Master’s Programme

Embedded Systems

The demand for embedded systems in science and industry is increasing together with the increasing demand on automation, quality management, safety and efficiency. Graduates of the Embedded Systems Master’s program are flexible engineers, which can easily integrate different sectors in research and industry.
Career Opportunities

The possibilities for graduates are excellent both in science and in industry, because of the increasing importance and the high potential for innovation in embedded systems. The English Master program trains the abilities to become a global player in his field. In addition, the occupation of leadership positions in management is also possible.

- Automotive industry
- Aerospace
- Sensor industry
- Chip industry
- Robotics
- Plant Engineering
- Software development
- Research

What is Embedded Systems all about?

Embedded systems are important in industry and research as a key technology and make our daily life more comfortable and safer. Embedded systems are ubiquitous, and today’s economy and society would not survive without them. They drive innovation and help for diversification of products in terms of functionality, efficiency and quality.

The English-language Master’s Program provides a world-class education with focus on future challenges of embedded systems. Graduates will gain the ability to solve engineering tasks at the interface between hardware and software. The aim here is to develop intelligent system solutions by combining microsystem technologies, information and communication technologies and software development. Therefore, besides the theoretical education also the practical training plays an important role.

“Sensor systems offer interesting examples for Embedded Systems. They need a dedicated electronics for signal acquisition and amplification. By means of digital signal processing the measurement information can be extracted and transmitted. The decision about hardware and software realization of system functionality needs experts which are educated in both fields.”

Prof. Dr. Olfa Kanoun, Chair for Measurement and Sensor Technology
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Course Content

Lectures are given by professors from the faculty of electrical engineering and information technology, computer science, mathematics, economics and business administration. All of them have an excellent background from industry and research. In addition, communication skills can be improved.

Basic Modules

1st and 2nd semester

- Components and Architectures of Embedded Systems I
- Smart Sensor Systems
- Digital Systems
- Design of Software for Embedded Systems
- Real-Time Systems
- Project Lab Embedded Systems
- EDA-Tools I
- Hardware/Software Codesign I

Elective Modules

2nd and 3rd semester

- System Design I
- Design of Heterogeneous Systems
- Design for Testability for Circuits and Systems
- Realization of Digital Systems and DSP
- Hardware/Software Codesign II
- EDA-Tools II
- Software Environments of Smartphone Applications
- Software Platforms for Automotive Systems
- Automotive Sensor Systems
- Image Processing and Pattern Recognition
- Multisensorial Systems
- TV- and Video-Signal Processing
- Design of Software for Embedded Systems
- 3D Image Processing on Embedded Systems
- Computer Vision
- Numerical Simulation with MATLAB
- Mobile Localization and Navigation
- Antennas and Wave Propagation
- Self-Organizing Networks
- Network Security
- Optimization (for non-Mathematicians)
- Englisch in Studien- und Fachkommunikation V (Intermediate)
- Englisch in Studien- und Fachkommunikation VI (Intermediate)
- Management Accounting
- Communication and Leadership

Module Research Project

3rd semester

Module Master’s Thesis

4th semester
General Information

Requirements of admission: Bachelor's degree in Information and Communication Technology, Electrical Engineering or any other equivalent university degree with regard to content
Teaching language: English (Europ. B2, Unicert 2 or equivalent required)
Standard period of study: 4 semesters
Degree: Master of Science (M. Sc.)
Enrolment: Usually in the winter semester

Application

German students: The application can be submitted by using the following link www.tu-chemnitz.de/studienbewerbung.
International students: Please use www.uni-assist.com for your application.

Further Information
Technische Universität Chemnitz
Registrar's office
Straße der Nationen 62, room 043
09111 Chemnitz
+49 (0) 371 531-33333
studentensekretariat@tu-chemnitz.de

Specialised course guidance
You may find an overview over all specialised course advisors here
www.tu-chemnitz.de/studienberater

Student Advisory Service
Technische Universität Chemnitz
Student Advisory Service
Straße der Nationen 62, room 046
09107 Chemnitz
+49 (0) 371 531-55555
studienberatung@tu-chemnitz.de

www.tu-chemnitz.de

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