

## List of English Modules

within the **German-English Study Programs** of the

### **Master Course "Electrical Engineering, Information Technology and Computer Engineering"**

(valid for summer semester 2017 and winter semester 2017/18)

#### **Study Program: Electrical Power Engineering (Elektrische Energietechnik)**

##### Module Group A

- Electrical Drives
- Power Electronics - Control, Synthesis and Applications
- Automation of Complex Power Systems
- Power System Dynamics
- Battery Storage Systems (summer semester: in German; winter semester: in English)

##### Module Group B

- Protective Measures and Equipment in Power Supply Systems and Electrical Installations (summer semester: in German; winter semester: in English)
- Power Economics in Liberalised Electricity Markets
- Power Cable Engineering
- Electromagnetic Field Simulation for Electrical Energy Applications
- Modeling and Simulation of Complex Power Systems
- Measurement Techniques and Distributed Intelligence for Power Systems
- Modern Control Systems
- Power Electronic Devices

##### Module Group C

- Mechatronic Systems 1
- Optimization in Engineering
- Electronic and optical Measurement Techniques
- Technical Acoustics

**Study Program: Information and Communications Technology (Informations- und  
Kommunikationstechnik)**

Module Group A

- Multimedia Communication Systems 1
- Multimedia Communication Systems 2
- Digitale Sprachverarbeitung 1 (Digital Speech Processing 1; lecture in German; English script)
- Digitale Sprachverarbeitung 2 (Digital Speech Processing 2; lecture in German; English script)
- Advanced Methods of Cryptography
- Technical Acoustics

Module Group B

- Advanced Coding and Modulation (lecture in German; English script)
- Advanced Topics in Signal Processing and Communication
- Mobile Radio Networks 1
- Mobile Radio Networks 2
- Algorithm Design for Digital Receivers
- Signal Processing in Multi-Antenna (MIMO) Communication Systems
- Estimation and Detection Theory
- Optimization in Engineering
- Acoustic Virtual Reality
- Satellite Navigation
- High Frequency Electronics

Module Group C

- DSP Design Methodologies and Tools
- New Materials and Devices for Information Technology 1
- New Materials and Devices for Information Technology 2
- Optical Telecommunications 1: Devices
- Optical Telecommunications 2: Systems
- Radar Systems
- Special-Purpose Operating Systems
- Electronic and Optical Measurement Techniques

## **Study Program: Computer Engineering (Technische Informatik)**

### Module Group A

- Digitale Sprachverarbeitung 1 (Digital Speech Processing 1; lecture in German; English script)
- Digitale Sprachverarbeitung 2 (Digital Speech Processing 2; lecture in German; English script)
- Multimedia Communication Systems 1
- Multimedia Communication Systems 2
- Technical Acoustics

### Module Group B

- Advanced Coding and Modulation (lecture in German; English script)
- Advanced Topics in Signal Processing and Communication
- Acoustic Virtual Reality
- Advanced Methods of Cryptography
- DSP Design Methodologies and Tools
- Mobile Radio Networks 1
- Mobile Radio Networks 2
- Ad-Hoc Networks: Architectures and Protocols
- Psychoacoustics and Methods for Listening Experiments

### Module Group C

- Applied Automata Theory
- Distributed Application and Middleware
- Introduction to Embedded Systems
- Implementation of Databases
- Introduction to Artificial Intelligence
- Introduction to Knowledge Representation
- Data Mining Algorithms
- Basic Techniques in Computer Graphics
- Introduction to High Performance Computing
- Pattern Recognition and Neural Networks
- Automatic Speech Recognition

- Advanced Methods in Automatic Speech Recognition
- Virtual Reality
- Optimization in Engineering
- Fundamentals of Big Data Analytics
- Special-Purpose Operating Systems

### **Study Program: Systems Engineering and Automation (Systemtechnik und Automatisierung)**

#### Module Group A

- Advanced Control Systems
- Mechatronic Systems 1
- Mechatronic Systems 2
- Optimization in Engineering
- Advanced Topics in Signal Processing and Communication
- Estimation and Detection Theory
- Modern Control Systems

#### Module Group B

- Ad-Hoc Networks: Architectures and Protocols
- Sensor Networks: Principles and Applications
- Measurement Techniques and Distributed Intelligence for Power Systems
- DSP Design Methodologies and Tools
- Power Electronics - Control, Synthesis and Applications
- Multimedia Communication Systems 1
- Multimedia Communication Systems 2
- Communication Protocols
- Advanced Coding and Modulation (lecture in German; English script)
- Optical Telecommunications 1: Devices
- Optical Telecommunications 2: Systems
- Einführung in eingebettete Systeme (Introduction to Embedded Systems; currently German lecture but videos from former English lectures available)
- Fundamentals of Big Data Analysis
- Electronic and Optical Measurement Techniques

### Module Group C

- Medical Systems 1: Therapy Equipment
- Medical Systems 2: Medical instrumentation and signal processing
- Acoustic Virtual Reality
- Electrical Drives
- Batteriespeichersystemtechnik (Battery Storage Systems; in the summer semester: in German; in the winter semester: in English)
- Automation of Complex Power Systems
- Power System Dynamics
- Satellite Navigation

### **Study Program: Biomedical Engineering (Biomedizinische Technik)**

#### Module Group A

- Medical Systems 1: Therapy Equipment
- Medical Systems 2: Medical instrumentation and signal processing
- Biomedical Imaging

#### Module Group B

- Mechatronic Systems 1
- Mechatronic Systems 2
- Advanced Control Systems
- Digitale Sprachverarbeitung 1 (Digital Speech Processing 1; lecture in German; English script)
- Digitale Sprachverarbeitung 2 (Digital Speech Processing 2; lecture in German; English script)
- Advanced Topics in Signal Processing and Communication
- Radar Systems
- Electronic and optical Measurement Techniques
- Technical Acoustics