Your Master's Degree

The Key to a Successful Career

Discover Master's degree programmes in **Computer Science and Engineering** at the **University of Freiburg, Germany**

universität freiburg

Design the future now!
Turn your vision into reality!
Change the world for the better!

… while gaining a degree with
great career opportunities!

Discover the English-language degree programmes at the Faculty of Engineering:

→ **Computer Science**
→ **Embedded Systems Engineering**
→ **Microsystems Engineering**
→ **Sustainable Systems Engineering**

Attractive career opportunities in many industries

As a computer scientist or engineer, you can develop intelligent products and solutions that play a decisive role in overcoming challenges in the healthcare sector, mobility, energy supply and environmental protection.

Medical technologies | Electronics and semiconductor industry | Automotive and supplier industry | Aerospace technology | Mechanical engineering sector | Sustainable systems engineering

Cutting-edge research, your own company or a career in business and industry

You can work with **top researchers** during your studies, learn about the **latest scientific findings** in your field and apply them in practice. Take advantage of the choices in our curricula and shape your studies according to **your personal strengths and interests**. You have the opportunity to become a doctoral student and finish up your Ph.D. Our graduates are in **high demand** in research facilities and leading companies in the region, in Europe and around the world.

The Faculty of Engineering in figures

2,500 **students**

55 **professors**

50 **nations**

Excellence: **2 clusters of excellence**

Many third-party funded projects – awarded to our professors due to their outstanding research

More than **20 spin-offs**: Great ideas for start-ups, developed in our laboratories

3 Departments

IIF
Department of Computer Science

IMTEK
Department of Microsystems Engineering

INATECH
Department of Sustainable Systems Engineering

Research partners and network (selection)

AMAZON	BOSCH	DAIMLER
ENDRESS & HAUSER	FRAUNHOFER	GOOGLE
HAHN-SCHICKARD	INFINEON	INOMED
NEUROLOOP	ROCHE DIAGNOSTICS	SCHOTT
SICK	SIEMENS	TDK MICRONAS
TRUMPF HÜTTINGER	VW	ZEISS

08/2023

Your benefits

One of the most prestigious universities in Germany

Ranked 5th among all German universities (Shanghai Ranking 2023)

Freiburg's Faculty of Engineering offers the perfect environment for research and teaching in future technologies. You will receive excellent support from our staff and benefit from a research-intensive learning environment. Our professors are renowned experts in their fields, with some even serving in an advisory capacity to the federal government:

Expert Commission on Energy Transition Monitoring
Expert Commission »Artificial Intelligence« of the German Bundestag
Expert Council for Climate Issues of the German Federal Government

Work in high-tech laboratories with top equipment

The Faculty of Engineering offers its own clean room, research labs, cutting-edge teaching and learning facilities, state-of-the-art e-learning resources, an engineering library and a campus cafeteria.

Gain practical experience in leading research institutes

A unique constellation within Germany between the Departments of Computer Science, Microsystems Engineering and Sustainable Systems Engineering and:

Cooperation with five Fraunhofer Institutes
Cooperation with Hahn-Schickard-Institutes
Cooperation with other departments within the university
Cooperation with other universities
Contact with leading tech companies

These connections provide numerous opportunities for internships, thesis placements or graduate-entry jobs.

Tradition meets innovation

The University of Freiburg, founded in 1457, is a renowned public research university with currently more than 24,000 students benefiting from a full spectrum of disciplines at 11 faculties. It has received numerous awards in various competitions for outstanding and innovative research and teaching.

Meet people from all over the world on campus

With 36% of our students coming from abroad, you can build an international network, expand your intercultural knowledge and improve your language skills.

Individual counselling from application to graduation

An orientation week for new students, buddy and mentoring programmes, individual study advising and career services – our staff will accompany you throughout your studies.

Study in one of the most attractive cities in the world

Freiburg is well known for its extremely high quality of life, its commitment to being a "Green City" and its vibrant student life. The sunniest city in Germany was voted one of the top three best cities in the world by the travel guide Lonely Planet. Whether it is due to the sunshine or the unique atmosphere that permeates the capital of the Black Forest, Freiburg appeals equally to fans of nature, culture or the simple pleasures of life. Located less than an hour by train from France and Switzerland and surrounded by green hills and vineyards, Freiburg's ideal geographic location offers its students boundless opportunities for relaxation and exploration.

Computer Science

Computer science is one of the most dynamic fields of study. It continues to develop at a rapid speed and new visions are always on the horizon.

At the **Department of Computer Science**, our goal is to turn our visions into tomorrow's solutions.
The Master's programme in Computer Science offers you three options:

Open curriculum:
where you can combine various topics such as algorithmics, data analysis, computer graphics, software and hardware development, machine learning and bioinformatics.

