

Exclosure to Subject Specific Regulations
 from 18.07.2018
 for Master-Programme
 Medizingenieurwesen
 at TUHH
 Programme Director: Prof. Michael Morlock



Course Scheme Master Biomedical Engineering (MEDMS)

Consolidated Version
 for Study Cohort: WiSe21/22
 en_head_sda
 and Approval of Chair from:
 19.05.2021
 In Force on: 01.10.2021
 Out of Force on: 30.09.2024

Total: 120 CP

Number of Specilisations to choose: 1

Das offene Wahlpflichtmodul "Ausgewählte Themen des Medizingenieurwesens" kann entweder im Umfang von 6 (Alternative B) oder 12 Leistungspunkten (Alternative A) belegt werden. Es darf jedoch nicht mehrfach belegt werden.

Aus den Modulen "MED-1", "MED-2", "BIO-1" oder "Einführung in Medizintechnische Systeme" dürfen insgesamt maximal 6 LP gewählt werden, wenn dieses nicht bereits im Rahmen des Bachelors abgelegt wurde.

Information regarding the lectures are available in the TUHH modul manuals as well as in the course catalogue.

| Re-com. Term | Module | | | | | | Examination | | | Course Work | | |
|---|--|----------|----------------------|-----------|----------|-----------|-------------|--|---------------------|-------------|------------------|--------------|
| | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) |
| Core qualification Compulsory Courses: 54 LP Optional Courses: 0 LP | | | | | | | | | | | | |
| 1 | Angewandte Statistik für Ingenieure / Applied Statistics | DE / EN | Prof. Morlock | M-3 | C | CM | 6 | Y | KL | Y | SA | 0 |
| 2 | Bildgebende Systeme in der Medizin / Medical Imaging Systems | DE | Dr. Grass | M-3 | C | CM | 6 | Y | KL | | | |
| 2 | Fachlabor Produktentwicklung, Werkstoffe und Produktion / Practical Course Product Development, Materials and Production | DE | Prof. Hintze | M-18 | C | CM | 6 | N | SA | | | |
| 2 | Fallstudien und klinisches Praktikum / Case Studie and Clinical Internship | DE | Prof. Morlock | M-3 | C | CM | 6 | N | SA | | | |
| 2-3 | Einführung in die Medizin und Krankheitslehre / Medical Basics and Pathology | DE | Prof. Morlock | M-3 | C | CM | 6 | N | KL | | | |
| 3 | Studienarbeit / Study work | | Prof. Morlock | M-3 | C | CM | 12 | Y | STA | | | |
| 1-3 | Nichttechnische Angebote im Master / Non-technical Courses for Master | DE / EN | Richter | 0-TUHH | C | OM | 6 | Selection out of seperatly published Catalogue | | | | |
| 1-3 | Betrieb & Management / Business & Management | DE / EN | Prof. Meyer | W-1 | C | OM | 6 | Selection out of seperatly published Catalogue | | | | |
| Specialisation Implants and Endoprostheses Compulsory Courses: 18 LP Optional Courses: 18 LP | | | | | | | | | | | | |
| 1 | BIO II: Biomaterialien / BIO II: Biomaterials | EN | Prof. Morlock | M-3 | C | CM | 3 | Y | KL | | | |
| 1 | Finite-Elemente-Methoden / Finite Elements Methods | EN | Prof. von Estorff | M-16 | C | CM | 6 | Y | KL | N | MT | 20 |
| 1 | Kunststoffe / Polymers | DE / EN | Dr. Wittich | M-11 | C | CM | 6 | Y | KL | | | |

