepenbeek/Genk (B) – in classes and on projects.

Among other modules, the IF offers Internet Business Applications, Community Building, and Integrated Business Communication. Lectures on the history of media, and conflict and time management round out the course offerings. At the completion of their studies, graduates have a solid foundation which allows them to actively negotiate change in the fast-paced field of communication.

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ELEKTROTECHNIK (AACHEN) (ELECTRICAL ENGINEERING)

In today's world, almost nothing runs without electrical engineering and electronics. Almost half of industrial production in Germany is directly or indirectly dependent upon the utilitsation of modern electrical engineering and electronic systems. Products and innovations in both areas increasingly decide the speed and quality of technical progress. The precept is not technical feasibility, but sustainable usability for human beings in their environment. Areas such as modern medical care, environmentally friendly traffic concepts, alternative energy production and energy conservation are dependent upon electrical engineering and electronics.

The job outlook for electrical engineers is also exceptionally good, and not only within the electrical engineering industry. Graduates are offered opportunities in other fields as well, such as purchasing, materials management and logistics, or as a "manager of technology" in the software/IT field. Banks, insurance companies and consulting firms are also increasingly employing electrical engineers for such needs as business process orientation and in the combining of established specialised knowledge with non-technical competencies such as methodological and language skills.

The goal of the Electrical Engineering Degree Programme is not only to provide students with the technical prerequisites for professional life, but also with the necessary soft skills. In addition to

basic mathematical, physical and electrotechnical theories and methodologies, starting in the third semester the full spectrum of electrical engineering is taught, and starting in the fourth semester the focus is on two concentrations: Automation and Drive Technology and Telecommunications Engineering. In particular, all key subject areas provide systematic methods for solving electrotechnical problems, which provide the basis for lifelong learning. Furthermore, the growing demand for social skills such as communication, teamwork, foreign languages, and presentation techniques are playing an increasingly important role. The goal is to develop the various competencies in a concrete manner through hands-on training in groups and practical projects.

Electrical engineering with practical training semester

A practical training semester is also possible. In this case, the standard period of study consists of seven rather than six semesters, with the practical training taking place in the sixth semester.

→Faculty:
Electrical Engineering and Information Technology

→Degree programme:
B.Eng.

→Language of instruction:
German

→Standard period of study:
6 semesters/ 7 semesters (with practical training semester)

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ELEKTROTECHNIK (JÜLICH) (ELECTRICAL ENGINEERING)

→Faculty:
Energy Technology
→Degree programme:
B.Eng.
→Language of instruction:
German
→Standard period of study:
6 semesters

Electrical Engineering*
→Faculty:
Energy Technology
→Degree programme:
B.Eng.
→Languages of instruction:
1st and 2nd semesters English, 3rd-6th semesters German
→Standard period of study:
6 semesters

→Academic counsellor:
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A secure, dependable, economical and environmentally friendly energy supply is one of the central pillars of our industrial society, and securing an energy supply for the world is one of the most important future challenges. Electrical energy technology is concerned with the production, distribution and conversion of electrical energy. At the Jülich campus, students in the Electrical Engineering – Energy Technology Degree Programme receive a comprehensive education in this specialised area of electrical engineering.

In the first two semesters, basic mathematical, physical and electrotechnical theories and procedures are taught in combination with application-oriented specialised knowledge. Subsequently, students learn to apply subject-specific methods and procedures from an engineering perspective and to fit them into the bigger picture. The main focus is knowledge and comprehension of the scientific interrelations of the different subject areas. In particular, all key fields of study teach systematic methods for solving electrotechnical problems, which provide graduates with the basis for lifelong learning.

At the Jülich campus, modern electrotechnical and electromechanical components and systems for dealing with up-and-coming issues in electrical energy technology are part of the course of study. In the laboratory, students can immerse themselves in the knowledge gained in the lectures and tutorials. Measurement, control and feedback control techniques, drive engineering, power electronics, and power plant engineering are dealt with, as well as electrical energy distribution, automation technology and control technology, network management and high-voltage engineering. There is intensive cooperation with the Solar Institute at the FH Aachen, particularly in the area of power plant engineering. Examples of this include the development of a low-power wind generator and a solar pump for use in developing countries. The degree programme's non-technical content, such as business management, also plays an important role.

Through the development of new technology in combination with the use of computer-supported program systems and communication technologies, new and exciting professional fields for Electrical Engineering – Energy Technology graduates have emerged within the area of energy supply. There is a shortage of highly qualified electrical engineers, a trend which should continue to increase. Normally, graduates find an interesting position very quickly and easily.

FAHRZEUGINTEGRATION/KAROSSERIETECHNIK (AUTOMOTIVE VEHICLE INTEGRATION/BODY ENGINEERING)

→**Faculty:**
Aerospace Technology

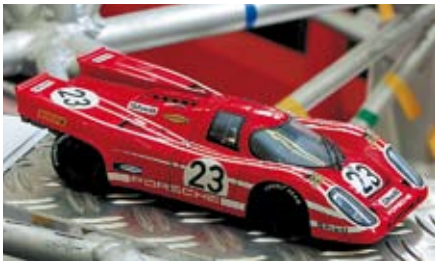
→**Degree programme:**
B.Eng.

→**Language of instruction:**
German

→**Standard period of study:**
7 semesters

Degree programmes in the automotive field, such as the Automotive Vehicle Integration/Body Engineering Bachelors Degree Programme, are the right choice for students who are automobile enthusiasts. With a combination of subjects unique in Germany offered in cooperation with renowned companies in the automobile industry, this degree programme guarantees goal-oriented preparation for a job in the automotive field. For example, graduates find employment with vehicle manufacturers, systems, module and subassembly suppliers, testing and experimental laboratories, independent engineering service providers, material producers, public and private organisations and many high-technology businesses in mechanical engineering.

Within the industry, a general difference can be made between the following areas of responsibility: research, development, construction, technical sales, production, testing, maintenance and operations. Currently, environmental simulation, product safety, quality control and management are becoming increasingly important. Professional prospects are especially good in the automotive field. As has always been the case, the automotive field in Germany and other countries generates a large number of jobs. Most of the graduates of the automotive degree programmes (bachelors and masters) already have a work contract before graduating.



The level of education in the Automotive Vehicle Integration/Body Engineering Bachelors Degree Programme is high and, due to the cooperation of companies from the automotive branch, offers a clear practical orientation. The studies are structured according to mathematical-natural scientific basic modules such as mathematics, physics and data processing, as well as the basics of engineering science, including materials science and welding production procedures, electrotechnology, thermodynamics or fluid mechanics, and control engineering – to name but a few examples.

Throughout the studies, there is topic-specific immersion in areas such as light construction, automotive vehicle integration, body engineering, aerodynamics in vehicle manufacturing, sheet metal production and internal combustion engines. This degree programme offers you intensive supervision by the professors and university staff and stimulates your teamwork skills through manageable groups. The implicit inclusion of English with an applied orientation offers students a synergetic effect and guarantees them additional advantages.

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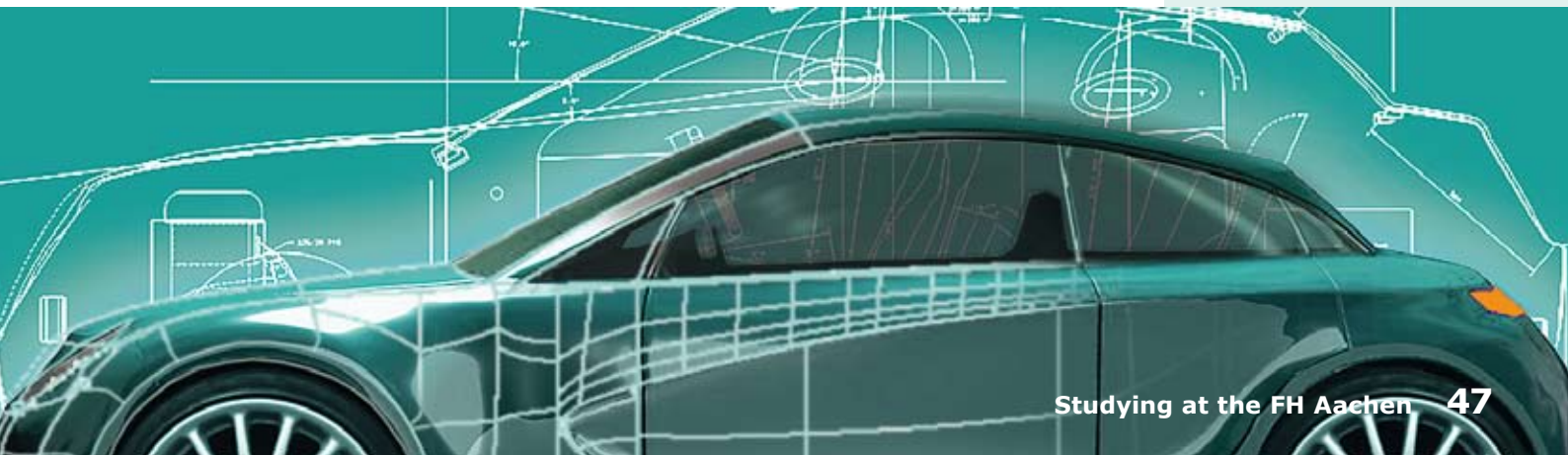

INFORMATIK (COMPUTER SCIENCE)

→Faculty:
Electrical Engineering and Information Technology

→Degree programme:
B.Sc.

→Language of instruction:
German

→Standard period of study:
6 semesters/7 semesters (with practical training semester)

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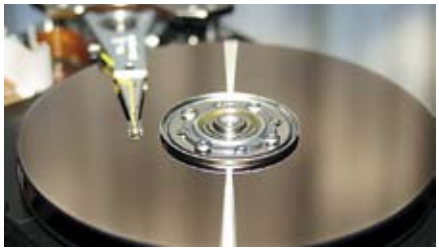
"Computer Science" is the science of the systematic, logical and methodical processing and storage of information. You don't have to be a hacker to complete this degree programme. The professional opportunities for IT professionals are currently very good because in recent years the number of graduates could not come close to meeting the demand. Since its beginnings ca. 1970, computer science has developed into a key technology. Information production and processing systems permeate every area of society and increasingly influence not only industry and business, but also administrative and service companies. A bachelors degree in computer science has the purpose of preparing graduates for professional life with a scientifically based and application-oriented education. Graduates find employment in service companies operating in information technology, communications technology and manufacturing, including banks and insurance companies, as well as research and development departments. The task of an IT professional with a degree from the FH Aachen is the transfer of knowledge from science and research to information technology conceptualisation. As a result, the range of possible professional fields is very wide: from research, development, testing and simulation, through sales support, quality management, maintenance and operations to management positions.



The Computer Science Bachelors Degree Programme provides, on the one hand, basic knowledge in information technology, mathematics, natural and business science. On the other hand, it offers the opportunity to participate in one of many attractive research and development areas or to work in a medium-sized company in the Euregio Maas-Rhine.

Along with the basics of programming, the degree programme offers algorithms, data structures, technical and theoretical information technology, modules focusing on computer architecture and operating systems, networks and databases and graphic data processing. Special emphasis is placed on a solid education in software engineering. Because today no IT professional works alone but exclusively in real or virtual groups developing software, the course of study places a great deal of emphasis on developing teamwork skills.

Computer Science with practical training semester

A practical training semester is also possible. In this case, the standard period of study consists of seven rather than six semesters, with the practical training taking place in the sixth semester.

KOMMUNIKATIONSDESIGN (COMMUNICATION DESIGN)

Making information something that can be experienced, felt and understood is the exciting mission of communication design. Whether peculiar, eccentric, colourful or plain, flamboyant or to the point, much of the information we see in everyday life is related to communication design and advertising. This includes classic print media, analog and digital photography, the design of moving pictures for film and television, interactive media, and 3D design such as displays, packages, exhibitions and trade show booths.

The task of communication designers is to plan and design visual information in such a way as to elicit certain behavioural reactions in the people who experience it, as well as to impart this information in an understandable way. As a result, the designer conveys through composition information which can establish communication between the sender and receiver. The most important feature of a communication designer's work is not well-managed work processes, but rather the ability to get to the crux of an assignmment and, by finding appropriate solutions, to complete it in a practical and creative manner.

This is where the "Aachener Modell 7+3" comes in: An integral part of the model is the holistic, design project-based course in the form of a project-axis, around which are arrayed all the collateral methodological and technical offerings of the basic, theoretical and key qualification areas necessary for implementation.

The personal development process which is central to the study of design

begins on the first day, when students are immediately required to begin meeting the demands of creative projects. Together with students in the other design programme, Product Design, they implement comprehensive projects which involve working on a practical and interdisciplinary level. Through project-related work, also in groups made up of students in different semesters of study, teamwork and cooperation are encouraged.

