TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

Module Handbook (https://modhb.uni-kl.de/)

Course of Study "Computer Science" (M.Sc.)

[INF-88.79-SG]

Department	[INF] Informatik
Degree	[M.Sc.] Master (M.Sc.)
Course of Study	Computer Science
State	[NORM] Active
Short Name	**M.Sc. Computer Science**
Additional informations	Examination regulations (https://www.cs.uni-kl.de/en/studium/studierende/ordnungen/inf-ma/Master-PO_Inf_u_Sozioinf.pdf) Homepage of the Course of Study (https://www.cs.uni-kl.de/en/studium/studiengaenge/bm-inf/sp.ma/)

Section *Computer Science Theory*

Core Modules (non specialised)

WP	**MAT-52-11-M-7** (/mhb/modules/MAT-52-11-M-7/)	Graphs and Algorithms	**9.0** CP
WP	**INF-54-54-M-6** (/mhb/modules/INF-54-54-M-6/)	Advanced Algorithmics	**8.0** CP
WP	**INF-56-51-M-6** (/mhb/modules/INF-56-51-M-6/)	Concurrency Theory	**8.0** CP
WP	**INF-56-52-M-6** (/mhb/modules/INF-56-52-M-6/)	Advanced Automata Theory	**8.0** CP
WP	**INF-56-53-M-5** (/mhb/modules/INF-56-53-M-5/)	Complexity Theory	**8.0** CP
WP	**INF-59-51-M-6** (/mhb/modules/INF-59-51-M-6/)	Automated Reasoning	**8.0** CP
WP	**INF-62-52-M-6** (/mhb/modules/INF-62-52-M-6/)	Verification of Reactive Systems	**8.0** CP
WP	**INF-75-50-M-5** (/mhb/modules/INF-75-50-M-5/)	Machine Learning I - Theoretical Foundations	**8.0** CP

Section *Formal Fundamentals*

Core Modules (non specialised)

Computer Science Theory

WP	**INF-54-54-M-6** (/mhb/modules/INF-54-54-M-6/)	Advanced Algorithmics	**8.0** CP

WP	**INF-54-54-M-6** (/mhb/modules/INF-54-54-M-6/)	Advanced Algorithmics	**8.0** CP
WP	**INF-56-51-M-6** (/mhb/modules/INF-56-51-M-6/)	Concurrency Theory	**8.0** CP
WP	**INF-56-52-M-6** (/mhb/modules/INF-56-52-M-6/)	Advanced Automata Theory	**8.0** CP
WP	**INF-56-53-M-5** (/mhb/modules/INF-56-53-M-5/)	Complexity Theory	**8.0** CP
WP	**INF-59-51-M-6** (/mhb/modules/INF-59-51-M-6/)	Automated Reasoning	**8.0** CP
WP	**INF-62-52-M-6** (/mhb/modules/INF-62-52-M-6/)	Verification of Reactive Systems	**8.0** CP
WP	**INF-75-50-M-5** (/mhb/modules/INF-75-50-M-5/)	Machine Learning I - Theoretical Foundations	**8.0** CP

Algebra

WP	**MAT-40-11-M-4** (/mhb/modules/MAT-40-11-M-4/)	Commutative Algebra	**9.0** CP
WP	**MAT-40-14-M-4** (/mhb/modules/MAT-40-14-M-4/)	Cryptography	**9.0** CP
WP	**MAT-40-28-M-4** (/mhb/modules/MAT-40-28-M-4/)	Plane Algebraic Curves	**4.5** CP
WP	**MAT-40-29-M-4** (/mhb/modules/MAT-40-29-M-4/)	Quadratic Number Fields	**4.5** CP

Mathematical Modelling

WP	**MAT-50-11-M-4** (/mhb/modules/MAT-50-11-M-4/)	Integer Programming: Polyhedral Theory and Algorithms	**9.0** CP
WP	**MAT-50-12-M-4** (/mhb/modules/MAT-50-12-M-4/)	Nonlinear Optimization	**9.0** CP
WP	**MAT-52-12-M-7** (/mhb/modules/MAT-52-12-M-7/)	Advanced Network Flows and Selfish Routing	**9.0** CP
WP	**MAT-59-11-M-7** (/mhb/modules/MAT-59-11-M-7/)	Theory of Scheduling Problems	**9.0** CP
WP	**MAT-52-11-M-7** (/mhb/modules/MAT-52-11-M-7/)	Graphs and Algorithms	**9.0** CP
WP	**MAT-52-14-M-7** (/mhb/modules/MAT-52-14-M-7/)	Online Optimization	**9.0** CP

