inf305 - Medical Technology

<table>
<thead>
<tr>
<th>Module label</th>
<th>Medical Technology</th>
</tr>
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<tbody>
<tr>
<td>Module code</td>
<td>inf305</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
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<tr>
<td>Workload</td>
<td>180 h</td>
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</tbody>
</table>

**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 > Akzentsetzungsmodule
- 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:


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 period
Type of examination: Portfolio: Hands-on exercises, report, and written or oral exam

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

Total time of attendance for the module: 56 h