In this way, the "Aachener Modell 7+3" builds the ideal bridge between the proven elements of the tenets of design and meeting the demands of expanding education and job markets, as well as increasingly short development cycles. It offers a degree that professionally qualifies students for the design field, and meets the diverse and demanding requirements of the profession. Equipped with these comprehensive basics, graduates have the foundation for a wide range of professional opportunities in advertising agencies, design firms, "new media" agencies and Internet firms, industry, publishing houses or as freelance communication designers. For motivated graduates, the professional outlook is very good.

→Faculty:
Design

→Degree programme:
B.A.

→Language of instruction:
German

→Standard period of study:
7 semesters

→Academic counsellor:
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LUFT- UND RAUMFAHRTTECHNIK (AEROSPACE TECHNOLOGY)

→Faculty:
Aerospace Technology

→Degree programme:
B.Eng.

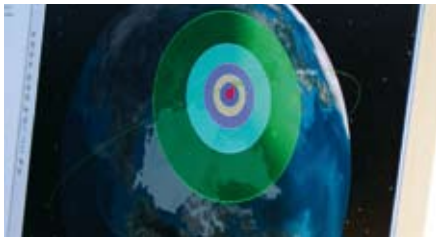
→Language of instruction:
German

→Standard period of study:
7 semesters

The dream of flight is as old as the human race. Even though the construction of the first flying machines in the early 19th Century and the first manned space mission in the 1960s took place a long time ago, this fascination has not dimmed.

In the Aerospace Technology Bachelors Degree Programme students learn what reaching for the stars means today. The first four semesters provide the basics of natural and engineering sciences with a close relation to aerospace technology. After this, depending upon aptitude and interest, students choose from one of the four concentrations: Aeronautical Engineering, Flight Operation Engineering, Propulsion Engineering or Astronautical Engineering. In these concentrations, specialised knowledge, skills and methods are consolidated through tutorials and practical training. Additional courses in soft skills such as personal organization and time management provide students with the qualifications they need to implement technical and methodological competencies within given time frames and for concrete projects, and to present and carry out their results.

The content of the courses and tutorials are put to the test, among other ways, in the context of student projects. One group of students is currently developing the COMPASS-1 pico-satellite. This "CubeSat" with an edge length of only 10 cm offers up-close contact with applied aerospace technology and encourages international contacts.



Within the framework of the Synergetic Aerospace/Automotive Engineering Centre of Expertise, the FH Aachen Faculty of Aerospace Technology dovetails with innovative areas of Automotive Engineering and in this way can take advantage of synergies. Close cooperation with regional and international companies, renowned research institutes and numerous universities of applied sciences worldwide guarantees an education that meets the ever-increasing requirements of the job market.

One of these partners is the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt – DLR). Leading scientists at the DLR take an active part in the lectures. Through the involvement of industrial companies, the course of study's content is optimally aligned with the demands of the aerospace industry. Some of the subjects are given in English. With international contacts on every continent, students can directly experience the international nature of this field. For example, through cooperative and other types of relationships, students can be sent for internships and their bachelors theses to universities throughout the world.

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MASCHINENBAU (AACHEN) (MECHANICAL ENGINEERING)

Mechanical engineering is one of the most important production branches in Germany and is the motor of technical innovation. Mechanical engineers develop and build machines and equipment which take into account economical utilisation, continuing technical development and operational requirements. The profession encompasses the development, planning, calculation, construction and testing of new or improved technological products through quality assurance, maintenance and service, including technical application consulting and sales. Mechanical engineers can work for manufacturing companies in machine and plant construction, as well as electric machine and vehicle manufacturing, in engineering firms, in research and education, in civil service or independently in planning and construction or as technical experts. A wide range of different careers are open to you, including positions in upper management, if you have the appropriate qualifications, willingness to work and mobility.

Graduates of the Mechanical Engineering Degree Programme are well-prepared through the mathematical, natural science and engineering knowledge acquired in the first semesters, as well as through the specialisations, which are aligned with the major professional fields of mechanical engineering: Development and Design, Manufacturing and Production Planning. Already during their studies, students learn to effectively design the development process of a product through simulated procedures at the industry level or through course-related practical training. Small groups as well as tutoring and mentoring programmes guarantee excellent personal support from the very beginning.

Close cooperation with regional and international companies ensure an engineering education which meets the ever-increasing requirements of a job market that is also globally oriented. In addition to gaining technical knowledge, the course of study emphasises additional qualifications such as business and legal basic knowledge, language skills, teamwork skills, project management, communication skills, and the ability to think structurally. When it comes to research, the Mechanical Engineering Degree Programme of the FH Aachen has for years been in the upper ranks of German universities of applied sciences. For graduates, this "professional field of future" offers excellent career opportunities. In the near future, many more engineers will be retiring than new engineers will be graduating.

→Faculty:
Mechanical Engineering and Mechatronics

→Degree programme:
B. Eng.

→Language of instruction:
German

→Standard period of study:
6 semesters

→Academic counsellors:

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MASCHINENBAU (JÜLICH) (MECHANICAL ENGINEERING)

→**Faculty:**
Energy Technology
→**Degree programme:**
B.Eng.
→**Language of instruction:**
German
→**Standard period of study:**
6 semesters

Mechanical Engineering*
→**Faculty:**
Energy Technology
→**Degree programme:**
B.Eng.
→**Languages of instruction:**
1st and 2nd semesters English, 3rd-6th Sem. German
→**Standard period of study:**
6 semesters

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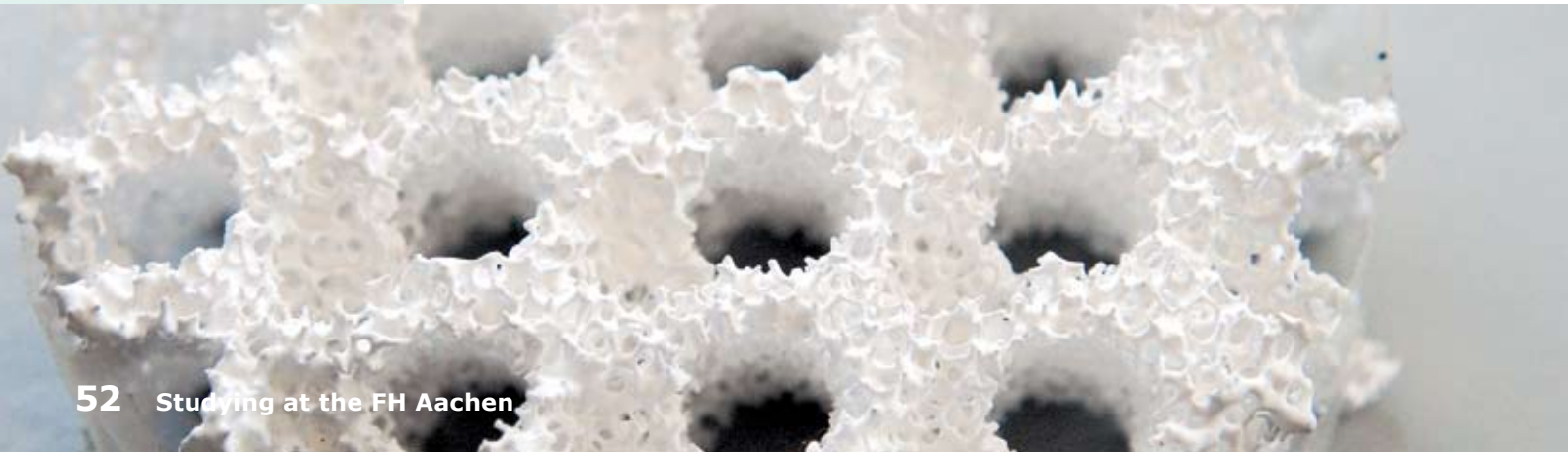
The topic of efficient energy use, the exploitation of new energy sources and energy conversion technology, and the influence of energy conversion on the environment will have a major impact on our future existence. As a result of looming energy shortages and increasing climate change, in particular the CO_2 problem, interesting fields of activity are arising for young engineers, for example in the area of modernisation of power plants in Germany and worldwide. The renewable energy branch – solar technology, wind energy and exploitation of biofuel – has experienced double-digit growth rates for the past several years.

In coming years in Germany alone, 20 billion euros will be invested in new power plants. Graduates of this degree programme possess, in addition to a comprehensive basic knowledge of mechanical engineering, a broad range of elective subjects from the concentrations in Energy Technology, Environmental Technology, Power Plant Technology, Technical Management Systems, and Nuclear Technology. The areas of duties of mechanical engineers encompass research, development and construction up to manufacturing, operations and maintenance. Particularly promising new fields are quality, environmental and project management in the areas of environmental simulation and product safety. You will find positions in, for example, the manufacturing industry, power plant operations, in the renewable energy industry, in planning and development firms for energy and environmental technology, in power plants and in the nuclear power industry, as well as many high-tech areas of mechanical engineering.

Following an intensive basic education in which you will acquire the specialised knowledge of a mechanical engineer, you can create your own competence profile with the various areas of concentration. The Power Plant Technology concentration is offered in cooperation with the Kraftwerkschule Essen, at which power plant operators have their new engineers educated. In addition, an energy and environmental seminar is offered, with symposia dealing with technical and scientific developments in the areas of energy and environmental technology. The lecturers come from the industry and well-known scientific institutions. Through an offer from RWE Power in cooperation with the FH Aachen, you also have the opportunity to complete your studies in the "Energy Technology" concentration as an occupational degree programme.



MECHATRONIK (MECHATRONICS)

Drastic changes are underway in many areas of engineering. Increasingly within the field of mechanical engineering, electrical engineering and electronics as well as information technology are exerting greater influence upon classical methods and ways of working. Numerous technical problems today can only be solved through an interdisciplinary approach. In order to master the multi-faceted technical challenges of the future, traditional boundaries within engineering must be broken down.

As a new, future-oriented technology with enormous growth potential, mechatronics combines the traditional disciplines of mechanical engineering, electrical engineering and information technology. As a result, there is high demand for mechatronic engineers who are able to guarantee the increasing integration of electronic components in mechanical engineering products.

Mechatronics graduates are offered a very large selection of professional opportunites with excellent job prospects, for example, in technical sales, development and design, process engineering and industrial engineering, manufacturing and assembly, as well as quality assurance.

With basic knowledge of mathematics, natural sciences, electrotechnology and mechanical engineering as well as business economics, and specific knowledge in the mechatronical basic elements of sensors, actuators, data processing and automatic control engineering, graduates are prepared for the demands of the job

market, including the global job market. Students profit from the course offerings of the Mechanical Engineering and Mechatronics Faculty, which are interlinked with the offerings of the Faculties of Electrical Engineering and Information Technology and Aerospace Technology. Graduates are able to develop mechatronic systems which make faster, more cost-effective and more complex solutions possible. Among the electives, every student can choose their individual concentration and specialise in a technical subject. For example, specialised knowledge can be gained in automatic control engineering or design engineering, in numerical simulation, in the area of manufacturing technology or quality assurance, all the way to microelectronic components and much more. In addition, graduates are acquainted with the basic elements of modern project management methods, presentation and communication techniques, as well as creative techniques. Small groups, in addition to tutoring and mentoring programmes, guarantee excellent personal support from the very beginning.

→Faculty:
Mechanical Engineering and Mechatronics (in cooperation with the Faculties of Electrical Engineering and Information Technology and Aerospace Technology)

→Degree programme:
B. Eng.

