

## Courses in Fall Semester 2022

- **First Semester Courses**
  - Basics in Physiology for Biomedical Engineering (3 ECTS)
  - Biological Principles of Human Medicine (4 ECTS)
  - Biomedical Instrumentation (3 ECTS)
  - Introduction to Biomechanics (3 ECTS)
  - Introduction to Digital Signal Processing (3 ECTS)
  - Introductory Anatomy and Histology for Biomedical Engineers (3 ECTS)
  - Medical Informatics (3 ECTS)
  - Numerical Methods (5 ECTS)
  - Principles of Medical Imaging (3 ECTS)
- **Preparation Courses (First Semester)**
  - Introduction to Electrical Engineering (2 ECTS)
  - Introduction to Engineering Mechanics (2 ECTS)
  - Introduction to Material Science (2 ECTS)
  - Introduction to Programming (2 ECTS)
  - Selected Chapters in Mathematics (2 ECTS)
  - Short Introduction to MATLAB (1 ECTS)
- **Third Semester Courses**
  - Advanced Medical Statistics (3 ECTS)
  - Applied Biomaterials (3 ECTS)
  - Applied Optimization (5 ECTS)
  - Biomedical Acoustics and Audiology (3 ECTS)
  - Biomedical Laser Applications (4 ECTS)
  - BioMicrofluidics (3 ECTS)
  - Cardiovascular Technology (3 ECTS)
  - Computer Graphics (5 ECTS, German)
  - Computer Vision (5 ECTS)
  - C++ Programming II (3 ECTS)
  - Design of Biomechanical Systems (2 ECTS)
  - Ethics in Biomedical Engineering (2 ECTS)
  - Finite Element Analysis II (3 ECTS)
  - Functional Anatomy of the Locomotor Apparatus (3 ECTS)
  - Image-Guided Therapy Project (2-week block course between Spring and Fall Semester, 3 ECTS)
  - Innovation Management (2 ECTS)
  - Intelligent Implants and Surgical Instruments (3 ECTS)
  - Introduction to Artificial Intelligence (3 ECTS)
  - Lecture Series on Advanced Microscopy (3 ECTS)
  - Machine Learning (5 ECTS)
  - Medical Image Analysis (3 ECTS)
  - Medical Image Analysis Lab (4 ECTS)
  - Movement Biomechanics (3 ECTS)
  - Neurotechnology (3 ECTS)
  - Ophthalmic Technologies (3 ECTS)
  - Osteology (3 ECTS)
  - Programming of Microcontrollers (5 ECTS)
  - Scientific Writing in Biomedical Engineering (2 ECTS)
  - Technology and Diabetes Management (3 ECTS)
  - Tissue Biomechanics Lab (3 ECTS)
  - Tissue Engineering (3 ECTS)

## Courses in Spring Semester 2023

- Advanced Medical Imaging (2 ECTS)
- Advanced Topics in Machine Learning (4<sup>th</sup> semester course, 5 ECTS)
- (Bio)Materials (3 ECTS)
- Biomedical Sensors (3 ECTS)
- Biomedical Signal Processing and Analysis (3 ECTS)
- BME Laboratory (6 ECTS)
- Clinical Epidemiology and Health Technology Assessment (2 ECTS)
- Computer-Assisted Surgery (3 ECTS)
- C++ Programming I (3 ECTS)
- Dynamical Models: Analysis, Conception and Simulation (3 ECTS)
- Finite Element Analysis I (3 ECTS)
- Fluid Mechanics (3 ECTS)
- Fundamentals of Quality Management and Regulatory Affairs (4 ECTS)
- Introduction to Digital Logic (2-week block between Fall and Spring Semester, 3 ECTS)
- Introduction to Medical Statistics (3 ECTS)
- Introduction to Image Analysis (3 ECTS)
- Low Power Microelectronics (3 ECTS)
- Medical Robotics (3 ECTS)
- Microsystems Engineering (3 ECTS)
- Orthopaedic Surgery - Practical Course (1-week block course after the Fall Semester, 2 ECTS)
- Regenerative Dentistry for Biomedical Engineering (2 ECTS)
- Rehabilitation Technology (3 ECTS)
- Solid Mechanics (3 ECTS)
- Tissue Engineering Practical Course (2-week block course after the Fall Semester, 2 ECTS)
- Wireless Communication for Medical Devices (3 ECTS)

