Automotive Software Engineering
Faculty of Computer Science

Master's degree programme

„80% of future innovations in the automobile industry will be based upon electrical devices, 90% of these controlled by software."

Klaus Grimm, Initiator of the GI special interest group Automotive Software Engineering

What characterises the Master's degree programme Automotive Software Engineering?

Automotive, avionics and mechanical systems are important application areas for most modern industries. The design of embedded control units in these areas relies on methods of computer science and engineering. Specific aspects of the development of these hardware/software systems are in the main focus of this Master's degree programme. The program provides knowledge and skills in three fields:

· Automotive Software Engineering
· Embedded Systems
· Real-Time and Communication Systems

"I am studying Automotive Software Engineering at Chemnitz University of Technology because of the provided outstanding environment: we develop course-related applications on original onboard control units of well-known automobile manufacturers. We process data from genuine BMW test vehicles and attend lectures held by guest professors that work for potential future employers, and teach in-depth knowledge and practical experiences."

Chirill Svet, graduate of the Master's degree programme Automotive Software Engineering

Degree Structure

Automotive Software Engineering (1st - 3rd semester)
· Design of Software for Embedded Systems
Elective modules, e.g.
· Formal Specification and Verification
· Automotive Software Engineering
· Neurocomputing
· Software Engineering and Programming Basics
· Empirical Software Engineering

Embedded Systems (1st - 3rd semester)
· Advanced Platforms for Automotive Systems
Elective modules, e.g.
· Hardware/Software-Codesign I and II
· Operating Systems for Distributed Systems
· Embedded Software Lab
· Automotive Sensor Systems
· Advanced Integrated Circuit Technology

Real-Time and Communication Systems (1st - 3rd semester)
Elective modules, e.g.
· Software Service Engineering
· Real-Time Systems
· Dependable Systems
· Security of Distributed Systems

Computer Science (1st - 3rd semester)
Elective modules, e.g.
· Advanced Management of Data
· Multimedia Retrieval
· Media Encoding
· Artificial Intelligence for Mobile Robots

Key Competences (2nd - 3rd semester)
· Fundamental Scientific Methods
· Business Planning and Management of Startups
· Distribution of Technical Devices
· Spanish
· For non-native German speakers: German as a foreign language

Module Research Seminar Computer Science and Module Research Internship (3rd semester)

Module Master Thesis (4th semester)

Research

The Master's degree programme is closely connected to the special interest research area "Embedded Self-Organising Systems" (ESS) of the Faculty of Computer Science. Therefore, courses and labs are often integrated in current research projects. Well-known industry partners, for example BMW and Airbus, offer opportunities for practical research trainings.

Career Opportunities

Companies and OEMs in the automotive and aviation industry seek graduated engineers who have successfully completed this Master's degree programme. Employment opportunities include: product development for control units, applied research and quality assurance.

GENERAL INFORMATION

Admission requirements: in general vocationally-qualifying university Bachelor's degree in Applied Computer Science, Computer Science or equivalent degree programme with regard to content
Standard period of study: 4 semesters (part-time-studies possible)
Degree: Master of Science (M.Sc.)
Start of the degree programme: winter and summer semester
Language of tuition: German or English

FURTHER INFORMATION:

Studying in Chemnitz
www.study-in-chemnitz.com

Online application:
www.tu-chemnitz.de/studienbewerbung

FAQ - Frequently Asked Questions
www.tu-chemnitz.de/studierendenservice/faq.php.en

Student Service Point
Straße der Nationen 62, room A10.043
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Central Course Guidance Service
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+49 371 531-55555
studienberatung@tu-chemnitz.de

Academic Course Guidance
For an overview of all academic counsellors
www.tu-chemnitz.de/studienberater

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For reasons of readability, the masculine gender was mostly used. However, the terms, titles and functions equally refer to all genders.

UNIVERSITY OF TECHNOLOGY
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CHEMNITZ

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