

Exclosure to Subject Specific Regulations  
 from 25.07.2018  
 for Master-Programme Computer Science  
 at TUHH  
 Programme Director: Prof. Karl-Heinz  
 Zimmermann  
 Total: 120 CP  
 Number of Specialisations to choose: 1

# Course Scheme Master Computer Science (CSMS)

Consolidated Version  
 for Study Cohort: WiSe18/19  
 en\_head\_sda  
 and Approval of Chair from:  
 24.04.2019  
 Replaces Version from: 25.07.2018  
 Out of Force on: 30.09.2021

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 (in %)
<b>Core Qualification</b> Compulsory Courses: 30 LP Optional Courses: 0 LP												
3	Forschungsprojekt und Seminar / Research Project and Seminar	DE / EN	Prof. Zimmermann	SD-E	C	CM	18	Y	STA			
1-3	Nichttechnische Ergänzungskurse im Master / Nontechnical Elective Complementary 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				
<b>Specialisation Computer and Software Engineering</b> Compulsory Courses: 0 LP Optional Courses: 60 LP Number of Focuses to choose: 1												
1	Algorithmische Algebra / Algorithmic Algebra	DE	Dr. Batra	E-19	EC	CM	6	Y	MP			
1	Effiziente Algorithmen / Efficient Algorithms	DE	Prof. Rump	E-19	EC	CM	6	Y	KL			
1	Kommunikationsnetze / Communication Networks	EN	Prof. Timm-Giel	E-4	EC	CM	6	Y	RE			
1	Softwareverifikation / Software Verification	EN	Prof. Schupp	E-16	EC	CM	6	Y	KL	Y	ÜA	15
1	Technischer Ergänzungskurs I für CSMS (laut FSPO) / Technical Complementary Course I for CSMS (according to Subject Specific Regulations)		Prof. Zimmermann	E-13	EC	OM	6	according to Subject Specific Regulations				
1	Verteilte Algorithmen / Distributed Algorithms	DE / EN	Prof. Turau	E-17	EC	CM	6	Y	MP			
2	Anwendungssicherheit / Application Security	EN	Prof. Gollmann	E-15	EC	CM	6	Y	KL			
2	Compiler für Eingebettete Systeme / Compilers for Embedded Systems	DE / EN	Prof. Falk	E-13	EC	CM	6	Y	MP			
2	Computer-Grafik / Computer Graphics	EN	Prof. Knopp	E-5	EC	CM	6	Y	KL			
2	Drahtlose Sensornetze / Wireless Sensor Networks	EN	Prof. Renner	E-EXK2	EC	CM	6	Y	MP			
2	Kurven, Codes und Cryptosysteme / Curves, Codes and Cryptosystems	DE / EN	Prof. Zimmermann	E-13	EC	CM	6	Y	MP			

		Module					Examination				Course Work		
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2	Modellprüfung - Beweiser und Algorithmen / Model Checking - Proof Engines and Algorithms	DE / EN	Prof. Fey	E-13	EC	CM	6	Y	MP				
2	Netzwerk-Sicherheit / Network Security	EN	Prof. Gollmann	E-15	EC	CM	6	Y	KL				
2	Numerische Mathematik II / Numerical Mathematics II	DE / EN	Prof. Le Borne	E-10	EC	CM	6	Y	MP				
2	Randomisierte Algorithmen und Zufällige Graphen / Randomised Algorithms and Random Graphs	DE / EN	Prof. Taraz	E-10	EC	CM	6	Y	MP				
2	Simulation von Kommunikationsnetzen / Simulation of Communication Networks	EN	Prof. Timm-Giel	E-4	EC	CM	6	Y	MP				
2	Software für Eingebettete Systeme / Software for Embedded Systems	DE / EN	Prof. Turau	E-17	EC	CM	6	Y	KL				
2	Softwaretesten / Software Testing	EN	Prof. Schupp	E-16	EC	CM	6	Y	FFA				
2	Technischer Ergänzungskurs II für CSMS (laut FSPO) / Technical Complementary Course II for CSMS (according to Subject Specific Regulations)		Prof. Zimmermann	E-13	EC	OM	6	according to Subject Specific Regulations					
3	Echtzeitsysteme / Real-Time Systems	EN	Prof. Falk	E-13	EC	CM	6	Y	MP				
3	Fortgeschrittener Entwurf von Chip-Systemen (Praktikum) / Advanced System-on-Chip Design (Lab)	DE / EN	Prof. Falk	E-13	EC	CM	6	N	FFA				
3	Software-Sicherheit / Software Security	EN	Prof. Gollmann	E-15	EC	CM	6	Y	KL				
3	Softwareanalyse / Software Analysis	EN	Prof. Schupp	E-16	EC	CM	6	Y	FFA				
3	Traffic Engineering / Traffic Engineering	EN	Prof. Timm-Giel	E-4	EC	CM	6	Y	MP				
3	Wissenschaftliches Rechnen und Genauigkeit / Scientific Computing and Accuracy	DE	Prof. Rump	E-19	EC	CM	6	Y	MP				

**Specialisation Intelligence Engineering** Compulsory Courses: 0 LP Optional Courses: 60 LP Number of Focuses to choose: 1

