

Unofficial translation (not legally binding)

Study schedule for full-time studies

with the type and scope of the courses in "SWS" (lecture hours per week) as well as the required achievements, type, scope and structure of which can be found in the module descriptions

Legend

CP Credit points

V Lecture

P Practical

Pj Project

M *Mobilitätsfenster gemäß § 6 Absatz 1 Satz 3*

Ü Exercise

T Tutorial

PL Graded work

S Seminar

SK Language course

*) The topic of the Master's thesis will be assigned at the end of the third semester.

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
Compulsory Area						
CMS-SOF	Soft Skills	0/0/2/0 1 PL				2
CMS-PRO	Research Assignment			12 SWS Pj 1 PL		15
Basic Compulsory Elective Area						
Basic Language Training Select 1 out of 74 Modules						
CMS-LN-A1-1A	Foreign Language A1 Advanced Level - Arabic		4 SWS SK 1 PL			5
CMS-LN-A1-1C	Foreign Language A1 Advanced Level - Chinese		4 SWS SK 1 PL			5
CMS-LN-A1-1D	Foreign Language A1 Advanced Level - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-A1-1FI	Foreign Language A1 Advanced Level - Finnish		4 SWS SK 1 PL			5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-LN-A1-1FR	Foreign Language A1 Advanced Level - French		4 SWS SK 1 PL			5
CMS-LN-A1-1I	Foreign Language A1 Advanced Level - Italian		4 SWS SK 1 PL			5
CMS-LN-A1-1J	Foreign Language A1 Advanced Level - Japanese		4 SWS SK 1 PL			5
CMS-LN-A1-1PL	Foreign Language A1 Advanced Level - Polish		4 SWS SK 1 PL			5
CMS-LN-A1-1PG	Foreign Language A1 Advanced Level - Portuguese		4 SWS SK 1 PL			5
CMS-LN-A1-1RU	Foreign Language A1 Advanced Level - Russian		4 SWS SK 1 PL			5
CMS-LN-A1-1SW	Foreign Language A1 Advanced Level - Swedish		4 SWS SK 1 PL			5
CMS-LN-A1-1SP	Foreign Language A1 Advanced Level - Spanish		4 SWS SK 1 PL			5
CMS-LN-A1-1T	Foreign Language A1 Advanced Level - Czech		4 SWS SK 1 PL			5
CMS-LN-A2-A	Foreign Language A2 - Arabic		4 SWS SK 1 PL			5
CMS-LN-A2-C	Foreign Language A2 - Chinese		4 SWS SK 1 PL			5
CMS-LN-A2-D	Foreign Language A2 - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-A2-FI	Foreign Language A2 - Finnish		4 SWS SK 1 PL			5
CMS-LN-A2-J	Foreign Language A2 - Japanese		4 SWS SK 1 PL			5
CMS-LN-A2-PL	Foreign Language A2 - Polish		4 SWS SK 1 PL			5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-LN-A2-RU	Foreign Language A2 - Russian		4 SWS SK 1 PL			5
CMS-LN-A2-T	Foreign Language A2 - Czech		4 SWS SK 1 PL			5
CMS-LN-A2-1A	Foreign Language A2 Advanced Level - Arabic		4 SWS SK 1 PL			5
CMS-LN-A2-1D	Foreign Language A2 Advanced Level - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-A2-1F	Foreign Language A2 Advanced Level - French		4 SWS SK 1 PL			5
CMS-LN-A2-1I	Foreign Language A2 Advanced Level - Italian		4 SWS SK 1 PL			5
CMS-LN-A2-1PL	Foreign Language A2 Advanced Level - Polish		4 SWS SK 1 PL			5
CMS-LN-A2-1PG	Foreign Language A2 Advanced Level - Portuguese		4 SWS SK 1 PL			5
CMS-LN-A2-1RU	Foreign Language A2 Advanced Level - Russian		4 SWS SK 1 PL			5
CMS-LN-A2-1SW	Foreign Language A2 Advanced Level - Swedish		4 SWS SK 1 PL			5
CMS-LN-A2-1SP	Foreign Language A2 Advanced Level - Spanish		4 SWS SK 1 PL			5
CMS-LN-A2-1T	Foreign Language A2 Advanced Level - Czech		4 SWS SK 1 PL			5
CMS-LN-A2-1C	Foreign Language A2 Advanced Level - Chinese		4 SWS SK 1 PL			5
CMS-LN-A2-1J	Foreign Language A2 Advanced Level - Japanese		4 SWS SK 1 PL			5
CMS-LN-B1-A	Foreign Language B1 - Arabic		4 SWS SK 1 PL			5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-LN-B1-D	Foreign Language B1 - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-B1-F	Foreign Language B1 - French		4 SWS SK 1 PL			5
CMS-LN-B1-I	Foreign Language B1 - Italian		4 SWS SK 1 PL			5
CMS-LN-B1-PG	Foreign Language B1 - Portuguese		4 SWS SK 1 PL			5
CMS-LN-B1-RU	Foreign Language B1 - Russian		4 SWS SK 1 PL			5
CMS-LN-B1-SP	Foreign Language B1 - Spanish		4 SWS SK 1 PL			5
CMS-LN-B1-C	Foreign Language B1 - Chinese		4 SWS SK 1 PL			5
CMS-LN-B1-J	Foreign Language B1 - Japanese		4 SWS SK 1 PL			5
