UNIVERSITY OF TECHNOLOGY
IN THE EUROPEAN CAPITAL OF CULTURE
CHEMNITZ

Faculty of Electrical Engineering and Information Technology

Master degree program

Design and Test for Integrated Circuits

"The Master's degree programme Design and Test for Integrated Circuits combines Design, Technology, Reliability and Test in a unique way to gain knowledge and practical experience for chip production. Multiple industry research partners are involved in the program enabling access to the latest developments in this field." (Prof. Dr. Ulrich Heinkel, Chair of Circuit and System Design, Chemnitz University of Technology)

What characterizes the Master degree program Design and Test for Integrated Circuits?

The programme provides a future-oriented education in the fields of designing, manufacturing and testing of integrated circuits. The initial theory courses are the base for the more practical oriented modules later. All courses are held by researchers actively working in the field enabling best up-to-date skills for the professional career of the graduates.

"This Master's programme expertly blends theoretical knowledge with hands-on experience, providing a comprehensive understanding of the increasing necessity of semiconductor test. Students can look forward to becoming part of a pioneering community that is at the forefront of technological innovation and securing a promising future in the global tech industry." (Dr. Ralf Montino, Vice President PLI, Elmos Semiconductor SE)

"IC design is at the heart of semiconductor innovation, enabling the creation of new, more powerful, and energy-efficient devices. This Master degree program equips graduates with skills and knowledge for a wide range of excellent career opportunities in Saxony, but also Germany and worldwide." (Uwe Gaebler, Senior Director Development Center for Automotive Electronics and Artificial Intelligence, Infineon Technologies)

Degree Structure

Basic Modules (1st - 2nd semester)

- Design of Digital Systems
- Design of Heterogeneous Systems
- Test of Digital and Mixed- Signal Circuits
- Elements of Integrated Circuits
- Technologies for Micro and Nano Systems
- Integrated Circuit Design - Transistor Level
- Reliability of Micro and Nano Systems

Focal Modules (1st - 3rd semester)

- Modern microscopies
- Verification of Digital Systems
- Numerical Methods for Materials and Reliability of Micro and Nano Systems

- Failure Analytical Methods for Micro and Nano Systems
- Smart Sensor Systems
- Semiconductor Physics - Nano Structures
- Advanced Integrated Circuit Technologies
- Microsystems Design
- Micro and Nano Devices
- Flexible Electronics
- Digital Components and Architectures for Data Processing
- Multisensorial Systems
- Digital Signal Processing
- Programming and Data Analysis
- Optimisation in Applications
- Advanced Methods for Integrated Circuits
- Automotive Systems: Advanced Platforms for Automotive Systems, Automotive Sensor Systems

Practical Oriented Modules (2nd - 3rd semester)

- Research Internship
- Research Project
- Applied Circuit Design and Testing
- Layout of ICs and PCBs

Module Master‘s Thesis (4th semester)

Career Opportunities

The possibilities for the graduates are excellent. They may work in IC design houses, fabs, semiconductor test companies and device characterisation departments.

The English course language enables you to work world-wide, for example in the following areas:

- Semiconductor industry
- Chip and sensor industry
- Automotive, aviation and railway industry

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- Research and development at universities
- Employment at state-owned and private research facilities

General infomation

Faculty of Electrical Engineering and Information Technology

Admission requirements: in general vocationally-qualifying university Bachelor's degree in Electrical Engineering and Information Technology or equivalent degree programme with regard to content, English language proficiency at Level B2 and German language proficiency at level A2 according to the CEFR

Standard period of study: 4 semesters

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

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

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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

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

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