from current orga unit

IT security (T3INF3002)

IT security

Formal information on the module				
Module name	**Module number**	**Language**	**Module level**	**Responsible for the module**
IT security	T3INF3002	German/English	Bachelor's degree	Prof. Friedemann Stockmayer

Positioning of the module in the course of study		
Year of study	**Module type**	**Module duration in semester**
3rd academic year	-	1

Teaching and examination methods used	
Teaching methods	Lecture, exercise, laboratory
Teaching methods	Lecture, discussion

Examination performance	Scope of examination (in minutes)	Grading
Exam	120	Yes

Workload and ECTS			
Total workload (in h)	**of which attendance time (in h)**	**of which self-study (in h)**	**ECTS credit points**
150,0	48,0	102,0	5

Qualification goals and competencies	
Professional competence	On completion of the module, students are sensitized to security in key areas of IT. Following a threat analysis, they will be able to identify individual weak points and take appropriate measures to ensure appropriate IT security as part of a security concept. You know the strengths and weaknesses of the possible measures in their professional field of application and can weigh them up against each other in specific situations. The specialist knowledge acquired can be used in discussions on the subject of IT architectures (conception, implementation, porting) and applied in the development of solutions and specification of IT systems.
Methodological competence	-
Personal and social skills	Students have acquired the competence to take social and ethical aspects into account when evaluating information technologies. This applies in particular to weighing up the interests of security in IT systems against the right to informational self-determination of the persons affected by the data processing.
Comprehensive action competence	The module leads students to a conscious and careful handling of data of all kinds. Decisions are always made against the background of IT security. Practicing scientific working methods, researching and evaluating current specialist literature.

Learning units and contents		
Teaching and learning units	**Attendance time**	**Self-study**
IT security	**48,0**	**102,0**

- Basic terms and security issues
- Threat analysis and security concepts
- Basic mechanisms (encryption, hash functions, authentication codes, signature algorithms, public key procedures, etc.) and their cryptographic foundations
- Security models
- Network security and security protocols (e.g. X.509, OAuth)
- Security of web-based applications and services (e.g. XSS, SQL injection, Rest, Soap)
- Data protection
- Embedded Security
- Current topics

Special features and requirements

Special features

-

Prerequisites

-

Literature

- Jonathan Katz, Y. Lindell, Introduction to Modern Cryptography, Chapmann & Hall CRC Press, Cryptography and Network Security
- M. Bishop: Computer Security, Addison-Wesley-Longman
- C. Eckert: IT Security, Oldenbourg
- W. Stallings, L. Brown: Computer Security: Principles and Practice, Pearson * Education
- C. Pfleeger, S. Lawrence Pfleeger, Security in Computing
- Laurens Van Houtven, Crypto 101, www.crypto101.io
- Ivan Ristic, Bulletproof SSL nd TLS, Feisty Druck