→Language of instruction:
German

→Standard period of study:
6 semesters

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PHYSIKINGENIEURWESEN (PHYSICAL ENGINEERING)

→Faculty:
Energy Technology
→Degree programme:
B. Eng.
→Language of instruction:
German
→Standard period of study:
6 semesters

Physical Engineering*
→Faculty:
Energy Technology
→Degree programme:
B. Eng.
→Languages of instruction:
1st-2nd semesters English, 3rd-6th semesters German
→Standard period of study:
6 semesters

→Academic counsellor:
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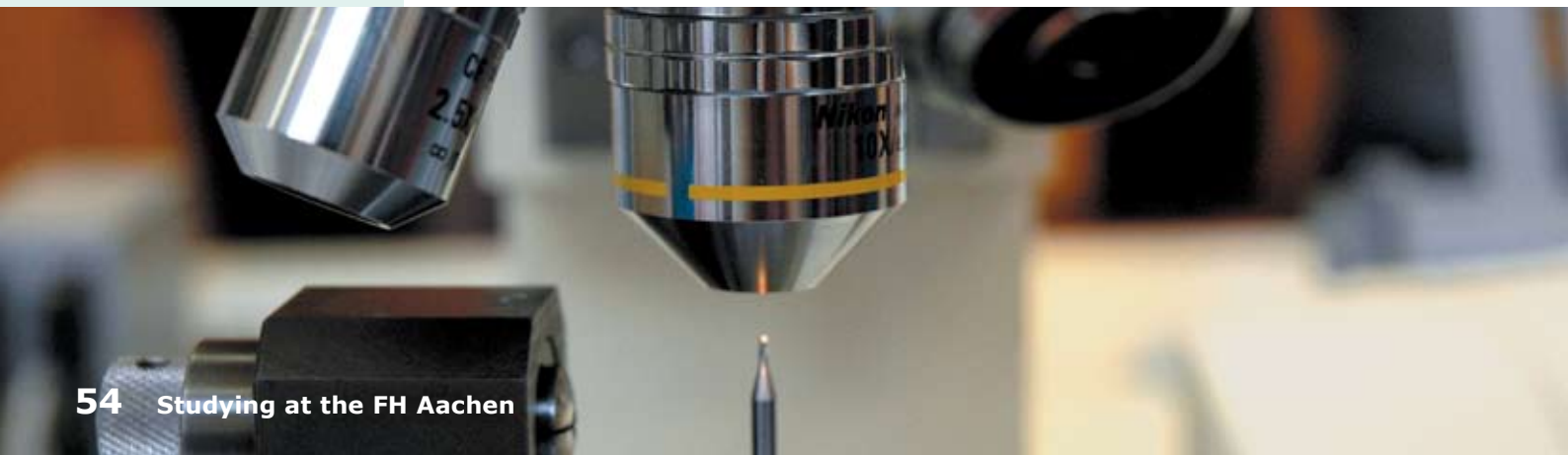
Wherever physical research results flow into technological developments, graduates of the Physical Engineering Degree Programme provide the bridge: They plan and design physical-technical equipment, develop measuring and manufacturing procedures, simulate technical systems using mathematical models, and conduct physical experiments within the framework of reseach and development. They also participate in the monitoring and testing of large physical-technical equipment. Their major task is to implement the laws and operating principles of physics and apply them to marketable products. When, for example, a high-energy laser beam is used in a surgical application, a high-precision manufacturing process, a CD burner or a measurement instrument, physical engineers are at work. After completing a broad natural scientific and technical education, numerous possible professional fields are available to graduates, such as the semiconductor and automotive industries, mechanical engineering, the optics industry, laser and medical technology–wherever technical problems must be solved using a systematic and interdisciplinary approach based on the natural sciences. They work in sector planning engineering offices and in the development of software for technical and scientific applications. The concentrations are especially focussed on these fields, because this is where extremely challenging technical fields are developing and where qualified physical engineers will always find good professional opportunities.

Within the profile of the degree programme, you will find the most current subject areas, which are important for beginning your career after graduation. These include design engineering, laser and optics technology, automatic control engineering, semiconductor technology and nanotechnology, as well as business economics. As a result of the university's close cooperation with the Jülich Research Centre, one of the largest research facilities in Europe, joint courses are offered in advanced laboratories. There is the opportunity to undertake final projects or internships through joint research projects.



PRODUKTDESIGN (PRODUCT DESIGN)

Your professional task as a product designer is to use your knowledge of aesthetics, function and handling to plan and design products that are functional as well as attractive for consumers. A conceptual and creative product design should generate market benefits. Taking into account production processes as well as technical specifications, a product designer develops, among other things, product-specific solutions for industrially manufactured products, but also for exhibitions and trade fairs. This encompasses the full design and service spectrum, living space and workplaces, interior design systems and furniture, infrastructure systems, as well as trade fairs, public spaces, exhibitions and events. Product designers also participate in the design and development of all sorts of things we need for daily life, including equipment, instruments and tools.

The most important characteristic of a product designer's work is therefore not only mastering manual processes, but also the ability to get to the crux of an assignment and, by finding functional solutions, to complete it in a practical and creative manner. The Product Design Degree Programme offers the basis for a multi-faceted professional career working in design agencies or firms, as an internal designer in an industrial company, or as a freelance

product designer. For motivated graduates, the career outlook is very good.

An integral part of the Product Design Bachelors Degree Programme is the holistic, design project-based course in the form of a central, sequential project-axis, around which are arrayed all the methodological and technical offerings necessary for implementation of the basic, theoretical and key qualification areas.

The time-intensive, personal development process which is central to the programme begins on the very first day when the student is immediately required to begin meeting the demands of creative projects.

The Product Design Bachelors Degree Programme builds the ideal bridge between the proven elements of the tenets of design and meeting the demands of expanding education and job markets, as well as increasingly short development cycles.

→Faculty:
Design

→Degree programme:
B.A.

→Language of instruction:
German

→Standard period of study:
7 semesters

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PROZESSTECHNIK (BERUFSBEGL.) (PROCESS ENGINEERING, OCCUPATIONAL DEGREE PROGRAMME)

→Faculty:
Chemistry and Biotechnology

→Degree programme:
B. Eng.

→Language of instruction:
German

→Standard period of study:
8 semesters

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The German university of applied sciences landscape is changing. Along with the classic full-time study, a strong second option has recently been developing: occupational degree programmes. In cooperation with the Rhein-Erft Akademie in Hürth, one of the most important institutions for occupational education in Germany, the FH Aachen has developed the Process Engineering Occupational Degree Programme.

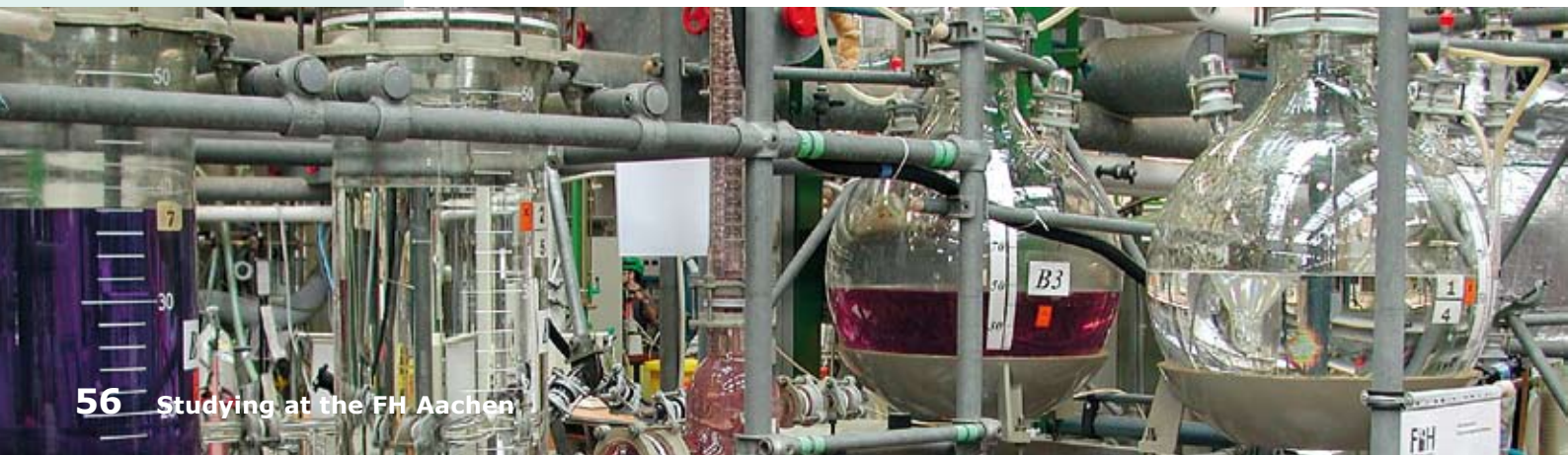
This degree programme is intended for educated specialists with chemical technology backgrounds and work experience, for example chemical laboratory technicians, chemical engineers or chemical master craftsmen, who wish through further study, and if possible in cooperation with business, to obtain further qualifications and improve their chances for professional advancement. Graduates of process technology and process engineering degree programmes can currently choose among numerous attractive fields, especially in the chemical and pharmaceutical industry, the textile and food industry, in companies working in energy and raw material exploitation, and in environmental technology. The career prospects are excellent.

"Occupational" means that the courses take place during the semester, but variously on Saturdays, evenings and attendance days during the week, as well as during a block week during the semester. At the same time, the standard period of study is extended to eight semesters so that the weekly investment in study time

remains balanced. Completed through independant study and using modern computer-supported learning methods, the programme offers a balance between classic study in close relation with the professor and independant study.

The programme of study begins in Hürth and the advanced study period takes place at the FH Aachen. The teachers are professors at the university, who are supported in the basic studies by experienced visiting lecturers from industry. In the course of the programme, students deal with the planning, business and optimisation of chemical and physical processes of material and energy conversion. Process technology subjects such as chemical reaction, mechanical and thermal process technology are consolidated using the modern media of process management, simulation and optimisation.

A further important aspect of the course of study is "Work Based Learning": Students can obtain credit for competencies gained in professional practice. The course of study has tuition fees of about 300 euros per month.



SCIENTIFIC PROGRAMMING

Our modern industrial society places a high value on natural and engineering scientific questions. In order to find answers, the interrelations between the two fields must first be demonstrated using mathematical models. These models can then be translated into software and play a role in computer-supported solutions. In addition to extensive knowledge of applied mathematics and software technology, this implementation requires a corresponding understanding of both natural and engineering sciences.

This is where graduates of the Scientific Programming Dual Degree Programme find their mission. With a broad range of knowledge of mathematics and computer science, as well as specific areas of natural science and technology, they are able to apply mathematical modelling and algorithmic treatment of tasks within interdisciplinary teams: In short, the modelling, simulation, optimisation and visualisation of complex technical and economic processes.

Students in this degree programme matriculate at the FH Aachen and at the same time receive an education as Mathematical-Technical Software Developer (MATSE) at the Jülich Research Centre, RWTH Aachen University or one of the cooperating companies in the Aachen-Jülich region. Through this

combination, students can apply their theoretical knowledge in realistic business contexts and time frames.

With the double degree incorporating study and training, graduates of the Scientific Programming Dual Degree Programme have good professional prospects in all of the industrial and business sectors where one finds the interaction of mathematics and computer science. This encompasses large scale industry and software companies, insurance companies and banks, and even research institutes.

Admission to the bachelors degree programme is only for those who possess signed articles of traineeship with a partner institution to become a Mathematical-Technical Software Developer (MATSE)

→Faculty:
Medical Engineering and Technomathematics

→Degree programme:
B. Sc.

→Language of instruction:
German

→Standard period of study:
6 semesters

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WIRTSCHAFTSINGENIEUR (GEPLANT) (INDUSTRIAL ENGINEERING, UNDER DEVELOPMENT)

→Faculty:
Mechanical Engineering and Mechatronics, in cooperation with the Faculties of Aerospace Technology and Business

→Degree programme:
B.Eng.

→Language of instruction:
German

→Standard period of study:
7 semesters

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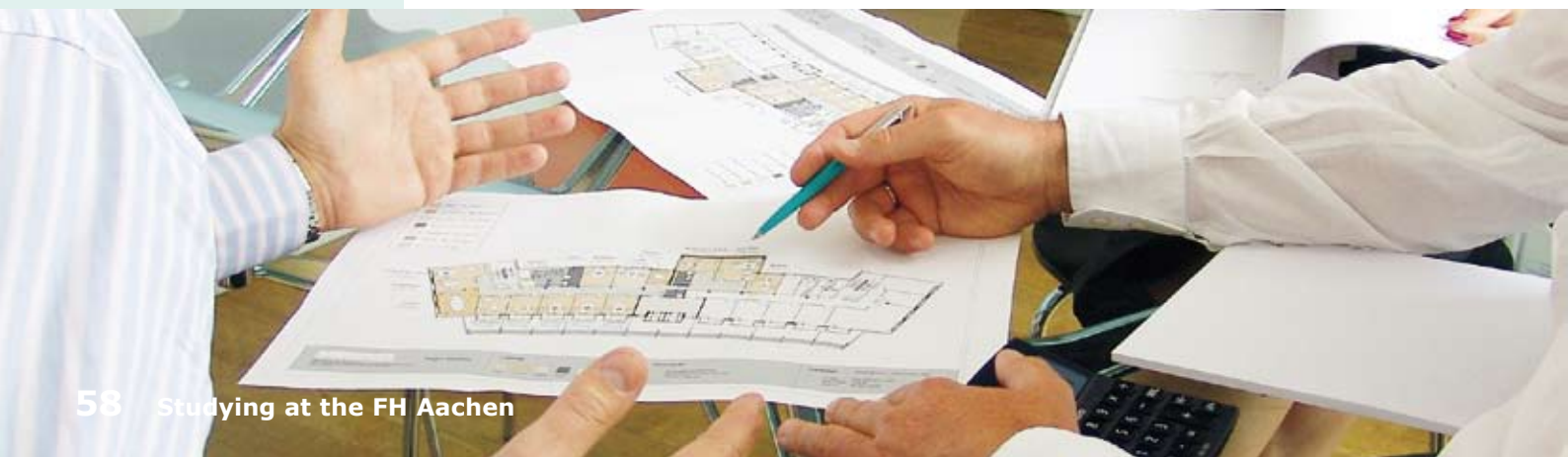
The challenges created by the increasing international integration and global accessibility of markets are placing demands on companies to come up with new and creative strategies. Production systems need to be technically advanced and at the same time internationally marketable. Business decision-making is becoming increasingly complex. Solutions are often found at the interface where technology and business meet. This course of study brings together the knowledge required for this purpose. It educates generalists with the ability to think in an interdisciplinary manner, who can successfully complete transnational tasks and be competent partners of specialists.

