

Course Scheme Master Information and Communication Systems (IMPICS)

| Re com. Term | Module Name (German) | Modul Name (English) | Institute | C/EC (1) | CM/OM (2) | Grade | Examination Form(3) | CP (4) | Course Name (German) | Course Name (English) | Course Form LV(5) | Language (6) | SWS (7) | Sem. LV |
|---|--|---|-------------|----------|-----------|-------|---------------------|--------|---|--|-------------------|--------------|---------|---------|
| Core qualification Compulsory Courses: 48 LP Optional Courses: 0 LP | | | | | | | | | | | | | | |
| 2 | Informationstheorie und Codierung | Information Theory and Coding | E-8 | C | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Informationstheorie und Codierung | Information Theory and Coding | VL | DE/EN | 3 | 2 |
| | | | | | | | | | Informationstheorie und Codierung | Information Theory and Coding | HÜ | DE/EN | 1 | 2 |
| 2 | Technischer Ergänzungskurs I für IMPICS (laut FSPO) | Technical Complementary Course I for IMPICS (according to Subject Specific Regulations) | E-4 | C | CM | Yes | lt. FSPO | 6 | | | | | | |
| 3 | Forschungsprojekt und Seminar | Research Project and Seminar | not defined | C | CM | Yes | PA lt. FSPO | 18 | | | | | | |
| | | | | | | | | | Hauptseminar | Seminar | SE | DE/EN | 2 | 3 |
| 3 | Technischer Ergänzungskurs II für IMPICS (laut FSPO) | Technical Complementary Course II for IHWMS (according to Subject Specific Regulations) | E-4 | C | CM | Yes | lt. FSPO | 6 | | | | | | |
| 1-3 | Betrieb & Management | Business & Management | W-1 | C | OM | | | 6 | Selection out of Catalogue | | | | | |
| 1-3 | Nichttechnische Ergänzungskurse im Master | Nontechnical Elective Complementary Courses for Master | 0-TUHH | C | OM | | | 6 | Selection out of Catalogue | | | | | |
| Specialisation Communication Systems Compulsory Courses: 6 LP Optional Courses: 12 LP Number of Focuses to choose: 2 | | | | | | | | | | | | | | |
| 1 | Digitale Nachrichtenübertragung | Digital Communications | E-8 | C | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Digitale Nachrichtenübertragung | Digital Communications | VL | DE/EN | 2 | 1 |
| | | | | | | | | | Digitale Nachrichtenübertragung | Digital Communications | HÜ | DE/EN | 1 | 1 |
| | | | | | | | | | Praktikum Digitale Nachrichtenübertragung | Laboratory Digital Communications | PR | DE/EN | 1 | 1 |
| 1 | Hochfrequenztechnik | Microwave Engineering | E-3 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Hochfrequenztechnik | Microwave Engineering | VL | DE/EN | 2 | 1 |
| | | | | | | | | | Hochfrequenztechnik | Microwave Engineering | HÜ | DE/EN | 2 | 1 |
| | | | | | | | | | Hochfrequenztechnik | Microwave Engineering | PR | DE/EN | 1 | 1 |
| 1 | Kommunikationsnetze I - Analyse und Struktur | Communication Networks I - Analysis and Structure | E-4 | EC | CM | Yes | Ko | 6 | | | | | | |
| | | | | | | | | | Analyse und Struktur von Kommunikationsnetzen | Analysis and Structure of Communication Networks | VL | EN | 2 | 1 |