| | | Module | | | | | Examination | | | | Course Work | | |
|--------------|---|----------|----------------------|-----------|----------|-----------|-------------|----------------------------------|---------------------|------------|------------------|--------------|--|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) | |
| 1 | Arbeitswissenschaft / Ergonomics | DE | Dr. Bossemeyer | M-23 | EC | CM | 3 | Y | MP | | | | |
| 1 | BIO I: Implantate und Frakturheilung / BIO I: Implants and Fracture Healing | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | | |
| 1 | Intelligente Autonome Agenten und kognitive Robotik / Intelligent Autonomous Agents and Cognitive Robotics | EN | Marrone | E-16 | EC | CM | 6 | Y | KL | | | | |
| 1 | Intelligente Systeme in der Medizin / Intelligent Systems in Medicine | EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | SA | 10 | |
| | | | | | | | | | | Y | RE | 10 | |
| 1 | Kontinuumsmechanik / Continuum Mechanics | DE | Prof. Cyron | M-15 | EC | CM | 6 | Y | KL | | | | |
| 1 | MED II: Einführung in die Biochemie und Molekularbiologie / MED II: Introduction to Biochemistry and Molecular Biology | DE | Prof. Kreienkamp | M-3 | EC | CM | 3 | Y | KL | | | | |
| 1 | Medizinelektronik / Electronic Circuits for Medical Applications | EN | Prof. Kuhl | E-9 | EC | CM | 6 | Y | KL | Y | FFST | 0 | |
| | | | | | | | | | | N | ÜA | 0 | |
| 1 | Mikrosystemtechnologie in Theorie und Praxis / Microsystems Technology in Theory and Practice | EN | Prof. Trieu | E-7 | EC | CM | 6 | Y | MP | Y | FFST | 0 | |
| 1 | Moderne Funktionsmaterialien / Advanced Functional Materials | DE | Prof. Huber | M-22 | EC | CM | 6 | Y | RE | | | | |
| 1 | Produktionsplanung und -steuerung und Digitales Unternehmen / Production Planning & Control and Digital Enterprise | DE | Prof. Lödding | M-18 | EC | CM | 6 | Y | KL | | | | |
| 1 | Regenerative Medizin / Regenerative Medicine | DE | Prof. Pörtner | V-1 | EC | CM | 6 | Y | RE | Y | SA | 20 | |
| 1 | Technische Schwingungslehre / Vibration Theory | DE / EN | Prof. Hoffmann | M-14 | EC | CM | 6 | Y | KL | | | | |
| 1 | Technologiemanagement / Technology Management | EN | Prof. Herstatt | W-7 | EC | CM | 6 | Y | KL | | | | |
| 1 | Theorie und Entwurf regelungstechnischer Systeme / Control Systems Theory and Design | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | KL | | | | |
| 1 | Werkstoffmodellierung / Materials Modeling | DE | Prof. Cyron | M-15 | EC | CM | 6 | Y | KL | | | | |
| 1-2 | Ausgewählte Themen des Medizingenieurwesens - Variante A (6 LP) / Selected Topics of Biomedical Engineering - Option A (6 LP) | DE / EN | Prof. Morlock | M-3 | EC | OM | 6 | Selection out of Catalogue below | | | | | |
| 1-2 | Ausgewählte Themen des Medizingenieurwesens - Variante B (12 LP) / Selected Topics of Biomedical Engineering - Option B (12 LP) | DE / EN | Prof. Morlock | M-3 | EC | OM | 12 | Selection out of Catalogue below | | | | | |
| 2 | BIO II: Gelenkersatz / BIO II: Artificial Joint Replacement | DE | Prof. Morlock | M-3 | C | CM | 3 | Y | KL | | | | |
| 2 | Bioverfahrenstechnik - Grundlagen / Bioprocess Engineering - Fundamentals | DE | Prof. Liese | V-6 | EC | CM | 6 | Y | KL | Y | FFST | 5 | |
| 2 | Einführung in Medizintechnische Systeme / Introduction into Medical Technology and Systems | DE | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | RE | 10 | |
| | | | | | | | | | | Y | SA | 10 | |

| | | Module | | | | | Examination | | | | Course Work | | |
|--------------|---|----------|----------------------|-----------|----------|-----------|-------------|-------|---------------------|------------|------------------|--------------|--|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) | |
| 2 | Fallstudien zu regenerativer Medizin und Tissue Engineering / Case Studies for Regenerative Medicine and Tissue Engineering | DE | Prof. Pörtner | V-1 | EC | CM | 6 | Y | RE | | | | |
| 2 | Halbleitertechnologie / Semiconductor Technology | DE / EN | Prof. Trieu | E-7 | EC | CM | 6 | Y | MP | | | | |
| 2 | Humanoide Robotik / Humanoid Robotics | DE | Göttsch | E-14 | EC | CM | 2 | Y | RE | | | | |
| 2 | Lineare und Nichtlineare Systemidentifikation / Linear and Nonlinear System Identifikation | EN | Prof. Werner | E-14 | EC | CM | 3 | Y | MP | | | | |
| 2 | Marketing (Vertrieb und Services / Innovationsmarketing) / Marketing (Sales and Services / Innovation Marketing) | EN | Prof. Lühthje | W-3 | EC | CM | 6 | Y | FFA | | | | |
| 2 | MED I: Einführung in die Anatomie / MED I: Introduction to Anatomy | DE | Prof. Schumacher | M-3 | EC | CM | 3 | Y | KL | | | | |
| 2 | MED I: Einführung in die Radiologie und Strahlentherapie / MED I: Introduction to Radiology and Radiation Therapy | DE | Prof. Carl | M-3 | EC | CM | 3 | Y | KL | | | | |
| 2 | MED II: Einführung in die Physiologie / MED II: Introduction to Physiology | DE | Dr. Zimmermann | M-3 | EC | CM | 3 | Y | KL | | | | |
| 2 | Nichtlineare Dynamik / Nonlinear Dynamics | DE / EN | Prof. Hoffmann | M-14 | EC | CM | 6 | Y | KL | | | | |
| 2 | Optimale und robuste Regelung / Optimal and Robust Control | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | MP | | | | |
| 2 | Praktische Entwicklungsmethodik in der Mechatronik / Applied Design Methodology in Mechatronics | EN | Prof. Kern | M-4 | EC | CM | 6 | Y | FFA | | | | |
| 2 | Regelungstechnische Methoden für die Medizintechnik / Feedback Control in Medical Technology | DE | Kreuzer | E-14 | EC | CM | 3 | Y | MP | | | | |
| 2 | Robotik und Navigation in der Medizin / Robotics and Navigation in Medicine | EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | SA | 10 | |
| | | | | | | | | | | Y | RE | 10 | |
| 3 | Ausgewählte Themen der Regelungstechnik / Advanced Topics in Control | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | MP | | | | |
| 3 | Bioelektromagnetik: Prinzipien und Anwendungen / Bioelectromagnetics: Principles and Applications | DE / EN | Prof. Schuster | E-18 | EC | CM | 6 | Y | MP | Y | RE | 0 | |

