

Exclosure to Subject Specific Regulations
 from 25.07.2018
 for Master-Programme
 Information and Communication Systems
 at TUHH
 Programme Director: Prof. Riccardo
 Scandariato

Course Scheme Master Information and Communication Systems (IMPICS)

Consolidated Version
 for Study Cohort: WiSe22/23
 en_head_sda
 and Approval of Chair from:
 04.05.2022
 In Force on: 01.10.2022
 Out of Force on: 30.09.2025

Total: 120 CP

Number of Specialisations to choose: 1

Information regarding the lectures are available in the TUHH modul manuals as well as in the course catalogue.

| | | Module | | | | | | Examination | | | Course Work | | |
|---|---|----------|----------------------|-----------|----------|-----------|--------|--|---------------------|------------|------------------|--------------|--|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) | |
| Core Qualification Compulsory Courses: 42 LP Optional Courses: 0 LP | | | | | | | | | | | | | |
| 2 | Informationstheorie und Codierung / Information Theory and Coding | EN | Prof. Bauch | E-8 | C | CM | 6 | Y | KL | | | | |
| 2 | Technischer Ergänzungskurs für IMPICS (laut FSPO) / Technical Complementary Course for IMPICS (according to Subject Specific Regulations) | | Prof. Timm-Giel | E-4 | C | OM | 12 | according to Subject Specific Regulations | | | | | |
| 3 | Forschungsprojekt ICS / Research Project ICS | EN | Prof. Scandariato | SD-E | C | CM | 12 | Y | STA | | | | |
| 1-3 | Nichttechnische Angebote im Master / Non-technical Courses for Master | DE / EN | Richter | 0-TUHH | C | OM | 6 | Selection out of seperatly published Catalogue | | | | | |
| 1-3 | Betrieb & Management / Business & Management | DE / EN | Prof. Meyer | W-1 | C | OM | 6 | Selection out of seperatly published Catalogue | | | | | |
| Specialisation Communication Systems Compulsory Courses: 6 LP Optional Courses: 18 LP Number of Focuses to choose: 2 | | | | | | | | | | | | | |
| 1 | Digitale Nachrichtenübertragung / Digital Communications | DE / EN | Prof. Bauch | E-8 | C | CM | 6 | Y | KL | Y | SA | 0 | |
| 1 | Hochfrequenztechnik / Microwave Engineering | DE / EN | Prof. Kölpin | E-3 | EC | CM | 6 | Y | KL | Y | FFST | 0 | |
| 1 | Kommunikationsnetze / Communication Networks | EN | Prof. Timm-Giel | E-4 | EC | CM | 6 | Y | RE | | | | |
| 2 | Simulation von Kommunikationsnetzen / Simulation of Communication Networks | EN | Prof. Timm-Giel | E-4 | EC | CM | 6 | Y | MP | | | | |
| 2 | Weiterführende Konzepte der drahtlosen Kommunikation / Advanced Concepts of Wireless Communications | EN | Dr. Grünheid | E-8 | EC | CM | 6 | Y | KL | | | | |
| 3 | Hauptseminare Informatik und Kommunikationstechnik / Advanced Seminars Computer Science and Communication Technology | DE / EN | Dozenten des SD E | SD-E | EC | CM | 6 | Y | RE | | | | |

| | | Module | | | | | Examination | | | Course Work | | |
|--|---|----------|----------------------|-----------|----------|-----------|-------------|-------|---------------------|-------------|------------------|--------------|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) |
| 3 | Moderne Funksysteme / Modern Wireless Systems | EN | Dr. Grünheid | E-8 | EC | CM | 6 | Y | MP | Y | FFST | 0 |
| Focus Software Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | | | |
| 1 | Softwareanalyse / Software Analysis | EN | Prof. Schupp | E-16 | EC | CM | 6 | Y | FFA | | | |
| 1 | Softwareverifikation / Software Verification | EN | Prof. Schupp | E-16 | EC | CM | 6 | Y | KL | Y | ÜA | 15 |
| 2 | Advanced Internet Computing / Advanced Internet Computing | EN | Prof. Schulte | E-19 | EC | CM | 6 | Y | KL | Y | FFST | 20 |
| 2 | Angewandte Kryptographie / Applied Cryptography | EN | Prof. Fröschle | E-15 | EC | CM | 6 | Y | KL | N | ÜA | 10 |
| 2 | Entwicklung von sicherer Software / Secure Software Engineering | EN | Prof. Scandariato | E-22 | EC | CM | 6 | Y | KL | | | |
| 2 | Maschinelles Lernen in der Elektro- und Informationstechnik / Machine Learning in Electrical Engineering and Information Technology | EN | Prof. Bauch | E-8 | EC | CM | 6 | Y | MP | | | |
| 2 | Modellprüfung - Beweiser und Algorithmen / Model Checking - Proof Engines and Algorithms | DE / EN | Prof. Fey | E-13 | EC | CM | 6 | Y | MP | Y | FFST | 0 |
| 2 | Software für Eingebettete Systeme / Software for Embedded Systems | DE / EN | Prof. Renner | E-24 | EC | CM | 6 | Y | KL | N | TE | 10 |
| 2 | Softwaretesten / Software Testing | EN | Prof. Schupp | E-16 | EC | CM | 6 | Y | FFA | | | |
| Focus Signal Processing Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | | | |
| 1 | Digitale Audiosignalverarbeitung / Digital Audio Signal Processing | EN | Prof. Zölzer | E-8 | EC | CM | 6 | Y | KL | | | |
| 1 | Digitale Signalverarbeitung und Digitale Filter / Digital Signal Processing and Digital Filters | EN | Prof. Bauch | E-8 | EC | CM | 6 | Y | KL | | | |
| 2 | Computer-Grafik / Computer Graphics | EN | Prof. Knopp | E-5 | EC | CM | 6 | Y | KL | | | |
| 2 | Prozessbildgebung / Process Imaging | EN | Prof. Penn | V-10 | EC | CM | 6 | Y | KL | | | |
| 2 | Satellitenkommunikation und Navigation / Satellite Communications and Navigation | EN | Prof. Bauch | E-8 | EC | CM | 6 | Y | MP | | | |
| 3 | Bildverarbeitung / Image Processing | DE / EN | Prof. Knopp | E-5 | EC | CM | 6 | Y | KL | | | |
| Specialisation Secure and Dependable IT Systems Compulsory Courses: 6 LP Optional Courses: 18 LP Number of Focuses to choose: 2 | | | | | | | | | | | | |
| 1 | Softwareverifikation / Software Verification | EN | Prof. Schupp | E-16 | C | CM | 6 | Y | KL | Y | ÜA | 15 |
| 1 | Software-Sicherheit / Software Security | EN | Prof. Scandariato | E-22 | EC | CM | 6 | Y | KL | | | |
| 2 | Data Science zur Cybersicherheit / Cybersecurity Data Science | EN | Prof. Scandariato | E-22 | EC | CM | 6 | Y | KL | | | |
| 2 | Entwurf von Dependable Systems / Design of Dependable Systems | DE / EN | Prof. Fey | E-13 | EC | CM | 6 | Y | MP | Y | FFST | 0 |

