

Automation, robotics and control are rapidly becoming the backbone of modern technology – shaping how systems move, respond and interact. This master's programme sits at the intersection of all three fields. A particular highlight are the interdisciplinary project groups, where students from diverse backgrounds tackle complex, real-world tasks all the way from first ideas to working solutions.

What characterizes the Master degree programme Automation, Robotics and Control?

This programme focuses on automation, robotics and control, combining theoretical foundations with hands-on experience. In practice-oriented project groups, students from diverse backgrounds work together on complex tasks. International students gain extensive German skills, while German-speaking students deepen their technical English. Seminars strengthen soft skills such as ethics, academic work and human-technology interaction. Graduates benefit from excellent prospects in both industry and academia, in Germany and worldwide.

Automation

- Industrial Automation
- Process Control
- Industry 4.0
- Real-Time Implementation

Robotics

- Human-Robot Collaboration
- Mobile Robots
- Robot Vision
- Manipulation & Grasping

Control

- Advanced Control Systems
- Model-Based Control and Optimization
- Control of Complex Networks
- Controlled-Environment Agriculture

"The Master's programme in Automation, Control, and Robotics gives me the freedom to tailor my studies to my interests. Plus, the mid-programme group project is a fantastic opportunity to work on real research alongside my fellow students. " (Julian Tiede, Student)

Degree Structure

Basic Modules (1st semester)

- Mathematics for Engineering Science
- Advanced Linear Control
- Learning Dynamical Systems
- Autonomous Systems
- Robots, Modeling and Control

Supplementary Modules (1st - 3rd semester)

- Students whose native language is not German and who cannot prove language proficiency at level B2 of CEFR: German as a Foreign Language (level B2) is compulsory
- Introduction to Data Science
- Matrix-Methods in Data Science
- Optimization in Machine Learning
- Numerical Methods for Applications
- Applied Optimization
- Smart Sensor Systems
- Neurocomputing
- Deep Reinforcement Learning

Specialisation Modules (2nd - 3rd semester)

Thematic focus: Automation

- Autonomous Systems Lab
- Perception for Autonomous Vehicles

Thematic focus: Robotics

- Advanced Robotics / Embodied AI
- Robotics Lab
- Seminar Robotics and Human-Technology-Interaction

Thematic focus: Control

- Nonlinear Control
- Optimal Control
- Control Systems Technology in Applications
- Dynamics and Control of Networked Systems
- Control Systems Labs

Project (2nd or 3rd semester)

Engineering research project working in a team

Module Master's Thesis (4th semester)

Career Opportunities

Graduates have a strong profile in both industry and academia in Germany and internationally. Typical options include:

- Automotive and suppliers: production automation, autonomous driving, testing, robotics, ...
- Control systems engineer: robotics, automotive, aerospace, manufacturing, energy, process industries, ...
- Mechanical and plant engineering: machine builders, packaging, printing, food, pharma, ...
- Logistics and warehousing: robotics, material handling, automated warehouses, ...
- Energy and process industries: chemical, oil and gas, pharmaceuticals, utilities, ...
- Medical technology and assistive robotics: rehab robots, surgical systems, exoskeletons, ...
- Academia: international universities, research organizations like Fraunhofer, Max-Planck, Helmholtz, ...

General information

Faculty of Electrical Engineering and Information Technology

Admission requirements: in general vocationally-qualifying university Bachelor's degree in Digital Engineering or in Electrical Engineering and Information Technology from Chemnitz University of Technology or equivalent degree programme with regard to content, English language proficiency at Level B2 and German language proficiency at level A1 (A2 no later than the end of their third study term) according to the CEFR

Standard period of Study: 4 semesters (part-time-studies possible)

Degree: Master of Science (M.Sc.)

Start of the degree program: usually winter semester

Language of tuition: English

Further information

Studying in Chemnitz

www.study-in-chemnitz.com

Chemnitz University of Technology

www.tu-chemnitz.de

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

+49 371 531-12125

admission@tu-chemnitz.de

Central Course Guidance Service

Straße der Nationen 62, room A10.046

+49 371 531-55555

studienberatung@tu-chemnitz.de

Academic Course Guidance

For an overview of all academic counsellors

www.tu-chemnitz.de/studienberater

Postal address

Technische Universität Chemnitz

Studierendenservice und Zentrale Studienberatung

09107 Chemnitz

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