Stochastics/Statistics

WP	**MAT-60-12-M-4** (/mhb/modules/MAT-60-12-M-4/)	Regression and Time Series Analysis	**9.0** CP
WP	**MAT-60-14-M-6** (/mhb/modules/MAT-60-14-M-6/)	Monte Carlo Algorithms	**9.0** CP

Analysis

WP	**MAT-80-11-M-4** (/mhb/modules/MAT-80-11-M-4/)	Differential Equations: Numerics of ODE & Introduction to PDE	**9.0** CP
WP	**MAT-80-12A-M-4** (/mhb/modules/MAT-80-12A-M-4/)	Introduction to Systems and Control Theory	**4.5** CP
WP	**MAT-80-17-M-6** (/mhb/modules/MAT-80-17-M-6/)	Dynamical Systems	**4.5** CP

Electrical Engineering

WP	**EIT-LRS-504-M-3** (/mhb/modules/EIT-LRS-504-M-3/)	Linear Control	**5.0** CP

WP	**EIT-NAT-535-M-7** (/mhb/modules/EIT-NAT-535-M-7/)	Introduction to Information and Coding Theory	**3.0** CP

Mechanical Engineering

WP	**MV-TM-136-M-4** (/mhb/modules/MV-TM-136-M-4/)	Finite Elements	**6.0** CP

Section *Specialization 1*

Specialisation

In the specialization, students gain in-depth knowledge in a specific field of computer science, enabling them to comprehend and contribute to the state-of-the-art of research in the field. The specialization consists of a set of lectures, at least one seminar and at least one project matching the specialization field. Successfully examined modules of at least 16 credits are required. The Computer Science Department offers the following fields of specialization, which are also described further in Appendix 3:

- Algorithms and Deduction
- Embedded Systems
- Information Systems
- Intelligent Systems
- Distributed and networked systems
- Software Engineering
- Visualization and Scientific Computing

Algorithms and Deduction

WP	**MAT-52-11-M-7** (/mhb/modules/MAT-52-11-M-7/)	Graphs and Algorithms	**9.0** CP
WP	**INF-56-53-M-5** (/mhb/modules/INF-56-53-M-5/)	Complexity Theory	**8.0** CP
WP	**MAT-41-11-M-7** (/mhb/modules/MAT-41-11-M-7/)	Computer Algebra	**9.0** CP
WP	**MAT-59-12-M-7** (/mhb/modules/MAT-59-12-M-7/)	Probability and Algorithms	**9.0** CP
WP	**INF-54-54-M-6** (/mhb/modules/INF-54-54-M-6/)	Advanced Algorithmics	**8.0** CP
WP	**INF-58-51-M-6** (/mhb/modules/INF-58-51-M-6/)	Algorithms and Symmetry	**8.0** CP
WP	**INF-58-52-M-6** (/mhb/modules/INF-58-52-M-6/)	Algorithmic Group Theory	**8.0** CP
WP	**INF-56-01-M-6** (/mhb/modules/INF-56-01-M-6/)	Program Analysis	**6.0** CP
WP	**INF-56-51-M-6** (/mhb/modules/INF-56-51-M-6/)	Concurrency Theory	**8.0** CP
WP	**INF-56-52-M-6** (/mhb/modules/INF-56-52-M-6/)	Advanced Automata Theory	**8.0** CP
WP	**INF-56-54-M-5** (/mhb/modules/INF-56-54-M-5/)	Replication and Consistency	**4.0** CP
WP	**INF-59-51-M-6** (/mhb/modules/INF-59-51-M-6/)	Automated Reasoning	**8.0** CP
WP	**INF-81-71-M-7** (/mhb/modules/INF-81-71-M-7/)	Scientific Publication	**4.0** CP
WP	**INF-81-81-M-7** (/mhb/modules/INF-81-81-M-7/)	Guided Research (Project)	**12.0** CP
WP	**INF-54-82-M-7** (/mhb/modules/INF-54-82-M-7/)	Algorithms and Complexity (Project)	**8.0** CP
WP	**INF-62-83-M-7** (/mhb/modules/INF-62-83-M-7/)	Applied Verification (Project)	**8.0** CP
WP	**INF-54-72-M-7** (/mhb/modules/INF-54-72-M-7/)	Specific Algorithms (Seminar)	**4.0** CP
WP	**INF-56-72-M-7** (/mhb/modules/INF-56-72-M-7/)	Logic and Verification (Seminar)	**4.0** CP