| | | Module | | | | | Examination | | | Course Work | | |
|--|--|----------|----------------------|-----------|----------|-----------|-------------|-------|---------------------|-------------|------------------|--------------|
| Re-com. Term | Module Name (German / English) | Language | ModuleResponsability | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(3) | Compulsory | Course Work Type | Bonus (in %) |
| 2 | Modellprüfung - Beweiser und Algorithmen / Model Checking - Proof Engines and Algorithms | DE / EN | Prof. Fey | E-13 | EC | CM | 6 | Y | MP | Y | FFST | 0 |
| 3 | Hauptseminare Informatik und Kommunikationstechnik / Advanced Seminars Computer Science and Communication Technology | DE / EN | Dozenten des SD E | SD-E | EC | CM | 6 | Y | RE | | | |
| Focus Networks Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | | | |
| 1 | Digitale Nachrichtenübertragung / Digital Communications | DE / EN | Prof. Bauch | E-8 | EC | CM | 6 | Y | KL | Y | SA | 0 |
| 1 | Kommunikationsnetze / Communication Networks | EN | Prof. Timm-Giel | E-4 | EC | CM | 6 | Y | RE | | | |
| 2 | Advanced Internet Computing / Advanced Internet Computing | EN | Prof. Schulte | E-19 | EC | CM | 6 | Y | KL | Y | FFST | 20 |
| 2 | Simulation von Kommunikationsnetzen / Simulation of Communication Networks | EN | Prof. Timm-Giel | E-4 | EC | CM | 6 | Y | MP | | | |
| Focus Software and Signal Processing Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | | | |
| 1 | Digitale Audiosignalverarbeitung / Digital Audio Signal Processing | EN | Prof. Zölzer | E-8 | EC | CM | 6 | Y | KL | | | |
| 1 | Softwareanalyse / Software Analysis | EN | Prof. Schupp | E-16 | EC | CM | 6 | Y | FFA | | | |
| 2 | Computer-Grafik / Computer Graphics | EN | Prof. Knopp | E-5 | EC | CM | 6 | Y | KL | | | |
| 2 | Entwicklung von sicherer Software / Secure Software Engineering | EN | Prof. Scandariato | E-22 | EC | CM | 6 | Y | KL | | | |
| 2 | Satellitenkommunikation und Navigation / Satellite Communications and Navigation | EN | Prof. Bauch | E-8 | EC | CM | 6 | Y | MP | | | |
| 2 | Softwaretesten / Software Testing | EN | Prof. Schupp | E-16 | EC | CM | 6 | Y | FFA | | | |
| 3 | Bildverarbeitung / Image Processing | DE / EN | Prof. Knopp | E-5 | EC | CM | 6 | Y | KL | | | |
| 3 | Sicherheit von Cyber-physischen Systemen / Security of Cyber-Physical Systems | EN | Prof. Fröschle | E-15 | EC | CM | 6 | Y | KL | N | ÜA | 10 |
| Thesis Compulsory Courses: 30 LP Optional Courses: 0 LP | | | | | | | | | | | | |
| 4 | Masterarbeit / Master Thesis | | Professoren der TUHH | 0-TUHH | C | CM | 30 | Y | AB | | | |

Explanation:

¹C=Compulsory, EC=Elective Compulsory

²CM=Compulsory Defined Module, OM=Optional Defined Module

³KL=Written exam, SA=Written elaboration, FFA=Subject theoretical and practical work, FFST=Subject theoretical and practical work, MP=Oral exam, RE=Presentation, STA=Study work, ÜA=Exercises, AB=Thesis, SA It.

⁴CP=Written elaboration (accord. to Internship Regulations), TE=Attestation

⁴CP=Credit Points

⁵VL=Lecture, SE=Seminar, GÜ=Recitation Section (small), PBL=Project-/problem-based Learning, PR=Practical Course, PK=Projection Course, HÜ=Recitation Section (large)

⁶DE=German, EN=English, DE/EN=German and English

⁷SWS=Contact hours