Within the framework of this course of study, future industrial engineers are given a broad perspective, and are educated in both natural sciences engineering technology and mathematics as well as socioeconomics. This combination means that a broad range of subjects is covered by the modules of the basic and advanced periods of study – first the basics and later the specialisations. In this way, graduates combine a general engineering science education with important know-how from the main areas of business study, including management, innovation, entrepreneurship and microeconomics.

The range of work for industrial engineers touches on technical as well as economic issues, encompassing organisation, controlling, optimisation and coordination of corporate structures. As facilitators for the various mindsets and working methods of natural scientists, engineers, computer scientists, business economists, political economists, legal practitioners and other specialists, industrial engineers take a "big picture" view of the company.

This multi-faceted educational programme guarantees a broad spectrum of possible working areas. There is a demand for graduates in management, production, manufacturing, procurement and logistics, in sales, controlling and in the quality assurance of industrial, service and merchandising companies, or in the civil service. The ability to solve problems of an interdisciplinary nature is the key factor which destines graduates for leadership positions.



AEROSPACE ENGINEERING

According to recent surveys, most German companies are looking for engineers–a growing trend! In recent years, the demand for experts in aerospace engineering has not been met. As a result, many students in the Aerospace Engineering Degree Programme have already got a signed work contract in their pocket before graduation.

With the masters degree in Aerospace Engineering, graduates can further develop their qualifications within this growing field by adding both additional competencies as well as the latest findings in the area of system technologies which, due to the speed of technological advances, were not even available to be taught during their earlier studies. Admission requirements are a bachelors degree or the former FH degree in Aerospace Technology, or another engineering science or industrial engineering degree programme.

The three or four-semester masters degree programme provides methods and techniques in the area of air and spacecrafts. The course of study consolidates the basics of industrial engineering such as the development of mathematical methods, CAD, FEM,

CFD, structural dynamics, automatic control engineering, aerodynamics, as well as test planning, and measurement and guidance systems, and focuses specifically on systems integration. The programme is completed through interdisciplinary modules in, for example, foreign languages, personnel management, entrepreneurship, project management, and contract and patent law. The advantages of the masters degree programme lie in its clear practical approach provided by the participation of aerospace companies, the intensive support of the professors and other university employees, and the courses offered in small groups.

→Faculty:
Aerospace Technology

→Degree programme:
M.Eng.

→Languages of instruction:
English, German

→Standard period of study:
3 semesters/4 semesters (with research semester)

→Academic counsellor:
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ANGEWANDTE POLYMERWISSENSCHAFTEN (APPLIED POLYMER SCIENCES)

→Faculty:
Chemistry and Biotechnology

→Degree programme:
M.Sc.

→Language of instruction:
German, partly in English if desired

→Standard period of study:
6 semesters

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Graduates of the Applied Polymer Sciences Masters Degree Programme have that "certain something" that graduates of traditional, highly specialised degree programmes are missing. They have a comprehensive overview of all of the important aspects of polymer chemistry, polymer analytics and polymer physics, and are well-acquainted with the mechanical engineering aspects of plastics processing and the applications of plastics. In addition, they are educated in the repertoire of additional areas of knowledge required for leadership positions in the industry, such as quality management, business economics, legal and patent issues, project management, and international teamwork. From the perspective of the industry, these graduates meet a need which guarantees them above average opportunities in the global job market. The discrepency between the supply and demand for qualified university-educated employees is still great.

With about 500,000 employees and 80 billion euros in total revenues in Germany alone, the plastics industry is one of the most important economic branches and, according to one forecasting institute, one of nine leading branches in the nation. Polymers are the basis for the rubber industry, adhesives, additives, lacquer and fibres.

The guiding principle of the masters degree programme is to qualify students who already have a professionally qualifying degree in a natural scientific or engineering discipline through a concentrated programme that prepares them

to take positions of responsibility in the polymer sciences across all industries. This multi-faceted programme provides at its start the chemical, physical, analytical and mechanical engineering basics of plastics and polymers within the context of scientific and application-oriented issues. Later, concentrations in elective subjects such as fibre and plastic composite materials, lacquer and coatings, polymer nanotechnology or renewable primary materials, are offered, as well as the basics of business economics and management required for leadership positions.

Cooperation with universities in The Netherlands and Belgium within the framework of joint practical training leads to an international approach, which is supplemented by the possibility of taking courses in English. The participation of teachers from industry, for example, BASF AG or Degussa AG, provides a connection to application and offers initial contacts for jobs in these companies later on. After graduating from this degree programme, it is also possible to begin doctoral studies in the laboratories of the FH Aachen in cooperation with RWTH Aachen University.

ARCHITEKTUR UND STÄDTEBAU (ARCHITECTURE AND URBAN DESIGN)

→Faculty:
Architecture

→Degree programme:
M.A.

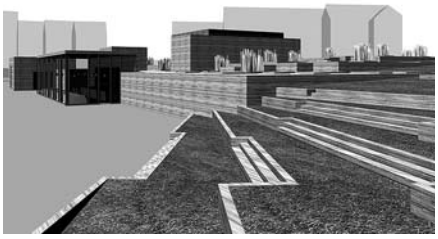
→Language of instruction:
German

→Standard period of study:
4 semesters

Architects plan and design houses, public buildings and industrial buildings – they also deal with complex urban facilities and redevelopments. They must take into consideration requirements of technical construction, design, finances and building laws, as well as the needs of dwelling, learning, working and relaxing human beings.

Architects unite artistic design with technical implementation. They work freelance in architectural firms or in construction businesses. Urban designers determine the structural and spatial development of communities, which includes traffic planning, provision and disposal, as well as real estate regulations, and nature and landscape conservation. As a result, areas of professional activity include public administration, planning offices or construction companies. The Master of Arts in Architecture and Urban Design also makes it possible for you to enter the higher civil service or a doctoral programme.

After completing the design-related Architecture and Urban Design Masters Degree Programme, two years of practical experience are required before you are permitted to use the title "Architect". A special characteristic of this degree programme at the FH Aachen is its orientation within the Euregio. During the course of your studies you will focus on the architecture and urban design of the neighbouring regions (East Belgium, Belgian Limburg, Dutch Limburg, the



Province of Liège, Regio Aachen). Accordingly, joint design topics and lectures are developed and offered in the other universities of the Euregio (Liège, Diepenbeek, Maastricht, Heerlen). This creates a unique opportunity for you to begin experiencing international exchange already during your studies.

The degree programme has a professionally oriented, as well as scientific, character. All course units (general scientific, engineering science and design-related units) are interdependant and dovetail with each other. The knowledge gained in your bachelors degree programme is consolidated in a scientific and methodical manner. Within the context of the architecture and urban design content of the programme, you will learn to forge connections with society through exemplary but nevertheless specific projects, so that you can order, interpret and value influences and conditions, take decisions, and make conceptual recommendations tangible. In the course of your studies you will focus on Design-Construction or Urban and Regional Planning.

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AUTOMOTIVE VEHICLE INTEGRATION/POWERTRAIN AND CHASSIS ENGINEERING

→Faculty:
Aerospace Technology

→Degree programme:
M.Eng.

→Languages of instruction:
German, English

→Standard period of study:
3 semesters/4 semesters (with research semester)

→Academic counsellor:
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The automotive branch is not exempt from the current shortage of engineers. Experts with know-how in power train integration are especially in demand. Currently, the career perspectives for students in the automotive degree programmes are especially good.

With the masters degree programme in Automotive Vehicle Integration/ Powertrain and Chassis Engineering, the FH Aachen offers students the opportunity for further development in this innovative and growing branch. The latest findings in the area of system technology, which due to the rapid pace of technological advances could not be taught before, are included in the programme. Admission requirements are a bachelors degree or the former FH degree from an automotive and vehicle engineering degree programme or another engineering sciences university degree programme.

The three- or four-semester masters degree programme provides methods and techniques in the area of systems design of vehicle powertrains and chassis. The course of study consolidates the engineering sciences fundamentals, such as mathematical method development, CAD, FEM, structural dynamics, automatic control engineering, as well as test planning, and measurement and guidance

systems. It also focuses on the areas of systems integration in motor vehicles such as vehicle integration, vehicle calibration, automotive electronic systems and environmental issues of vehicle engines.

The programme is completed through interdisciplinary modules in, for example, foreign languages, personnel management, start-ups, project management and contract and patent law. In addition, masters degree students profit from the clear practical approach provided by the participation of automotive companies, the intensive support of the professors and other university employees, as well as the courses given in small groups.

BAUINGENIEURWESEN (CIVIL ENGINEERING)

The demands placed upon the next generation of civil engineers by the building and construction industry have increased in recent years. In addition to specialised practical engineering knowledge, the building and construction industry expects well-grounded competence in economic and legal aspects of the areas of planning, construction and building and facility operation.

The Civil Engineering Masters Degree Programme is designed for those with leadership potential to take on responsibility for projects, tasks and businesses and offers a scientific education that, in addition to the basics of civil engineering, also includes the required qualifications in the areas of management, business economics and law. This goal is reached through the proven business economics orientation of this faculty and its close interdisciplinary cooperation with the Faculty of Business.

The masters degree programme combines, on the one hand, engineering and economics, and on the other hand, within engineering it creates to new focuses: Civil Engineering and Intrafstructure. The Civil Engineering Specialisation takes into consideration the fact that this classic field has the greatest potential for employment in the future. The trend will be that the new construction sector will become less important, while construction related to existing buildings – "Bauen im Bestand" – becomes increasingly important. The Infrastructure Specialisation

includes procedures which consider environmental protection, function, operation and economic efficiency of facilities such as traffic and transport facilities, including streets, waterways and railways, air space, air traffic facilities and cargo facilities, as well as flood protection facilities, water supply facilities, residential water supplies, sanitation and waste treatment.

Through the integration of the business and law specialisations within the context of civil engineering and infrastructure, the learning goals are broadened in a way that the requirements of jobs in civil engineering requiring especially high qualifications can be met. As a result of the numerous choices and the exchangeability of the modules, a varied and individually constructed curriculum is possible. In addition, the various module offerings stimulate the "big picture" mindset of a project supervisor. These specific characteristics create the qualifications to work in internationally focused businesses. The professional opportunities are exceptionally good–leaders with technical and economic know-how are sought after.

→Faculty:
Civil Engineering (in cooperation with the Faculty of Business)

→Degree programme:
M. Eng.

→Language of instruction:
German

→Standard period of study:
4 semesters

→Academic counsellor:
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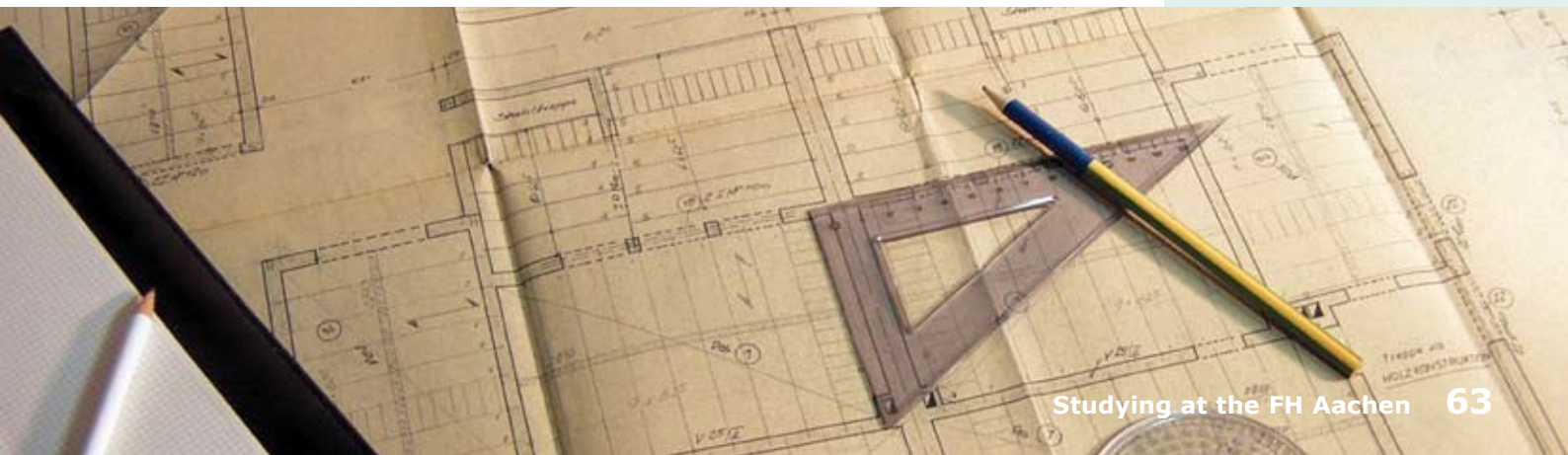

BIOMEDICAL ENGINEERING

→Faculty:
Medical Technology and Technomathematics

→Degree programme:
M.Sc.

