

# Computer Science Curriculum (part-time)

Valid from Autumn Semester 2021/2022 / 14.09.2020

Semester	IT5	IT6	IT4	IT3	IT2	IT1	Mathematics and Natural Science Modules
Semester 8		Bachelor Thesis: Computer Science (12)	Elective Module 4 (4)	Elective Module 6 (4)	Elective Module 8 (4)		
Semester 7	Elective Module (2)	Project Thesis: Computer Science (6)	Elective Module 3 (4)	Elective Module 5 (4)	Elective Module 7 (4)	Optional Module (4)	
Semester 6	Elective Module (2)	Software Project 4 (4)	Software Engineering 2 (2)	Computer Engineering 2 (4)	Operating Systems (4)	Elective Module 2 (4)	IT4: Physics Engines (2)
Semester 5	Elective Module (2)		Web Development (4)	Computer Engineering 1 (4)	IT Security (4)	Machine Learning und Data Mining (4)	Elective Module 1 (4)
Semester 4	IT3: Business Administration (2)	Software Project 3 (4)	Software Engineering 1 (4)	IT2: Communication Technology (4)	System-oriented programming (4)		IT3: Higher Mathematics for Computer Scientists 2 (4)
Semester 3	Communication Competence 3 (2)		Databases (4)		Algorithms and Data Structures (4)		IT3: Stochastics and Statistics (4), Higher Mathematics for Computer Scientists 1 (4), IT2: Electronics and Digital Technology: Basic Principles (4)
Semester 2	IT1: Communication Competence 2 (2)	Software Project 2 (4)	Programming 2 (4)		Theory of Computation (4)		Analysis 2 (4), Linear Algebra (4)
Semester 1	Communication Competence 1 (2)	Software Project 1 (4)	Programming 1 (4)		Information Theory and Coding (4)		Analysis 1 (4), Discrete Mathematics (4)

Context Modules

Project Modules

Subject-Specific Modules

Mathematics and Natural Science Modules

## Overview of Computer Science elective modules

During your fourth year of study, you will choose eight of the following elective modules:

Semester 6/8	Advanced Software Engineering 2	Cloud Computing 2	Communication Networks and Services 2	Digital Signal Processing 2	DoNet Technologie und Frameworks 2	Information Engineering 2	Internet of Things 2	Artificial Intelligence 2	Microcomputer Systems 2	Mobile Applications 2	Service Engineering 2	Visual Computing 2
	Digital Image Processing 2	Software and System Security 2	Functional Programming	Game Development	Multicore and Parallel Computing	Optimization Methods in Computer Science	Robotics Application Programming					
Semester 5/7	Advanced Software Engineering 1	Cloud Computing 1	Communication Networks and Services 1	Digital Signal Processing 1	DotNet Technology and Frameworks 1	Information Engineering 1	Internet of Things 1	Artificial Intelligence 1	Microcomputer Systems 1	Mobile Applications 1	Service Engineering 1	Visual Computing 1
	Digital Image Processing 1	Software and System Security 1	eHealth Technologies	Introduction to Quantum Informatics	Embedded Software Engineering	Cryptography	Natural User Interfaces	Programming Languages	Scientific Computing	System on Chip Design	Serverless and Cloud Application Development	

You have the opportunity to specialise by choosing from the elective modules, for example in the following areas:

- IT Security and Artificial Intelligence
- Software Engineering
- Information Engineering and Data Science
- Natural User Interfaces
- Cloud Computing and Applications
- Embedded Computing
- Internet of Things
- Communication Systems

It is also possible to establish an individual profile. The range of elective modules is constantly being revised and updated.