

UNIVERSITY AND SURROUNDINGS

Faculty of Engineering



Friedrich-Alexander-University Erlangen-Nürnberg (FAU) consists of five faculties, with the Faculty of Engineering being the largest and highest-ranking in third party funding for research. The Faculty of Engineering has an outstanding reputation in science and industry for its high quality education, usually being ranked among the top universities in international rankings. Currently, over 20 degree programmes are offered, several of those being taught in English.

Facts and figures about the university

- > 40,000 students
- > 260 degree programmes
- > 500 international university partnerships in more than 70 countries
- > number 1 innovator of German universities

Facts and figures about the Faculty of Engineering

- > 11,000 students
- > 35 degree programmes
- > 200 cooperations in more than 50 countries
- > 1/3 of third-party funding

Erlangen and the region

Erlangen, a cosmopolitan, economically strong and lively student city, lies at the centre of the dynamic metropolitan area of Nürnberg-Erlangen-Fürth. With over 110,000 inhabitants (1/3 students), Erlangen offers the ideal size for living, studying and feeling at home. The cultural diversity and large offer for leisure time activities offers night owls, culture and sports enthusiasts numerous events and occasions. The Erlangen „Bergkirchweih“ a beer festival in summer attracts about 1 million visitors each year from all over Germany.

Further information at: www.erlangen.de and www.nuernberg.de

INFORMATION

Student counseling

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www.cep.study.fau.eu



www.tf.fau.de (Faculty of Engineering)

Location



To reach us by plane, car, train or bus, please visit:
www.tf.fau.de/info-centre/how-to-get-here/

AREA OF STUDIES

B.Sc. and M.Sc. Clean Energy Processes

The Bachelor's and Master's programme provide students with a comprehensive understanding in clean energy and clean energy processes. Today engineers are required to be able to work on questions of energy change and to find the necessary solutions for a sustainable future for the planet. Applications are in the field of energy technologies, energy systems, processes in industry and in consulting on these topics.

The unique course is interdisciplinary in its approach and integrates knowledge from other fields like business, ethics and sustainability. You will learn in an international and research-oriented environment with all courses being taught entirely in English.

CEP is a highly-selective, accredited 3-year Bachelor's or 2-year Master's programme.

In the Bachelor's programme the students gain knowledge in:

- basic science (e.g. mathematics, physics)
- basic engineering (e.g. foundations of chemical reaction engineering, materials and structures, measurement systems)
- basic economics
- subject-specific basics (e.g. renewable energies, electrochemistry, fundamentals of energy resources)
- laboratory courses

As a graduate of CEP, you will be able to

- create climate-friendly energy
- address and work on answers for current and future questions about creating climate friendly energy and creating sustainable processes in industry
- assess and incorporate socio-economic, ecological and legal factors

Cutting-edge research

Students will have the possibility to develop and obtain knowledge on cutting-edge research in energy processes done by the department of Chemical and Biological Engineering, the Helmholtz Institute for Renewable Energies (HI-ERN) and other relevant institutes situated at, or in close proximity to FAU (e.g. Energy Campus Nürnberg, Fraunhofer Institute for Integrated Circuits, Bavarian Centre for Applied Energy Research e.V.).

B.Sc. and M.Sc. Clean Energy Processes



www.cep.study.fau.eu

PROGRAMME

Application and Admission:

Bachelor's degree:

1. Higher education entrance qualification
2. All applicants to the B.Sc. CEP have to pass a qualification assessment test (*Eignungsfeststellungsverfahren*)
3. Application deadline for winter term: 31st of May for Non-EU citizens, July 15th for EU citizens

Master's degree:

1. Above average Bachelor's degree in a similar study programme: Chemical and Biological Engineering, Energy Technology etc.
2. Proof of language proficiency in English
3. CV and application letter
4. All applications are sifted in a pre-selection process
5. Application deadline for winter term: 31st of May for Non-EU citizens, July 15th for all other applicants
Application deadline for summer term: January 15th
6. Detailed information regarding the application process can be found on the website www.cep.study.fau.eu

Reasons for studying at FAU

Stimulating and inspiring scientific environment

The professors in the CEP programme are involved with, or have close ties to renown local research centres such as the Helmholtz Institute for Renewable Energies, the Energy Campus Nürnberg or Fraunhofer IIS thus creating a uniquely inspiring and challenging environment for research. Cutting-edge research done at FAU in hydrogen and chemical production are drivers of innovation on a global scale.