→Language of instruction:
English

→Standard period of study:
4 semesters

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Health is a fundamental human need. The Biomedical Engineering interdisciplinary master degree programme, which is offered by the FH Aachen in cooperation with the Research Centre Jülich, as well as selected international universities and research institutes, is a response to this need employing state-of-the-art methods.

It combines quantitative, analytical and integrative methods from the molecular level up to the complete organism. This spectrum of methods broadens the understanding of basic biological processes and makes possible an innovative approach to the prevention, diagnosis and treatment of disease.

The masters degree programme prepares graduates to transfer and apply engineering concepts to scientific and practical problems of biology and medicine.

With a specialisation in one of five concentrations (artificial organs and cardiac and vascular technology, biomechanics, biophysics and medical physics, chemical sensor technology, and biosensor technology) in addition to medical information technology, graduates can choose to enter the medical technology industry or start their own company,

or they can make a career in scientific research.

As a result of progressive developments in the area of modern technology, in future the demand for ever better-qualified medical engineers will only continue to grow, offering our graduates excellent professional career prospects.

This masters degree programme offers graduates of the Biomedical Technology Bachelors Degree Programme immersion in subject-specific knowledge and deeper understanding of medical-related subject matter and current medical issues. The courses take place exclusively in English, which greatly improves your professional opportunities and facilitates your access to international business, in which working, negotiating and communicating in English is required.

DESIGN (PLANNED FOR WINTER SEMESTER 2009/10)

Designers in supervising positions must be able to do more than just design: Their duties include the development of projects within complex team-oriented design processes, from conception through execution. To hold their ground in the continually changing design market, they must also be open to and able to interpret new design trends, as well as continue to develop independently.

The Design Masters Degree Programme was created to satisfy these special requirements. It builds upon the creative competencies of the Communication and Product Design Bachelors Degree Programmes, and focuses on conceptual and methodological skills. Due to its high level of project autonomy compared to other programmes, students can develop their own design profiles, in both an object-related and personal sense.

In three semesters, the masters degree programme combines different design currents and consolidates them through design-relevant reference sciences with topics such as "Design in social contexts", "Design and communications strategy", "Design management" and "Design research". Creative, project-oriented instruction is the central axis which connects the entire course

of study. Over the course of the curriculum, practical work in project teams supported by coaches form various disciplines, becomes more and more important. High-level professional, innovative and social competencies are developed through this consistent teamwork focus, through what the students themselves bring to their studies, as well as the combination of supporting professors from various disciplines. Presentation of work at the end of a project, semester and academic year plays an important role in the programme and means confrontation with the critical public.

The Design Masters Degree Programme was created for graduates of the Communications and Product Design Bachelors Degree Programmes. Graduates of other design degree programmes who meet the admissions requirements can enter the masters degree programme after passing a qualifying examination.

→Faculty:
Design

→Degree programme:
M.A.

→Language of instruction:
German

→Standard period of study:
3 semesters

→Academic counsellor:
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ENERGY SYSTEMS

→Faculty:
Energy Technology

→Degree programme:
M. S.

→Language of instruction:
English

→Standard period of study:
4 semesters

In a time of diminishing resources and global climate change, the efficient and sustainable use of energy is a hot topic in politics, business and society. Industrial nations must especially develop solutions for steadily increasing global energy needs in order to guarantee living conditions today and for future generations. Highly qualified experts are needed for this important task.

In order to meet this need, the FH Aachen, in close cooperation with the Research Centre Jülich, offers the four-semester Energy Systems Masters Degree Programme. Admission requirements for the masters degree programme are a bachelors degree or former FH degree in Mechanical Engineering, Electrical Engineering, Process Engineering or Chemical Engineering, or another similar engineering-related university degree.

The Energy Systems Masters Degree Programme deals with the natural scientific and technical aspects of energy systems of all types and simulations of these systems, as well as the general issue of high global energy usage. This includes economic questions of energy production, as well as environmental aspects and the sustainability of energy

systems such as fuel cells, biofuels, solar power plants, energy generation from hydrogen, and other technologies for reducing CO2. The inclusion of management and business economics in the curriculum provides students with the necessary organisational know-how needed for leadership positions within the industry.

The professional opportunities for graduates are exceptionally good because of the high worldwide demand for energy engineers. Possible fields of operation for graduates of this masters degree programme include middle- and upper-management positions in domestic and international companies, development organisations, government ministries and administrative bodies, planning offices and business consulting.

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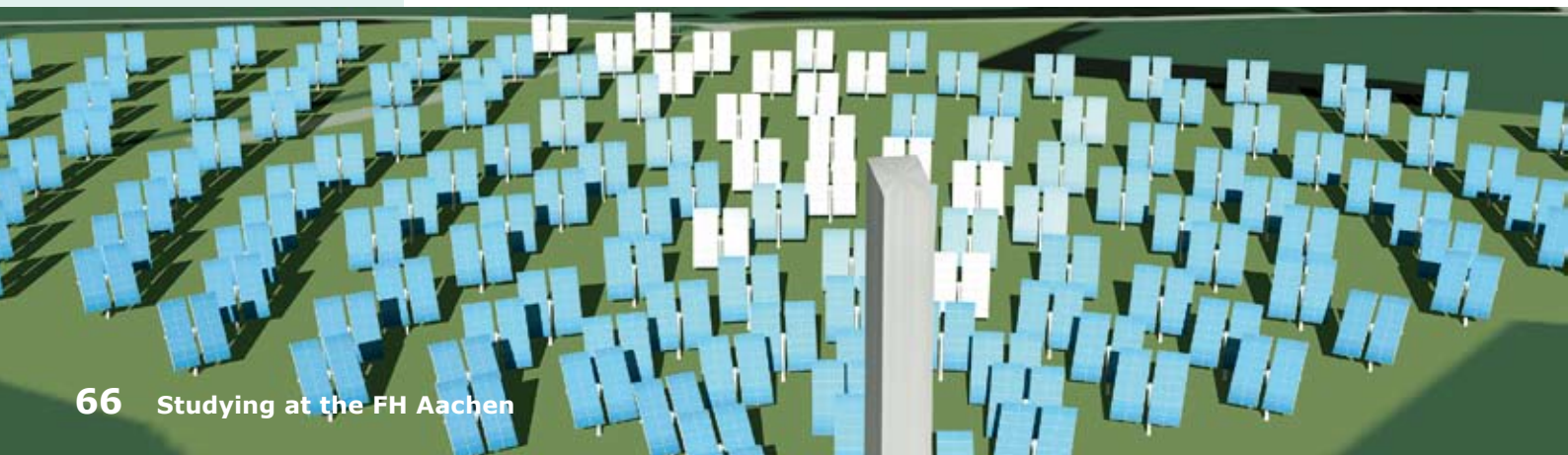

ENGINEERING AND MANAGEMENT (PLANNED FOR WINTER SEMESTER 2009/10)

The degree of interface among specialisations which were once autonomous is increasing in both theory and practice. This is especially true for application-oriented disciplines. The standard education offered both in Germany and abroad provides prospective engineers mainly with technical knowledge and does not prepare them adequately for management duties.

The Engineering and Management Masters Degree Programme creates a bridge between engineering and management: The goal of the studies is to provide students with the skills necessary to master the supervision of research, development, construction and product development – the entire chain of product development. For this purpose, competencies are required which greatly exceed those of a qualified executive. This requires an education which consolidates existing technical competencies and integrates management competencies.

The Engineering and Management Masters Degree Programme is designed for graduates of a mechanical engineering course of study or a related engineering science course of study, and specifically prepares these graduates for management positions in the area of industrial product development.

Students can choose between two specialisations: Development Management and Construction. The programme is completed with a masters thesis, normally written on a theme related to an industrial topic and must be completed in close cooperation with or in a company.

→Faculty:
Mechanical Engineering and Mechatronics (in cooperation with the Faculties of Energy Technology and Business)

→Degree programme:
M. Eng.

→Languages of instruction:
German and English

→Standard period of study:
4 semesters

→Academic counsellor:
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ENTREPRENEURSHIP

A cooperative programme of the Aachen Institute of Applied Sciences e.V. (AcIAS) and the FH Aachen

→Degree programme:
MBA

→Languages of instruction:
German, English

→Standard period of study:
3 semesters

→Contact:
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The Entrepreneurship MBA Programme is designed to improve the business qualifications that are particularly essential for meeting the challenges of management positions. It is an occupational degree programme, with lectures on Friday evenings and Saturdays for a period of about 18 months. Tuition fees are normally about 18,000 €. At the center of the academic qualifications are major business topics, which are analysed and developed systematically in well-structured lectures, as well as a focus on problem-solving through a case-study and simulation game approach. The course content includes business economics, accountancy, business management, law and entrepreneurship. The masters thesis must be implemented within the framework of a concrete business economical or technical organisational project within a company. The lectures are given by experienced professors of the FH Aachen and other universities (including Edinburgh) as well as visiting lecturers with leading positions in regional and international companies.

The special configuration of the lectures smooths your way to upper management, acquiring a company or becoming an entrepreneur. Equipped with comprehensively and integrally designed "top qualifications", you can can continue to move up in your current profession.

Because the course of study focuses on business-oriented academics and entrepreneurs, it addresses the issue of succession, which is a burning question for many small and mid-sized companies.

Entrepreneurship is concerned with the establishment and maintenance of young companies, as well as their growth. The most important aspect is creating the potential for adding value, whether you are dealing with an innovative product or an innovative method.

An entrepreneur must be aware of risk, must be willing to take risk and must be able to manage risk, in addition to having a willingness to effect change. This requires special personality traits, as well as social and communication competencies which are provided and further developed within the Entrepreneurship Masters Degree Programme in many ways – from business simulation games to personality analysis to making public presentations.

FACILITY MANAGEMENT

Facility Management is a management discipline that, through results-orientation and consideration of the life-cycle of facilities (buildings, technical facilities and installations, infrastructure) and services (in-company services not part of the core business, such as maintenance, disposal, cleaning services) brings about, within the framework of planned, controlled and supervised business processes, the satisfaction of basic human needs within the workplace, the support of a company's core processes and an improvement in its profitability.

In short, Facilities Management is the on-going observation, analysis and optimisation of all cost-relevant processes having to do with facilities and services. Facility Management encompasses the entire life-cycle of a building from planning to administration and controlling, up to sanitation of buildings, facilities, equipment and services. Thus, it is not about, as some people believe, being a well-educated janitor or caretaker. Facility managers are strategically and operationally responsible for providing the conditions for the optimal execution of the core business of a company. They arrange the work environment or residential conditions in a professional manner in order to meet economic, social and environmental requirements. They treat users, locations and processes as an interrelated organisational entity. The goal is the improvement of profitability, maintenance of value, optimised utilisation and the minimisation of resource use in order to

protect the environment. Because of this, facility managers must take into consideration the requirements of the company's management and departments regarding facilities, as well as the needs of its customers. Facility managers are employed in management or as consultants and they can perform their tasks in-company or as an external service provider. They especially need an understanding of higher-level interrelations.

The Facility Management Masters Degree Programme offers you a varied spectrum of qualifications. You obtain and consolidate, for example, knowledge of structural engineering and physics, systems engineering, building automation, technical building management including life span and availability analysis, and service management. Real estate economics and management, business economics, law, energy management, computer science, personnel management and communication skills are also important topics within the programme. The lectures take place a maximum of three days a week so that it is possible to continue working during your studies.

→Faculty:
Civil Engineering

→Degree programme:
M.Eng.

→Language of instruction:
German

→Standard period of study:
4 semesters

→Degree programme director:
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INDUSTRIAL ENGINEERING (PLANNED FOR WINTER SEMESTER 2009/10)

→Faculty:
Mechanical Engineering and Mechatronics (in cooperation with the Faculties of Energy Technology and Business)

→Degree programme:
M. Sc.

→Language of instruction:
German

→Standard period of study:
4 semesters

→Academic counsellor:
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Industrial Engineering is concerned with the organisational and technical design, implementation and continuing development of business processes. The main task of industrial engineers is the optimisation of production and service processes in companies. Because of this, the company must be considered as an integrated system in which employees, materials, finances, equipment and information are planned and managed taking into account social and legal framework requirements.

The Industrial Engineering Masters Degree Programme focuses on the professional profile of executives working in middle-management in businesses within technical fields. It also imparts key competencies necessary for future managers in industrial engineering.

The target group of the degree programme is graduates with an engineering science or a specific business economics degree. In order to create a common basis for students who bring diverse prior knowledge due to their different specialisations, the first semester is based on a "Y model" in which students learn the specific content of the other specialisations.

The common lectures of this course of study cover the themes of management competencies, business economics and legal issues, technical management, production and industrial engineering, as well as information technology. The progression of the course of study is characterised by a wide range of choices conforming to future professional requirements, and makes possible an individual direction and immersion within the programme.

The programme is completed with a masters thesis, normally written on a theme related to an industrial topic and must be completed in close cooperation with or in a company.

