



UNIVERSITY OF TECHNOLOGY
IN THE EUROPEAN CAPITAL OF CULTURE
CHEMNITZ

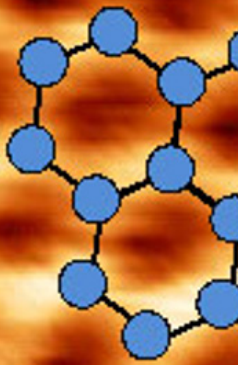
Advanced Functional Materials

Faculty of Natural Sciences

Master's degree programme



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



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**Advanced Chemical
and Physical Aspects
of
Modern
Materials**

Basic Modules
Materials Chemistry
Materials Physics

**Advanced
Practical Training**
in Methods of Modern
Materials Science

**Compulsory
Subjects**

What characterises the Master's degree programme 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 programme 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

Basic Modules (1st - 3rd semester)

- Advanced Concepts in Chemistry and Physics
- Synthetic Methods in Chemistry
- Material Characterisation
- Sustainable Chemical Production Technologies
- Surfaces, Thin Films and Interfaces
- Semiconductor Physics – Nano Structures
- Physics of Solar Cells
- Facets of Materials Science

Specialisation Modules (1st - 3rd Semester)

- Research Project
- German as a foreign language or English (depending on language competence level)
- modules must be selected: e. g. Polymer Materials, Colloids & Interfaces, Lab Course Colloids & Interfaces, Circular economy of polymers, Computational Chemistry, Molecular electronics, Sustainable Energy Infrastructure, Introduction to magnetic materials, Sensor Systems, Materials in Micro and Nano Technologies, Modern Battery Materials, Complex Materials for Manufacturing

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:

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|---------------------------|----------------------------|
| • Automotive Manufacturer | • Chemical Industry |
| • Aerospace Industry | • Pharmaceutical Companies |
| • Research Institutes | • Energy Sector |
| • Semiconductor Industry | • Life Science Sector |

The Master's 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.

GENERAL INFORMATION

Admission requirements: in general vocationally-qualifying university Bachelor's degree in Chemistry or Physics from Chemnitz University of Technology or equivalent degree programme 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 programme: 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

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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