**inf523 - Medical Software Engineering**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Medical Software Engineering</th>
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<tbody>
<tr>
<td>Module code</td>
<td>inf523</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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**Used in course of study**
- Master's Programme Computing Science > Angewandte Informatik
- 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
  - Rainer Röhrig
  - Die im Modul Lehrenden
- Authorized examiners
  - Die im Modul Lehrenden
  - Rainer Röhrig

**Entry requirements**

**Skills to be acquired in this module**

**Professional competence**
The students:
- Know and use obligatory medical software requirements
- Know methods and approaches to develop security-critical medical software and implement them by example
- Know at least one medical application area and its specific professional, organisational and regulatory requirements

**Methodological competence**
The students:
- Are able to apply risk management methods of socio-technical systems
- Are able to extend their knowledge of new application areas. They are able to handle the obstacles of normative frameworks and software development.

**Social competence**
The students:
- Realise the importance of communication during the software development process between developer, customer and user of a successful and secure system. Feedback, request, respectful cooperation and empathy of other disciplines' working processes are of great importance.

**Self-competence**
The students:
- Realise their responsibility as a computer scientist and reflect their impact on patients, medical employers and hospitals (corporates)

**Module contents**
Content of the Module:
This module provides medical software development processes. The module deals with normative software requirements with the focus on patient privacy and quality management. Contents are the declaration of conformity based on medical product classes and software security classes. The software security is focused on software quality, tests and verification, validation as well as quality and risk management. The software life cycle provides security related systems and software as well as software architecture and different process models.
Reader’s advisory

Languages of instruction: German, English

Duration (semesters): 1 Semester

Module frequency: once a year

Module capacity: unlimited

Modul level: AS (Akzentsetzung / Accentuation)

Modular type: Pflicht o. Wahlpflicht / compulsory or optional

Lern-/Lehrform / Type of program: V + Ü

Vorkenntnisse / Previous knowledge: Medicine for computer scientists
Programming skills / software development / information systems / human machine interaction

Examination:

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time of examination</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture periods</td>
<td>written exam</td>
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Course type:

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
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</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
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<tr>
<td>Exercises</td>
<td></td>
<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
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Total time of attendance for the module: 56 h