

Exclosure to Subject Specific Regulations
 from 25.07.2018
 for Master-Programme
 Information and Communication Systems
 at TUHH dual study program
 Programme Director: Prof. Riccardo
 Scandariato
 Total: 150 CP
 Number of Specialisations to choose: 1



Course Scheme Master Information and Communication Systems (IMPICS) dual study program

Consolidated Version
 for Study Cohort: WiSe22/23
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 and Approval of Chair from:
 12.04.2023
 Replaces Version from: 14.07.2022
 In Force on: 01.10.2023
 Out of Force on: 30.09.2025

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

Re-com. Term	Module							Examination			Course Work		
	Module Name (German / English)	Language	ModuleResponsability	Institute	C/EC (1)	CM/OM (2)	CP (4)	Grade	Examination Form(3)	Compulsory	Course Work Type	Bonus (%)	
Core Qualification Compulsory Courses: 72 LP Optional Courses: 0 LP													
1	Praxismodul 1 im dualen Master / Practical module 1 (dual study program, Master's degree)	DE	Dr. Haschke	0-SLS	C	CM	10	N	SA				
2	Informationstheorie und Codierung / Information Theory and Coding	EN	Prof. Bauch	E-8	C	CM	6	Y	KL				
2	Praxismodul 2 im dualen Master / Practical module 2 (dual study program, Master's degree)	DE	Dr. Haschke	0-SLS	C	CM	10	N	SA				
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				
3	Praxismodul 3 im dualen Master / Practical module 3 (dual study program, Master's degree)	DE	Dr. Haschke	0-SLS	C	CM	10	N	SA				
1-3	Theorie-Praxis-Verzahnung im dualen Master / Linking theory and practice (dual study program, Master's degree)	DE	Dr. Haschke	0-SLS	C	CM	6	N	SA				
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				

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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				
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	FFA				
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				
3	Massiv parallele Systeme: Architektur und Programmierung / Massively Parallel Systems: Architecture and Programming	EN	Prof. Lal	E-EXK5	EC	CM	6	Y	MP	Y	FFST	20	
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				

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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
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	FFA			
2	Simulation von Kommunikationsnetzen / Simulation of Communication Networks	EN	Prof. Timm-Giel	E-4	EC	CM	6	Y	MP			
3	Traffic Engineering / Traffic Engineering	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	Autonomous Cyber-Physical Systems / Autonomous Cyber-Physical Systems	EN	Prof. Renner	E-24	EC	CM	6	Y	KL	N	TE	10
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	GPU Architectures / GPU Architectures	EN	Prof. Lal	E-EXK5	EC	CM	6	Y	MP			
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			

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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 im dualen Studium / Master thesis (dual study program)		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=Exercices, AB=Thesis, SA It.

⁴PRO=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