Specialisation Artificial Organs and Regenerative Medicine Compulsory Courses: 18 LP Optional Courses: 18 LP

| | | | | | | | | | | | | |
|---|---|----|-------------------|------|----|----|---|---|----|---|----|----|
| 1 | Regenerative Medizin / Regenerative Medicine | DE | Prof. Pörtner | V-1 | C | CM | 6 | Y | RE | Y | SA | 20 |
| 1 | Arbeitswissenschaft / Ergonomics | DE | Dr. Bossemeyer | M-23 | EC | CM | 3 | Y | MP | | | |
| 1 | BIO I: Implantate und Frakturheilung / BIO I: Implants and Fracture Healing | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | |
| 1 | BIO II: Biomaterialien / BIO II: Biomaterials | EN | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | |
| 1 | Finite-Elemente-Methoden / Finite Elements Methods | EN | Prof. von Estorff | M-16 | EC | CM | 6 | Y | KL | N | MT | 20 |

| | | Module | | | | | Examination | | | Course Work | | |
|--------------|---|----------|----------------------|-----------|----------|-----------|-------------|----------------------------------|---------------------|-------------|------------------|--------------|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) |
| 1 | Intelligente Autonome Agenten und kognitive Robotik / Intelligent Autonomous Agents and Cognitive Robotics | EN | Marrone | E-16 | EC | CM | 6 | Y | KL | | | |
| 1 | Intelligente Systeme in der Medizin / Intelligent Systems in Medicine | EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | SA | 10 |
| | | | | | | | | | | Y | RE | 10 |
| 1 | Kontinuumsmechanik / Continuum Mechanics | DE | Prof. Cyron | M-15 | EC | CM | 6 | Y | KL | | | |
| 1 | Kunststoffe / Polymers | DE / EN | Dr. Wittich | M-11 | EC | CM | 6 | Y | KL | | | |
| 1 | MED II: Einführung in die Biochemie und Molekularbiologie / MED II: Introduction to Biochemistry and Molecular Biology | DE | Prof. Kreienkamp | M-3 | EC | CM | 3 | Y | KL | | | |
| 1 | Medizinelektronik / Electronic Circuits for Medical Applications | EN | Prof. Kuhl | E-9 | EC | CM | 6 | Y | KL | Y | FFST | 0 |
| | | | | | | | | | | N | ÜA | 0 |
| 1 | Mikrosystemtechnologie in Theorie und Praxis / Microsystems Technology in Theory and Practice | EN | Prof. Trieu | E-7 | EC | CM | 6 | Y | MP | Y | FFST | 0 |
| 1 | Moderne Funktionsmaterialien / Advanced Functional Materials | DE | Prof. Huber | M-22 | EC | CM | 6 | Y | RE | | | |
| 1 | Produktionsplanung und -steuerung und Digitales Unternehmen / Production Planning & Control and Digital Enterprise | DE | Prof. Lödging | M-18 | EC | CM | 6 | Y | KL | | | |
| 1 | Technische Schwingungslehre / Vibration Theory | DE / EN | Prof. Hoffmann | M-14 | EC | CM | 6 | Y | KL | | | |
| 1 | Technologiemanagement / Technology Management | EN | Prof. Herstatt | W-7 | EC | CM | 6 | Y | KL | | | |
| 1 | Theorie und Entwurf regelungstechnischer Systeme / Control Systems Theory and Design | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | KL | | | |
| 1 | Werkstoffmodellierung / Materials Modeling | DE | Prof. Cyron | M-15 | EC | CM | 6 | Y | KL | | | |
| 1-2 | Ausgewählte Themen des Medizingenieurwesens - Variante A (6 LP) / Selected Topics of Biomedical Engineering - Option A (6 LP) | DE / EN | Prof. Morlock | M-3 | EC | OM | 6 | Selection out of Catalogue below | | | | |
| 1-2 | Ausgewählte Themen des Medizingenieurwesens - Variante B (12 LP) / Selected Topics of Biomedical Engineering - Option B (12 LP) | DE / EN | Prof. Morlock | M-3 | EC | OM | 12 | Selection out of Catalogue below | | | | |
| 2 | Bioverfahrenstechnik - Grundlagen / Bioprocess Engineering - Fundamentals | DE | Prof. Liese | V-6 | C | CM | 6 | Y | KL | Y | FFST | 5 |
| 2 | Fallstudien zu regenerativer Medizin und Tissue Engineering / Case Studies for Regenerative Medicine and Tissue Engineering | DE | Prof. Pörtner | V-1 | C | CM | 6 | Y | RE | | | |
| 2 | BIO II: Gelenkersatz / BIO II: Artificial Joint Replacement | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | Einführung in Medizintechnische Systeme / Introduction into Medical Technology and Systems | DE | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | RE | 10 |
| | | | | | | | | | | Y | SA | 10 |

