inf305 - Medical Technology

Module label: Medical Technology
Module code: inf305
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master's Programme Computing Science > Nicht Informatik
- Master's Programme Computing Science > Technische Informatik
- Master's Programme Embedded Systems and Microrobotics > Akzentsetzungsmodulle
- Master's Programme Engineering of Socio-Technical Systems > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems > Human-Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems > Systems Engineering

Contact person:
Module responsibility: Andreas Hein
Authorized examiners:
- Andreas Hein
- Die im Modul Lehrenden

Entry requirements:
Skills to be acquired in this module:

Professional competence:
The students:
- Describe medical diagnosis and therapy methods
- Understand the core concepts of computer-assisted medical interventions
- Are aware of the basic concepts and legal conditions of the development of medical devices
- Define the character of medical devices' software parts and implement them
- Assess the complex interaction of medical products and patients
- Get familiar with the development of medical products within a short period of time

Methodological competence:
The students:
- Recognise the interdisciplinary challenges and accordingly exchange information with other disciplines

Social competence:
The students:
- Present solutions for specific questions

Self-competence:
The students:
- reflect their solutions by using methods learned in this course

Module contents:
- Medical areas and areas of application
- Basic requirements for medical systems (hygiene, MPG, technical security, materials)
- Medical systems:
  - Functional diagnostics (ECG, EMG, EEG)
  - Imaging systems (CT, MRI, ultrasound, PET, SPECT)
  - Therapy equipment (Laser, RF, Microtherapy)
- Signal processing / monitoring (cardiovascular, hemodynamic, respiratory, metabolic, cerebral)
- Medical Informatics (HIS, DICOM, Telemedicine, VR, image processing).

Reader's advisory: essential:
• Lecture slides

recommended:

• Dugas, M.; Schmidt, K.: Medizinische Informatik und Bioinformatik. Springer Verlag, 2003

secondary literature:


Links
Languages of instruction: German, English
Duration (semesters): 1 Semester
Module frequency: once a year
Module capacity: unlimited
Modullevel: AS (Akzentsetzung / Accentuation)
Modulart: Pflicht o. Wahlpflicht / compulsory or optional
Lern-/Lehrform / Type of program: V+Ü
Vorkenntnisse / Previous knowledge:
- Signal and Image Processing
- Control Engineering

Examination: Time of examination: At the end of the lecture periode
Type of examination: Portfolio: Hands-on exercises, report, and written or oral exam

Course type: Comment: SWS
Lecture: 3.00
Exercises: 1.00
Frequency: WiSe
Workload attendance: 42 h
WiSe: 14 h
56 h

Total time of attendance for the module