



Deutscher Akademischer Austauschdienst  
German Academic Exchange Service



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# Master's degree



## Information and Communication Technology MSc

FAU Erlangen-Nürnberg • Erlangen

### Overview

Degree	Master of Science
Teaching language	<ul style="list-style-type: none"><li>English</li></ul>
Languages	<p>Courses are held in English (mostly) and German.</p> <p>International students can attend courses, which are all fully-conducted in English.</p>
Full-time / part-time	<ul style="list-style-type: none"><li>full-time</li></ul>
Programme duration	4 semesters
Beginning	Winter and summer semester
Application deadline	Winter semester: 15 July Summer semester: 15 January
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	<ul style="list-style-type: none"><li>The most exciting innovations often come about where conventional disciplines overlap, which is why computer scientists and electronics engineers work together in interdisciplinary teams. Complex networked products and services need intensive communication between developers and engineers from various disciplines, companies, and research institutes – for today and tomorrow’s applications.</li><li>The Free State of Bavaria provides additional funding for the expansion of the Faculty of Engineering and the development of the degree programme in Information and Communications Technology to supply the labour market with the specialists it urgently needs in this field. The funding enables the support provided to students to be improved and finances new professorships, which extends the range of courses for students.</li><li>ICT is especially well positioned in Erlangen, thanks to the short distances and excellent collaboration between the Department of Electrical Engineering, Electronics, and Communication; the Department of Computer Science; two Fraunhofer Institutes specialising in ICT; and a unique landscape of international as well as small and medium-sized companies that are also active in this field. This excellent collaboration led to the development of the MP3 format, which became a global success. Some of the ICT professors in Erlangen were involved in developing the MP3 format. With such inspiring</li></ul>

teachers, ICT students in Erlangen have a positive outlook towards collaboration and look forward to welcoming new students to the degree programme.

- Embedded systems (products in which a computer is embedded) are a particular focus of ICT. German research and industry is at the top of the game worldwide in embedded systems. Well-known researchers in this field teach in Erlangen. Additionally, several small and large companies operate in and around Erlangen, in Bavaria and in Germany in this field. Every year, Nuremberg is host to Embedded World, the most important trade show in this sector. The region is also well known for developing open-source software for embedded systems.
- Electronics engineers and information scientists in Erlangen are currently working on joint research projects, such as the Communicating Cars (CoCars) project. This project is funded by the Federal Ministry of Education and Research, and in this project, traffic information is sent rapidly between vehicles via mobile technology. In this project, mobile communication companies are working with the automotive industry, electronics engineers in Erlangen are developing wireless transmission systems, and computer scientists in Erlangen are developing higher-level communication protocols. Further work includes simulating the interaction between traffic, hardware, and communication as well as developing strategies for commercial exploitation. The project can only succeed if everyone communicates efficiently and can understand each other's work. ICT students have the opportunity to work on such projects in current research, thus gaining experience and making contacts.

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## Course Details

### Course organisation

- Mandatory modules from three different areas of study (Embedded Systems, Networks and Digital Communication, Media Processing Systems)
- Elective modules from the Department of Electrical Engineering and the Department of Computer Science
- Elective modules from the Faculty of Engineering or the Faculty of Sciences
- Elective modules from all subjects offered by FAU
- Lab course
- Seminar
- Master's thesis with a presentation,
- Research project

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A Diploma supplement will be issued

Yes

### International elements

- Language training provided
- Training in intercultural skills

### Integrated internships

Research internship

Course-specific, integrated German language courses

No

Course-specific, integrated English language courses

No

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## Costs / Funding

Tuition fees per semester in EUR None

**Semester contribution** FAU does not charge tuition fees. However, each semester students must pay semester fees of 144 EUR consisting of student services fees and a fee for the basic semester ticket.

**Costs of living** According to a study by the German National Association for Student Affairs, students in former West Germany who no longer live with their parents have an average amount of more than 930 EUR per month at their disposal. However, monthly expenditures for personal lifestyle vary a lot. The study shows that approx. 25 per cent of the students asked have less than 700 EUR while 10 per cent have more than 1,300 EUR per month. For former West Germany, the study revealed the following details regarding average expenditures:

- Rent, including bills (in the Erlangen-Nuremberg area): 325 EUR (250 to 600 EUR)
- Food: 168 EUR
- Clothing: 42 EUR
- Transport (public transport and/or car): 94 EUR
- Learning materials (depending on the subject): 20 EUR
- Health insurance, doctors, medicine: 80 EUR
- Telecommunications: 31 EUR
- Leisure activities, culture, sports: 61 EUR

**Funding opportunities within the university** Yes

**Description of the above-mentioned funding opportunities within the university** There is a wide range of scholarships available for outstanding students. In addition to requiring applicants to have excellent grades, most scholarship programmes have additional conditions regarding cultural, political, religious, or social involvement. If you have any questions about the application procedure or selection criteria, you can contact the Student Advice and Career Service (IBZ) or speak directly to FAU's liaison officer for the scholarship organisation you wish to apply to.