INTERNATIONAL BUSINESS MANAGEMENT

In a recent study, management researcher Jim Collins, author of the book "Good to Great", concludes that consistently successful companies owe their performance to the leadership of clear-thinking personalities who maintain a focus on what matters most.

In one study, he found that these people had the special ability to see through complexity and to recognise patterns within the flood of information, and make these patterns useful to their companies.

This is the core element of the International Business Management Masters Degree Programme. Its interdisciplinary content, such as social and communication competencies, creates the basis for taking on a leadership role at various heirarchical levels wihin companies of various sizes and branches doing business internationally.

After the bachelors degree programme has provided you with the basic theories, models and instruments of business economics and its related disciplines, the masters degree programme integrates and consolidates this knowledge. Furthermore, it is important to critically consider if and how this knowledge should be modified in an international company operating in an environment of increasingly complex interdependencies and permanent change in order to solve practical problems in a strategic and operational manner.

The programme offers two alternatives. The Customer and Service Management (KuS) focus includes potential- and market-oriented management and focuses on the goal-, customer- and service-oriented configuration of value-added processes. The Finance, Auditing, Control, Taxation, Accounting (FACT-Ac) focus includes financial management and is focused on corporate planning, documentation, controlling, communications and governance. Both of these focuses build upon shared lectures and during the course of the studies they reconnect with each other.

At the same time, you will further develop your personal organisational abilities, your communication and social – in particular intercultural – competencies, as well as the ethical and social dimensions of doing business. If you are lacking international experience, a minimum of one semester abroad at a partner university is integrated into the curriculum. The standard period of study is four semesters full-time.

→Faculty:
Business economics

→Degree programme:
M.A.

→Languages of instruction:
German, English

→Standard period of study:
4 semesters

→Academic counsellor:
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MECHATRONICS

→Faculty:
Mechanical Engineering and Mechatronics (in cooperation with the Faculties of Electrical Engineering and Aerospace Technology)

→Degree programme:
M.Sc.

→Languages of instruction:
English, one elective module in German

→Standard period of study:
4 semesters

→Academic counsellor:
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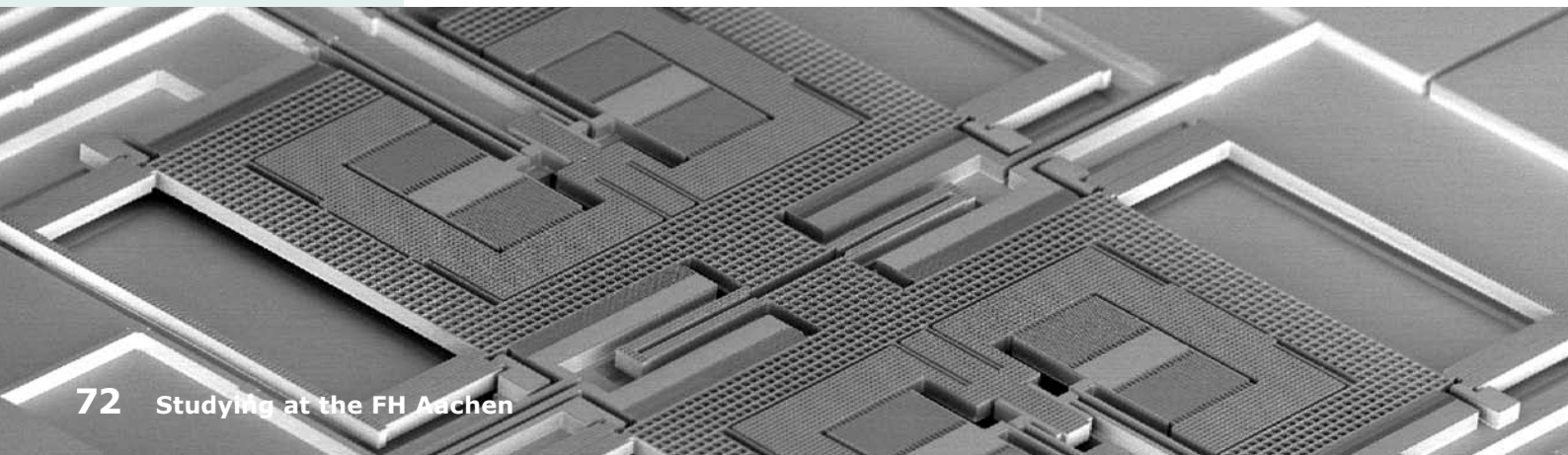
For quite some time, industrial development processes have been changing at a faster and faster pace. Products are becoming more complex, their life spans shorter and their development cycles must be completed within a shorter time frame and tighter budget. The implementation of the product development process under these constraints requires a team, not only with deeper specialisation than ever before, but also with increasingly broad-based knowledge. This trend also applies to mechanical-electrical-electronic products: mechatronical products. Generally speaking, mechatronical systems are self-contained data collection and analysis devices which are characterised by a trend toward greater and greater miniaturisation. By utilising correspondingly flexible programming logic, they can fulfill desired actions. The sensors required for this, for example for temperature, pressure and distance, correspond to the human senses: The signal processing corresponds to the brain, and the actuators, for example microswitches, servos and motors, correspond to the limbs, nerves and muscles.

Engineers who understand enough about mechanical engineering and electrical engineering to be able to successfully execute integrated product development as part of a team are sought after for the design of these systems. But, they also must be specialists in one of the two fields, so that they are on top of the latest technical advances and can integrate these into the development of products.

The Mechatronics Masters Degree Programme prepares its graduates for the requirements of the job market

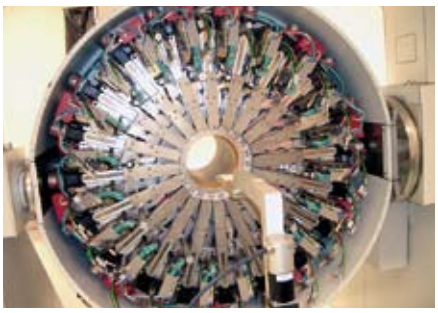
and offers them excellent employment opportunities due to its practice-oriented educational approach and the ability to perform interdisciplinary scientific work. This programme is intended for graduates with a bachelors degree or the former FH degree in either mechanical engineering, electrical engineering or a related technical discipline. It begins with an appropriately structured customised module in the first semester, leading to broad, practical knowledge of mechatronical priniciples, components and systems. It ends with a practice-oriented masters thesis which is completed in industry or in a research laboratory. All of this guarantees that throughout the entire course of study the overall practical approach fulfils the criteria of industry. A strong international focus is assured by most of the classes being conducted in English. On the one hand, the masters degree programme is of interest to bachelors degree holders from other countries. On the other hand, German students also obtain excellent international qualifications as a result of the English technical language and contact with international students.



NUCLEAR APPLICATIONS

While nuclear energy is a well-known term for many people, other application areas of nuclear science are largely unknown to most. But, every day we benefit from these technologies which come into play across a broad spectrum of areas such as agriculture, aerospace technology, biotechnology, chemical engineering, power generation, material sciences, metallurgy and nanotechnology. Studies of transport and conversion processes in which radioactive substances with short life-spans, so-called "tracers", are critical to research. Whether in the development of medicines, the diagnosis and treatment of disease or the optimisation of fertiliser and pesticides, radiotracer studies are extraordinarily important. The prognosis is that in the coming decade the need for qualified graduates in nuclear technology will continue to grow. There already exists a glaring lack of specialists.

The FH Aachen recognised at an early stage that a need for specialists exists among industry, research institutes and public employers and is at the cutting-edge in offering the Nuclear Applications Masters Degree Programme. The European Master of Science in Nuclear Applications (EmiNA) programme was introduced in March 2003, and can accomodate approximately 30 students annually to study nuclear technologies. In offering



this degree programme, the FH Aachen cooperates closely with the Research Centre Jülich, the industry and European institutions within the framework of the CHERNE network.

The course of study prepares students to apply and further develop scientific principles in practice. The curriculum includes nuclear energy and radionuclide production, radiation measurement and protection, and the nuclear fuel cycle including current disposal issues, applied biomedicine and radioecology. In addition to lectures, students learn through laboratory and project work the skills which will ensure them the best possible start in their careers in the industry. Students also deal with business issues, the basics of management, the organisation and planning of research projects, and improve their scientific writing and presenting skills.

→Faculty:
Chemistry and Biotechnology

→Degree programme:
M.Sc.

→Language of instruction:
English

→Standard period of study:
4 semesters

→Academic counsellor:
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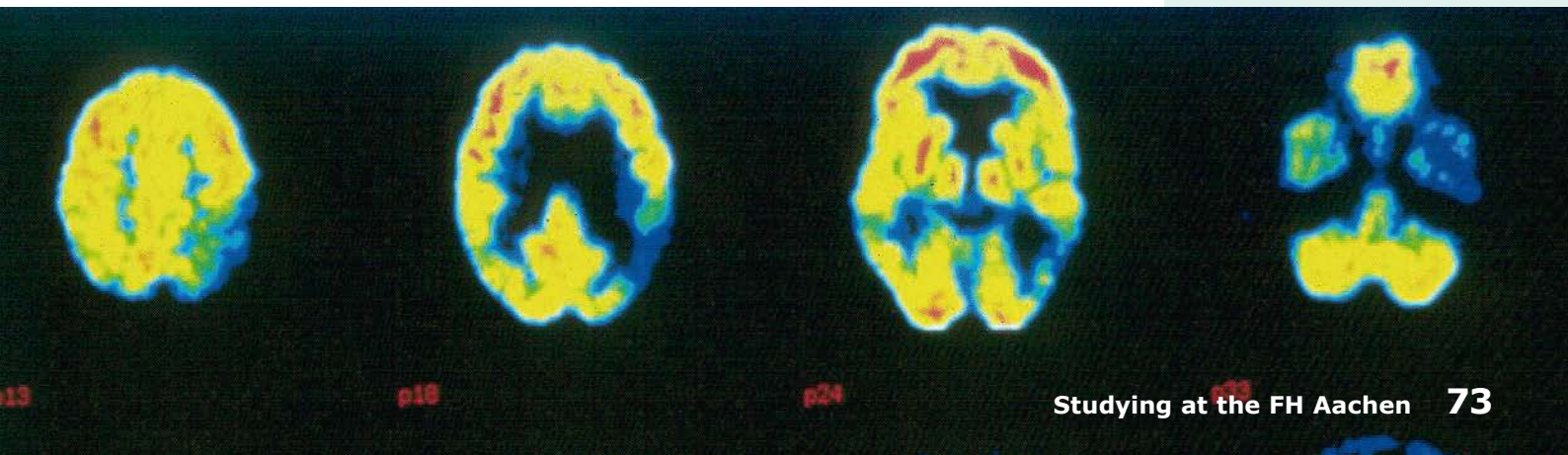

SERVICE-MANAGEMENT

A cooperative programme of the FH Aachen, the Research Institute for Operations Management at RWTH Aachen Univeristy (FIR) and the German Customer Service Association (KVD)

→Degree programme:
MBA

→Languages of instruction:
German, English

→Standard period of study:
2 years

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E-Mail: pietsch@fh-aachen.de

→FIR contact:
Dr. rer. pol. Katja Hüfner (FIR)
Telephone: +49 241 47705 238
E-Mail: mba-service-management@fir.rwth-aachen.de

Because of its diversity, customer service contributes to the achievements of business in an indispensable way. All businesses dealing with manufactured goods contain service elements in varying degrees. In many cases, their special contribution to the value and the attractiveness of finished products on the market and corresponding competitive differentiation is a crucial factor. The organisation of service-oriented companies, the expansion of industrial products through services, or their service-oriented reorganisation is a difficult process which is a challenge for specialists and managers both in a practical and a methodological sense. In this context, the Service Management MBA Programme fills a gap by offering an educational qualification with a focus on the particular aspects of service management. With the specialisation in Technical Customer Service, it offers further education in an area which plays an important role in adding value to the European economy. This joint programme of the FH Aachen and FIR – which was initiated by and developed with the cooperation of the KVD, one of the world's largest business associations for customer service managers – is intended for future managers for whom technical services and the resulting customer solutions will create the foundation for business success.

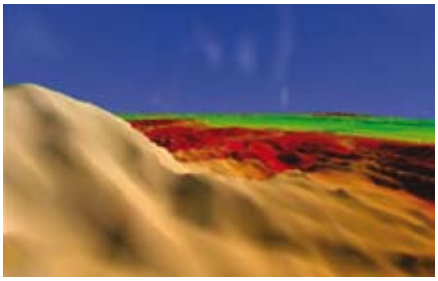
The goal of the Service Management MBA Programme is to educate a new kind of manager, one who is prepared through this specialised programme for the service-oriented organisation of technical services companies across the backdrop of structural change and international competition. This is ensured by a broad-based, strongly practical education for the management of technical customer service. The curriculum includes a general management module, as well as a service management module. The programme also includes a masters thesis and a service management project, in which every student applies his or her knowledge through an individual project.

The two-year course of study is designed as an occupational degree programme, and is organised with a block structure which allows students to combine working and studying in an optimal way. Between the block lectures, students study independently.

