

## Course Catalog

Fakultät für Informations-, Medien- und Elektrotechnik

---

---

Courses are colour-coded according to the course language

German

English

German, English if necessary

German and English

### ^ Level: Bachelor, Summer Semester

---

→ [Advanced methods and theories of Media Design \(Russi\)](#)

---

→ [algorithms and data structures \(Rosenthal\)](#)

---

→ [Audio Engineering \(Reiter\)](#)

---

→ [Autonomous Systems \(Yuan\)](#)

---

→ [Basics of Media Design 1 \(Russi\)](#)

---

→ [Bioenergie und regenerative Gastechnologie \(Stenzel\)](#)

---

→ [Business and Law \(Kim\)](#)

---

→ [Communication Acoustics \(Pörschmann\)](#)

---

→ [Computer Graphics \(Fuhrmann\)](#)

---

→ [Computer Science 2 \(Fuhrmann\)](#)

---

→ [Control Systems of Electrical Drives \(Lohner\)](#)

---

→ [Data Base Systems 2 \(Behrend\)](#)

---

→ [Digital Communications \(Dettmar\)](#)

---

→ [Digital Signal Processing with FPGA \(Krah\)](#)

---

→ [Discrete Signals and Systems \(Elders-Boll\)](#)

---

→ [Display technology \(Ruelberg\)](#)

---

→ [Electrical Engineering Materials \(Poggemann\)](#)

---

➔ [Electric power generation \(Evers\)](#)

---

➔ [Electrical Engineering 2 \(Basics\) \(Kronberger\)](#)

---

➔ [Electrical Machines \(Evers\)](#)

---

➔ [Electrical safety and EMC \(Humpert\)](#)

---

➔ [Electronic Media 1 \(Pörschmann\)](#)

---

➔ [Embedded system project \(Krawutschke\)](#)

---

➔ [Energy Economics \(Stadler\)](#)

---

➔ [Entwurf, Simulation und Layout von Schaltungen \(Brunner\)](#)

---

➔ [Formal Languages and Automata Theory \(Nissen\)](#)

---

➔ [Fundamentals in System Programming \(Thieling\)](#)

---

➔ [Fundamentals of Electrical Engineering 1 \(Waffenschmidt\)](#)

---

➔ [Fundamentals of Electrical Engineering 2 \(May\)](#)

---

➔ [Fundamentals of Electrical Engineering 2 \(Waffenschmidt\)](#)

---

➔ [Graphentheorie \(Randerath\)](#)

---

➔ [High Frequency Technologies \(Kronberger\)](#)

---

➔ [Holography \(Altmeyer\)](#)

---

➔ [Image Processing \(Kunz\)](#)

---

➔ [Image Sensor Technology \(Poggemann\)](#)

---

➔ [Industrial Image Processing \(Thieling\)](#)

---

➔ [Information technology for automation technology \(Große\)](#)

---

➔ [Internship \(BaTIN\)](#)

---

➔ [Introduction to Fieldbus Systems \(Bartz\)](#)

---

➔ [IoT Protocols and Applications \(Elders-Boll\)](#)

---

➔ [IT Security \(Knospe\)](#)

---

➔ [Management of Projects in Information Technology \(Yuan\)](#)

---

➔ [Mathematics 2 \(Bold\)](#)

➔ [Mathematics 2 \(Knospe\)](#)

---

➔ [Mathematics 2 \(Kunz\)](#)

---

➔ [Mathematics 2 \(Weigand\)](#)

---

➔ [Measurement Technology \(Silverberg\)](#)

---

➔ [Media Design Project \(Russi\)](#)

---

➔ [Media ethics and society \(Russi\)](#)

---

➔ [Medical Imaging \(Oberheide\)](#)

---

➔ [Microcomputer systems \(Stockmann\)](#)

---

➔ [Network Security and Automation \(Grebe\)](#)

---

➔ [Operating Systems and Distributed Systems 2 \(Vogt\)](#)

---

➔ [Operational energy management \(Stockmann\)](#)

---

➔ [Optical Design \(Weigand\)](#)

---

➔ [Parallel Programming and Computerarchitektur \(Thieling\)](#)

---

➔ [Participation in appointment committees \(BaTIN\)](#)

---

➔ [Photo Technology 2 \(Fischer\)](#)

---

➔ [Physics 1 \(Humpert\)](#)

