

## THE CAMPUS

### Engineering Sciences, Media, Information Sciences, Business Information Systems and Product Engineering

Originally a respected engineering college, during recent decades the Furtwangen site has developed into a modern campus accommodating five faculties. High-tech in the midst of nature, the town is an ideal place to study for those who want to experience progress in the making whilst enjoying a high quality of life.

Our faculty covers bachelor and master programmes in the area of electronics and computer engineering. All our programmes are accredited.

## THE FIRST STEPS

### Where and how do I apply?


Smart Systems  
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78120 Furtwangen  
Germany  
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wep@hs-furtwangen.de  
www.hs-furtwangen.de

### Application deadline

Students from European Union  
Summer semester 15. January  
Winter semester 15. July

Students not from European Union  
Winter semester 15. May



 Degree courses taught in English

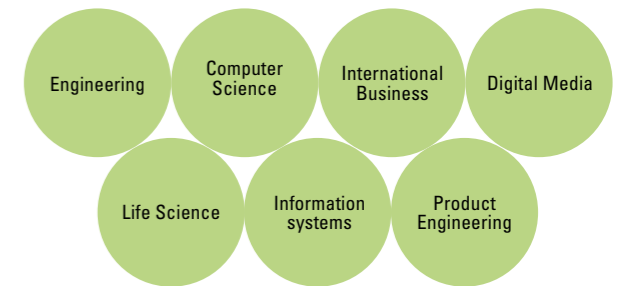
## FURTWANGEN UNIVERSITY (HFU)

### Reach new heights

It is not just the highest university in Germany, but also ranked among Germany's top educational establishments in many subjects – according to surveys carried out amongst students and employers.

Furtwangen University offers a wide variety of courses, with eight faculties and 40 accredited study programmes at its three campuses in Furtwangen, Schwenningen and Tuttlingen, making it the south-west's leading university.

Those selecting a course at HFU profit from excellent tutoring and support. Because the conditions are right at HFU. Small classes, personal contacts with the teaching staff, and an efficient learning environment guarantee excellent results. Students can concentrate fully on their studies. Modern laboratories, an up-to-date IT infrastructure, and one of Germany's best science libraries are just some of the excellent facilities available to all HFU students. Moreover, students and staff enjoy the university's internationality, as well as the natural beauty of the Black Forest, Baar, and Tuttlingen region. The enormous range of sports available includes more than 30 disciplines – from skiing and climbing, to tennis and mountain biking.



REACH NEW HEIGHTS



## THE PROGRAMME

### Smart Systems: Technology of the Future

These days the development of modern technology, be it in the automotive industry, the field of aviation or telecommunications, requires the cooperation of different areas of expertise.

In "Smart Systems", electronics, microsystem technology and technical computer science combine to form a conceptual unit. Graduates in any one of these fields are in high demand. However, the management of development projects and production processes involving Smart Systems require graduates who are competent in several of these fields, and have the knowledge and the skills to master their interactions and interfaces.

The Master of Science Programme in Smart Systems closely follows this technology trend. Specialised lectures, laboratory work and projects in each of the disciplines electronics, microsystem technology and technical computer science as well as a thorough introduction to the "system concept" (the whole is more than the sum of its parts) constitute the approach behind this contemporary graduate programme.

The Master of Science Programme in Smart Systems (SMA) is a three-semester graduate course for students with a bachelor's degree in a related field. The programme is open to international students.

Acceptance into the programme is subject to an assessment and an admissions procedure.

### Requirements

Professional degree from an academic institution or a similar degree. Good language skills in English, basic language skills in German.

### Length of programme

The programme lasts three semesters.

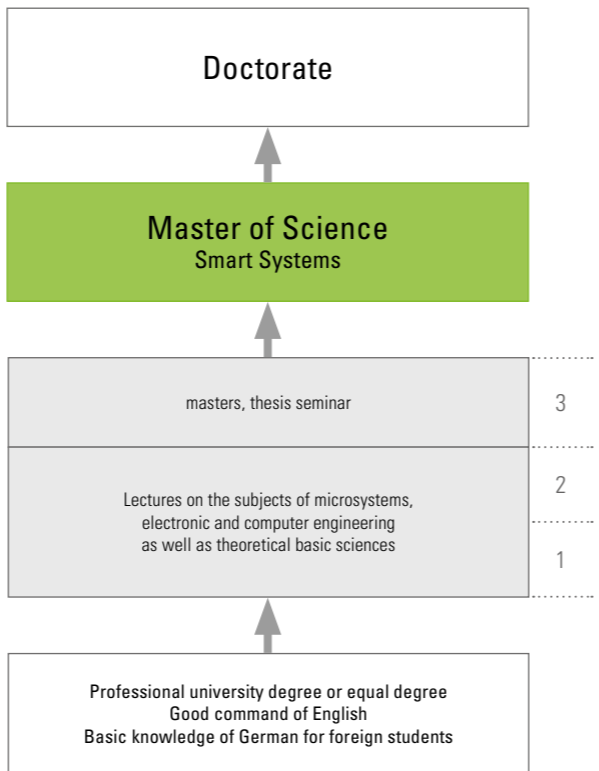
## THE PROGRAMME-STRUCTURE

The Master of Science Programme in Smart Systems (SMA) consists of two semesters of study and an additional semester for the master's thesis.

During the study semesters, various modular elective courses enable students to develop a field of specialisation. (See curriculum for more information.)

The university offers state of the art thesis subjects dealing with smart system engineering.

The master's thesis can be done at a research institute or in industry.



## CURRICULUM

The courses in the Master of Science Programme SMA are drawn from the following fields:

- microelectronics
- measurement technology
- advanced feedback control
- embedded systems
- signal processing
- characterisation technology
- hardware / software codesign
- hardware-based programming
- semi-conductor devices
- simulation
- electrodynamics
- mathematics
- IC- and MEMS-technology
- microsensors
- IC design

SMA students specialise in one of the following areas:

### Microsystems Engineering

This specialisation focuses on the design, development a realization of miniaturized systems, so called Microsystems. Microsystems (MEMS) integrate electrical and non-electrical functions in one system. Due to the interdisciplinary approach, this specialization is interesting for students with a background in electrical engineering, electronics, control, mechatronics or even physics engineering. Students are given the opportunity to participate in ground breaking research.

### Electrical Engineering

Students choosing this specialisation should already have a solid background in electrical engineering. Students in this group deepen their knowledge of electronics and electrical engineering and obtain additional skills in technical computer science.

### Computer Engineering

The specialisation in computer engineering is designed for students with a strong computer science background. Students in this group deepen their knowledge of technical computer science and supplement it with training in electronics.

## CAREER PROFILE / OPPORTUNITIES

### Qualified for first-rate opportunities and high achievement

Smart Systems are implemented in all areas of industry and consumer electronics. For example, they are increasingly used in industrial manufacturing, in the automotive industry, in medical technology, and in the IT-communications industry.

Our graduates have career opportunities as development engineers, system designers or consultants among others. The programme them for innovation, research and development in all of the above-mentioned fields as well as in related areas in industry and public research institutes.

It is possible for SMA graduates to obtain a Ph.D. through the doctoral programme in "generating mechanisms in microstructures" offered in cooperation with the University of Freiburg.

Especially the south-west-region of Germany, including Furtwangen, stands out due to its excellent career chances as an engineer in one of its many companies in the microsystem industry.