CMS-LN-B1-1A	Foreign Language B1 Advanced Level - Arabic		4 SWS SK 1 PL			5
CMS-LN-B1-1D	Foreign Language B1 Advanced Level - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-B1-1FR	Foreign Language B1 Advanced Level - French		4 SWS SK 1 PL			5
CMS-LN-B1-1I	Foreign Language B1 Advanced Level - Italian		4 SWS SK 1 PL			5
CMS-LN-B1-1RU	Foreign Language B1 Advanced Level - Russian		4 SWS SK 1 PL			5
CMS-LN-B1-1SW	Foreign Language B1 Advanced Level - Swedish		4 SWS SK 1 PL			5
CMS-LN-B1-1SP	Foreign Language B1 Advanced Level - Spanish		4 SWS SK 1 PL			5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-LN-B1-1PG	Foreign Language B1 Advanced Level - Portuguese		4 SWS SK 1 PL			5
CMS-LN-B1-1C	Foreign Language B1 Advanced Level - Chinese		4 SWS SK 1 PL			5
CMS-LN-B1-1J	Foreign Language B1 Advanced Level - Japanese		4 SWS SK 1 PL			5
CMS-LN-B2-D	Foreign Language B2 - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-B2-FR	Foreign Language B2 - French		4 SWS SK 1 PL			5
CMS-LN-B2-I	Foreign Language B2 - Italian		4 SWS SK 1 PL			5
CMS-LN-B2-PG	Foreign Language B2 - Portuguese		4 SWS SK 1 PL			5
CMS-LN-B2-RU	Foreign Language B2 - Russian		4 SWS SK 1 PL			5
CMS-LN-B2-SP	Foreign Language B2 - Spanish		4 SWS SK 1 PL			5
CMS-LN-B2-SW	Foreign Language B2 - Swedish		4 SWS SK 1 PL			5
CMS-LN-B2-1D	Academic Competencies - B2 Advanced Level - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-B2-1F	Academic Competencies - B2 Advanced Level - French		4 SWS SK 1 PL			5
CMS-LN-B2-1RU	Academic Competencies - B2 Advanced Level - Russian		4 SWS SK 1 PL			5
CMS-LN-B2-1SP	Academic Competencies - B2 Advanced Level - Spanish		4 SWS SK 1 PL			5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-LN-B2B-D	Professional Language Competencies - B2 Advanced Level - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-B2B-FR	Professional Language Competencies - B2 Advanced Level - French		4 SWS SK 1 PL			5
CMS-LN-B2B-RU	Professional Language Competencies - B2 Advanced Level - Russian		4 SWS SK 1 PL			5
CMS-LN-B2B-SP	Professional Language Competencies - B2 Advanced Level - Spanish		4 SWS SK 1 PL			5
CMS-LN-C1-D	Academic Competencies C1 - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-C1-FR	Academic Competencies C1 - French		4 SWS SK 1 PL			5
CMS-LN-C1-RU	Academic Competencies C1 - Russian		4 SWS SK 1 PL			5
CMS-LN-C1-SP	Academic Competencies C1 - Spanish		4 SWS SK 1 PL			5
CMS-LN-C1B-D	Professional Language Competencies C1 - German as a Foreign Language		4 SWS SK 1 PL			5
CMS-LN-C1B-F	Professional Language Competencies C1 - French		4 SWS SK 1 PL			5
CMS-LN-C1B-SP	Professional Language Competencies C1 - Spanish		4 SWS SK 1 PL			5
Basic Technical Training <i>Select 3 out of 6 Modules</i>						
CMS-COR-HPC	High-Performance Computing	2/2/0/0 1 PL				5
CMS-COR-ML	Machine Learning	2/2/0/0 1 PL				5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-COR-NUM	Basic Numerical Methods	2/2/0/0 1 PL				5
CMS-COR-SAP	Stochastics and Probability	2/2/0/0 1 PL				5
CMS-COR-SSE	Scientific Software Engineering	2/2/0/0 1 PL				5
CMS-COR-VIZ	Data Visualization	2/2/0/0 1 PL				5
Basic Scientific Methodological Training <i>Select 1 out of 13 Modules</i>						
CMS-SEM-DLAIA	Literature Studies in Deep Learning for Applied Image Analysis		0/0/2/0 1 PL			3
CMS-SEM-CE	Literature Studies in Computational Engineering		0/0/2/0 1 PL			3
CMS-SEM-CGV	Literature Studies in Computer Graphics and Visualization		0/0/2/0 1 PL			3
CMS-SEM-CIA	Literature Studies in Combinatorial Image Analysis		0/0/2/0 1 PL			3
CMS-SEM-CLS	Literature Studies in Computational Life Science		0/0/2/0 1 PL			3
CMS-SEM-CM	Literature Studies in Computational Metrology		0/0/2/0 1 PL			3
CMS-SEM-CP	Literature Studies in Computing		0/0/2/0 1 PL			3
CMS-SEM-CV	Literature Studies in Computer Vision		0/0/2/0 1 PL			3
CMS-SEM-KGRL	Literature Studies in Knowledge Graph Representation Learning		0/0/2/0 1 PL			3
CMS-SEM-KR	Literature Studies in Knowledge Representation and Reasoning		0/0/2/0 1 PL			3