1	Digitale Bildanalyse / Digital Image Analysis	EN	Prof. Grigat	E-2	EC	CM	6	Y	KL			
1	Digitale Nachrichtenübertragung / Digital Communications	DE / EN	Prof. Bauch	E-8	EC	CM	6	Y	KL	Y	SA	0
1	Digitale Signalverarbeitung und Digitale Filter / Digital Signal Processing and Digital Filters	EN	Prof. Bauch	E-8	EC	CM	6	Y	KL			
1	Intelligente Autonome Agenten und kognitive Robotik / Intelligent Autonomous Agents and Cognitive Robotics	EN	Marrone	E-16	EC	CM	6	Y	KL			
1	Intelligente Systeme in der Medizin / Intelligent Systems in Medicine	EN	Prof. Schlaefer	E-1	EC	CM	6	Y	KL	Y	SA	10
										Y	RE	10
1	Mathematische Bildverarbeitung / Mathematical Image Processing	DE / EN	Prof. Lindner	E-10	EC	CM	6	Y	MP			
1	Prozessautomatisierungstechnik / Industrial Process Automation	EN	Prof. Schlaefer	E-1	EC	CM	6	Y	KL	Y	ÜA	10

		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 (%)
1	Robotik / Robotics	EN	Prof. Weltin	M-24	EC	CM	6	Y	KL			
1	Soft-Computing / Soft Computing	DE / EN	Prof. Zimmermann	E-13	EC	CM	6	Y	MP			
1	Technischer Ergänzungskurs I für CSMS (laut FSPO) / Technical Complementary Course I for CSMS (according to Subject Specific Regulations)		Prof. Zimmermann	E-13	EC	OM	6	according to Subject Specific Regulations				
1	Theorie und Entwurf regelungstechnischer Systeme / Control Systems Theory and Design	EN	Prof. Werner	E-14	EC	CM	6	Y	KL			
1	Wissenschaftliches Rechnen und Genauigkeit / Scientific Computing and Accuracy	DE	Prof. Rump	E-19	EC	CM	6	Y	MP			
2	Angewandte Humanoide Robotik / Applied Humanoid Robotics	DE / EN	Götttsch	E-14	EC	CM	6	N	SA			
2	Diskrete Differentialgeometrie / Discrete Differential Geometry	DE / EN	Prof. Zimmermann	E-13	EC	CM	6	Y	MP			
2	Informationstheorie und Codierung / Information Theory and Coding	DE / EN	Prof. Bauch	E-8	EC	CM	6	Y	KL			
2	Maschinelles Lernen und Data Mining / Machine Learning and Data Mining	EN	NN	E-16	EC	CM	6	Y	KL			
2	Mustererkennung und Datenkompression / Pattern Recognition and Data Compression	EN	Prof. Grigat	E-2	EC	CM	6	Y	KL			
2	Numerische Mathematik II / Numerical Mathematics II	DE / EN	Prof. Le Borne	E-10	EC	CM	6	Y	MP			
2	Optimale und robuste Regelung / Optimal and Robust Control	EN	Prof. Werner	E-14	EC	CM	6	Y	MP			
2	Robotik und Navigation in der Medizin / Robotics and Navigation in Medicine	EN	Prof. Schlaefer	E-1	EC	CM	6	Y	KL	Y	SA	10
										Y	RE	10
2	Technischer Ergänzungskurs II für CSMS (laut FSPO) / Technical Complementary Course II for CSMS (according to Subject Specific Regulations)		Prof. Zimmermann	E-13	EC	OM	6	according to Subject Specific Regulations				
3	3D Computer Vision / 3D Computer Vision	EN	Prof. Grigat	E-2	EC	CM	6	Y	KL			
3	Ausgewählte Themen der Regelungstechnik / Advanced Topics in Control	EN	Prof. Werner	E-14	EC	CM	6	Y	MP			
3	Digitale Audiosignalverarbeitung / Digital Audio Signal Processing	EN	Prof. Zölzer	E-8	EC	CM	6	Y	KL			
3	Mathematik neuronaler Netzwerke / Mathematics of Neural Networks	DE / EN	Dr. Zemke	E-10	EC	CM	6	Y	MP			
3	Numerische Verfahren in der medizinischen Bildgebung / Numerical Methods for Medical Imaging	DE	Prof. Knopp	E-5	EC	CM	6	Y	KL			
<b>Thesis</b> Compulsory Courses: 30 LP Optional Courses: 0 LP												
4	Masterarbeit / Master Thesis		Professoren der TUHH	0-TUHH	C	CM	30	Y	AB			

## Explanation:

<sup>1</sup>C=Compulsory, EC=Elective Compulsory

<sup>2</sup>CM=Compulsory Defined Module, OM=Optional Defined Module

<sup>3</sup>KL=Written exam, SA=Written elaboration, FFA=Subject theoretical and practical work, MP=Oral exam, RE=Presentation, STA=Study work, ÜA=Exercises, AB=Thesis

<sup>4</sup>CP=Credit Points

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

<sup>6</sup>DE=German, EN=English, DE/EN=German and English

<sup>7</sup>SWS=Contact hours