

Cyber Security Basics

Mandatory Modules (22 ECTS credit points)

- [11889](#) Introduction to Cyber Security 8 CP
- [11859](#) Cryptography 8 CP
- [11891](#) IT Security Law 6 CP

Cyber Security Methods

Compulsory Elective Modules (28–34 ECTS credit points)

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|---|------|
| • 11862 Pervasive System Security | 6 CP |
| • 11863 Hands on Knowledge for Side Channel Attacks | 6 CP |
| • 11892 Software Security | 6 CP |
| • 11897 Security of Resource-constraint Systems | 6 CP |
| • 11898 Cyber Security Lab (e.g. Ethical Hacking) | 6 CP |
| • 11899 Cyber Security Application Areas | 6 CP |
| • 12790 Seminar Advanced Topics in Network and System Security | 6 CP |
| • 12973 Network and System Security | 6 CP |
| • 12979 Internet Measurements and Forensics | 6 CP |
| • 13490 Secure Cyber-Physical Systems | 6 CP |
| • 14035 Application of Side-Channel Analysis Methods in the Earlier Design Phase of Cryptographic Implementations | 6 CP |

Computer Science

Compulsory Elective Modules (12–18 ECTS credit points)

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| • 11847 Neural Networks and Learning Theory | 8 CP |
| • 11860 Distributed and Parallel Systems II (Concurrency, Replication and Consistency) | 6 CP |
| • 11861 Operating Systems II (Multi-Level Memory Management) | 6 CP |
| • 11864 Wireless Sensor Networks: Concepts, Protocols and Applications | 6 CP |
| • 11881 Foundations of Data Mining | 6 CP |
| • 11882 Software Project Management | 8 CP |
| • 11886 Dependability and Fault Tolerance | 6 CP |
| • 12882 Embedded Real-Time Systems | 6 CP |
| • 12975 Internet – Functionality, Protocols, Applications | 6 CP |
| • 12976 Processor Architecture | 8 CP |
| • 12979 Internet Measurements and Forensics | 6 CP |
| • 13513 Communication Networks / Security Research Class | 6 CP |
| • 13690 Hands on Wireless Sensor Network Applications | 6 CP |
| • 14021 Explainable Machine Learning | 6 CP |

Modules for Specialisation

(46 ECTS credit points*)

Study Project

[11894](#) (8 ECTS credit points)
e.g. Adversarial Machine Learning

General Studies (»FÜS«)

to be selected from the General Studies list
(6 ECTS credit points)

Internship

[11893](#) (8 ECTS credit points)

Master Thesis

[11888](#) (30 ECTS credit points)

Five-digit codes: module numbers with direkt links to the respective module description

*Ungraded Modules are only eligible for a maximum of overall 12 ECTS credit points in »Modules for Specialisation«