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-SEM-MB	Literature Studies in Mathematical Biology		0/0/2/0 1 PL			3
CMS-SEM-ML	Literature Studies in Machine Learning		0/0/2/0 1 PL			3
CMS-SEM-SP	Literature Studies on Software Methods and Technologies for Virtual Aircraft		0/0/2/0 1 PL			3
Tracks						
<i>Select 1 out of 7 Tracks</i>						
Applied Artificial Intelligence						
Compulsory Area						
CMS-TRK-DCD	Digital Circuit Design	2/2/0/0 1PL				5
Compulsory Elective Area						
Select modules in the scope of 35 credit points						
CMS-TRK-CV	Computer Vision	2/2/0/0 1PL				5
CMS-TRK-MLSP	Machine Learning in Signal Processing	2/1/0/1 2 PL				5
CMS-TRK-APSS	Advanced Problem Solving and Search	2/2/0/0 1 PL				5
CMS-TRK-CAI	Conversational Artificial Intelligence	0/0/2/0 1 PL				5
CMS-TRK-FCG	Foundations of Computer Graphics	2/2/0/0 1 PL				5
CMS-TRK-DDA	Digitization and Data Analytics		2/2/0/0 1PL			5
CMS-TRK-AL	Adaptive Lasersystems		2/1/0/1 2 PL			5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-CSD	Circuit- and System Design		2/1/0/0 2 SWS Pj 1 PL			5
CMS-TRK-DNNH	Deep Neural Network Hardware		2/2/0/0 1PL			5
CMS-TRK-VR	Virtual Reality		2/0/0/0 20 Hours Pj 1 PL			5
CMS-TRK-HWSWC	Hardware - Software Codesign		2/2/0/0 1PL			5
CMS-TRK-ARCCAM	Applied Robotics and Control for Cooperative and Autonomous Mobility		2/2/0/0 1PL			5
CMS-TRK-RL	Robot Learning		2/2/0/0 1 PL			5
CMS-TRK-SciVis	Scientific Visualization		2/2/0/0 1 PL			5
CMS-TRK-CRC	Computer- and Robot-Assisted Surgery			2/2/0/0 1 PL		5
CMS-TRK-SD	Sound Design			2/0/0/0 20 Hours Pj 1 PL		5
CMS-TRK-CLS	Computational Laser Systems			3/1/0/0 1PL		5
CMS-TRK-TSP	Touch Sensing and Processing			2/2/0/0 1 PL		5
CMS-TRK-TEA-CM	Team Assignment Computational Metrology			8 SWS Pj 1 PL		10
CMS-TRK-DLVFA	Deep Learning for Vision - Foundations and Applications			2/2/0/0 1 PL		5