| | | Module | | | | | Examination | | | Course Work | | |
|--|--|----------|----------------------|-----------|----------|-----------|-------------|-------|---------------------|-------------|------------------|--------------|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) |
| 2 | Halbleitertechnologie / Semiconductor Technology | DE / EN | Prof. Trieu | E-7 | EC | CM | 6 | Y | MP | | | |
| 2 | Humanoide Robotik / Humanoid Robotics | DE | Götttsch | E-14 | EC | CM | 2 | Y | RE | | | |
| 2 | Lineare und Nichtlineare Systemidentifikation / Linear and Nonlinear System Identifikation | EN | Prof. Werner | E-14 | EC | CM | 3 | Y | MP | | | |
| 2 | Marketing (Vertrieb und Services / Innovationsmarketing) / Marketing (Sales and Services / Innovation Marketing) | EN | Prof. Lüthje | W-3 | EC | CM | 6 | Y | FFA | | | |
| 2 | MED I: Einführung in die Anatomie / MED I: Introduction to Anatomy | DE | Prof. Schumacher | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | MED I: Einführung in die Radiologie und Strahlentherapie / MED I: Introduction to Radiology and Radiation Therapy | DE | Prof. Carl | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | MED II: Einführung in die Physiologie / MED II: Introduction to Physiology | DE | Dr. Zimmermann | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | Nichtlineare Dynamik / Nonlinear Dynamics | DE / EN | Prof. Hoffmann | M-14 | EC | CM | 6 | Y | KL | | | |
| 2 | Optimale und robuste Regelung / Optimal and Robust Control | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | MP | | | |
| 2 | Praktische Entwicklungsmethodik in der Mechatronik / Applied Design Methodology in Mechatronics | EN | Prof. Kern | M-4 | EC | CM | 6 | Y | FFA | | | |
| 2 | Regelungstechnische Methoden für die Medizintechnik / Feedback Control in Medical Technology | DE | Kreuzer | E-14 | EC | CM | 3 | Y | MP | | | |
| 2 | Robotik und Navigation in der Medizin / Robotics and Navigation in Medicine | EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | SA | 10 |
| | | | | | | | | | | Y | RE | 10 |
| 3 | Ausgewählte Themen der Regelungstechnik / Advanced Topics in Control | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | MP | | | |
| 3 | Bioelektromagnetik: Prinzipien und Anwendungen / Bioelectromagnetics: Principles and Applications | DE / EN | Prof. Schuster | E-18 | EC | CM | 6 | Y | MP | Y | RE | 0 |
| Specialisation Management and Business Administration Compulsory Courses: 18 LP Optional Courses: 18 LP | | | | | | | | | | | | |
| 1 | Produktionsplanung und -steuerung und Digitales Unternehmen / Production Planning & Control and Digital Enterprise | DE | Prof. Lödging | M-18 | C | CM | 6 | Y | KL | | | |
| 1 | Technologiemanagement / Technology Management | EN | Prof. Herstatt | W-7 | C | CM | 6 | Y | KL | | | |
| 1 | Arbeitswissenschaft / Ergonomics | DE | Dr. Bossemeyer | M-23 | EC | CM | 3 | Y | MP | | | |
| 1 | BIO I: Implantate und Frakturheilung / BIO I: Implants and Fracture Healing | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | |
| 1 | BIO II: Biomaterialien / BIO II: Biomaterials | EN | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | |
| 1 | Finite-Elemente-Methoden / Finite Elements Methods | EN | Prof. von Estorff | M-16 | EC | CM | 6 | Y | KL | N | MT | 20 |