Broad prospects for a future career

Based in Erlangen and its surroundings are many well-known stock companies, medium-sized enterprises including so-called "hidden-champions" and start-ups. The CEP programme has developed ties with internationally renown institutes and companies in the region therefore offering an ideal surrounding for innovation and future career planning.

An international programme

Both the B.Sc. and the M.Sc. programme are entirely taught in English and prepare students not only to communicate on work-related topics in English but gives them the necessary vocabulary and international experience for a future job in a leading position in an international environment. The programme consists of students from all over the world, enabling an exposure to a truly international environment.

INTERNATIONAL PROGRAMME CLEAN ENERGY PROCESSES (CEP)

Bachelor's degree programme structure

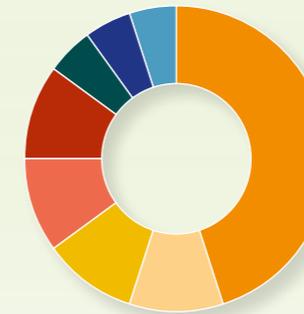
Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Mathematics I	Mathematics II	Mathematics III	Chemical thermodynamics	Electrocatalysis	Sustainability management
Physics I	Physics II	Thermodynamics and heat and mass transfer	Fluid dynamics	Data science for engineers	Laboratory course process
Foundations of chemical reaction engineering	Interface engineering and particle technology	Measurement systems	Chemical reaction engineering	Process systems dynamics I	Bachelor's thesis
Renewable Energies	Electrochemistry	Active Project	Decentralized energy supply	Energy economics	
Microeconomics	Materials and Structures	Elective Module I	Scientific computing in engineering	Storage technologies	
	Fundamentals of electrical engineering		Fundamentals of energy resources	Elective Module II	

The B.Sc. study programme Clean Energy Processes provides students with the fundamentals in sciences, engineering and economics as well as subject-specific basics in renewable energies, electrochemistry and fundamentals of energy resources.

A holistic approach to the subject ensures that knowledge from related fields such as electrical engineering and materials sciences as well as the co-related factors for decision-making, socio-economic, legal and ethical factors are considered. Practical experience with analytical tools and in laboratory courses and projects ensure that the knowledge and competencies gained can be applied in industry. First-hand experience with research at the involved institutes is ensured through an active project and laboratory course embedded in the programme.

Students can choose their elective modules freely allowing them to sharpen their individual profile. Additional competencies in foreign languages, scientific writing or other areas of interest can be acquired. The 5th and 6th semesters are suitable for a stay abroad or an internship. Students can make use of the over 200 cooperations of FAU with universities abroad.

Subject areas in the Bachelor's programme



- Chemical and process engineering
- Chemistry
- Electrical Engineering
- Mathematics
- Material Sciences
- Economics
- Physics
- Computer Sciences and informatics

FURTHER INFORMATION

Master's degree

The innovative M.Sc. programme Clean Energy Processes is enabling students to deepen their knowledge in chemical engineering, process engineering and electrical engineering while allowing students to choose one of two specialisations. In the specialisation „energy technologies“, fundamental methods for the development and implementation of new technologies for the generation and conversion of renewable energies are studied in-depth. In the field of study „energy systems“, competencies are acquired in particular in the application areas of the further development of energy systems. Methods are deepened which facilitate the design of process chains for the generation, utilization and integration of renewable energies in the energy system and integration of renewable energies in chemical processes.

The programme is designed to allow students to create an individually tailored curriculum with laboratory courses, elective modules and modules from both specialisations. Students will gain hands-on experience through laboratory courses and a mandatory internship that can be conducted either in industry or a research institution in Germany or abroad and make use of the numerous contacts of the programme to industry and academia preparing them for demanding tasks in engineering.

Career Prospects

Graduates of the programme stand out due to an extensive knowledge of innovative technologies for renewable new energy systems and energy production. They can significantly participate in the successful introduction of new sustainable energy systems and energy processes and adequately evaluate sustainability on a global scale. As they have more experience with international and research-related topics than other graduates, they are especially suited for tasks on the highest level of engineering or to pursue a career in academia. They will be the ones creating the change we need for tomorrow.

Job possibilities:

- Energy production and logistics
- Process optimization and intensification in any sector of industry
- Sustainable bio- and/or chemical industry
- Consulting and auditing
- Policy and decision making
- Master or Ph.D. in (sustainable) chemical and process engineering