

## General Information

The Master's program in Computational Engineering is a two-year full-time program focusing on advanced topics in the area of Computational Engineering, which encompasses the specification, design, analysis, development, and operation of computer-based systems. This Master's program focuses on the software aspects of computational engineering, and there will be a special emphasis on designing and developing dependable and secure software for networked and distributed systems. All teaching is in English.

## General Course Program

The duration of the program is four semesters, i.e., two years. Each school year starts in October with the winter semester, which lasts until February. After a two-month break, the summer semester starts in April and ends in July. During the first half of the Master's program students will be introduced to basic scientific and engineering methods, as well as the individual disciplines in the field of Computational Engineering. These disciplines are covered by four required modules: Systems Engineering, Ubiquitous Information Systems, Distributed and Secure Platforms, and System Design and Analysis. Starting with the second semester, students will also be able to customize the focus of their studies by selecting elective courses that match their interests. During the second year of the program students will apply their knowledge in a computer lab course, and also write a Master's thesis in a topic of their choice. Graduates of the Master's program in Computational Engineering earn the degree of Master of Computer Science (M.C.S.), which is internationally recognized.

## Overview of Required Modules and Topics

### • Module M1: Systems Engineering

Foundations of design, development and usage of computer-based systems  
Non-functional aspects, e.g., reliability and availability

### • Module M2: Ubiquitous Information Systems

Middleware architectures and mobile communication systems  
Platforms for development of distributed systems  
Design and implementation of transactional information systems

### • Module M3: Distributed and Secure Platforms

Development of distributed and secure systems  
Design of secure architectures (security and cryptography)

### • Module M4: System Design and Analysis

Development of large software systems  
Modeling and simulation of event-oriented systems

Exams can be taken at the end of each semester, and credits will be earned for successfully completed courses.

## Teaching Staff

The teaching staff consists of professors of the Dresden University of Technology. Visiting professors and experts from industry may complete the team.

## Fees

There is no tuition. However, there is a 126 Euro fee per semester for the Studentenwerk (Organization for Student Affairs), which includes free use of public transportation in and around Dresden. Moreover, students have to pay for their living expenses as well as for accommodation.

## Student Housing

The Studentenwerk (Organization for Student Affairs) of the Dresden University of Technology is in the very favorable position of being able to accommodate almost every international student in residence halls. If they so wish, the rent is between 150 and 200 euro/month. Students accepted to the program and who are interested in student housing, should fill out the application form for student accommodation and send the completed form to the Studentenwerk as soon as possible (preferably by July/August). The application form will be sent together with the letter of admission.

## Health Insurance

International students are required to sign up for health insurance with an accredited German health insurance company. We also recommend to sign up for personal liability insurance. Information on health insurance can be obtained through the International Office (+49 351 463-35358). The costs for health insurance amount to approximately 50 euro/month.

## Application and Admission

The following prerequisites must be fulfilled by students applying for the Master's program in Computational Engineering at the Dresden University of Technology:

• A three or four year Bachelor's Degree in Computer Science or a comparable university-equivalent qualification. This degree needs to be completed by the time courses begin. (A comparable qualification in Germany would be a "Vordiplom in Informatik" followed by two successfully completed semesters in your main studies.)

• Language Certificate in English (for non-native speakers only) if English is not your native language; you need a certificate demonstrating your proficiency. The most widely recognized tests are:  
- IELTS, required level: 6.0  
- TOEFL, required level: 550 points

Equivalent certificates might also be considered. To obtain a student visa, it might however be required to have passed the TOEFL or IELTS test. Please consult the web site of the local German embassy for visa details (or see <http://www.auswaertiges-amt.de/www/en>).

• Submission of GRE score report.

• Certificates indicating the achievement of "good" (grade B) or "very good" (grade A) in the following areas:

- Operating Systems
- Computer Networks and Distributed Systems
- Database System Architecture and Design
- Software Engineering
- Mathematics and Electrical Engineering

• Advanced programming skills in at least one higher programming language (e.g. Java, C++)

The application form, application deadline, and more information on the application process and scholarships can be found at <http://www.computational-engineering.de>

The Computational Engineering admission committee reviews each application. If your application is accepted, we will first notify you by email and the International Office of Dresden University of Technology will send you the necessary documents for registration by mail.

## Dresden University of Technology - "Powerhouse in Science and Technology"

Study Computational Engineering in Dresden, Germany, and enjoy an international atmosphere with students and teachers from all over the world. At present, there are more than 30,000 students at the university, some 3,000 of which are international students from about 100 different countries. Dresden University of Technology is a truly international university and an integral part of the international network of the scientific community.

## Dresden - "Florence on the Elbe"

Dresden has been well known for more than two hundred years as "Florence on the Elbe". Its famous buildings include the Zwinger Palace and the Semper Gallery, the Semper Opera House, the Royal Palace (now being rebuilt), the Green Vault, the Church of our Ladies (now being rebuilt), the Cathedral, numerous churches and the castles of Gönnersburg, Pillnitz and Moritzburg, together with its museums, theaters and orchestras. The Elbe valley, running from the Bohemian border to the region of Meissen and including the Saxon capital of Dresden, is one of the most impressive landscapes in Germany with its peculiar sandstone rock formations, its vineyards, its gardens, and its historical buildings, which are well-known all over the world. Dresden also has many student clubs, making student life especially attractive.



**DRESDEN UNIVERSITY OF TECHNOLOGY**  
DEPARTMENT OF COMPUTER SCIENCE  
**COMPUTATIONAL ENGINEERING MASTERS PROGRAM**

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