| | | Module | | | | | Examination | | | | Course Work | | |
|--------------|---|----------|----------------------|-----------|----------|-----------|-------------|----------------------------------|---------------------|------------|------------------|--------------|--|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) | |
| 1 | Intelligente Autonome Agenten und kognitive Robotik / Intelligent Autonomous Agents and Cognitive Robotics | EN | Marrone | E-16 | EC | CM | 6 | Y | KL | | | | |
| 1 | Intelligente Systeme in der Medizin / Intelligent Systems in Medicine | EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | SA | 10 | |
| | | | | | | | | | | Y | RE | 10 | |
| 1 | Kontinuumsmechanik / Continuum Mechanics | DE | Prof. Cyron | M-15 | EC | CM | 6 | Y | KL | | | | |
| 1 | Kunststoffe / Polymers | DE / EN | Dr. Wittich | M-11 | EC | CM | 6 | Y | KL | | | | |
| 1 | MED II: Einführung in die Biochemie und Molekularbiologie / MED II: Introduction to Biochemistry and Molecular Biology | DE | Prof. Kreienkamp | M-3 | EC | CM | 3 | Y | KL | | | | |
| 1 | Medizinelektronik / Electronic Circuits for Medical Applications | EN | Prof. Kuhl | E-9 | EC | CM | 6 | Y | KL | Y | FFST | 0 | |
| | | | | | | | | | | N | ÜA | 0 | |
| 1 | Mikrosystemtechnologie in Theorie und Praxis / Microsystems Technology in Theory and Practice | EN | Prof. Trieu | E-7 | EC | CM | 6 | Y | MP | Y | FFST | 0 | |
| 1 | Moderne Funktionsmaterialien / Advanced Functional Materials | DE | Prof. Huber | M-22 | EC | CM | 6 | Y | RE | | | | |
| 1 | Regenerative Medizin / Regenerative Medicine | DE | Prof. Pörtner | V-1 | EC | CM | 6 | Y | RE | Y | SA | 20 | |
| 1 | Technische Schwingungslehre / Vibration Theory | DE / EN | Prof. Hoffmann | M-14 | EC | CM | 6 | Y | KL | | | | |
| 1 | Theorie und Entwurf regelungstechnischer Systeme / Control Systems Theory and Design | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | KL | | | | |
| 1 | Werkstoffmodellierung / Materials Modeling | DE | Prof. Cyron | M-15 | EC | CM | 6 | Y | KL | | | | |
| 1-2 | Ausgewählte Themen des Medizingenieurwesens - Variante A (6 LP) / Selected Topics of Biomedical Engineering - Option A (6 LP) | DE / EN | Prof. Morlock | M-3 | EC | OM | 6 | Selection out of Catalogue below | | | | | |
| 1-2 | Ausgewählte Themen des Medizingenieurwesens - Variante B (12 LP) / Selected Topics of Biomedical Engineering - Option B (12 LP) | DE / EN | Prof. Morlock | M-3 | EC | OM | 12 | Selection out of Catalogue below | | | | | |
| 2 | Marketing (Vertrieb und Services / Innovationsmarketing) / Marketing (Sales and Services / Innovation Marketing) | EN | Prof. Lühje | W-3 | C | CM | 6 | Y | FFA | | | | |
| 2 | BIO II: Gelenkersatz / BIO II: Artificial Joint Replacement | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | | |
| 2 | Bioverfahrenstechnik - Grundlagen / Bioprocess Engineering - Fundamentals | DE | Prof. Liese | V-6 | EC | CM | 6 | Y | KL | Y | FFST | 5 | |
| 2 | Einführung in Medizintechnische Systeme / Introduction into Medical Technology and Systems | DE | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | RE | 10 | |
| | | | | | | | | | | Y | SA | 10 | |
| 2 | Fallstudien zu regenerativer Medizin und Tissue Engineering / Case Studies for Regenerative Medicine and Tissue Engineering | DE | Prof. Pörtner | V-1 | EC | CM | 6 | Y | RE | | | | |
| 2 | Halbleitertechnologie / Semiconductor Technology | DE / EN | Prof. Trieu | E-7 | EC | CM | 6 | Y | MP | | | | |
| 2 | Humanoide Robotik / Humanoid Robotics | DE | Göttsch | E-14 | EC | CM | 2 | Y | RE | | | | |

| | | Module | | | | | Examination | | | Course Work | | |
|--------------|---|----------|----------------------|-----------|----------|-----------|-------------|-------|---------------------|-------------|------------------|--------------|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) |
| 2 | Lineare und Nichtlineare Systemidentifikation / Linear and Nonlinear System Identifikation | EN | Prof. Werner | E-14 | EC | CM | 3 | Y | MP | | | |
| 2 | MED I: Einführung in die Anatomie / MED I: Introduction to Anatomy | DE | Prof. Schumacher | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | MED I: Einführung in die Radiologie und Strahlentherapie / MED I: Introduction to Radiology and Radiation Therapy | DE | Prof. Carl | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | MED II: Einführung in die Physiologie / MED II: Introduction to Physiology | DE | Dr. Zimmermann | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | Nichtlineare Dynamik / Nonlinear Dynamics | DE / EN | Prof. Hoffmann | M-14 | EC | CM | 6 | Y | KL | | | |
| 2 | Optimale und robuste Regelung / Optimal and Robust Control | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | MP | | | |
| 2 | Praktische Entwicklungsmethodik in der Mechatronik / Applied Design Methodology in Mechatronics | EN | Prof. Kern | M-4 | EC | CM | 6 | Y | FFA | | | |
| 2 | Regelungstechnische Methoden für die Medizintechnik / Feedback Control in Medical Technology | DE | Kreuzer | E-14 | EC | CM | 3 | Y | MP | | | |
| 2 | Robotik und Navigation in der Medizin / Robotics and Navigation in Medicine | EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | SA | 10 |
| | | | | | | | | | | Y | RE | 10 |
| 3 | Ausgewählte Themen der Regelungstechnik / Advanced Topics in Control | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | MP | | | |
| 3 | Bioelektromagnetik: Prinzipien und Anwendungen / Bioelectromagnetics: Principles and Applications | DE / EN | Prof. Schuster | E-18 | EC | CM | 6 | Y | MP | Y | RE | 0 |