Specialization in Artificial Intelligence:
where you can put a special focus on artificial intelligence, machine learning, deep learning, robotics, computer vision, computer graphics and neuroscience.

Specialization in Cyber-Physical Systems:
where you can specialize in design, verification and analysis of hardware and software systems, programming languages, distributed or embedded systems, security and efficiency.

Study programme
Standard duration: 2 years
Intakes: April and October
Language of instruction: English
Requirements: Bachelor's degree in Computer Science (or a closely related study field) and English level C1

Advice and more information
Tel. ++49 761 203-8340
studienkoordination@tf.uni-freiburg.de

→ www.tf.uni-freiburg.de/en/**mcs**

Embedded Systems Engineering

Embedded Systems Engineering unites the worlds of engineering and computer science, combining hardware and software topics.

In this Master's programme, we provide you with versatile know-how in computer science and engineering. As an embedded systems engineer, you will not only know how to design micro-electronic and micro-mechanic devices, but you will also know how to programme the software that makes them work.

The **Department of Computer Science** and the **Department of Microsystems Engineering** provide an excellent environment for this interdisciplinary degree programme.

You will gain knowledge about the design of microelectronic, micro-mechanic and software-based components as well as their integration into complete systems. An extensive selection of courses allows you to set an individual focus or specialize in one of the following areas:

- Artificial Intelligence
- Cyber-Physical Systems
- Circuits and Systems
- Materials and Fabrication
- Biomedical Engineering
- Photonics

Study programme
Standard duration: 2 years
Intakes: April and October
Language of instruction: English
Requirements: Bachelor's degree in Electronics, Instrumentation, Mechatronics, Information Technology (or similar) and English level C1

Advice and more information
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→ www.tf.uni-freiburg.de/en/**ese**

Microsystems Engineering

Microsystems, MEMS or micromachines – many names for an exciting and dynamic engineering discipline which combines expertise from areas as diverse as electrical and mechanical engineering, materials, life sciences and many more.

With 22 professors and about 300 research and technical staff, our **Department of Microsystems Engineering (IMTEK)** is one of the world's largest academic institutions in this field. We are dedicated to interdisciplinary high-tech research with a strong focus on its application.

During the first year, you have five mandatory courses (Micro-electronics, Micro-mechanics, Microsystems Technologies and Processes, Microsystems Design Lab I as well as Signal Processing). In addition, you will choose five out of eight compulsory elective courses.

Specialization
You can specialize in one of the following areas:

- Circuits and Systems
- Biomedical Engineering
- Materials and Fabrication
- Photonics

Study programme
Standard duration: 2 years
Intake: October
Language of instruction: English
Requirements: Bachelor's degree in Electronics, Mechatronics, Electronics and Communication, Instrumentation, Electrical, Mechanical Engineering (or similar) and English level C1

Advice and more information
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studienkoordination@tf.uni-freiburg.de

→ www.tf.uni-freiburg.de/en/**mst**

Sustainable Systems Engineering

Science and engineering are vital tools in developing sustainable solutions to today's problems, not only in technology, but also in domains like ecology, economics and society.

The **Department of Sustainable Systems Engineering (INATECH)** consists of a partnership between the University of Freiburg and the five local Fraunhofer Institutes. This offers you unique opportunities to combine fundamental academic learning with the latest research and practical experience.

This international Master's programme provides in-depth engineering skills in:

- Sustainable Materials and Energy Systems
- Networks and Resilience
- Circularity Engineering

While mandatory elective modules ensure that you gain knowledge in all three of these areas, you are free to focus on one of them and delve deeply into your favourite research fields.

In addition, you can also gain interdisciplinary knowledge in natural resources and climate change, as well as sustainable economics, technologies and societies thus acquiring a holistic understanding of sustainability.

Study programme
Standard duration: 2 years
Intake: October
Language of instruction: English
Requirements: Bachelor's degree in Engineering (Electrical, Mechanical, Environmental, Process or Energy Engineering) or Materials Science and English level B2

Advice and more information
Tel. ++49 761 203-54010
study@inatech.uni-freiburg.de

→ www.tf.uni-freiburg.de/en/**sse**

How to apply

To apply, you just have to register in the online application portal and upload your documents (no Uni-assist, no application fee). The documents which are required and the exact application period will depend on the study programme you are applying for. Please check out the respective web pages:

M.Sc. Computer Science
→ www.tf.uni-freiburg.de/en/mcs

M.Sc. Embedded Systems Engineering
→ www.tf.uni-freiburg.de/en/ese

M.Sc. Microsystems Engineering
→ www.tf.uni-freiburg.de/en/mse

M.Sc. Sustainable Systems Engineering
→ www.tf.uni-freiburg.de/en/sse

Tuition fees: 1.500 euros per semester (non-EU citizens)
Semester contribution: 180 euros per semester

University of Freiburg

Faculty of Engineering
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