---

➔ [Physics 1 \(Kohlhof\)](#)

---

➔ [Physics 1 \(Oberheide\)](#)

---

➔ [Postproduction \(Gärtner\)](#)

---

➔ [Power Electronics \(Dick\)](#)

---

➔ [Practical Informatics 2 \(Rosenthal\)](#)

---

➔ [Practical Informatics 2 \(Yuan\)](#)

---

➔ [Practically based Summer School \(Schneider\)](#)

---

➔ [Process Control Technology Systems \(Große\)](#)

---

➔ [Programming distributed and mobile applications \(Vogt\)](#)

---

➔ [Project Camera Technology Applications \(Fischer\)](#)

---

➔ [Project Image Processing / Pattern Recognition \(Kunz\)](#)

---

→ [Project Interactive Systems \(Grünvogel\)](#)

---

→ [Project Media Distribution / Display Technology \(Ruelberg\)](#)

---

→ [Project Media Production Technologies \(Reiter\)](#)

---

→ [Project-based optics \(Gartz\)](#)

---

→ [Radiation, radiometry, photometry \(Gartz\)](#)

---

→ [Sensors and evaluation of measurements \(May\)](#)

---

→ [Software engineering for automation technology \(Kreiser\)](#)

---

→ [Software Lab \(Nissen\)](#)

---

→ [Stereoscopy \(Fischer\)](#)

---

→ [Switch-Mode Power Supplies \(Dick\)](#)

---

→ [Systems on Programmable Chips \(Krawutschke\)](#)

---

→ [Technical optics \(Altmeyer\)](#)

---

→ [Technologien der augenoptischen Industrie \(NN\)](#)

---

→ [wave optics, interference, diffraction \(Gartz\)](#)

---

→ [Web Engineering 1 \(Backend\) \(NN\)](#)

---

→ [Web project \(NN\)](#)

---

→ [Writing scientific papers \(Weigand\)](#)

---

## ^ Level: Bachelor, Winter Semester

→ [Acoustics for Engineers \(Pörschmann\)](#)

---

→ [Analogue signals and systems \(Elders-Boll\)](#)

---

→ [Analogue signals and systems \(Lohner\)](#)

---

→ [Antenna Technology \(Kronberger\)](#)

---

→ [Applied Mathematics \(Rhein\)](#)

---

→ [Applied Statistics and Numerical Analysis \(Rhein\)](#)

---

→ [Basic Electrical Engineering for Computer Science and Engineering \(Thieling\)](#)

---

→ [Basics of Media Design 2 \(Russi\)](#)

---

→ Business and Law (Kim)

---

→ Camera Technology (Fischer)

---

→ Computer Animation (Grünvogel)

---

→ Computer Generated Imagery (Fuhrmann)

---

→ Computer Science 1 (Fuhrmann)

---

→ Computer Science 3 (Lo Iacono)

---

→ Control Engineering (Krah)

---

→ Control System Technology (Kreiser)

---

→ Data Base Systems 1 (Behrend)

---

→ Data Mining (Rhein)

---

→ Data Mining (Rhein)

---

→ design and 3D-CAD (Gartz)

---

→ Development of Complex Software Systems (Nissen)

---

→ Digital Computer (Thieling)

---

→ Electrical Drives (Dick)

---

→ Electrical Engineering (Basics) (Kronberger)

---

→ Electrical Engineering 3 (Kronberger)

---

→ Electrical Power Distribution (Waffenschmidt)

---

→ Electronic Circuits (Schneider)

---

→ Electronic Media 2 (Ruelberg)

---

→ Electronics (Poggemann)

---

→ Embedded Systems (Krawutschke)

---

→ Energy Storage (Stadler)

---

→ F07 Networks and Protocols (Grebe)

---

→ Fahrmechanik (Frantzen)

---

→ Film- and Postproduction (Gärtner)

---

→ First term project (Gartz)

---

→ Functional Safety (Krah)

---

➔ Fundamentals of Electrical Engineering 1 (May).

---

➔ Fundamentals of Electrical Engineering 3 (Evers).

---

➔ Fundamentals of Electrical Engineering 3 (May).

---

➔ Geo- und Solarthermie (Lambers).

---

➔ Geometrical Optics (Gartz).

---

➔ Graphentheorie (Randerath).

---

➔ Graphical User Interfaces (Rosenthal).

---

➔ High Voltage Technology (Humpert).