Specialisation Medical Technology and Control Theory Compulsory Courses: 18 LP Optional Courses: 18 LP

| | | | | | | | | | | | | |
|---|--|----|-------------------|------|----|----|---|---|----|---|------|----|
| 1 | Medizinelektronik / Electronic Circuits for Medical Applications | EN | Prof. Kuhl | E-9 | C | CM | 6 | Y | KL | Y | FFST | 0 |
| | | | | | | | | | | N | ÜA | 0 |
| 1 | Theorie und Entwurf regelungstechnischer Systeme / Control Systems Theory and Design | EN | Prof. Werner | E-14 | C | CM | 6 | Y | KL | | | |
| 1 | Arbeitswissenschaft / Ergonomics | DE | Dr. Bossemeyer | M-23 | EC | CM | 3 | Y | MP | | | |
| 1 | BIO I: Implantate und Frakturheilung / BIO I: Implants and Fracture Healing | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | |
| 1 | BIO II: Biomaterialien / BIO II: Biomaterials | EN | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | |
| 1 | Finite-Elemente-Methoden / Finite Elements Methods | EN | Prof. von Estorff | M-16 | EC | CM | 6 | Y | KL | N | MT | 20 |
| 1 | Intelligente Autonome Agenten und kognitive Robotik / Intelligent Autonomous Agents and Cognitive Robotics | EN | Marrone | E-16 | EC | CM | 6 | Y | KL | | | |
| 1 | Intelligente Systeme in der Medizin / Intelligent Systems in Medicine | EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | SA | 10 |
| | | | | | | | | | | Y | RE | 10 |
| 1 | Kontinuumsmechanik / Continuum Mechanics | DE | Prof. Cyron | M-15 | EC | CM | 6 | Y | KL | | | |

| | | Module | | | | | Examination | | | Course Work | | |
|--------------|---|----------|----------------------|-----------|----------|-----------|-------------|----------------------------------|---------------------|-------------|------------------|--------------|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) |
| 1 | Kunststoffe / Polymers | DE / EN | Dr. Wittich | M-11 | EC | CM | 6 | Y | KL | | | |
| 1 | MED II: Einführung in die Biochemie und Molekularbiologie / MED II: Introduction to Biochemistry and Molecular Biology | DE | Prof. Kreienkamp | M-3 | EC | CM | 3 | Y | KL | | | |
| 1 | Mikrosystemtechnologie in Theorie und Praxis / Microsystems Technology in Theory and Practice | EN | Prof. Trieu | E-7 | EC | CM | 6 | Y | MP | Y | FFST | 0 |
| 1 | Moderne Funktionsmaterialien / Advanced Functional Materials | DE | Prof. Huber | M-22 | EC | CM | 6 | Y | RE | | | |
| 1 | Produktionsplanung und -steuerung und Digitales Unternehmen / Production Planning & Control and Digital Enterprise | DE | Prof. Lödning | M-18 | EC | CM | 6 | Y | KL | | | |
| 1 | Regenerative Medizin / Regenerative Medicine | DE | Prof. Pörtner | V-1 | EC | CM | 6 | Y | RE | Y | SA | 20 |
| 1 | Technische Schwingungslehre / Vibration Theory | DE / EN | Prof. Hoffmann | M-14 | EC | CM | 6 | Y | KL | | | |
| 1 | Technologiemanagement / Technology Management | EN | Prof. Herstatt | W-7 | EC | CM | 6 | Y | KL | | | |
| 1 | Werkstoffmodellierung / Materials Modeling | DE | Prof. Cyron | M-15 | EC | CM | 6 | Y | KL | | | |
| 1-2 | Ausgewählte Themen des Medizingenieurwesens - Variante A (6 LP) / Selected Topics of Biomedical Engineering - Option A (6 LP) | DE / EN | Prof. Morlock | M-3 | EC | OM | 6 | Selection out of Catalogue below | | | | |
| 1-2 | Ausgewählte Themen des Medizingenieurwesens - Variante B (12 LP) / Selected Topics of Biomedical Engineering - Option B (12 LP) | DE / EN | Prof. Morlock | M-3 | EC | OM | 12 | Selection out of Catalogue below | | | | |
| 2 | Lineare und Nichtlineare Systemidentifikation / Linear and Nonlinear System Identifikation | EN | Prof. Werner | E-14 | C | CM | 3 | Y | MP | | | |
| 2 | Regelungstechnische Methoden für die Medizintechnik / Feedback Control in Medical Technology | DE | Kreuzer | E-14 | C | CM | 3 | Y | MP | | | |
| 2 | BIO II: Gelenkersatz / BIO II: Artificial Joint Replacement | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | Bioverfahrenstechnik - Grundlagen / Bioprocess Engineering - Fundamentals | DE | Prof. Liese | V-6 | EC | CM | 6 | Y | KL | Y | FFST | 5 |
| 2 | Einführung in Medizintechnische Systeme / Introduction into Medical Technology and Systems | DE | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | RE | 10 |
| | | | | | | | | | | Y | SA | 10 |
| 2 | Fallstudien zu regenerativer Medizin und Tissue Engineering / Case Studies for Regenerative Medicine and Tissue Engineering | DE | Prof. Pörtner | V-1 | EC | CM | 6 | Y | RE | | | |
| 2 | Halbleitertechnologie / Semiconductor Technology | DE / EN | Prof. Trieu | E-7 | EC | CM | 6 | Y | MP | | | |
| 2 | Humanoide Robotik / Humanoid Robotics | DE | Göttsch | E-14 | EC | CM | 2 | Y | RE | | | |
| 2 | Marketing (Vertrieb und Services / Innovationsmarketing) / Marketing (Sales and Services / Innovation Marketing) | EN | Prof. Lühthje | W-3 | EC | CM | 6 | Y | FFA | | | |

