

Entry requirements

A first degree in Computer Science, Mobile and Embedded Systems, Computer Engineering, Electrical Engineering, Information and Communication Systems, Biomedical Technology or a related discipline with a minimum computer science content of 50 ECTS credits and an electrical engineering content of 15 ECTS credits and a final mark equivalent to 2.7 (German marking system), or among the best 70% of your cohort.

Unless English is your native language or the language of your secondary or undergraduate education, you should provide an English language certificate at level B2 CEFR, e.g. TOEFL with a minimum score of 567 PBT, 87 iBT or ITP 543 (silver); IELTS starting from 5.5; or an equivalent language certificate.

To facilitate daily life in Germany, it would be beneficial for you to have German language skills at level A1 CEFR (beginner's level). If you do not have any German language skills when starting out on the programme, you will complete a compulsory beginner's German course during your first year of study.

Cost of study

- No tuition fees
- €72 per semester for the student services contribution and the semester bus pass for Passau
- You should plan for a minimum of €720 per month to cover your living expenses
- Erasmus funding may be available for students from European partner institutions; we can help you with your grant applications from DAAD and other agencies

How and when to apply

Go to www.uni-passau.de/en/apply and follow the instructions on that page. The application deadlines are 15 January for the programme starting in April and 30 June for the October intake. Please apply as early as possible to ensure you can complete the visa application process in time for the Orientation Weeks and the start of the semester.

Further information and contact details

Programme page on the web

www.uni-passau.de/en/msc-mes

Faculty of Computer Science and Mathematics

For questions about the degree programme (subject areas, degree requirements, etc.), send an e-mail to the Programme Convenor, Professor Kranz, at Matthias.Kranz@uni-passau.de www.fim.uni-passau.de

Academic Advice Service

Primary contact for prospective international students seeking advice on study options and entry requirements
Innstr. 41, 94032 Passau, Germany
Phone: +49 851 509 ext. 1154, 1153, 1152, 1151 or 1150
E-mail: advice@uni-passau.de
www.uni-passau.de/en/academic-advice

International Office

Assists international students with the immigration formalities and with getting settled in Passau
www.uni-passau.de/en/international

Student Registration Office

Contact for enquiries related to your application
www.uni-passau.de/en/student-registration-office

Language Centre

Offers a wide range of language courses
www.sprachenzentrum.uni-passau.de/en

Centre for Careers and Competencies

Helps students seeking internships or career entry positions and offers transferable skills courses
www.uni-passau.de/en/zkk

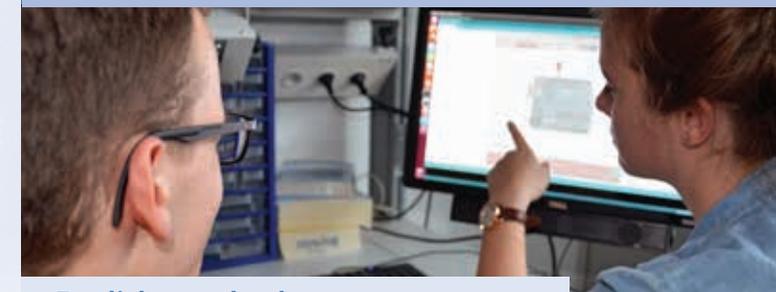
iStudi Coach for job market induction

Provides job market orientation and advice on internship and job search to international students
www.uni-passau.de/en/iStudi

German Courses Passau

German language courses for international students
www.uni-passau.de/en/learn-german

M.Sc. Mobile and Embedded Systems



English-taught degree programme



About the degree programme

The future of information and communication technology (ICT) is driven by mobile and networked embedded systems: tomorrow's digital cities, Industry 4.0, cyber-physical systems (CPS) and the Internet of Things (IoT) will all depend on embedded sensing of real-world phenomena, in-situ computation as well as automated information exchange and data distribution using machine-to-machine (M2M) communications between local and distributed control systems and machinery.

The 'smart grid' is one example of an application for future embedded systems, as it uses real-time sensing of the available renewable energy to determine where energy is to be routed across the power grid and controls intelligent machinery to increase production during peak times; this requires that internet-connected smart meters are installed in industrial plants and private homes alike to facilitate real-time sensing and control of technical systems.

