Computer Science BSc Curriculum

(from September 2018)

In the table below you can find the courses that you are expected to study in each semester and their prerequisites (courses that have to be completed beforehand). P stands for practice, L is for lecture. If a subject has both practice and lecture parts, you have to pass the practical part before you can take the exam from the lecture. Some subjects are L+P type, which means that you will have both practice and lecture lessons, but you will only get one combined grade for them. (The P, L, L+P indications are not part of the official names of the courses!)

The column C shows the number of credits for a course, and the column H shows the number of hours/week.

You will have to complete 23 credits from „compulsory elective" courses during your studies (and an additional 10 credits from other electives), you can read about these on the last page.

Semester	Course name, type & code	C	H	Prerequisite
1	Learning methodology P (IP-18fTMKG)	1	1	-
	Basic mathematics P (IP-18fMATAG)	4	4	successful entry test or completing the preliminary semester
	Computer systems L+P (IP-18fSZGREG)	5	2+2	
	Programming L+P (IP-18fPROGEG)	6	2+3	
	Imperative programming L+P (IP-18fIMPROGEG)	5	2+3	
	Functional programming L+P (IP-18fFUNPEG)	5	2+2	
	Business fundamentals L+P (IP-18fIVMEG)	3	1+2	

Semester	Course name, type & code	C	H	Prerequisite
2	Analysis I. P (IP-18fAN1G)	3	2	Basic mathematics
	Analysis I. L (IP-18fAN1E)	2	2	
	Discrete mathematics I. P (IP-18fDM1G)	3	2	Basic mathematics
	Discrete mathematics I. L (IP-18fDM1E)	2	2	
	Algorithms and data structures I. P (IP-18fAA1G)	3	2	Basic mathematics, Programming
	Algorithms and data structures I. L (IP-18fAA1E)	2	2	
	Web development L+P (IP-18fWF1EG)	3	1+2	Computer systems
	Object-oriented programming L+P (IP-18fOEPROGEG)	6	2+3	Programming
	Programming languages L+P (IP-18fPNYEG) *(from September 2019; previously: Programming languages I.+II.)*	6	2+2	Imperative programming

Semester	Course name, type & code	C	H	Prerequisite
3	Analysis II. P (IP-18fAN2G)	3	2	Analysis I.
	Analysis II. L (IP-18fAN2E)	2	2	
	Web programming L+P (IP-18fWPEG)	4	1+2	Web development
	Programming technology L+P (IP-18fPROGTEG)	5	2+2	Object-oriented programming
	Algorithms and data structures II. P (IP-18fAA2G)	3	2	Algorithms and data structures I.
	Algorithms and data structures II. L (IP-18fAA2E)	2	2	
	Application of discrete models P (IP-18fDMAG)	3	2	Discrete mathematics I.

Semester	Course name, type & code	C	H	Prerequisite
4	Operating systems L+P (IP-18fOPREG)	3	1+1	Computer systems
	Databases I. P (IP-18fAB1G)	2	2	Algorithms and data structures I.
	Databases I. L (IP-18fAB1E)	2	2	
	Software technology L+P (IP-18fSZTEG)	5	2+2	Programming technology
	Fundamentals of theory of computation I. P (IP-18fSZEA1G)	3	2	Discrete mathematics I.
	Fundamentals of theory of computation I. L (IP-18fSZEA1E)	2	2	
	Numerical methods P (IP-18fNM1G)	3	2	Analysis II.
	Numerical methods L (IP-18fNM1E)	2	2	

Semester	Course name, type & code	C	H	Prerequisite
5	Concurrent programming L+P (IP-18fKPROGEG)	3	1+1	Programming languages II. *or* Programming languages
	Telecommunication networks P (IP-18fTKHG)	3	2	Programming languages I. *or* Object-oriented programming
	Telecommunication networks L (IP-18fTKHE)	2	2	
	Fundamentals of theory of computation II. P (IP-18fSZEA2G)	3	2	Fundamentals of theory of computation I., Algorithms and data structures II.
	Fundamentals of theory of computation II. L (IP-18fSZEA2E)	2	2	
	Artificial intelligence L (IP-18fMIAE)	3	2	Algorithms and data structures II.
	Probability and statistics P (IP-18fVSZG)	3	2	Analysis II.
	Databases II. P (IP-18fAB2G)	3	2	Databases I.
	Databases II. L (IP-18fAB2E)	2	2	

Semester	Course name & code	C	Prerequisite
6	Diploma work consultations (IP-18fSZD)	20	handing in the Thesis Topic Declaration

+ You need to complete 23 credits from the following „compulsory elective" courses:

Course name, type & code	C	H	Recommended semesters	Prerequisite
GPU programming L+P (IP-18fKVGPUEG) ***discontinued!***	3	1+2	3, 4, 5	Basic mathematics
Cryptography and security P (IP-18fKVKRBG)	3	2	4, 6	Discrete mathematics I.
Cryptography and security L (IP-18fKVKRBE)	2	2		
Introduction to machine learning L (IP-18fKVBGTE)	3	2	3	Basic mathematics
Programming theory P (IP-18fKVPREG)	3	2	3, 5	Basic mathematics
Programming theory L (IP-18fKVPREE)	2	2		
Tools of software projects P (IP-18KVPRJG)	3	2	5	Programming languages I. *or* Programming languages
Compilers P (IP-18fKVFPG)	2	2	5	Programming languages I. *or* Object-oriented programming
Compilers L (IP-18fKVFPE)	3	2		
ADA L+P (IP-18fKVADA)	5	2+2	5, 6	Programming languages I. *or* Object-oriented programming
Python L+P (IP-18KVPYEG)	5	2+2	3,4,5,6	-

+ You need to complete at least 10 credits from other elective courses, please read the „Elective Courses" section of the website for more information about this. (You can also choose to include some of the above „compulsory elective" courses in your elective credits.)

If you add up all the credit numbers, you will see that you have to complete 180 credits altogether during your studies.