| Re-com. Term | Module | | | | | | Examination | | | Course Work | | |
|--|---|----------|----------------------|-----------|----------|-----------|-------------|-------|---------------------|-------------|------------------|--------------|
| | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) |
| 2 | MED I: Einführung in die Anatomie / MED I: Introduction to Anatomy | DE | Prof. Schumacher | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | MED I: Einführung in die Radiologie und Strahlentherapie / MED I: Introduction to Radiology and Radiation Therapy | DE | Prof. Carl | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | MED II: Einführung in die Physiologie / MED II: Introduction to Physiology | DE | Dr. Zimmermann | M-3 | EC | CM | 3 | Y | KL | | | |
| 2 | Medizintechnik Projekt / Medical Technology Lab | DE / EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | SA | Y | GD | 0 |
| 2 | Nichtlineare Dynamik / Nonlinear Dynamics | DE / EN | Prof. Hoffmann | M-14 | EC | CM | 6 | Y | KL | | | |
| 2 | Optimale und robuste Regelung / Optimal and Robust Control | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | MP | | | |
| 2 | Praktische Entwicklungsmethodik in der Mechatronik / Applied Design Methodology in Mechatronics | EN | Prof. Kern | M-4 | EC | CM | 6 | Y | FFA | | | |
| 2 | Robotik und Navigation in der Medizin / Robotics and Navigation in Medicine | EN | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | Y | SA | 10 |
| | | | | | | | | | | Y | RE | 10 |
| 3 | Ausgewählte Themen der Regelungstechnik / Advanced Topics in Control | EN | Prof. Werner | E-14 | EC | CM | 6 | Y | MP | | | |
| 3 | Bioelektromagnetik: Prinzipien und Anwendungen / Bioelectromagnetics: Principles and Applications | DE / EN | Prof. Schuster | E-18 | EC | CM | 6 | Y | MP | Y | RE | 0 |
| Thesis Compulsory Courses: 30 LP Optional Courses: 0 LP | | | | | | | | | | | | |
| 4 | Masterarbeit / Master Thesis | | Professoren der TUHH | 0-TUHH | C | CM | 30 | Y | AB | | | |

Selected Topics of Biomedical Engineering - Option A (6 LP)

| Course | | | | | Examination | | | | Additional information |
|---|-------------------|--------------|---------|---------|-------------|-------|---------------------|--|------------------------|
| Course Name (German / English) | Course Form LV(5) | Language (6) | SWS (7) | Sem. LV | CP (4) | Grade | Examination Form(3) | | |
| Die hierarchischen Materialien der Natur / Nature's Hierarchical Materials | SE | EN | 2 | WiSe | 3 | Y | KL | | |
| Einführung in Wellenleiter, Antennen und Elektromagnetische Verträglichkeit / Introduction to Waveguides, Antennas, and Electromagnetic Compatibility | VL | DE/EN | 3 | SoSe | 4 | Y | MP | | |
| Einführung in Wellenleiter, Antennen und Elektromagnetische Verträglichkeit / Introduction to Waveguides, Antennas, and Electromagnetic Compatibility | GÜ | DE/EN | 2 | SoSe | 2 | Y | MP | | |
| Entwicklung und Zulassung von Medizinprodukten / Development and Regulatory Approval of Medical Devices | VL | DE | 2 | WiSe | 3 | Y | KL | | |