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|---|--|---|-----------|----------|-----------|-------|---------------------|--------|--|--|-------------------|--------------|---------|---------|
| | | | | | | | | | Ausgewählte Themen der Kommunikationsnetze | Selected Topics of Communication Networks | POL | EN | 2 | 1 |
| | | | | | | | | | Übung Kommunikationsnetze | Communication Networks Exercise | POL | EN | 1 | 1 |
| 2 | Kommunikationsnetze II - Simulation und Modellierung | Communication Networks II - Simulation and Modeling | E-4 | EC | CM | Yes | Ko | 6 | | | | | | |
| | | | | | | | | | Simulation und Modellierung von Kommunikationsnetzen | Simulation and Modelling of Communication Networks | POL | EN | 5 | 2 |
| 3 | Traffic Engineering | Traffic Engineering | E-4 | EC | CM | Yes | MdIP | 6 | | | | | | |
| | | | | | | | | | Seminar Traffic Engineering | Seminar Traffic Engineering | SE | EN | 2 | 3 |
| | | | | | | | | | Traffic Engineering | Traffic Engineering | VL | EN | 2 | 3 |
| | | | | | | | | | Traffic Engineering Übung | Traffic Engineering Exercises | UE | EN | 1 | 3 |
| Focus Software Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | | | | | |
| 1 | Softwareverifikation | Software Verification | E-16 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Softwareverifikation | Software Verification | VL | EN | 2 | 1 |
| | | | | | | | | | Softwareverifikation | Software Verification | UE | EN | 2 | 1 |
| | | | | | | | | | Softwareverifikation | Software Verification | HÜ | EN | 2 | 1 |
| 1 | The Computational Web | The Computational Web | E-13 | EC | CM | Yes | PA | 6 | | | | | | |
| | | | | | | | | | The Computational Web | The Computational Web | VL | EN | 2 | 1 |
| | | | | | | | | | The Computational Web | The Computational Web | PS | EN | 2 | 1 |
| 2 | Anwendungssicherheit | Application Security | E-15 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Anwendungssicherheit | Application Security | VL | EN | 3 | 2 |
| | | | | | | | | | Anwendungssicherheit | Application Security | UE | EN | 2 | 2 |
| 2 | Software für Eingebettete Systeme | Software for Embedded Systems | E-17 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Software für eingebettete Systeme | Software for Embedded Systems | VL | DE/EN | 2 | 2 |
| | | | | | | | | | Software für eingebettete Systeme | Software for Embedded Systems | UE | DE/EN | 3 | 2 |
| 2 | Softwareanalyse | Software Analysis | E-16 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Softwareanalyse | Software Analysis | VL | EN | 2 | 2 |
| | | | | | | | | | Softwareanalyse | Software Analysis | UE | EN | 2 | 2 |
| 2 | Softwaretesten | Software Testing | E-16 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Softwaretesten | Software Testing | VL | EN | 2 | 2 |
| | | | | | | | | | Softwaretesten | Software Testing | POL | EN | 2 | 2 |
| Focus Signal Processing Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | | | | | |
| 1 | Digitale Bildanalyse | Digital Image Analysis | E-2 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Digitale Bildanalyse | Digital Image Analysis | VL | EN | 4 | 1 |
| 1 | Digitale Signalverarbeitung und Digitale Filter | Digital Signal Processing and Digital Filters | E-8 | EC | CM | Yes | KI | 6 | | | | | | |