Select 1 out of 2 Modules

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-TEA-MLCV	Team Assignment Machine Learning and Computer Vision		8 SWS Pj 1 PL			10
CMS-TRK-TEA-AIH	Team Assignment AI Hardware		8 SWS Pj 1 PL			10
Computational Engineering						
Compulsory Area						
CMS-TRK-CFD	Computational Fluid Dynamics	2/2/0/0 1 PL				5
CMS-TRK-MA31	Finite element methods - Theory, implementation and applications	3/1/0/0 1 PL				5
CMS-TRK-AT	Advanced Topics in Finite Element Analysis		2/2/0/0 1 PL			5
CMS-TRK-MBD	Multi Body Dynamics		2/2/0/0 1 PL			5
CMS-TRK-MP	Multifield Problems		2/2/0/0 1 PL			5
Compulsory Elective Area						
Select 5 out of 18 Modules						
CMS-TRK-UI1	User Interface Engineering	2/2/0/0 2 PL				5
CMS-TRK-SysDyn	System Dynamics	2/2/0/0 1 PL				5
CMS-TRK-SysEng	Foundations of Systems Engineering	2/2/0/0 1 PL				5
CMS-TRK-APSS	Advanced Problem Solving and Search	2/2/0/0 1 PL				5
CMS-TRK-MA33	Scientific programming - Advanced concepts	3/1/0/0 1 PL				5
CMS-TRK-FCG	Foundations of Computer Graphics	2/2/0/0 1 PL				5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-CLC	Closed-Loop Control in Networked Control Systems		2/2/0/0 1 PL			5
CMS-TRK-EMS	Electromechanical and microelectromechanical systems		2/2/0/0 2 PL			5
CMS-TRK-UI2	Advanced User Interfaces		2/0/2/0 2 PL			5
CMS-TRK-DDA	Digitization and Data Analytics		2/2/0/0 1 PL			5
CMS-TRK-IIV	Interactive Information Visualization		2/2/0/0 1 PL			5
CMS-TRK-PM	Particle Methods		2/2/0/0 1 PL			5
CMS-TRK-SciVis	Scientific Visualization		2/2/0/0 1 PL			5
CMS-TRK-Aero	Introduction to Computational Aerodynamics			3/1/0/0 1 PL		5
CMS-TRK-Sim	Practical Aspects of Simulation			2/0/0/2 1 PL		5
CMS-TRK-TSP	Touch Sensing and Processing			2/2/0/0 1 PL		5
CMS-TRK-CRC	Computer- and Robot-Assisted Surgery			2/2/0/0 1 PL		5
CMS-TRK-CV	Computer Vision			2/2/0/0 1 PL		5
Computational Environmental Science and Engineering						
Compulsory Area						
CMS-TRK-TEA-CES	Computational Environmental Science Teamproject			180 hours Pj 1 PL		10
CMS-TRK-EA	Computational Environmental Applications			0/0/4/0 1 PL		5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
Compulsory Elective Area						
<i>Select 2 out of 7 Modules</i>						
CMS-TRK-ED4	Computational Statistics	2/1/0/0 1 PL				5
CMS-TRK-ED5	Geodata infrastructures	2/2/0/0 1 PL				5
CMS-TRK-ED1	Statistical Learning for Earth System Sciences		2/1/0/0 1 PL			5
CMS-TRK-ED2	Image Analysis and Machine Learning in Environmental Remote Sensing		2/1/0/0 1 PL			5
CMS-TRK-ED6	Retrieval of Land Surface Properties from Optical and Microwave Remote Sensing		0/0/2/0 1 PL			5
CMS-TRK-ED3	Applied Remote Sensing for Environmental Research			0/0/1/0 1 PL		5
CMS-TRK-CV	Computer Vision			2/2/0/0 1 PL		5
Auswahl von 2 aus 5 Modulen.						
CMS-TRK-EM1	Hydrological Modeling	2/2/0/0 1 PL				5
CMS-TRK-EM5	Individual-based Ecology and Modeling	1/3/0/0 1 PL				5
CMS-TRK-EM2	Hydrological modeling practice		1/3/0/0 1 PL			5
CMS-TRK-EM3	Numerical methods in hydrosociences			2/2/0/0 1 PL		5
CMS-TRK-EM4	Advanced model evaluation			2/2/0/0 1 SWS T 1 PL		5
Auswahl von Modulen im Umfang von 15 Leistungspunkten.						

