



# Master of Science Microsystems Engineering

University of Freiburg  
Faculty of Engineering

August 2016

## Facts and Figures

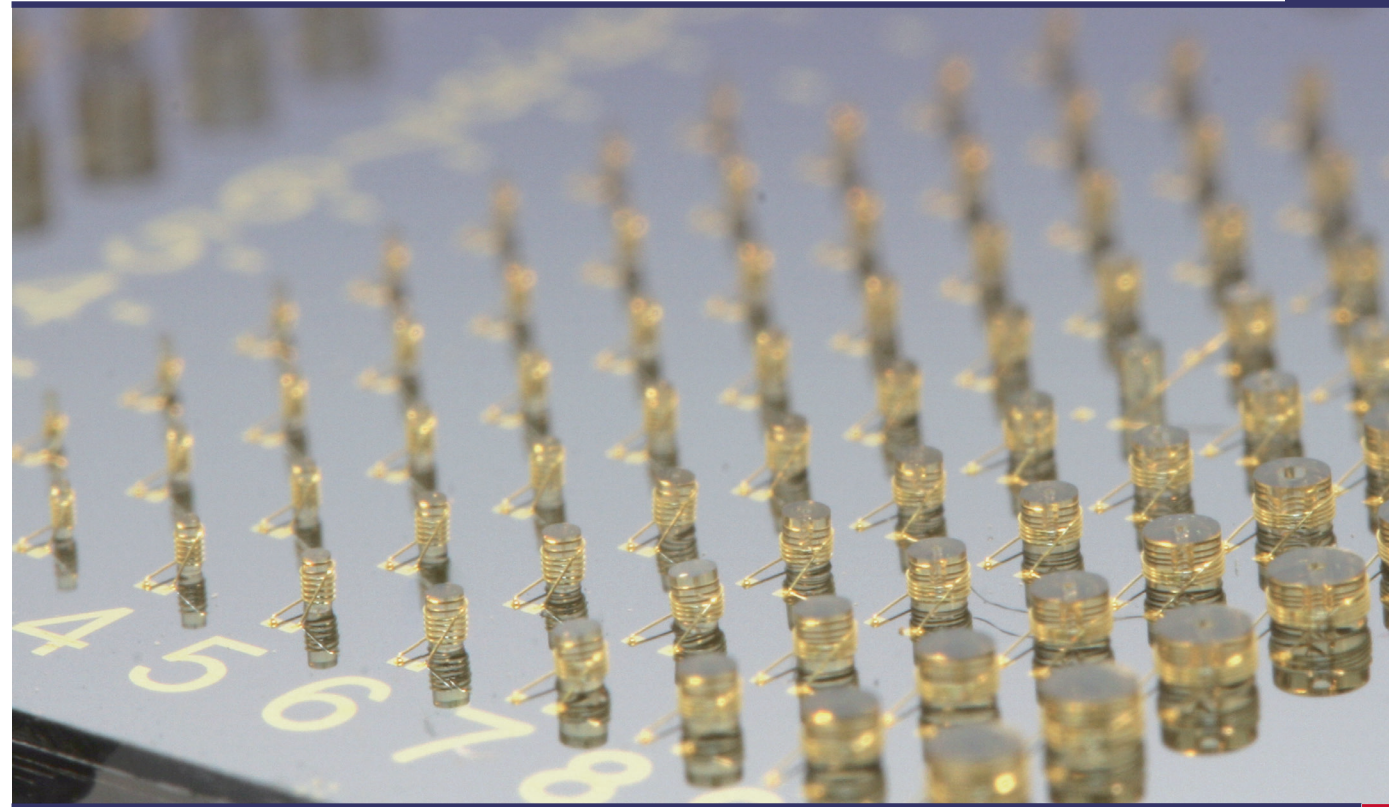
<b>Duration:</b>	2 years
<b>Programme start:</b>	October
<b>Language:</b>	English
<b>Application deadlines:</b>	1 May / 1 June*
<b>Requirements:</b>	BSc in Engineering or Science; outstanding performance; previous knowledge in mathematics, physics, chemistry, mechanics, electronics and materials; excellent English proficiency
<b>Fees:</b>	290 Euro per year

(\*Please check web page for details)

