inf523 - Medical Software Engineering

<table>
<thead>
<tr>
<th>Module name</th>
<th>Medical Software Engineering</th>
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<tr>
<td>Module code</td>
<td>inf523</td>
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<tr>
<td>ECTS 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 degree programmes**
- Master's Programme Computing Science > Mastermodule
- 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 Lehrende
- authorized examiners
  - Die im Modul Lehrende
  - Rainer Röhrig

**Prerequisites**

**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.

Recommended reading

Links

Languages of instruction
German, English

Duration (semesters)
1 semester

Module frequency
once a year

Module capacity
Unlimited

Modullevel
AS (Akzentsetzung / Accentuation)

Modularart
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
Examination periods
Type of examination
Final exam of module
At the end of the lecture periods
written exam

Course type
Comment
SWS
Course frequency
Workload attendance
Lecture
2
SumSem
28 h
Exercises
2
SumSem
28 h

Total attendance time for module
56 h