| Course | | | | | Examination | | | |
|--|----------------------|-----------------|---------|------------|-------------|-------|------------------------|------------------------|
| Course Name (German / English) | Course Form LV(5) | Language (6) | SWS (7) | Sem. LV | CP (4) | Grade | Examination Form(3) | Additional information |
| Experimentelle Methoden der Biomechanik / Experimental Methods in Biomechanics | VL | DE | 2 | SoSe | 3 | Y | KL | |
| Experimentelle Methoden der Materialcharakterisierung / Experimental Methods for the Characterization of Materials | VL | DE | 2 | WiSe | 3 | Y | KL | |
| Numerische Methoden in der Biomechanik / Numerical Methods in Biomechanics | SE | DE/EN | 2 | SoSe | 3 | Y | KL | |
| Seminar Medizingenieurwesen / Seminar Biomedical Engineering | SE | DE | 2 | WiSe | 3 | Y | RE | |
| Strömungsmechanik II / Fluid Mechanics II | VL | DE | 2 | WiSe | 4 | Y | KL | |
| Systemsimulation / System Simulation | VL | DE | 2 | WiSe | 2 | Y | MP | |
| Systemsimulation / System Simulation | HÜ | DE | 1 | WiSe | 2 | Y | MP | |
| Technologie keramischer Werkstoffe / Ceramics Technology | VL | DE/EN | 2 | WiSe | 3 | Y | KL | |

Selected Topics of Biomedical Engineering - Option B (12 LP)

| Course | | | | | Examination | | | |
|---|----------------------|-----------------|---------|------------|-------------|-------|------------------------|------------------------|
| Course Name (German / English) | Course Form LV(5) | Language (6) | SWS (7) | Sem. LV | CP (4) | Grade | Examination Form(3) | Additional information |
| Die hierarchischen Materialien der Natur / Nature's Hierarchical Materials | SE | EN | 2 | WiSe | 3 | Y | KL | |
| Einführung in Wellenleiter, Antennen und Elektromagnetische Verträglichkeit / Introduction to Waveguides, Antennas, and Electromagnetic Compatibility | VL | DE/EN | 3 | SoSe | 4 | Y | MP | |
| Einführung in Wellenleiter, Antennen und Elektromagnetische Verträglichkeit / Introduction to Waveguides, Antennas, and Electromagnetic Compatibility | GÜ | DE/EN | 2 | SoSe | 2 | Y | MP | |
| Entwicklung und Zulassung von Medizinprodukten / Development and Regulatory Approval of Medical Devices | VL | DE | 2 | WiSe | 3 | Y | KL | |
| Experimentelle Methoden der Biomechanik / Experimental Methods in Biomechanics | VL | DE | 2 | SoSe | 3 | Y | KL | |
| Experimentelle Methoden der Materialcharakterisierung / Experimental Methods for the Characterization of Materials | VL | DE | 2 | WiSe | 3 | Y | KL | |
| Numerische Methoden in der Biomechanik / Numerical Methods in Biomechanics | SE | DE/EN | 2 | SoSe | 3 | Y | KL | |
| Seminar Medizingenieurwesen / Seminar Biomedical Engineering | SE | DE | 2 | WiSe | 3 | Y | RE | |
| Strömungsmechanik II / Fluid Mechanics II | VL | DE | 2 | WiSe | 4 | Y | KL | |
| Systemsimulation / System Simulation | VL | DE | 2 | WiSe | 2 | Y | MP | |
| Systemsimulation / System Simulation | HÜ | DE | 1 | WiSe | 2 | Y | MP | |

| Course | | | | | Examination | | | |
|--|----------------------|-----------------|---------|------------|-------------|-------|------------------------|------------------------|
| Course Name (German / English) | Course Form LV(5) | Language (6) | SWS (7) | Sem. LV | CP (4) | Grade | Examination Form(3) | Additional information |
| Technologie keramischer Werkstoffe / Ceramics Technology | VL | DE/EN | 2 | WiSe | 3 | Y | KL | |

Explanation:

¹C=Compulsory, EC=Elective Compulsory

²CM=Compulsory Defined Module, OM=Optional Defined Module

³KL=Written exam, MT=Midterm, SA=Written elaboration, FFA=Subject theoretical and practical work, FFST=Subject theoretical and practical work, MP=Oral exam, RE=Presentation, GD=Group discussion, STA=Study work, AB=Thesis, UA=Exercises, SA It. FPrO=Written elaboration (accord. to Internship Regulations)

⁴CP=Credit Points

⁵VL=Lecture, SE=Seminar, GÜ=Recitation Section (small), PBL=Project-/problem-based Learning, PR=Practical Course, PS=Project Seminar, HÜ=Recitation Section (large), IV=Integrated Lecture

⁶DE=German, EN=English, DE/EN=German and English

⁷SWS=Contact hours