---

➔ Industrial Computer Vision (Thieling).

---

➔ Internship (BaTIN).

---

➔ Kinderoptometrie (BaOPT).

---

➔ Laser Physics and Technology (Altmeyer).

---

➔ Light microscopy (Altmeyer).

---

➔ Light-Matter-Interaction (Oberheide).

---

➔ Lighting Technology (Weigand).

---

➔ Machine Learnig (Thieling).

---

➔ Mathematics 1 (Bold).

---

➔ Mathematics 1 (Grünvogel).

---

➔ Mathematics 1 (Knospe).

---

➔ Mathematics 1 (Weigand).

---

➔ Media Design Conception and Storytelling (Russi).

---

➔ Media Distribution and Storage (Ruelberg).

---

➔ Media Law (BaMT).

---

➔ Medizinische Statistik und Studienplanung (BaOPT).

---

➔ Networking in automation technology (Stockmann).

---

➔ Neuroophthalmologie (BaOPT).

---

→ Operating Systems and Distributed Systems 1 (Vogt)

---

→ Optical metrology (Gartz)

---

→ Participation in appointment committees (BaTIN)

---

→ Pathologie (BaOPT)

---

→ Pharmakologie (BaOPT)

---

→ Photo Technology 1 (Fischer)

---

→ Phototechnology 3 (Poggemann)

---

→ Physics 2 (Humpert)

---

→ Physics 2 (Kohlhof)

---

→ Physics 2 (Oberheide)

---

→ Practical Informatics 1 (Rosenthal)

---

→ Practical Informatics 1 (Vogt)

---

→ Presentation and Communication (BaTIN)

---

→ Principles of Networked IT Systems (Elders-Boll)

---

→ Process Control Engineering (Große)

---

→ Product Development for Smart City (Humpert)

---

→ Programming Practice (Yuan)

---

→ Programming Project (Kreiser)

---

→ Recipe Control (Große)

---

→ Self-management in studies (Grünvogel)

---

→ Signal Processing (Bartz)

---

→ Signal Theory and Applied Mathematics (Kunz)

---

→ Signalprocessing using Matlab/Python and Microprocessors (Elders-Boll)

---

→ Simulation von Energiesystemen (Nebel)

---

→ Software Engineering (Nissen)

---

→ Software Management (Wörzberger)

---

→ Solarenergie (Blieske)

---

→ Source and Channel Coding (Dettmar)

---

→ [Spezielle Kontaktlinsen \(BaOPT\)](#)

---

→ [System Design Lab \(Wörzberger\)](#)

---

→ [Theory of imaging \(Altmeyer\)](#)

---

→ [Verteilte Datenverarbeitungssysteme \(Behrend\)](#)

---

→ [Video Studio Technology \(Reiter\)](#)

---

→ [Visual and Auditive Perception \(Kunz\)](#)

---

→ [Web Engineering 2 \(Frontend\) \(NN\)](#)

---

→ [Wind Energy \(Stadler\)](#)

---

→ [Wireless Communications in the IoT \(Dettmar\)](#)

---

→ [Writing scientific papers \(Weigand\)](#)

---

## ^ Level: Master, Summer Semester

→ [Advanced Channel Coding \(Dettmar\)](#)

---

→ [Advanced Mathematics \(Knospe\)](#)

---

→ [Applied Matheamtics \(Grünvogel\)](#)

---

→ [Basics on Systems and Networks \(Kronberger\)](#)

---

→ [Communication in Distributed Systems and Networks \(Jonas\)](#)

---

→ [Computational Intelligence \(Bartz\)](#)

---

→ [Cryptography \(Knospe\)](#)

---

→ [Digital Motion Control \(Krah\)](#)

---

→ [Electric vehicle drivetrain \(Lohner\)](#)

---

→ [Electrical Power Grids for Renewable Energy \(Waffenschmidt\)](#)

---

→ [Embedded Security \(Lemke-Rust\)](#)

---

→ [Ethics \(MaTIN\)](#)

---

→ [Finite element method in electrical engineering \(Evers\)](#)

---

→ [High Voltage Transmission Technology \(Humpert\)](#)

---

→ [Human Computer Interaction \(Fuhrmann\)](#)

---



➔ [Identification and Privacy Enhanced Technologies \(Ullmann\)](#)

---

➔ [image\\_processing\\_master \(Salmen\)](#)

---

➔ [Industrial property protection \(Ladrière\)](#)