TECHNOMATHEMATIK

Many new methods and processes of applied mathematics have been made possible by the rapid development of computer technology and more will follow in the future. Innovative calculating methods such as parallel algorithms and grid computing are playing an ever greater part in computer simulation within the natural sciences and technology. Such calculation methods must, in turn, be made usable for industry. Along with comprehensive knowledge of calculation, this requires applied mathematics and software technology and a commensurate understanding of natural and engineering sciences.

Dealing with natural and engineering scientific issues in companies requires the close cooperation of mathematicians, computer scientists and users. Technomathematicians are educated precisely for this field of activity, and as a result of their ability to cooperate with engineers and scientists the demand for them is growing in many businesses. The consecutive Technomathematics Masters Degree Programme is designed to succeed the dual Scientific Programming Bachelors Degree Programme and is offered in cooperation with the Research Centre Jülich. It prepares you for individual research and development work dealing with natural science and technical issues. Through this you will gain access to numerous attractive work



fields in diverse areas of industry and research, such as simulation and optimisation, product development, statistical quality control, software development and consulting for information technologies.

The Technomathematics Masters Degree Programme qualifies you for the independant development of mathematical models for natural scientific and technical projects, as well as their implementation in technical programming. For this you will acquire specialised knowledge in applied mathematics, especially stochastics and numerics, scientific calculation and computer science, as well as natural and engineering sciences. Through close cooperation with the Research Centre Jülich, students have unique resources available to them. For example, at the Jülich Supercomputing Centre students can apply the content of the lectures. Both lectures and the laboratory use modern mathematical software systems, programming and visualisation tools.

→Faculty:
Medical Engineering and Technomathematics

→Degree programme:
M.Sc.

→Language of instruction:
German

→Standard period of study:
4 semesters

→Academic counsellor:

Prof. Dr. rer. nat. Martin Reißel
Telephone:
+49 241 6009 53219
E-Mail:
reissel@fh-aachen.de

Prof. Dr. rer. nat. Gerhard Dikta
Telephone:
+49 241 6009 53219
E-Mail:
dikta@fh-aachen.de

TELEKOMMUNIKATIONSTECHNIK (TELECOMMUNICATIONS, PLANNED FOR WINTER SEMESTER 2009/10)

→Faculty:
Electrical Engineering and Information Technology

→Degree programme:
M.Eng.

→Language of instruction:
German

→Standard period of study:
4 semesters

→Academic counsellor:
Faculty of Electrical Engineering and Information Technology
Telephone:
+49 241 6009 52110
Telefax:
+49 241 6009 52190

The area of telecommunications is growing steadily. Besides the high level technical and mathematical qualifications needed by engineers and computer scientists with technical responsibility in projects, tasks and companies, management qualities are needed more than ever to successfully supervise interdisciplinary projects today. In addition to specialised knowledge of telecommunications engineering, in particular basic knowledge of information systems, the telecommunications industry and telecommunications network providers require knowledge of information systems. On the other hand, the fields of industrial electronic measurement and data transmission technology, as well as high speed connection technology and radio engineering, expect engineers to possess circuit technology knowledge of analog and digital systems architecture, sub-systems and components. In addition to this, telecommunications systems used in companies must always provide users with the information they need on demand. To ensure this, very broad knowledge of information processing, the architecture of mobile information systems and semantic networks is absolutely necessary.

These requirements of the telecommunications branch are addressed in the Telecommunications Masters Degree Programme: It offers an education which is both deep scientifically and broad in engineering terms and therefore guarantees the necessary qualifications at a high level. Within the curriculum, which is designed especially to meet the needs of the

telecommunications industry, knowledge of basic radio engineering and information technology are provided upon a foundation of the core areas of telecommunications technology. In particular, the students obtain comprehensive knowledge in the areas of analog and digital circuit technology, radio transmission technology and information retrieval and the development of telecommunications systems. The study plan allows the students to create an individual profile according to their personal aptitudes and skills.

The mostly research-oriented scientific education provides graduates with a foundation which especially qualifies them to work in the area of product development. It qualifies them for independent, hands-on work on difficult and out-of-the-ordinary technical projects. Through this newly conceived course of study, students have the possibility to prepare themselves for newly structured, up-and-coming fields within the area of telecommunications technology, which is characterised by a rapidly growing computer science, as well as telecommunications engineering, component.

The first steps...

You have decided to embark upon a course of studies at the FH Aachen. Questions are already beginning to pop up. What should I do first? What does "matriculate" mean? Do I meet all of the requirements? Who can I turn to and where do I get information? As a student from a foreign country, what should I be aware of?

On the following pages, we would like to offer you support in answering these questions and give you the names of the most important contacts. Here you can find out how the application and matriculation processes work and which documents are required for admission. In addition, we offer important information about such topics as visas, residence permits and financial verification.

More detailed information, for example about accommodation, financing, necessary formalities after your arrival, schedules and deadlines, is available at the Department of International Affairs (AAA) web pages:
www.fh-aachen.de/9777.html

Application procedures and matriculation

Before you begin your studies, you must register. This requires your successful application for a university place. What follows are the most important steps, contacts and links for this process.

→Registration takes place at the Registrar's Office:

in Aachen:
Stephanstr. 58-62
Room 103
52064 Aachen
Germany
Telephone: +49 241 6009 51612/51613/51615/ 51616

in Jülich:
Ginsterweg 1
Room H 103
52428 Jülich
Germany
Telephone: +49 241 6009 53117

E-Mail: studierendensekretariat@fh-aachen.de
www.fh-aachen.de/studentensekretariat.htm

Application to Study at the FH Aachen

You must first meet the **application deadline**. It is not possible to apply after the deadline. An overview of all current deadlines is available at: **www.fh-aachen.de/terminplanung.html.** Find out whether your chosen course of study offers places beginning in the winter and/or summer semester!

The degree programmes at the FH Aachen are subject to certain **admission and matriculation requirements.** In addition to the required entrance qualifications, these may also include internships, qualifying examinations or language requirements. Precise information can be found in your degree programme's brochure: **www.fh-aachen.de/broschueren_stg.html.**

Applicants with German educational documentation may **apply online** for nearly all degree programmes. To find out more, go to: **www.qis.fh-aachen.de/index_zul.html.** Exceptions are published on the Internet pages of the FH Aachen. For some degree programmes (e.g., Betriebswirtschaft/Business Studies) the admission process is administered by the University Central Office on Admissions (ZVS) in Dortmund.

The application procedures for **international applicants** vary. For most degree programmes, you must obtain pre-approval of your application for the FH Aachen from Uni-ASSIST. All relevant information can be obtained at the Registrar's Office, as well as online at: **www.fh-aachen.de/dlc_bewerb_ausland_wise.html and www.uni-assist.de.**

Information about qualifications and further registration requirements, as well as application documents, can be found at: **www.fh-aachen.de/bewerb_unterlagen.html.**

When the demand for university places in degree programmes exceeds the places offered, there will often be a **selection procedure.** Through this procedure, the places are awarded using qualification criteria (secondary school grade point average) in combination with a waiting period.

Matriculation

Following your successful application to study at the FH Aachen, you will receive an admission confirmation. You personally (or a duly authorised person) must register by the deadline, which can be found in the admission confirmation. If you have fulfilled all of the matriculation requirements, after your registration you will receive a student identity card and a semester ticket, which are valid for one semester.

Internships

As an application-oriented university, the FH Aachen believes it is very important that prospective students gather practical experience in the workplace before beginning their studies. The knowledge they gain of technical and business processes as well as workplace culture complements course work and study at the university and provides the optimal preparation for professional life.

Working in business for several weeks is a component of the matriculation requirements of nearly every degree programme at the FH Aachen. An internship should be closely related to the course of study the student will pursue. It can also be completed abroad.

The stipulations of your degree programme, approved internships and the required scope of an internship for each programme can be found on the Internet under "qualifications and matriculation requirements": **www.fh-aachen.de/bewerb_quali.html.**

Numerus clausus and ZVS

Numerus clausus (NC) means "closed number" and is the term used when there is a limited number of university places in a given field of study at a university. The term is synonymous with "admissions limit" when used in relation to admission to a degree programme at a university. When there are more applications expected than there are university places, a selection process for the rewarding of university places must be employed. This takes place, in most cases, using the secondary school grade point average (Hzb) in combination with a waiting period.

Misconceptions about numerus clausus are numerous. The most common is that the grades required for NC fields of study are determined in advance. In fact, NC values are calculated anew in every selection process based on the applicants' current grade point averages and waiting times. The only predetermined factor is the number of university places. The awarding of a university place depends upon the quantity and quality of the competing applications. The grade point average limits published in the NC tables refer to former procedures and can therefore only provide limited guidance.

ZVS

For certain degree programmes in North Rhine-Westphalia, the awarding of university places is administered by the University Central Office on Admissions (ZVS) in Dortmund. For the FH Aachen this is currently only the case for the Business Studies Degree Programme.

Applicants who have not been awarded a university place through the ZVS procedure can possibly be successful through the random selection of wait-listed applicants. This wait-list procedure is administered by the ZVS when an applicant who has been awarded a university place chooses not to accept it. The university place will then be offered to the wait-listed applicants who are next in line and, if they also do not accept the place, the FH Aachen will administer its own lottery for applicants who have registered to participate in such a lottery at the university in Aachen.
www.fh-aachen.de/losverfahren.html

→Further information is available through the Registrar's Office website:

www.fh-aachen.de/nc.html

www.zvs.de

The cost of your studies

The tuition fee for FH Aachen rose in Summer Semester 2007 and currently stands at 500 euros per semester. In addition, the social insurance contribution is 189,30 euros. This contribution is not a tuition fee, but rather is used to benefit two organisations that benefit students, Studentenwerk Aachen and AStA, the university's student union. The social contribution also includes the Semesterticket, which is valid throughout the semester and allows you to use public transportation in Aachen and throughout North Rhine-Westphalia free of charge.

Exemption for tuition fees

Students have the possibility of an exemption from tuition fees given certain circumstances, for example:

- You are raising a minor child
- You are an elected member of a board of the FH Aachen or Studentenwerks.
- You are a top athlete
- You have requested a leave of absence
- You are completing an internship or a semester abroad

Requests for an exemption for tuition fees can usually be made during the re-registration period. Information about this is available from Office of the Registrar.

International students are also able, under certain specified conditions, to apply for a loan from the NRW-Bank.

Living expenses

The cost of living in Aachen is currently about 600 euros a month. So, a sum of about 7,200 euros is needed for a full study year. A break-out of typical monthly costs is as follows:

- Social insurance contribution (up to 30 years of age): about 80 euros
- Study materials, books: about 40 euros
- Housing: about 220 euros (simple flat)
- Food, clothing and other needs: about 180 euros
- Tuition fees: about 80 euros

These amounts must be available to cover the monthly cost of living. It is not possible for international students who are not from the original 15 nations of the EU (the European Economic Community) or Switzerland to finance their studies entirely by working while studying.

Financing (your studies)

Scholarships to finance studies are offered to international students by the following organisations:

- The German Academic Exchange Service (DAAD)
- Capacity Building International, Germany (InWEnt), as well as additional foundations

The FH Aachen, unfortunately, does not have funds available to offer scholarships.

Information for International Students

This article contains important additional information and tips for international students who have come to Aachen to study, including valuable information about bureaucratic processes, required documents and qualified contact persons.

Permission to study

Before your arrival in the Federal Republic of Germany, you should already have gathered information about what you will need. We especially recommend that you inform yourself about whether the documentation regarding your education in your home country meets the requirements for studying at a German university.

It is very important to decide which degree programme you want to pursue because the qualification documents required for university entrance differ from department to department. Depending upon the department, the required documentation may include, for example, certification of German language knowledge or practical business experience.

Information about the various entrance requirements can be found at: **www.fh-aachen.de/bewerb_unterlagen.html;** or in the degree programme brochures under: **www.fh-aachen.de/broschueren_stg.html**

Visas

Before traveling to the Federal Republic of Germany, you must apply for either a Prospective Student Visa or a Student Visa at the German Ministry of Foreign Affairs branch (embassy) in your country. It is not possible to convert a tourist or other sort of visa to a student visa once you are in Germany.

Residence permit

If you come to study for a semester or longer in Germany, the German authorities assume that your stay will be temporary. Because of this, you will be given a Limited Residence Permit and not a Permanent Residence Permit. You should apply for a Limited Residence Permit before the expiration of your visa at the appropriate office in the city where you reside. More information about this can be found at the Department of International Affairs website at: **www.aaa.fh-aachen.de/9901.html**

→An overview of the most important government authorities of the City of Aachen, as well as documents for dowloading can be found at:

www.aachen.de/DE/stadt_buerger/politik_verwaltung/behoerdenwegweiser/index.html

Important:

You must apply for a visa in person and bring the following **required documents** with you:

- Completed application for a Limited Residence Permit
- Valid visa (if required)
- Valid passport
- Current passport photo
- Proof of your reason for staying in Germany
- Proof of current health insurance coverage

For the first application, the fee is 60 euros. This information is subject to change without notice. The most current information can be found on the Internet site of the International Office of your place of residence.