Another exciting area of application for embedded systems is mobile and wearable technology, which allows users to access and manipulate information 'on the go' as the system provides relevant and timely information — indeed, this is one of the main purposes of mobile information technology such as smartphones and tablet computers. Additional meaning for this Human-Computer Interaction (HCI) is generated by the context of the device, the user, the location and many more factors, all of which are sensed and computed by a plenitude of embedded sensors and collocated or connected systems. Wearable devices such as fitness trackers and smart watches collect bio-physiological and health-related data to facilitate novel applications, including smart contact lenses and feedback systems for the learning of physical activities. At the same time, increasing cross-device interoperability means that users of head-mounted augmented reality and virtual reality displays can, for instance, use their entire smartphone screen as a keyboard and have the typed text displayed on augmented reality glasses.

Features

- Excellent rankings for computer science
- A strongly research-oriented two-year programme with a modern, broad range of subjects
- Allows flexible interest-based selection of modules from the groups 'Human-Computer Interaction', 'Systems Engineering' and 'Data Processing, Signals and Systems'
- Fully English-taught programme
- An outstanding staff-student ratio
- Participation in cutting-edge research projects
- Excellent research and teaching infrastructure
- An extensive network of partnerships with academic institutions and businesses worldwide
- A great student experience in Passau, 'City of Three Rivers'



Career prospects

Ours is one of only a handful of existing degree programmes which train specialists with the strong background in both computer science and engineering that is indispensable when designing, developing and deploying modern technologies in anything from individual devices to vast, complex systems. As a result, when you graduate from this degree programme you will be a highly sought-after specialist who is ready to design tomorrow's technology for a wide range of economic sectors, including automotive, manufacturing, energy and logistics. As modern systems are yet to be deployed in many industries, millions of new jobs are forecast in this field in the near future.

Programme	Mobile & Embedded Systems
Degree awarded	Master of Science (M.Sc.)
Duration and ECTS	4 semesters; 120 ECTS credits
Language of instruction	English
Starts in	April and October each year

As a so-called 'T-shaped individual' with in-depth expertise in your chosen specialisation as well as extensive competences in neighbouring fields, you will be a highly valuable addition to any team working on tomorrow's complex socio-technological challenges — be it in highly specialised engineering teams or in heterogeneous interdisciplinary project teams.

Your career prospects will be bright, as multinational and local companies alike urgently need graduates with your skill set and offer competitive starting salaries in the vicinity of €50K. Moreover, if you are planning a career in academia, this degree will give you the formal prerequisites for doctoral study in computer science or engineering.

Programme syllabus and structure

This degree programme imparts the methodologies of computer science, electrical engineering, information technology and additional subject areas essential for designing mobile and embedded systems, such as electronics, instrumentation and control engineering and sensor technology. You will also receive in-depth training in human-computer interaction, enabling you to adopt the user's perspective when designing systems and take into account usability and user needs — crucial factors for the social acceptance of technological innovations — throughout all stages of the design process.

The programme is divided into three module groups with core and elective modules. These are:

- 1) Human-Computer Interaction
- 2) Systems Engineering
- 3) Data Processing, Signals and Systems

In addition to learning about advanced technologies in the specialisation module group, you will choose modules from all three module groups, which allows you either to narrow the focus or widen the scope of your studies; finally, courses from the Centre for Key Competencies will round off your skills profile. Moreover, you may complement your studies with a research internship, where you will apply your skills to a highly innovative project. Finally, you will write a master's thesis as part of this programme.

Degree requirements

You should accumulate a total of 120 ECTS credits during the programme. While you are free to choose your modules in principle, your choices must meet the following conditions:

- 30 ECTS credits for your master's thesis (and presentation) on a subject chosen according to your preferences, ideally from your specialisation module group
- at least 30 ECTS credits from your specialisation group
- at least 15 ECTS credits from each of the non-specialisation module groups
- 5 ECTS credits from a seminar
- free choice of modules for the remaining 25 ECTS credits