WP	**INF-88-74-M-7** (/mhb/modules/INF-88-74-M-7/)	Research Topics in Program Synthesis and Reliability (Seminar)	**4.0** CP

Embedded Systems and Robotics

WP	**INF-60-02-M-5** (/mhb/modules/INF-60-02-M-5/)	Fundamentals of Robotics	**6.0** CP
WP	**INF-60-03-M-5** (/mhb/modules/INF-60-03-M-5/)	Fundamentals of Embedded Systems	**8.0** CP
WP	**INF-62-01-M-5** (/mhb/modules/INF-62-01-M-5/)	Processor Architecture	**4.0** CP
WP	**INF-62-54-M-5** (/mhb/modules/INF-62-54-M-5/)	Parallel Computing	**4.0** CP
WP	**INF-60-02-M-5** (/mhb/modules/INF-60-02-M-5/)	Fundamentals of Robotics	**6.0** CP
WP	**INF-61-33-M-6** (/mhb/modules/INF-61-33-M-6/)	Autonomous Mobile Robots	**8.0** CP
WP	**INF-61-53-M-6** (/mhb/modules/INF-61-53-M-6/)	Biologically Motivated Robots	**6.0** CP
WP	**INF-33-31-M-5** (/mhb/modules/INF-33-31-M-5/)	Safety and Reliability of Embedded Systems	**4.0** CP
WP	**INF-62-36-M-6** (/mhb/modules/INF-62-36-M-6/)	Model-based Design of Embedded Systems	**8.0** CP
WP	**INF-62-52-M-6** (/mhb/modules/INF-62-52-M-6/)	Verification of Reactive Systems	**8.0** CP
WP	**INF-62-54-M-5** (/mhb/modules/INF-62-54-M-5/)	Parallel Computing	**4.0** CP
WP	**INF-64-02-M-6** (/mhb/modules/INF-64-02-M-6/)	Simulation of Bus Systems	**4.0** CP
WP	**INF-64-52-M-5** (/mhb/modules/INF-64-52-M-5/)	Automotive Software and Systems Engineering	**4.0** CP
WP	**INF-65-51-M-6** (/mhb/modules/INF-65-51-M-6/)	Power-Aware Embedded Systems	**4.0** CP
WP	**INF-41-53-M-6** (/mhb/modules/INF-41-53-M-6/)	Algorithms in Ad-hoc Networks	**4.0** CP
WP	**INF-42-58-M-6** (/mhb/modules/INF-42-58-M-6/)	OS-based programming of embedded systems	**4.0** CP
WP	**INF-81-71-M-7** (/mhb/modules/INF-81-71-M-7/)	Scientific Publication	**4.0** CP
W	**INF-81-81-M-7** (/mhb/modules/INF-81-81-M-7/)	Guided Research (Project)	**12.0** CP
WP	**INF-61-81-M-7** (/mhb/modules/INF-61-81-M-7/)	Service Robots and Assistance Systems (Project)	**8.0** CP
WP	**INF-62-81-M-7** (/mhb/modules/INF-62-81-M-7/)	Hardware-Software Synthesis (Project)	**8.0** CP
WP	**INF-62-83-M-7** (/mhb/modules/INF-62-83-M-7/)	Applied Verification (Project)	**8.0** CP
WP	**INF-65-81-M-7** (/mhb/modules/INF-65-81-M-7/)	Model based development of Embedded Systems (Project)	**8.0** CP
WP	**INF-61-72-M-7** (/mhb/modules/INF-61-72-M-7/)	Embedded Systems and Robotics (Seminar)	**4.0** CP
WP	**INF-65-71-M-7** (/mhb/modules/INF-65-71-M-7/)	Cyber-Physical Systems (Seminar)	**4.0** CP
WP	**INF-61-73-M-7** (/mhb/modules/INF-61-73-M-7/)	Robotics and Artificial Intelligence (Seminar)	**4.0** CP
WP	**INF-88-83-M-6** (/mhb/modules/INF-88-83-M-6/)	Compositional Techniques for Synthesis and Verification (Seminar)	**4.0** CP