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|--|--------------------------------------|--|-----------|----------|-----------|-------|---------------------|--------|---|---|-------------------|--------------|---------|---------|
| | | | | | | | | | Digitale Signalverarbeitung und Digitale Filter | Digital Signal Processing and Digital Filters | VL | EN | 3 | 1 |
| | | | | | | | | | Digitale Signalverarbeitung und Digitale Filter | Digital Signal Processing and Digital Filters | HÜ | EN | 1 | 1 |
| 2 | Computer-Grafik und Animation | Computer Graphics and Animation | E-13 | EC | CM | Yes | PA | 6 | | | | | | |
| | | | | | | | | | Computer-Grafik und Animation | Computer Graphics and Animation | VL | EN | 2 | 2 |
| | | | | | | | | | Computer-Grafik und Animation | Computer Graphics and Animation | PS | EN | 2 | 2 |
| 2 | Mustererkennung und Datenkompression | Pattern Recognition and Data Compression | E-2 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Mustererkennung und Datenkompression | Pattern Recognition and Data Compression | VL | EN | 4 | 2 |
| 3 | 3D Computer Vision | 3D Computer Vision | E-2 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | 3D Computer Vision | 3D Computer Vision | VL | EN | 2 | 3 |
| | | | | | | | | | 3D Computer Vision | 3D Computer Vision | UE | EN | 2 | 3 |
| Specialisation Secure and Dependable IT Systems Compulsory Courses: 6 LP Optional Courses: 12 LP Number of Focuses to choose: 2 | | | | | | | | | | | | | | |
| 1 | Softwareverifikation | Software Verification | E-16 | C | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Softwareverifikation | Software Verification | VL | EN | 2 | 1 |
| | | | | | | | | | Softwareverifikation | Software Verification | UE | EN | 2 | 1 |
| | | | | | | | | | Softwareverifikation | Software Verification | HÜ | EN | 2 | 1 |
| 1 | Software-Sicherheit | Software Security | E-15 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Software-Sicherheit | Software Security | VL | EN | 2 | 1 |
| | | | | | | | | | Software-Sicherheit | Software Security | UE | EN | 2 | 1 |
| 2 | Anwendungssicherheit | Application Security | E-15 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Anwendungssicherheit | Application Security | VL | EN | 3 | 2 |
| | | | | | | | | | Anwendungssicherheit | Application Security | UE | EN | 2 | 2 |
| 2 | Kryptographie | Cryptography | E-EXK1 | EC | CM | Yes | MdIP | 6 | | | | | | |
| | | | | | | | | | Kryptographie | Cryptography | UE | DE/EN | 2 | 2 |
| | | | | | | | | | Kryptographie | Cryptography | VL | DE/EN | 2 | 2 |
| 2 | Netzwerk-Sicherheit | Network Security | E-15 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Netzwerk-Sicherheit | Network Security | VL | EN | 3 | 2 |
| | | | | | | | | | Netzwerk-Sicherheit | Network Security | UE | EN | 2 | 2 |
| Focus Networks Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | | | | | |
| 1 | Digitale Nachrichtenübertragung | Digital Communications | E-8 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Digitale Nachrichtenübertragung | Digital Communications | VL | DE/EN | 2 | 1 |
| | | | | | | | | | Digitale Nachrichtenübertragung | Digital Communications | HÜ | DE/EN | 1 | 1 |
| | | | | | | | | | Praktikum Digitale Nachrichtenübertragung | Laboratory Digital Communications | PR | DE/EN | 1 | 1 |