## How to apply

### Please send the following documents by post:

- Completed application form (online)
- A certified copy of your undergraduate diploma
- A certified copy of your grade transcript
- Proof of English proficiency (TOEFL or IELTS)
- GRE score (strongly recommended)
- At least one recommendation letter written by a university professor (template on our web page)
- A personal statement of intent outlining your reasons for wanting to study Microsystems Engineering
- Curriculum vitae or résumé

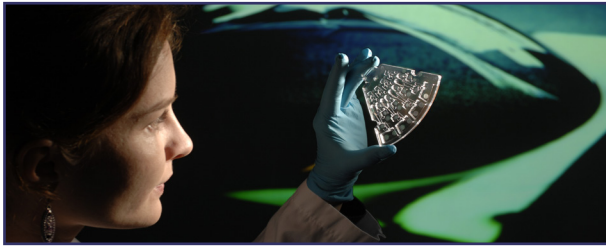


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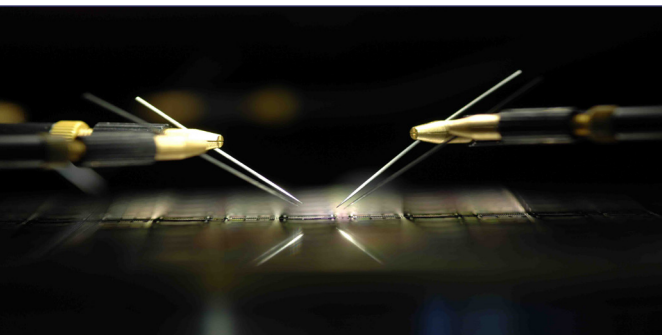
## The Master's Programme

Microsystems, MEMS or micromachines: many names for an exciting and dynamic engineering discipline which combines expertise from areas as diverse as electrical engineering, biology, manufacturing technology and chemistry and thus allows engineers to conceive highly miniaturized, multi-functional systems used for medical and diagnostic purposes, in communication and information systems as well as in the automotive industry.



The Master's programme in Microsystems Engineering is designed for highly qualified graduate students holding a Bachelor's degree in engineering or science. As an MSE student, you will have the opportunity to:

- study at one of the world's top academic microsystems research departments
- be involved in cutting-edge research with internationally renowned professors
- benefit from state-of-the-art equipment on a modern campus
- live in one of Germany's most appealing cities



## The Curriculum

MSE is an interdisciplinary programme that builds on a basic knowledge in electrical and mechanical engineering. Although from the third semester on you can specialise in two of seven concentration areas, in the first year you will have compulsory courses in all areas which play a role in microsystems engineering.

### Semester 1

- Microelectronics
- Micro-mechanics
- MST design laboratory I
- Optical microsystems
- Sensors
- Probability and statistics
- MST technologies and processes

### Semester 2

- Assembly and packaging technology
- Signal processing
- Dynamics of MEMS
- Micro-actuators
- Biomedical microsystems
- Micro-fluidics
- MST design laboratory II

### Semester 3

- Research project
- Microsystem concentrations

### Semester 4

- Research project
- Microsystem concentrations

### Concentrations are offered in the following areas:

- Circuits and systems
- Design and simulation
- Life sciences: Biomedical engineering
- Life sciences: Lab-on-a-chip
- Materials
- Photonics
- Sensors and actuators

## The Department

The Department of Microsystems Engineering (IMTEK) is unique in Europe. Its scientific scope, with currently 23 professors and over 300 research and technical staff, encompasses nearly all technical fields relevant to the world of microsystems, focusing in particular on energy autonomous microsystems, intelligent systems, lab-on-a-chip and biomedical microsystems, intelligent materials, surfaces and processes as well as optical systems. Situated on a new campus, IMTEK features modern facilities including a cleanroom, electronics, optics, chemistry and robotics laboratories and mobile computer pools for students.

## The University

Founded in 1457, the University of Freiburg is one of the most renowned universities in Germany. Its Faculty of Engineering focuses on higher education and research in key technologies, such as microsystems engineering, embedded systems, sustainable systems engineering and computer science. It does not only explore new ways in research, but it also has been awarded various prizes for striving to implement new methods and technologies in the teaching process.