Information Systems

WP	**INF-20-01-M-5** (/mhb/modules/INF-20-01-M-5/)	Database Systems	**8.0** CP
WP	**INF-22-02-M-6** (/mhb/modules/INF-22-02-M-6/)	Middleware for Heterogeneous and Distributed Information Systems	**8.0** CP
WP	**INF-24-53-M-6** (/mhb/modules/INF-24-53-M-6/)	Distributed Data Management	**4.0** CP
WP	**INF-22-34-M-6** (/mhb/modules/INF-22-34-M-6/)	Recent Developments for Data Models	**8.0** CP
WP	**INF-24-52-M-6** (/mhb/modules/INF-24-52-M-6/)	Information Retrieval and Data Mining	**4.0** CP
WP	**INF-81-71-M-7** (/mhb/modules/INF-81-71-M-7/)	Scientific Publication	**4.0** CP
WP	**INF-81-81-M-7** (/mhb/modules/INF-81-81-M-7/)	Guided Research (Project)	**12.0** CP
WP	**INF-21-46-M-7** (/mhb/modules/INF-21-46-M-7/)	DB Scheme Design and Programming (Project)	**8.0** CP
WP	**INF-24-81-M-7** (/mhb/modules/INF-24-81-M-7/)	Information Systems Project - Development of a Web Search Engine (Project)	**8.0** CP
WP	**INF-22-71-M-7** (/mhb/modules/INF-22-71-M-7/)	Data Bases and Information Systems (Seminar)	**4.0** CP

Intelligent Systems

WP	**INF-71-58-M-5** (/mhb/modules/INF-71-58-M-5/)	Collaborative Intelligence	**4.0** CP
WP	**INF-73-51-M-5** (/mhb/modules/INF-73-51-M-5/)	3D Computer Vision	**4.0** CP
WP	**INF-75-50-M-5** (/mhb/modules/INF-75-50-M-5/)	Machine Learning I - Theoretical Foundations	**8.0** CP
WP	**INF-57-51-M-6** (/mhb/modules/INF-57-51-M-6/)	Continuous models of complex systems	**4.0** CP
WP	**INF-74-51-M-6** (/mhb/modules/INF-74-51-M-6/)	Embedded Intelligence	**4.0** CP
WP	**INF-73-52-M-6** (/mhb/modules/INF-73-52-M-6/)	Methods for modeling and capturing human motion	**4.0** CP
WP	**INF-74-60-M-6** (/mhb/modules/INF-74-60-M-6/)	Agent Based Simulations of Complex Systems	**4.0** CP
WP	**INF-57-53-M-6** (/mhb/modules/INF-57-53-M-6/)	Data Science Literacy	**8.0** CP
WP	**INF-71-56-M-6** (/mhb/modules/INF-71-56-M-6/)	Applications of Machine Learning and Data Science	**4.0** CP
WP	**INF-71-57-M-6** (/mhb/modules/INF-71-57-M-6/)	Very Deep Learning - Recent Methods and Technologies	**4.0** CP
WP	**INF-71-63-M-6** (/mhb/modules/INF-71-63-M-6/)	Social Web Mining	**4.0** CP
WP	**INF-73-53-M-6** (/mhb/modules/INF-73-53-M-6/)	2D Image Processing	**4.0** CP
WP	**INF-75-51-M-6** (/mhb/modules/INF-75-51-M-6/)	Machine Learning II - Statistical ML	**8.0** CP
WP	**INF-76-61-M-6** (/mhb/modules/INF-76-61-M-6/)	Probabilistic graphical models	**4.0** CP
WP	**INF-81-71-M-7** (/mhb/modules/INF-81-71-M-7/)	Scientific Publication	**4.0** CP
WP	**INF-81-81-M-7** (/mhb/modules/INF-81-81-M-7/)	Guided Research (Project)	**12.0** CP
WP	**INF-61-81-M-7** (/mhb/modules/INF-61-81-M-7/)	Service Robots and Assistance Systems (Project)	**8.0** CP
WP	**INF-71-45-M-7** (/mhb/modules/INF-71-45-M-7/)	Applied Artificial Intelligence (Project)	**8.0** CP

