inf523 - Medical Software Engineering

Module label: Medical Software Engineering
Module code: inf523
Credit points: 6.0 KP
Workload: 180 h

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:

This Module provides the regulatory requirements of medical software. Focus is on software life cycle methods and approaches, the implementation of combined usability- and risk management processes as well as quality management.

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**

**Links**

Languages of instruction: German, English

**Duration (semesters)**

1 Semester

**Module frequency**

once a year

**Module capacity**

unlimited

**Module level**

AS (Akzentsetzung / Accentuation)

**Modulart**

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

<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>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course type</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
</tr>
</tbody>
</table>

**Total time of attendance for the module**

56 h