Master Biomedical Engineering (SPO 25)

Joint Program - Overview of Courses

UNIVERSITÄT ZU LÜBECK

TECHNISCHE HOCHSCHULE LÜBECK

1st Semester, 30 ECTS	2nd Semester, 30 ECTS	3rd Semester, 30 ECTS	4th Semester, 30 ECTS

Collective Lectures - 10 ECTS

System Theory (6 ECTS)
Signal and Systems (3 ECTS)
Numerical Methods (3 ECTS)

Programming Workshop (4 ECTS)

Medical Imaging (8 ECTS)
Imaging (3 ECTS)
Image Processing (3 ECTS)
Numerical Methods - Lab (2 ECTS)

Scientific Writing Project (2 ECTS)

Research Internship (24 ECTS)

Student Conference (6 ECTS)

Master Thesis (26 ECTS)

Final Examination (4 ECTS)

Medical Track - 20 ECTS

Medicine (8 ECTS)
Anatomy and Physiology (4 ECTS)
Microbiology and Hygiene (4 ECTS)

Natural Science (4 ECTS)
Biomechanics (2 ECTS)
Biophysics (2 ECTS)

Medical Technology (8 ECTS)
Medical Technology (6 ECTS)
Medical Technology - Lab (2 ECTS)

Medical Track

Regulatory Affairs (3 ECTS)

Technical Track

Medical Electronics - Projects (3 ECTS)

Management Elective (3 ECTS)

Electives (14 ECTS)
Selected Electives (10 ECTS)
Free Electives (4 ECTS)

Technical Track - 20 ECTS

Signal Processing (4 ECTS)
Signal Processing (2 ECTS)
Signal Processing - Lab (2 ECTS)

Electronics and Optics (8 ECTS)
Medical Electronics (5 ECTS)
Photonics I (3ECTS)

Design Engineering (8 ECTS)
Material Science (4 ECTS
Design Methodology (2 ECTS)
Design Methodology - Lab (2 ECTS)

Control Systems (8 ECTS)
Machine Learning (4 ECTS)
Model Predictive Control (4 ECTS)

choose 1 out of 2

1st Semester: Collective Lectures
all students

Medical Track
students without biomedical background

Technical Track
students with biomedical background

compulsory

cumpulsory – depending on precognition

Management Electives
TH: Health Technology Assessment (3 ECTS)
TH: Innovation Management and Marketing (3 ECTS)
TH: Quality Management in Health Care (3 ECTS)
TH: Successful Negotiation and Communication (3 ECTS)

Free Electives
Subjects can be chosen from any Master Program of the two Universities or the selected electives

Selected Electives

BME - program
TH: Biophysics Lab (3 ECTS)
TH/Uni: Clinical Application (3 ECTS)
TH: Human Biochemistry (4 ECTS)
TH: Medical Technology - Selected Topics (4 ECTS)
TH. Anesthesia and Artificial Ventilation (5 ECTS)
Uni: Photonics II (4 ECTS)
Uni: Specialized Biomechanics (3 ECTS)

other programs
Uni: Artificial Intelligence (winter term) (4 ECTS)
TH: Computer Aided Techniques in Design (5 ECTS)
Uni: Computer Vision (4 ECTS)
TH/Uni: Implantable Hearing Devices (3 ECTS)
Uni: Medical Deep Learning (6 ECTS)
Uni: Medical Robotics (4 ECTS)
Uni: Nuclear Imaging (3 ECTS)

12 / Mar 9th, 2021