

The high dynamics in science and technology as well as the digital transformation in economics and society provide diverse challenges to the engineers of tomorrow. The master degree program Advanced Manufacturing offers methods up to date to theoretical knowledge, such as competences for new and sustainable technologies connected with research and development but also application and recycling.

## What characterizes the master degree program Advanced Manufacturing?

The degree program puts especially new emerging technologies, manufacturing methods and materials into focus, from which disruptive effects can start off for the production of tomorrow. Besides a stable knowledge from the bachelor's degree in the field of production technologies, the applicants should also provide additional skills and experience to fulfill the high expectations of the degree program. From digital competences like Industry 4.0 up to the application of new functional materials, new challenges have emerged for production technologies with which students should deal profoundly in theory, implementation and application scenarios.

"The structure of the degree program offers us possibilities of choice and evolvment in the profiles of Hybrid Technologies, Printed Functionalities, Work Design & Sustainability Management and Production Systems. We can apply the skills gained during the projects of the research module on a practical test and amplify them due to the intensive interchange with our professors. The degree program ends with the master thesis in 4th semester in which expert knowledge converges with methodical knowledge." (Student of the master degree program Advanced Manufacturing)

## Degree Structure

### Basic Modules (1st semester)

#### *Advanced Manufacturing*

- Mathematics for Engineering Science
- Digital Manufacturing
- Additive Manufacturing
- Resource Efficiency from an Economic Perspective

### Compulsory Modules (1st - 2nd semester)

#### *Research Methods and Soft Skills*

- Language A1 and A2 German
- Research methods
- Elective Courses
- Two lectures from profile modules



### **Profile Modules (1st- 3rd semester)**

Of the following four profile lines, one must be chosen

#### *Hybrid Technologies, e.g.*

- Textile Process Chains
- Complex Materials for Manufacturing
- Calculation of Anisotropic Composite Materials
- Polymer-based Hybrid Structures
- Forming Process Chains

#### *Printed Functionalities, e.g.*

- Printing Processes
- Surface and Interface Engineering
- Automotive Sensor Systems
- Media Physics
- Research Lab

#### *Work Design & Sustainability Management, e.g.*

- Resource Management: Challenges for Political Processes
- Life Cycle Engineering
- Sustainability Management/Environmental Management Accounting
- Innovation and Value Creation
- Digital Ergonomics
- Instrumentation

#### *Production Systems, e.g.*

- Joining Technologies and Strategies
- Forming Process Chains
- Machining Technologies
- Efficient Process Chains
- Design and Control of Smart Production Systems
- Composite-based Hybrid Technologies
- Complex Materials for Manufacturing

## **Research Module (3rd semester)**

## **Module Master Thesis (4th semester)**

## **Career Opportunities**

Graduates of this degree program are highly wanted through disruptive innovations like digitalization, hybrid technologies and new functional material systems in consideration of resource- and energy efficiency. Notable examples are companies with branches like aerospace, mechanical -, automotive- and plant engineering as well as a widespread industrial basis of small and medium-sized companies up to engineering offices. The possibility to continue the scientific education at a university is offered to all graduates and also the doors are open for doctoral studies (Ph.D).

## **General information**

Faculty of Mechanical Engineering

Admission requirements: in general vocationally-qualifying university bachelor's degree in Engineering, Natural Science or equivalent degree program, 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: winter semester

Language of tuition: English

## **Further information**

### **Studying in Chemnitz**

[www.study-in-chemnitz.com](http://www.study-in-chemnitz.com)

### **Online application:**

[www.tu-chemnitz.de/studienbewerbung](http://www.tu-chemnitz.de/studienbewerbung)

### **FAQ - Frequently Asked Questions**

[www.tu-chemnitz.de/studierendenservice/faq.php.en](http://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](mailto:admission@tu-chemnitz.de)



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### **Central Course Guidance Service**

Straße der Nationen 62, room A10.046  
+49 371 531-5555  
[studienberatung@tu-chemnitz.de](mailto:studienberatung@tu-chemnitz.de)

### **Academic Course Guidance**

For an overview of all academic counsellors  
[www.tu-chemnitz.de/studienberater](http://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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