Financial verification

Foreign students must verify at the German Agency Abroad and the Aliens Registration Office that the financing of their stay in Germany is guaranteed.

More information about these topics, as well as tips about living and studying in Germany, is available at the Department of International Affairs: www.aaa.fh-aachen.de

An overview of the most important government authorities of the City of Aachen, as well as documents for dowloading can be found at:

www.aachen.de/DE/stadt_buerger/politik_verwaltung/behoerdenwegweiser/index.html

German Courses

Students with a foreign university admission qualification are required to provide proof of their knowledge of the German language in advance of beginning their studies at the FH Aachen.

→For more information:
www.fh-aachen.de/dlc_bew_sprachkurs.html

→Contact:
Sprachenakademie Aachen
Kockerellstr. 9,
52062 Aachen
Telephone:
+49 241 39 999
Telefax:
+49 241 407641
E-Mail:
mail@spraachen.de

at Jülich Campus:
Telephone:
+49 241 6009 53537

For degree programmes in which German is the language of instruction, proof of a reasonable level of German language knowledge is a precondition for enrollment. If you have already had academic preparatory training and wish to begin your studies directly, you must provide the FH Aachen with proof of your German language level in order to be admitted. Therefore, before beginning your studies you must provide your results from the Deutsche Sprachprüfung für den Hochschulzugang (DSH) or a similar German language test. If your native tongue is German or you are a graduate of a German secondary school, it is not necessary to submit any additional proof of your knowledge of German.

Sprachenakademie Aachen – Language Centre of the FH Aachen

Sprachenakademie Aachen is a not-for-profit GmbH with a focus on German, as well as business and student-oriented language courses. In addition, it is the largest testing centre in the Euregio. Sprachenakademie Aachen is the officially accredited provider of German courses for immigrants, a member of the Fachverbandes Deutsch als Fremdsprache (FaDaF) and Netzwerkes Integration Aachen. In addition to cooperative projects throughout the region (for example, with the Aachen Chamber of Trade), the Sprachenakademie also has various partnerships with international universities (such as Maastricht and Ningbo).

The Sprachenakademie's German courses for preparation for studies are designed for applicants who would like to study at the FH Aachen. As a result, applicants for German courses are assessed to ascertain whether they meet the requirements for entry to a course of study at the FH Aachen.

For international applicants and students, the Sprachenakademie also offers comprehensive consultation free of charge at the various locations in Aachen and Jülich.

Sprachenakadmie offers courses and examinations not only for German, but also for English, Spanish, Chinese, Japanese, French, Italian, Greek, Turkish and Swedish, as well as seminars in intercultural studies. Specialized courses are also available in, for example, Technical German, Technical English, Business or Presentation Techniques. Course and certification offerings can also be developed as desired for institutes and interested groups throughout the year and also when university is not in session.

Aachener Sprachsommer

The German courses offered during the Aachener Sprachsommer are organised by the Department of International Affairs of the FH Aachen in cooperation with Sprachenakademie. The course is about three weeks long and is offered in August and September. The classes are Monday to Friday from 9 a.m. to 12:30 p.m. On the first day, each participant is assessed through an individual interview and placed in the appropriate level class. Students and post-graduates from all branches of study, schools and professions can participate. The minimum age is 18.

Volkshochschule Aachen

The Volkshochschule (VHS) Aachen offers a broad array of German courses that will ease the way to employment and making social contacts for both students and foreign-language speaking job-holders. The VHS German courses also have the goal of conveying an understanding of German culture and social interaction to participants.

Tandem Language Learning

A somewhat different way to learn a language is offered through so-called tandem language learning. It involves a German student and an international student becoming partners and taking turns teaching each other their respective native languages. In this way, both learn the language of their partner and in a very personal manner – not connected with a course and totally without examinations. The Interkulturelle Zentrum Aachener Studierender (INCAS), an intercultural centre and support service for international students, can help bring you and a tandem partner together.

→Contact:

Volkshochschule Aachen
Peterstraße 21-25,
52064 Aachen
Telephone:
+49 241 4792 111
E-Mail:
vhs@mail.aachen.de

→Further information about the Aachener Sprachsommer:

www.aaa.fh-aachen.de/daf

→More about INCAS and about tandem language learning is available at:

www.incas.rwth-aachen.de
and
www.juelich.fh-aachen.de/incas0.html

The Freshman Year

The Freshman year is a unique pilot project at the FH Aachen, Jülich Campus. It is the only programme of its kind in Germany.

No other German university offers:

1. English as the language of instruction
2. An entrance exam that can supersede all other admission requirements.
3. An introductory English language. course that is an integral part of the bachelors degree programme.

Our Freshman Year is the preparatory year for the three-year Internationally Oriented Studies (IOS – formerly International Studies in Technology, IST) bachelors degree programme.

During the Freshman Year and the first year of the IOS degree programme, all classes are taught in English and you also have the opportunity to participate in intensive German courses. Starting with your third year in Jülich, all classes are taught in German.

Students from all over the world study in small groups in a unique intercultural environment, expanding their intellectual horizons while preparing for a future as engineers in today's global economy.

Upon successful completion of the IOS program, you can apply to one of our English-language masters degree programmes, or any other masters degree programme that interests you.

Due to the unique nature of this pilot project, our Freshman Institute qualifies you only for the IOS engineering programs, but NOT for any other university studies in Germany. In order to qualify for studies at another German university, you must, at a minimum, pass the DSH German language exam.

→More information is available at:
www.fh-aachen.de/freshman.html

Student Advisory Service

The Student Advisory Service should be your first point of contact for questions related to your choice of degree programme. It is the place where pupils, students and prospective students at both the Aachen and Jülich campuses can obtain information and advice.
The Student Advisory Service supports students of the FH Aachen concerning all questions or problems, big or small, having to do with their studies.

You can turn to the Student Advisory Service for the following issues:

- Suitability and preparation for studying, choice of studies
- Degree programmes, degree programme structure and conditions
- Study requirements and content
- Changing degree programmes or university
- Leaving university before graduation
- Study-relevant personal problems
- Information about other advisory offices and other universities

Contact
Student Advisory Service
(Allgemeine Studienberatung)
Hohenstaufenallee 10,
Room 00024,
52064 Aachen, Germany
Telephone:
+49 241 6009 51800/51801
Telefax:
+49 241 6009 52836
E-Mail: studienberatung@fh-aachen.de
www.studienberatung.fh-aachen.de
Opening hours:
Daily (except for Tuesdays) 8.30-11.30 a.m. and by appointment

Jülich Campus:
Ginsterweg 1, Room H6,
52428 Jülich, Germany
Telephone:
+49 241 6009 53109
E-Mail: studienberatung@fh-aachen.de
Opening hours:
Tuesdays, 9.15 a.m.-noon and by appointment

→More information:
www.studienberatung.fh-aachen.de

Registrar's Office

The Registrar's Office at the FH Aachen is the contact point for all administrative matters for students and applicants. Information about the following topics is available there:

- Admission requirements
- Application procedures
- Enrollment conditions and registration
- Re-registration
- Leave of absence
- Change of degree programme, field of study or university
- Change of name and/or address
- Tuition fees
- Information about NRW.Bank loans
- Transcripts
- Auditing or visiting students
- Removal from register of students
- Dates and deadlines

Contact:
Registrar's Office
(Studierendensekretariat)
Stephanstr. 58-62, Room 103
52064 Aachen, Germany
Telephone: +49 241 6009 51612/51613/51615/51616
Telefax: +49 241 6009 51606/51614
E-Mail:
studierendensekretariat@fh-aachen.de
Opening hours:
Mon., Tues., Thurs., Fri. 8 a.m.-noon and Tues. 1.30–3 p.m.
Closed Wednesday

Registrar's Office at Jülich Campus
Ginsterweg 1, Room H109
52428 Jülich, Germany
Telephone: +49 241 6009 53117
Opening hours:
Mon., Tues., Wed., Fri. 8 a.m.-noon and Wed. 1.30–3 p.m.
Closed Thursday

→More information is available at:
www.fh-aachen.de/studentensekretariat.html

Department of International Affairs (AAA)

The AAA is the first point of contact for foreign students at the FH Aachen. It is where you can get tips and answers to all of your questions about living and studying in Aachen and Jülich.
You will find useful information about visas and residency permits, the immigration laws, the cost of daily life, dealing with authorities, and so forth. All important addresses and the current offerings of German classes in Aachen and Jülich are also available here.

The "Studienkompass", a comprehensive support programme for foreign students, is an additional service of the AAA. Interested new students can participate in this voluntary study and counselling agreement with the AAA, which offers support from the first until the final semester and every possible assistance related to living and studying here.
The AAA is also the contact point for those who want to study abroad. Here you can find out about and obtain advice regarding the opportunities for studies and internships abroad.

The Faculty of Business has its own international office, the International Faculty Office (IFO). This is the first point of contact for students in this degree programme.

Contact:
Department of International Affairs
(Akademisches Auslandsamt)
Hohenstaufenallee 10, Room 00011
52064 Aachen, Germany
Telephone: +49 241 6009 51043/51019/51018
Telefax: +49 241 6009 51089
E-Mail: aaa@fh-aachen.de
Opening hours:
Mon.- Thurs. 9-11:30 a.m. and by appointment, which can be made by telephone.

Jülich Campus Department of International Affairs
Ginsterweg 1, Room H112
52428 Jülich
Germany
Telephone: +49 241 6009 53270/53289/53290
Telefax: +49 241 6009 53252
Opening hours:
Mon., Wed., Thurs. 9-11:00 a.m., Mon. and Thurs. 2-3 p.m.

International Faculty Office
Oliver Fuchs, Dipl.-Betriebswirt (FH)
Telephone: +49 241 6009 51903
E-Mail: fuchs@fh-aachen.de

→More information is available at:
www.aaa.fh-aachen.de
www.ifo.fh-aachen.de

The Academic Faculties

The academic area of the FH Aachen is divided into faculties. A faculty is made up of professors, research assistants, non-academic employees, and students. Every faculty is responsible for the organization of research, lessons and the curriculum of its scientific area. Each faculty is represented by a dean, who is responsible for its day-to-day operation.

Architecture (Faculty 1)
Bayernallee 9, 52066 Aachen, Germany
Telephone: +49 241 6009 51110
Telefax: +49 241 6009 51205
E-Mail: dekanat.fb1@fh-aachen.de
www.architektur.fh-aachen.de
Contact: Gerda Jägers

Civil Engineering (Faculty 2)
Bayernallee 9, 52066 Aachen, Germany
Telephone: +49 241 6009 51210
Telefax: +49 241 6009 51206
E-Mail: dekanat.fb2@fh-aachen.de
www.bau.fh-aachen.de
Contact: Marie-Renate Meinokat-Charras

Chemistry and Biotechnology (Faculty 3)
Ginsterweg 1, 52428 Jülich, Germany
Telephone: +49 6009 53188
Telefax: +49 6009 53199
E-Mail: dekanat.fb3@fh-aachen.de
www.juelich.fh-aachen.de
Contact: Sandra Surma

Design (Faculty 4)
Boxgraben 100, 52064 Aachen, Germany
Telephone: +49 241 6009 51510
Telefax: +49 241 6009 51532
Email: dekanat.fb4@fh-aachen.de
www.design.fh-aachen.de
Contact: Ursula Ahnert

Electrical Engineering and Information Technology (Faculty 5)
Eupener Straße 70, 52066 Aachen, Germany
Telephone: +49 241 6009 52110
Telefax: +49 241 6009 52190
E-Mail: dekanat.fb5@fh-aachen.de
www.etechnik.fh-aachen.de
Contact: Bettina Seifert

Aerospace Technology (Faculty 6)
Hohenstaufenallee 6, 52064 Aachen, Germany
Telephone: +49 241 6009 52412
Telefax: +49 241 6009 52680
E-Mail: dekanat.fb6@fh-aachen.de
www.luftraum.fh-aachen.de
Contact: Ramona Hillert

Business (Faculty 7)
Eupener Straße 70, 52066 Aachen, Germany
Telephone: +49 241 6009 51903
Telefax: +49 241 6009 52280
E-Mail: dekanat.fb7@fh-aachen.de
www.wirtschaft.fh-aachen.de
Contact: Monika Krings

Mechanical Engineering and Mechatronics (Faculty 8)
Goethestraße 1, 52064 Aachen, Germany
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Colophon

Publisher:
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Kalverbenden 6
52066 Aachen, Germany
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Maximilianstr. 9
86150 Augsburg, Germany
www.vmm-wirtschaftsverlag.de

Design:
vmm wirtschaftsverlag gmbh & co.kg
based upon the corporate design
of the FH Aachen

Map:
Dipl.-Des. Marcus Nailis

Printing:
AZ Druck und Datentechnik GmbH,
Kempten

Edition:
November 2008

Print run: 1,500 pieces

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