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-ES4	Environmental and Climate Remote Sensing	2/1/0/0 1 PL				5
CMS-TRK-ES7	Climatology and Hydrology	4/0/0/0 1 PL				5
CMS-TRK-ES1	Climate Change		2/0/2/0 2 PL			5
CMS-TRK-ES2	Feedbacks between land surfaces and the atmosphere		2/1/0/0 1 PL			5
CMS-TRK-ES3	Geodetic Space Techniques for Climate Research		1/1/1/0 1 PL			5
CMS-TRK-ES6	Laser scanning and 3D point cloud processing		2/2/0/0 1 SWS Pj 1 PL			10
CMS-TRK-ES5	Recent methods of photogrammetric geodata acquisition			2/1/0/0 1 PL		5
Computational Life Science						
Compulsory Area						
CMS-TRK-ABI	Applied Bioinformatics		2/2/0/0 1 PL			5
CMS-TRK-MOS	Modeling and Simulation in Biology		2/2/0/0 1 PL			5
CMS-TRK-TEA-CLS	Computational Life Science Teamproject		8 SWS Pj 1 PL			10
Compulsory Elective Area						
<i>Select 6 out of 24 Modules</i>						
CMS-TRK-UI1	User Interface Engineering	2/2/0/0 2 PL				5
CMS-TRK-CFD	Computational Fluid Dynamics	2/2/0/0 1 PL				5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-FCG	Foundations of Computer Graphics	2/2/0/0 1 PL				5
CMS-TRK-DDA	Digitization and Data Analytics		2/2/0/0 1 PL			5
CMS-TRK-PM	Particle Methods		2/2/0/0 1 PL			5
CMS-TRK-ABP	Advanced Biological Physics		2/2/0/0 1 PL			5
CMS-TRK-SciVis	Scientific Visualization		2/2/0/0 1 PL			5
CMS-TRK-UI2	Advanced User Interfaces		2/0/2/0 2 PL			5
CMS-TRK-IIV	Interactive Information Visualization		2/2/0/0 1 PL			5
CMS-TRK-MP	Multifield Problems		2/2/0/0 1 PL			5
CMS-TRK-IMIR	Interactive Multimedia Information Retrieval		2/2/0/0 1 PL			5
CMS-TRK-AT	Advanced Topics in Finite Element Analysis		2/2/0/0 1 PL			5
CMS-TRK-MBD	Multi Body Dynamics		2/2/0/0 1 PL			5
CMS-TRK-VR	Virtual Reality		2/0/0/0 20 Hours Pj 1 PL			5
CMS-TRK-RL	Robot Learning		2/2/0/0 1 PL			5
CMS-TRK-GMA	Geometric Modeling and Animation		2/2/0/0 1 PL			5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-CRC	Computer- and Robot-Assisted Surgery			2/2/0/0 1 PL		5
CMS-TRK-AMH	Active Matter Hydrodynamics			2/2/0/0 1 PL		5
CMS-TRK-CV	Computer Vision			2/2/0/0 1 PL		5
CMS-TRK-Aero	Introduction to Computational Aerodynamics			3/1/0/0 1 PL		5
CMS-TRK-APSS	Advanced Problem Solving and Search			2/2/0/0 1 PL		5
CMS-TRK-FVR	Foundations of Virtual Reality			2/2/0/0 1 PL		5
CMS-TRK-PBG	Physics Based Graphics			2/2/0/0 1 PL		5
CMS-TRK-DLVFA	Deep Learning for Vision - Foundations and Applications			2/2/0/0 1 PL		5
Computational Mathematics						
Compulsory Area						
CMS-TRK-MA31	Finite element methods - Theory, implementation and applications	3/1/0/0 1 PL				5
CMS-TRK-MA28	Numerical methods for partial differential equations - Basic concepts	3/1/0/0 1 PL				5
CMS-TRK-MAMS	Modeling case studies		0/0/4/0 6 SWS Pj 1 PL			10
CMS-TRK-MA32	Scientific computing - Advanced concepts		3/1/0/0 1 PL			5
CMS-TRK-MA33	Scientific programming - Advanced concepts			3/1/0/0 1 PL		5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-PRO-CMA	Computational Mathematics Research Work			0/0/2/0 2 SWS Pj 1 PL		5
Compulsory Elective Area						
<i>Select 3 out of 8 Modules</i>						
CMS-TRK-AMH	Active Matter Hydrodynamics	2/2/0/0 1 PL				5
CMS-TRK-CFD	Computational Fluid Dynamics	2/2/0/0 1 PL				5
CMS-TRK-IMB1	Introduction to Mathematical Biology I: Discrete Models	2/1/0/0 1 PL				5
CMS-TRK-MA29	Numerical methods for partial differential equations - Advanced concepts		3/1/0/0 1 PL			5
CMS-TRK-MA30	Mathematical methods in continuum mechanics		3/1/0/0 1 PL			5
CMS-TRK-ABP	Advanced Biological Physics		2/2/0/0 1 PL			5
CMS-TRK-IMB2	Introduction to Mathematical Biology II: Continuum Models			2/1/0/0 1 PL		5
CMS-TRK-CV	Computer Vision			2/2/0/0 1 PL		5
Computational Modeling in Energy Economics						
Compulsory Area						
CMS-TRK-APSE	Applied Power System Economics	4 SWS Pj 1 PL				5
CMS-TRK-EPM	Electric Power Markets	2/2/0/0 1 PL				5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-CSEE	Case Studies in Energy Economics		0/0/0,5/0 120 Hours Pj 2 PL			10
CMS-TRK-REEP	Resource Economics and Environmental Policy		2/2/0/0 2 SWS Pj 2 PL			10
Compulsory Elective Area						
<i>Select 4 out of 8 Modules</i>						
CMS-TRK-MA28	Numerical methods for partial differential equations - Basic concepts	3/1/0/0 1 PL				5
CMS-TRK-LSEE	Literature Studies in Energy Economics		4 SWS Pj 2 PL			5
CMS-TRK-MA29	Numerical methods for partial differential equations - Advanced concepts		3/1/0/0 1 PL			5
CMS-TRK-MA32	Scientific computing - Advanced concepts		3/1/0/0 1 PL			5
CMS-TRK-OMEM	Optimisation in Modern Electricity Markets		1/1/0/0 1 PL			5
CMS-TRK-MA31	Finite element methods - Theory, implementation and applications			3/1/0/0 1 PL		5
CMS-TRK-APSS	Advanced Problem Solving and Search			2/2/0/0 1 PL		5
CMS-TRK-MA33	Scientific programming - Advanced concepts			3/1/0/0 1 PL		5
Visual Computing						
Compulsory Area						
CMS-TRK-TEA-VC	Visual Computing Teamproject		8 SWS Pj 1 PL			10
Compulsory Elective Area						