---

➔ [InnoBioDiv - Innovative research on plant-environment interaction in a changing climate combining biology and modern Internet-of-Things technologies \(Dettmar\)](#)

---

➔ [Intelligent Information Systems \(Behrend\)](#)

---

➔ [Large and Cloud-based Software-Systems \(Wörzberger\)](#)

---

➔ [Machine Learning and Scientific Computing \(Rhein\)](#)

---

➔ [Next Generation Networks \(Grebe\)](#)

---

➔ [Nonlinear optics \(Oberheide\)](#)

---

➔ [Optical and wireless communication systems \(Uhde\)](#)

---

➔ [Optical Spectroscopy and Applications \(Gartz\)](#)

---

➔ [Qoptoelektronik \(NN\)](#)

---

➔ [Parallel Programming \(Fuhrmann\)](#)

---

➔ [Project Management \(Dettmar\)](#)

---

➔ [Research Project in Virtual Acoustics and Object Based Audio \(Reiter\)](#)

---

➔ [Research Project Virtual and Augmented Reality \(Grünvogel\)](#)

---

➔ [Research Seminar \(Krah\)](#)

---

➔ [Technologies and Systems of Video Production \(Reiter\)](#)

---

➔ [Theoretical Computer Science \(Randerath\)](#)

---

➔ [Theoretical Electro Dynamics \(Kohlhof\)](#)

---

➔ [Virtual Acoustic Environments \(VAE\) \(Pörschmann\)](#)

---

## ^ Level: Master, Winter Semester

➔ [Advanced Multimedia Communications \(Grebe\)](#)

---

➔ [Algorithms for video signal processing \(Ruelberg\)](#)

---

➔ [Alternative Computer Architectures and Programming Languages \(Wörzberger\)](#)

---

➔ [Audio and Video Technologies \(Ruelberg\)](#)

---

➔ [Combinatorial Optimization and Graph Algorithms \(Randerath\)](#)

---

➔ [Communication in Distributed Systems and Networks \(Jonas\)](#)

---

➔ [Digital Imaging \(Fischer\)](#)

---

➔ [Digital Signal Processing \(Elders-Boll\)](#)

---

➔ [Electric Railways \(Evers\)](#)

---

➔ [Embedded Systems in Media Technology \(Poggemann\)](#)

---

➔ [Energy Management in Interconnected Systems \(Stadler\)](#)

---

➔ [Ethics \(MaTIN\)](#)

---

➔ [Haptic Interfaces \(Fuhrmann\)](#)

---

➔ [InnoBioDiv - Innovative research on plant-environment interaction in a changing climate combining biology and modern Internet-of-Things technologies \(Dettmar\)](#)

---

➔ [IT Security \(Knoospe\)](#)

---

➔ [Micro and nano systems \(Kohlhof\)](#)

---

➔ [Optical Software Development \(Weigand\)](#)

---

➔ [Power Electronics for PV and Wind \(Dick\)](#)

---

➔ [Power Electronics for PV and Wind \(Lohner\)](#)

---

➔ [Project management \(Gartz\)](#)

---

➔ [Project Management \(Dettmar\)](#)

---

➔ [Project Management for System Design Lab \(Wörzberger\)](#)

---

➔ [Quantum mechanics \(Oberheide\)](#)

---

➔ [Research Project in Virtual Acoustics and Object Based Audio \(Reiter\)](#)

---

➔ [Research Project Virtual and Augmented Reality \(Grünvogel\)](#)

---

➔ [Research Seminar \(Krah\)](#)

---

➔ [RF System Design \(Kronberger\)](#)

---

➔ [Scanning Microscopy \(Altmeyer\)](#)

---

➔ [Servicemanagement in Netzen \(Leischner\)](#)

---

➔ [Simulation of Illumination Systems \(Weigand\)](#)

---

➔ [Software Engineering by Components and Pattern \(Kreiser\)](#)

---

➔ [Special Aspects of Mobile Autonomous Systems \(Yuan\)](#)

---

➔ [State Space Control \(Große\)](#)

---

➔ [Systems Engineering for Energy Efficiency \(May\)](#)

---

➔ [Virtual and Augmented Reality \(Fuhrmann\)](#)

---

➔ [Virtuelle Private Netze \(Östreich\)](#)

---

➔ [Zuverlässigkeit von Systemen \(Jung\)](#)