

Research and development of modern, innovative, and functional materials with pronounced potentials for profound applications in science and technology.

What characterizes the Master degree program Advanced Functional Materials?

The advanced chemical and physical aspects of modern materials and the transfer of skills in synthesis, development, analysis and manufacturing of functional materials are the key issues of the program Advanced Functional Materials. The research oriented extension and intensification of physical and chemical knowledge is based on advanced practical training in actual research fields in a modern laboratory environment.

„Graphene, an atomically thin sheet of carbon, is a good example for an advanced functional material. It combines mechanical strength with extra-ordinary flexibility, is highly transparent for light but impermeable for gases, has high electrical and thermal conductivity. These properties render graphene in combination with other advanced materials useful for a large number of prospective applications in sensors, displays, flexible and printed electronics, lightweight composites, and so on.“ (Prof. Dr. Thomas Seyller, Speaker of the university’s focus area „Intelligent Systems and Materials“ and of the DFG priority program 1459 „Graphene“)

Degree Structure

The entire program Advanced Functional Materials can be studied in English language. Compulsory subjects are also offered in German language. Modules for a profound language training enhance the capability of an unrestricted communication in international research communities.

Compulsory Modules (1st – 3rd semester)

taught either in English or German language, exemplary:

- Kolloide
- Polymermaterialien
- Werkstoffkunde
- Funktionsmaterialien
- Praktikum zu Oberflächen- und Kolloidanalytik
- Spectroelectrochemistry
- Challenges for Future Energy Concepts
- Crystallography
- Nanophysics - Physics of Mesoscopic Systems
- Polymerphysik
- Microscopy and spectroscopy on the atomic and molecular scale

- Theoretische Festkörperphysik
- Surface and Interface Engineering
- Materials in Micro- and Nanotechnologies
- Elektrochemisches Beschichten
- Innovative Materials Engineering

Basic Modules (1st – 3rd semester)

taught in English language

Materials Chemistry

- Synthetic Methods in Chemistry
- Analytical Methods
- Sustainable Production Technologies

Materials Physics

- Advanced Surfaces, Thin Films and Interfaces
- Semiconductor Physics – Nanostructures
- Photovoltaics with Nanotechnology

Advanced Functional Materials

- Facets of Materials Science

Research Project (3rd Semester)

Module Master Thesis (4th Semester)

Career Opportunities

Current trends on the labor market indicate an increasing demand for graduates, who understand the processes in natural sciences on their transdisciplinary origin. Hence fields of work are for instance: Automotive Manufacturer, Aerospace Industry, Research Institutes, Semiconductor Industry, Chemical Industry, Pharmaceutical Companies, Energy Sector, Life Science Sector

The Master degree provides in addition the opportunity for doctoral studies (Ph. D.) at an university or research center, such as Max-Planck Institute or Fraunhofer Gesellschaft.



UNIVERSITY OF TECHNOLOGY
IN THE EUROPEAN CAPITAL OF CULTURE
CHEMNITZ

General information

Faculty of Natural Sciences

Admission requirements: in general vocationally-qualifying university bachelor's degree in Physics or Chemistry or equivalent degree program with regard to content, English language proficiency at Level B2 according to the CEFR

Standard period of study: 4 semesters

Degree: Master of Science (M.Sc.)

Start of the degree program: usually in the 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

Academic Course Guidance

For an overview of all academic counsellors

www.tu-chemnitz.de/studienberater

Postal address

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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. Edition 2021/2022