WP	**INF-72-83-M-7** (/mhb/modules/INF-72-83-M-7/)	Machine Learning and Deep Learning (Project)	**8.0** CP
WP	**INF-73-81-M-7** (/mhb/modules/INF-73-81-M-7/)	3D Computer Vision & Augmented Reality (Project)	**8.0** CP
WP	**INF-73-82-M-7** (/mhb/modules/INF-73-82-M-7/)	Image Processing and Augmented Reality (Projekt)	**8.0** CP
WP	**INF-73-83-M-7** (/mhb/modules/INF-73-83-M-7/)	Simulation, capturing and analysis of human motion (Project)	**8.0** CP
WP	**INF-73-84-M-7** (/mhb/modules/INF-73-84-M-7/)	Very Deep Learning for Computer Vision (Projekt)	**8.0** CP
WP	**INF-74-82-M-7** (/mhb/modules/INF-74-82-M-7/)	Applications of Statistical Artificial Intelligence (Project)	**8.0** CP
WP	**INF-61-73-M-7** (/mhb/modules/INF-61-73-M-7/)	Robotics and Artificial Intelligence (Seminar)	**4.0** CP
WP	**INF-71-74-M-7** (/mhb/modules/INF-71-74-M-7/)	Collaborative Intelligence (Seminar)	**4.0** CP
WP	**INF-73-71-M-7** (/mhb/modules/INF-73-71-M-7/)	3D Computer Vision & Augmented Reality (Seminar)	**4.0** CP
WP	**INF-73-72-M-7** (/mhb/modules/INF-73-72-M-7/)	Image Processing and Augmented Reality (Seminar)	**4.0** CP
WP	**INF-73-73-M-7** (/mhb/modules/INF-73-73-M-7/)	Simulation, capturing and analysis of human motion (Seminar)	**4.0** CP
WP	**INF-75-71-M-7** (/mhb/modules/INF-75-71-M-7/)	Advanced Topics in Machine Learning (Seminar)	**4.0** CP
WP	**INF-75-72-M-7** (/mhb/modules/INF-75-72-M-7/)	Reinforcement Learning Reading Course (Seminar)	**4.0** CP

Distributed and Networked Systems

WP	**INF-40-01-M-5** (/mhb/modules/INF-40-01-M-5/)	Networked Systems	**4.0** CP
WP	**INF-40-04-M-5** (/mhb/modules/INF-40-04-M-5/)	Quantitative Aspects of Distributed Systems	**4.0** CP
WP	**INF-42-52-M-5** (/mhb/modules/INF-42-52-M-5/)	Network Security	**4.0** CP
WP	**INF-41-31-M-6** (/mhb/modules/INF-41-31-M-6/)	Protocol Engineering	**4.0** CP
WP	**INF-41-52-M-6** (/mhb/modules/INF-41-52-M-6/)	Specification of Networked Systems	**4.0** CP
WP	**INF-41-53-M-6** (/mhb/modules/INF-41-53-M-6/)	Algorithms in Ad-hoc Networks	**4.0** CP
WP	**INF-42-51-M-6** (/mhb/modules/INF-42-51-M-6/)	Stochastic Analysis of Distributed Systems	**4.0** CP
WP	**INF-42-55-M-6** (/mhb/modules/INF-42-55-M-6/)	Protocols and Algorithms for Network Security	**4.0** CP
WP	**INF-42-56-M-6** (/mhb/modules/INF-42-56-M-6/)	Worst-Case Analysis of Distributed Systems	**4.0** CP
WP	**INF-42-58-M-6** (/mhb/modules/INF-42-58-M-6/)	OS-based programming of embedded systems	**4.0** CP
WP	**EIT-FUN-413-M-7** (/mhb/modules/EIT-FUN-413-M-7/)	Information Security Assessment and Operations	**8.0** CP
WP	**INF-81-71-M-7** (/mhb/modules/INF-81-71-M-7/)	Scientific Publication	**4.0** CP
WP	**INF-81-81-M-7** (/mhb/modules/INF-81-81-M-7/)	Guided Research (Project)	**12.0** CP
WP	**INF-41-45-M-6** (/mhb/modules/INF-41-45-M-6/)	Development of Networked Systems (Project)	**8.0** CP
WP	**INF-42-45-M-7** (/mhb/modules/INF-42-45-M-7/)	Performance Evaluation of Distributed Systems (Project)	**8.0** CP