<https://www.fau.eu/study/prospective-students/financing-your-studies>

## Requirements / Registration

**Academic admission requirements**

- Engineering mathematics: linear algebra, complex analysis, linear differential equations, Fourier transform, Laplace transform, z-transform
- Signals and Systems (textbook, e.g., Oppenheim/Willsky, Signals and Systems)
- Communications (textbook, e.g., Haykin, Communication Systems)
- Stochastic Processes (textbook, e.g., Pillai/Papoulis: Probability, Random Variables, and Stochastic Processes)
- Digital Signal Processing: A.V. Oppenheim and R. Schaffer, Discrete-Time Signal Processing, 3rd edition, Prentice Hall, 2013
- Software: MATLAB
- Knowledge in fundamentals of algorithms and data structures
- Knowledge in digital circuit design
- Basic knowledge in programming languages, e.g., C.C++, Java

**Language requirements** TOEFL (80 iBT, 210 CBT, 547 PBT) or IELTS (6.0) or Medium of Instruction Certificate

German language skills are not required.

**Application deadline** Winter semester: 15 July  
Summer semester: 15 January

Submit application to

<https://www.campo.fau.de/qisserver/pages/cs/sys/portal/hisinoneStartPage.faces>

## Services

### Possibility of finding part-time employment

According to a study by the German National Association for Student Affairs, around 63 per cent of all "first-time students" have a regular job – and not just during the holidays. On average, they work around eight hours a week for an average wage of 10 EUR per hour. Students can have a "450 EUR job" or work as a student trainee in a company or as a student assistant in the university – both during and outside the lecture period. Information on the legal conditions relating to part-time jobs for students is available in the brochure "Jobben" (part-time jobs) published by the German National Association for Student Affairs. FAU's [job portal](#) is also updated regularly with new advertisements for part-time jobs.

### Accommodation

The cities of Erlangen, Fürth, and Nuremberg offer a very good standard of living. They are popular places to live, meaning that accommodation is in high demand but often in short supply. This is particularly the case during the period before the start of a new semester. We therefore recommend that you start looking for accommodation as soon as possible. If you are flexible and also look in the surrounding area, you will have a better chance of finding somewhere affordable to live. The region has an excellent public transport system, so you should not have any problems getting to your place of study or work.

It is worth checking the available accommodation on the Internet every day, as new accommodation becomes available on a day-to-day basis. It pays to be flexible when it comes to the price, location, and available facilities of your accommodation.

Student Services Erlangen-Nürnberg runs its own [student accommodation](#) in Erlangen and Nuremberg. You will be informed about how to apply for a room in Student Services accommodation while you are in the process of applying to be admitted to FAU.

### Support for international students and doctoral candidates

- Buddy programme
- Specialist counselling
- Pick-up service

# FAU Erlangen-Nürnberg

Founded in 1743, FAU has a rich history. It is a strong research university with an international perspective and one of the largest universities in Germany with 39,657 students, [272 degree programmes](#), 4,000 academic staff (including over 624 professors), [243 million EUR third-party funding](#), and partnerships with universities all over the world. Teaching at the university is closely linked to research and focuses on training students in both theory and practice to enable them to think critically and work independently. The research itself also strikes the perfect balance between a theoretical approach and practical application.

FAU's outstanding research and teaching is reflected in top positions in both [national and international rankings](#) as well as the high amount of [DFG funding](#) that its researchers are able to secure.

## University location

FAU's two main sites, the cities of Erlangen and Nuremberg, are located at the heart of the Nuremberg Metropolitan Region. Both Erlangen, a city of 100,000 inhabitants that was the former home of the Huguenots and is a key location for Siemens, and Nuremberg, a city with a metropolitan flair and a population of half a million, have their own unique charms. The opera, theatre, and museums, along with a lively pub scene and nightlife, offer plenty of opportunities to relax after a day in the lecture theatre, lab, or library. The highlights of the cultural calendar in Erlangen include the Hörkunsthospital (acoustic art festival), International Comic Salon, figuren.theater.festival (puppet theatre festival), Poetenfest (poetry festival), and the "ARENA... of the young arts" theatre and performance festival. A wide range of cultural institutions open their doors to visitors during the Blue Night in Nuremberg, and once every two years, the Long Night of Sciences gives the public a chance to take a look inside research institutions in Erlangen, Nuremberg, and Fürth. In summary, the mixture of academia, innovative companies, art, and culture makes the region the perfect place for creative minds. There is also plenty on offer for keen athletes and nature lovers. Fränkische Schweiz, a paradise for climbers and walkers, is located to the north of Erlangen and is at FAU's doorstep. Water sports enthusiasts will love the Franconian lakes and the university's water sports centre, which is located just south of Nuremberg.

## Contact

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 <https://www.facebook.com/fauenglish/>

 <https://twitter.com/UniFAU>

 <https://www.linkedin.com/company/fau-erlangen-n%C3%BCrnberg/>

 [https://www.instagram.com/uni\\_fau/](https://www.instagram.com/uni_fau/)

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# International Programmes in Germany - Database

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## Disclaimer

The data used for this database was collected and analysed in good faith and with due diligence. The DAAD and the Content5 AG accept no liability for the correctness of the data contained in the "International Programmes in Germany" and "Language and Short Courses in Germany".

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