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|--|--|---|-----------|----------|-----------|-------|---------------------|--------|--|--|-------------------|--------------|---------|---------|
| 1 | Kommunikationsnetze I - Analyse und Struktur | Communication Networks I - Analysis and Structure | E-4 | EC | CM | Yes | Ko | 6 | | | | | | |
| | | | | | | | | | Analyse und Struktur von Kommunikationsnetzen | Analysis and Structure of Communication Networks | VL | EN | 2 | 1 |
| | | | | | | | | | Ausgewählte Themen der Kommunikationsnetze | Selected Topics of Communication Networks | POL | EN | 2 | 1 |
| | | | | | | | | | Übung Kommunikationsnetze | Communication Networks Exercise | POL | EN | 1 | 1 |
| 2 | Kommunikationsnetze II - Simulation und Modellierung | Communication Networks II - Simulation and Modeling | E-4 | EC | CM | Yes | Ko | 6 | | | | | | |
| | | | | | | | | | Simulation und Modellierung von Kommunikationsnetzen | Simulation and Modelling of Communication Networks | POL | EN | 5 | 2 |
| 3 | Traffic Engineering | Traffic Engineering | E-4 | EC | CM | Yes | MdIP | 6 | | | | | | |
| | | | | | | | | | Seminar Traffic Engineering | Seminar Traffic Engineering | SE | EN | 2 | 3 |
| | | | | | | | | | Traffic Engineering | Traffic Engineering | VL | EN | 2 | 3 |
| | | | | | | | | | Traffic Engineering Übung | Traffic Engineering Exercises | UE | EN | 1 | 3 |
| Focus Software and Signal Processing Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | | | | | |
| 1 | Digitale Bildanalyse | Digital Image Analysis | E-2 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Digitale Bildanalyse | Digital Image Analysis | VL | EN | 4 | 1 |
| 1 | The Computational Web | The Computational Web | E-13 | EC | CM | Yes | PA | 6 | | | | | | |
| | | | | | | | | | The Computational Web | The Computational Web | VL | EN | 2 | 1 |
| | | | | | | | | | The Computational Web | The Computational Web | PS | EN | 2 | 1 |
| 2 | Computer-Grafik und Animation | Computer Graphics and Animation | E-13 | EC | CM | Yes | PA | 6 | | | | | | |
| | | | | | | | | | Computer-Grafik und Animation | Computer Graphics and Animation | VL | EN | 2 | 2 |
| | | | | | | | | | Computer-Grafik und Animation | Computer Graphics and Animation | PS | EN | 2 | 2 |
| 2 | Mustererkennung und Datenkompression | Pattern Recognition and Data Compression | E-2 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Mustererkennung und Datenkompression | Pattern Recognition and Data Compression | VL | EN | 4 | 2 |
| 2 | Software für Eingebettete Systeme | Software for Embedded Systems | E-17 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Software für eingebettete Systeme | Software for Embedded Systems | VL | DE/EN | 2 | 2 |
| | | | | | | | | | Software für eingebettete Systeme | Software for Embedded Systems | UE | DE/EN | 3 | 2 |
| 2 | Softwareanalyse | Software Analysis | E-16 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Softwareanalyse | Software Analysis | VL | EN | 2 | 2 |
| | | | | | | | | | Softwareanalyse | Software Analysis | UE | EN | 2 | 2 |
| 2 | Softwaretesten | Software Testing | E-16 | EC | CM | Yes | KI | 6 | | | | | | |
| | | | | | | | | | Softwaretesten | Software Testing | VL | EN | 2 | 2 |
| | | | | | | | | | Softwaretesten | Software Testing | POL | EN | 2 | 2 |
| 3 | 3D Computer Vision | 3D Computer Vision | E-2 | EC | CM | Yes | KI | 6 | | | | | | |

| Re com. Term | Module Name (German) | Modul Name (English) | Institute | C/EC (1) | CM/ OM (2) | Grade | Exami nation Form(3) | CP (4) | Course Name (German) | Course Name (English) | Course Form LV(5) | Language (6) | SWS (7) | Sem. LV |
|--|----------------------|----------------------|-------------|-------------|---------------|-------|----------------------------|-----------|----------------------|-----------------------|-------------------------|-----------------|------------|------------|
| | | | | | | | | | 3D Computer Vision | 3D Computer Vision | VL | EN | 2 | 3 |
| | | | | | | | | | 3D Computer Vision | 3D Computer Vision | UE | EN | 2 | 3 |
| Thesis Compulsory Courses: 30 LP Optional Courses: 0 LP | | | | | | | | | | | | | | |
| 4 | Masterarbeit | Master Thesis | not defined | C | CM | Yes | lt. FSPO | 30 | | | | | | |

Explanation:

¹C=Compulsory, EC=Elective Compulsory

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

³Kl=Written exam, PA=Project, SA=Written elaboration, Re=Presentation, MdIP=Oral exam, KI=Written exam, Ko=Colloquium, PA=Project, lt. FSPO=according to Subject Specific Regulations, MdIP=Oral exam, PA lt.

⁴CP=Credit Points

⁵VL=Lecture, SE=Seminar, UE=Recitation Section (small), POL=Problem-based Learning, PR=Laboratory Course, PS=Project Seminar, HÜ=Recitation Section (large)

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

⁷SWS=Contact hours