Facts and figures about the Faculty of Engineering

- 200 co-operations in more than 50 countries
- > 500 international university partnerships
- > 200 co-operations in more than 50 countries
- > 40,000 students
- > 263 degree programmes
- > 31 degree programmes
- > 40,000 students
- > 11,000 students

Erlangen and the Local Area

Erlangen, a cosmopolitan and lively student town belongs to the dynamic Nuremberg metropolitan area. With its 100,000 inhabitants (1/3 of them being students) Erlangen provides the perfect environment for living and studying. Erlangen's best known and most loved attraction is the "Bergkirchweih", a beer festival in spring, which attracts around 1 million visitors from near and far. For more information about the region see: www.erlangen.de, www.metropolregionnuernberg.de

AREA OF STUDIES

Advanced Materials and Processes (MAP)

MAP is a combination of Materials Science and Engineering with Chemical and Biological Engineering. These disciplines play a key role in the development of novel technologies – without new materials, a great range of key inventions from digital computers or jet engines to customized medical implants would not have been possible. Novel materials with new functionalities or improved properties, however, require specifically designed, economically and environmentally sustainable production processes – which might themselves depend on the development of new catalyst materials. This intimate connection between processes and materials is of key importance for advances and innovations in virtually any field of technology. Chemical and Biological Engineering and Materials Science and Engineering are thus highly interrelated fields, which are, however, traditionally treated as separate subjects.

MAP is an English-taught interdisciplinary Master’s Programme and provides a unique curriculum for the next generation of engineers. Students follow an individually tailored curriculum to learn in small groups the fundamentals of Chemistry, Engineering, Biological Engineering and Materials Science and personal support from the MAP team. Furthermore, students can gain additional qualifications for an academic career or for a career in industry through specialized modules with extra credits.

Facts and figures about the Faculty of Engineering Winter Semester (2020/2021)

- > 263 degree programmes
- > 6 elite master’s programmes in the framework of the Elite Network of Bavaria
- > 500 international university partnerships in more than 70 countries
- > 11,000 students
- > 31 degree programmes
- > 4 elite master’s programmes in the framework of the Elite Network of Bavaria
- > 300 co-operations in more than 50 countries

To reach us by plane, car, train or bus, please visit: www.tf.tau.de/infocenter/campussuche

www.map.tf.tau.de www.tf.tau.de
**Application and Admission**

1. Applicants are required to have an excellent Bachelor's degree in Chemical and Biological Engineering, Materials Science and Engineering or related subjects.
2. A very good command of the English language is to be demonstrated via a minimum score of 85 points in the Test of English as a Foreign Language (TOEFL) (or equivalent), e.g. at least B2 level of the Common European Framework of Reference (CEFR) for Languages.
3. Studies begin in the winter semester (mid-October).

**ELITE MASTER'S PROGRAMME ADVANCED MATERIALS AND PROCESSES (MAP)**

**Programme Structure**

The core MAP programme is designed as a 4 semester Master course with the following general structure and semester content. Optional additional qualifications provide the opportunity to gain competences with a focus on research or industry.

**Core MAP Programme**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
<th>Semester 3</th>
<th>Semester 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fundsamentals in Material Science and Engineering (10 ECTS)</strong></td>
<td><strong>Focal Subjects (15 ECTS)</strong></td>
<td><strong>Focal Subjects (15 ECTS)</strong></td>
<td><strong>Master Thesis</strong></td>
</tr>
<tr>
<td>Lectures covering the basics of the Focal Subjects (10 ECTS)</td>
<td>Lectures covering the basics of the Focal Subjects (10 ECTS)</td>
<td>Miniproject (10 ECTS)</td>
<td><strong>Master Thesis</strong> (30ECTS)</td>
</tr>
<tr>
<td><strong>Lab Course (5 ECTS)</strong></td>
<td><strong>Soft Skills (2.5 ECTS)</strong></td>
<td><strong>Literature Research (2.5 ECTS)</strong></td>
<td>Soft Skills (2.5 ECTS)</td>
</tr>
</tbody>
</table>

The content of the individual semesters is described in detail on the website www.map.tf.fau.de.

**Scientific Environment**

MAP is embedded into the Faculty of Engineering of the FAU and is greatly enriched by the direct involvement of the partner universities of Bayreuth and Würzburg. Local research centres such as the Fraunhofer Institute for Integrated Systems and Device Technology (ISI), the Max Planck Institute for the Science of Light, the Helmholtz Institute for Renewable Energy Production (H-ERI), the Institute of Advanced Materials and Processes (ZMP), the New Materials Fürth GmbH (NMF), the Erlangen Catalysts Resource Center (ECRC) and Energy Campus Nürnberg complement the unique research environment in materials and processes.

Erlangen is a buoyant student town located in the Nuremberg metropolitan region (3.5 mio. inhabitants), the “home for creative minds”, which combines tradition, culture and ground-breaking science and technology. Well-known global players such as Siemens and Adidas, as well as many specialised small and medium-sized companies and dynamic start-ups provide plenty of job and internship opportunities.

**Structure of the additional qualifications; Internship in either research or industry**

**Added value of the English language**

**FUNDAMENTALS**

**MAJOR PROJECTS**

**SCIENTIFIC SKILLS**

**BASICS**

**FOCAL SUBJECTS COURSES**

**ADVANCED PROCESSING**

**Computational Materials Science and Function Design**

**Nanomaterials and Nanotechnology**

**Elements and Bioprocessing**

The international, English language elite course “Advanced Materials and Processes” uniquely combines content from materials sciences and chemistry and bioengineering, thus placing it within the FAU’s research focus on “New Materials and Processes.” In addition to the interdisciplinary nature and the English language, the competitive selection process, individually tailored curricula and mentoring, as well as soft skill courses, innovative teaching concepts and early active involvement in research combine to form a unique study experience. Furthermore, the partnership with the Universität Bayreuth and the Julius-Maximilians-Universität Würzburg, as well as the active membership in the Elite Network of Bavaria, MAP is thoroughly embedded in the regional academic network.

**Career Prospects**

Approx. 60% of MAP graduates start a PhD following completion of the programme. Many of those choose to remain in Erlangen or one of the MAP partner universities. Others secure PhD positions at other world-class universities and institutions. MAP, however, does not only train outstanding academic researchers. Many of our graduates find excellent positions in industry, with typical destinations including the automotive, aerospace, oil and gas, technology, health and safety and pharmaceutical sectors.

**Support**

- A limited number of merit-based MAP-scholarships are available for EU students (40% of students). Further, remunerated positions as student research assistants are available at the Faculty of Engineering.
- Students can apply for MAP educational grants to support attendance of external events (German language courses, workshops, scientific conferences, etc.).
- MAP students receive intensive mentoring from the two programme chairs and are supported in the planning and execution of their four focal subject projects.
- The MAP programme office assists with all tasks pertaining to relocation and life in Germany, including visa procedures.
- The MAP programme office schedules lectures, practical courses and tailor-made soft skills courses, and provides guidance and general support for all current MAP-students.

**MAP programme office schedules lectures, practical courses and tailor-made soft skills courses, and provides guidance and general support for all current MAP-students.**