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
Select 8 out of 15 Modules						
CMS-TRK-CV	Computer Vision	2/2/0/0 1 PL				5
CMS-TRK-FCG	Foundations of Computer Graphics	2/2/0/0 1 PL				5
CMS-TRK-UI1	User Interface Engineering	2/2/0/0 2 PL				5
CMS-TRK-CAI	Conversational Artificial Intelligence	0/0/2/0 1 PL				5
CMS-TRK-GMA	Geometric Modeling and Animation		2/2/0/0 1 PL			5
CMS-TRK-SciVis	Scientific Visualization		2/2/0/0 1 PL			5
CMS-TRK-UI2	Advanced User Interfaces		2/0/2/0 2 PL			5
CMS-TRK-IIV	Interactive Information Visualization		2/2/0/0 1 PL			5
CMS-TRK-DDA	Digitization and Data Analytics		2/2/0/0 1 PL			5
CMS-TRK-IMIR	Interactive Multimedia Information Retreival		2/2/0/0 1 PL			5
CMS-TRK-TSP	Touch Sensing and Processing			2/2/0/0 1 PL		5
CMS-TRK-PBG	Physics Based Graphics			2/2/0/0 1 PL		5
CMS-TRK-FVR	Foundations of Virtual Reality			2/2/0/0 1 PL		5
CMS-TRK-CRC	Computer- and Robot-Assisted Surgery			2/2/0/0 1 PL		5

Module-No.	Module Name	1. Semester	2. Semester	3. Semester (M)	4. Semester	CP
		V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	V/Ü/S/P	
CMS-TRK-DLVFA	Deep Learning for Vision - Foundations and Applications			2/2/0/0 1 PL		5
Master's thesis*)				1 CP	28 CP	29
Kolloquium					1 CP	1
CP		32	28	31	29	120