

# Computer Science Curriculum (full-time)

Valid from Autumn Semester 2021/2022 / 12.02.2021

Semester	Context Modules	Project Modules	Subject-Specific Modules	Mathematics and Natural Science Modules
<b>Semester 6</b> Total Credits 30	Elective Module Context 2	Bachelor Thesis: Computer Science DE/EN (IP) 12	Elective Module 2 (IP) 4 Elective Module 4 (IP) 4 Elective Module 6 (IP) 4 Elective Module 8 (IP) 4	
<b>Semester 5</b> Total Credits 30	Elective Module Context 2	Elective Module Context 2	Project Thesis: Computer Science DE/EN (IP) 6 Elective Module 1 (IP) 4 Elective Module 3 (IP) 4 Elective Module 5 (IP) 4 Elective Module 7 (IP) 4 Elective Module Cross-Curricula (IP) 4	
<b>Semester 4</b> Total Credits 30	Business Administration DE 2	Software Project 4 DE/EN (IP) 4	Software Engineering 2 DE 2 Operating Systems DE 4 Computer Engineering 2 DE 4 IT Security DE 4	Machine Learning und Data Mining DE 4 Higher Mathematics for Computer Scientists 2 DE 4 Physics Engines DE 2
<b>Semester 3</b> Total Credits 30	Communication Competence 3 DE/EN 2	Software Project 3 DE/EN (IP) 4	Software Engineering 1 DE 4 Web Development DE 4 Computer Engineering 1 DE 4	Algorithms and Data Structures DE 4 Stochastics and Statistics DE 4 Higher Mathematics for Computer Scientists 1 DE 4
<b>Semester 2</b> Total Credits 30	Communication Competence 2 DE/EN 2	Software Project 2 DE 4	Programming 2 DE 4 System-oriented programming DE 4 Communication Technology DE 4	Theory of Computation DE 4 Analysis 2 DE 4 Linear Algebra DE 4
<b>Semester 1</b> Total Credits 30	Communication Competence 1 DE/EN 2	Software Project 1 DE 4	Programming 1 DE 4 Databases DE 4	Information Theory and Coding DE 4 Analysis 1 DE 4 Discrete Mathematics DE 4 Electronics and Digital Technology: Basic Principles DE 4

## Overview of Computer Science elective modules

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

Semester 6	Advanced Software Engineering 2	Cloud Computing 2	Communication Networks and Services 2	Digitale Signalverarbeitung 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	Advanced Software Engineering 1	Cloud Computing 1	Communication Networks and Services 1	Digitale Signalverarbeitung 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.