WP	**INF-42-82-M-7** (/mhb/modules/INF-42-82-M-7/)	Design of Secure Distributed Systems (Project)	**8.0** CP
WP	**INF-41-71-M-7** (/mhb/modules/INF-41-71-M-7/)	Communication Systems (Seminar)	**4.0** CP
WP	**INF-42-71-M-7** (/mhb/modules/INF-42-71-M-7/)	Mobile Computing (Seminar)	**4.0** CP

Software Engineering

WP	**INF-30-02-M-5** (/mhb/modules/INF-30-02-M-5/)	Foundations of Software Engineering	**4.0** CP
WP	**INF-31-31-M-5** (/mhb/modules/INF-31-31-M-5/)	Software Project and Process Management	**4.0** CP
WP	**INF-32-55-M-5** (/mhb/modules/INF-32-55-M-5/)	Compiler and Language Processing Tools	**8.0** CP
WP	**INF-33-31-M-5** (/mhb/modules/INF-33-31-M-5/)	Safety and Reliability of Embedded Systems	**4.0** CP
WP	**INF-36-51-M-5** (/mhb/modules/INF-36-51-M-5/)	Functional Programming	**8.0** CP
WP	**INF-56-54-M-5** (/mhb/modules/INF-56-54-M-5/)	Replication and Consistency	**4.0** CP
WP	**INF-64-52-M-5** (/mhb/modules/INF-64-52-M-5/)	Automotive Software and Systems Engineering	**4.0** CP
WP	**INF-31-51-M-6** (/mhb/modules/INF-31-51-M-6/)	Process Modeling	**4.0** CP
WP	**INF-31-52-M-6** (/mhb/modules/INF-31-52-M-6/)	Product Line Engineering	**4.0** CP
WP	**INF-31-53-M-6** (/mhb/modules/INF-31-53-M-6/)	Empirical Model Formation and Methods	**4.0** CP
WP	**INF-31-55-M-6** (/mhb/modules/INF-31-55-M-6/)	Requirements Engineering	**4.0** CP
WP	**INF-34-31-M-6** (/mhb/modules/INF-34-31-M-6/)	System- and Software Architecture	**4.0** CP
WP	**INF-33-52-M-6** (/mhb/modules/INF-33-52-M-6/)	Quality Management of Software and Systems	**4.0** CP
WP	**INF-33-55-M-6** (/mhb/modules/INF-33-55-M-6/)	Software Quality Assurance	**4.0** CP
WP	**INF-41-31-M-6** (/mhb/modules/INF-41-31-M-6/)	Protocol Engineering	**4.0** CP
WP	**INF-64-02-M-6** (/mhb/modules/INF-64-02-M-6/)	Simulation of Bus Systems	**4.0** CP
WP	**INF-32-52-M-6** (/mhb/modules/INF-32-52-M-6/)	Specification and Verification with Higher Order Logic	**8.0** CP
WP	**INF-56-01-M-6** (/mhb/modules/INF-56-01-M-6/)	Program Analysis	**6.0** CP
WP	**INF-32-56-M-6** (/mhb/modules/INF-32-56-M-6/)	Programming Distributed Systems	**8.0** CP
WP	**INF-24-53-M-6** (/mhb/modules/INF-24-53-M-6/)	Distributed Data Management	**4.0** CP
WP	**INF-81-71-M-7** (/mhb/modules/INF-81-71-M-7/)	Scientific Publication	**4.0** CP
WP	**INF-81-81-M-7** (/mhb/modules/INF-81-81-M-7/)	Guided Research (Project)	**12.0** CP
WP	**INF-32-82-M-7** (/mhb/modules/INF-32-82-M-7/)	Software Engineering (Project)	**8.0** CP
WP	**INF-62-83-M-7** (/mhb/modules/INF-62-83-M-7/)	Applied Verification (Project)	**8.0** CP
WP	**INF-33-72-M-7** (/mhb/modules/INF-33-72-M-7/)	Software Engineering (Seminar)	**4.0** CP
WP	**INF-88-74-M-7** (/mhb/modules/INF-88-74-M-7/)	Research Topics in Program Synthesis and Reliability (Seminar)	**4.0** CP

