



## Electrical and Electronics Engineering - Bachelor of Engineering -

### THE FASCINATION OF ELECTRICAL AND ELECTRONICS ENGINEERING

Mobile phones, computers, internet – we all certainly know how to use them. But how does the technology behind it work? Often a new technology starts getting exciting once you understand the context and implications.

If you choose to study Electrical and Electronics Engineering you will systematically learn how the innovative technologies work which determine our lives. Wherever information is gathered, processed or transported electronically, or where electrical power is generated or applied, engineers of Electrical and Electronics Engineering are needed.

The traditional main pillars of studies at Kempten University comprise power engineering and automation and control. The rapid growth of information and communication technology however has invaded all other technology sectors.

Electrical engineers work in research and development, planning and projecting, in the manufacturing, in testing and quality assurance, in distribution and, after gathering of work experience, in management areas. In addition to posts in the electrical industry there are attractive working opportunities in the automobile industry, in mechanical engineering, at power supply, telecommunication or broadcasting companies, and in state-owned facilities.

### INFORMATION TECHNOLOGY OR INFORMATICS?

Albeit quite similar on first view, these terms have completely different meaning. While Informatics deals with the details of software programming, operating systems, data bases, computer networks and microprocessor structures, engineers of information technology have a view on the system as a whole.

Attractive key technologies such as multi-media, telecommunication, advanced driver assistance systems and electrical drives are always developed as a combination of hardware and

software. Electrical engineers are particularly in demand in this area.

### YOUR PROFILE

An important prerequisite for engineering studies is your interest in the natural sciences and your enthusiasm for technology. You should be curious and be willing to know how electrical and electronic devices work. Electricity cannot be grasped with human wits – they manifest themselves only by the impact they have on their environment (e.g. light, heat, force, power). If you can imagine invisible currents in a conductor and if mathematical formulas do not intimidate you, you are apt for studying Electrical Engineering. As in all engineering disciplines it is an advantage to like teamwork and have good knowledge of the English language.

### HOW THE STUDIES ARE ORGANISED

In your initial work placement of six weeks duration you will learn the basics of metal and electrical work. As a rule, the initial work placement is completed prior to study start. As an exception it may be done in the semester break during the basic studies period. If you have worked in engineering before or completed the technology stream of a (German) technical college you may be exempt from this pre-study work placement.

The Basic Studies Period (semesters 1 and 2) concentrates on imparting the basics of mathematics, science and technology.

In the subsequent Main Studies Period you will learn the core and in-depth competencies necessary for your future work. Numerous tutorials will help you visualizing the theoretical knowledge learnt and demonstrate its practical application. Semester five is a work placement semester to be completed in industry.

In your work placement semester the theories learnt so far will be put into practice in a vocational, engineering-like activity in your training company. This will vastly improve your understanding of the link between theory and practice and prepare you for later professional life.

In-depth modules will be offered from semester six onwards: customize your studies by selecting the ones in line with your personal preferences

and professional objectives! As the modules are independent from each other, you may either follow classical tracks or choose off-the-wall combinations give you studies an individual touch. The specialisations modules are constantly adapted, taking into account the latest technology trends and demands of the labour market. The following ones are on offer at the moment:

- Electrical Drive Technology
- Measurement and Control Technology
- Power Engineering Systems
- Communication Technology

You will terminate your studies with a Bachelor thesis. Upon successful graduation you will be awarded the academic degree Bachelor of Engineering (B.Eng.)

Our consecutive **MASTER'S DEGREE PROGRAMMES** enable you to achieve a Master's degree in 10 semesters only:

- Electrical Engineering with the degree Master of Engineering. An integrated study-abroad stay at the University of Ulster leads you to an international double degree. In addition you will receive the British Master of Engineering (M.Eng. Electronic Engineering)
- Applied Informatics with the degree Master of Science
- Further Master's degree courses such as Driver Assistance Systems and Automation Technology and Robotics) are currently being developed.

## LIST OF STUDY MODULES

### Basic Studies (Semesters 1 to 2)

- Mathematics 1 and 2
- Physics, with laboratory
- Basic Electrical Engineering 1 and 2, with laboratory
- Material Science for Electrical Engineering
- Design
- Basic Computer Science
- Electrical Engineering Theory 1 and 2
- Digital Engineering, with laboratory

### Main Studies (Semesters 3 to 7)

- Mathematics 3
- Electrical Engineering Theory 3
- Signal and System Technology
- Electronic Components
- Programming
- Electronic Metrology
- Project and Quality Management

- Control Engineering
- Telecommunications Engineering
- Electrical Power Engineering
- Circuit Design
- Microcomputer Technology
- Communicational and Presentational Skills
- Business Administration
- Work Placement (21 weeks)
- In-depth Modules 1 and 2
- Systems Design
- English
- Course Electives
- General Scientific Electives
- Bachelor Thesis

## CONTACT

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## IMPORTANT LINKS

(Information in English on our website)

[www.hs-kempten.de](http://www.hs-kempten.de) > INTERNATIONAL > click English flag (in the top left-hand corner)

Information for international exchange students  
(> INTERNATIONAL > EXCHANGE STUDENTS / INCOMING)

Study programmes – short description in English  
(> INTERNATIONAL > DOWNLOADS > Study Programmes)

Guests and Visitors at Kempten University  
(> INTERNATIONAL > GUESTS AND VISITORS)

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**PLEASE NOTE** that, although this description is written in English, the study course is taught in German.