Visualization and Scientific Computing

WP	**INF-10-03-M-5** (/mhb/modules/INF-10-03-M-5/)	Computer Graphics	**8.0** CP
WP	**INF-11-52-M-5** (/mhb/modules/INF-11-52-M-5/)	Computational Geometry	**4.0** CP
WP	**INF-16-52-M-5** (/mhb/modules/INF-16-52-M-5/)	Human Computer Interaction	**4.0** CP
WP	**INF-19-31-M-5** (/mhb/modules/INF-19-31-M-5/)	Data Visualization	**4.0** CP
WP	**INF-73-51-M-5** (/mhb/modules/INF-73-51-M-5/)	3D Computer Vision	**4.0** CP
WP	**INF-19-51-M-6** (/mhb/modules/INF-19-51-M-6/)	Visual Analytics	**5.0** CP
WP	**INF-16-33-M-6** (/mhb/modules/INF-16-33-M-6/)	Scientific Visualization	**5.0** CP
WP	**INF-18-51-M-6** (/mhb/modules/INF-18-51-M-6/)	Computational Topology	**5.0** CP
WP	**INF-14-55-M-6** (/mhb/modules/INF-14-55-M-6/)	Topology Optimization	**4.5** CP
WP	**INF-14-56-M-6** (/mhb/modules/INF-14-56-M-6/)	Optimization in Fluid Mechanics	**4.5** CP
WP	**INF-14-57-M-6** (/mhb/modules/INF-14-57-M-6/)	Algorithmic Differentiation	**5.0** CP
WP	**INF-14-53-M-6** (/mhb/modules/INF-14-53-M-6/)	High Performance Computing (Introduction)	**5.0** CP
WP	**INF-14-54-M-6** (/mhb/modules/INF-14-54-M-6/)	High Performance Computing with GPUs	**6.0** CP
WP	**INF-14-58-M-6** (/mhb/modules/INF-14-58-M-6/)	High Performance Computing for Python	**3.0** CP
WP	**INF-24-53-M-6** (/mhb/modules/INF-24-53-M-6/)	Distributed Data Management	**4.0** CP
WP	**INF-62-54-M-5** (/mhb/modules/INF-62-54-M-5/)	Parallel Computing	**4.0** CP
WP	**INF-81-71-M-7** (/mhb/modules/INF-81-71-M-7/)	Scientific Publication	**4.0** CP
WP	**INF-81-81-M-7** (/mhb/modules/INF-81-81-M-7/)	Guided Research (Project)	**12.0** CP
WP	**INF-16-81-M-7** (/mhb/modules/INF-16-81-M-7/)	Visualisation and HCI (Project)	**8.0** CP
WP	**INF-14-74-M-7** (/mhb/modules/INF-14-74-M-7/)	Scientific Computing (Seminar)	**4.0** CP
WP	**INF-16-71-M-7** (/mhb/modules/INF-16-71-M-7/)	Visualisation and HCI (Seminar)	**4.0** CP

Section *Specialization 2*

Specialisation

This specialization follows the same goals as specialization 1. Moreover, the minimum number of credits to be obtained in this specialization is smaller than for specialization 1. Successfully examined modules of at least 12 credits are required. Seminars and projects are not madatory but may also be chosen in specialisation 2. The fields of specialization and the lectures offered for them are the same as those of specialization 1.

Section *Supplementary Block*

Free Elective Area

The supplementary block has to be planned in consultation with the student's mentor (a professor of the Computer Science Department assigned by the examination board). The examination plan for the supplementary block can be planned according to the following goals:

- Broadening the computer science study profile by choosing additional modules from arbitrary specializations other than the chosen specializations 1 and 2.
- Strengthening the study profile in a specific application area by choosing modules from study programs of other departments.

Up to 8 credits can be used for electing modules that help develop interdisciplinary skills (personal development, social/ethical aspects of CS, language skills, etc.).

If modules from study programs of other departments are chosen, then at most 10 credits can be obtained by modules from bachelor programs.

A maximum of one additional project or 'guided research' project can be placed in the supplementary block (but only those that are not assigned to one of the chosen specialisations.

Mentor approval is required for the Supplementary Block section of the examination plan.

Section *Thesis*

Thesis

P	**INF-81-11-M-7** (/mhb/modules/INF-81-11-M-7/)	Master's Thesis	**30.0**	CP