

Degree plans for bachelor's study program Computer Science

Specialization	General Computer Science
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Obligatory courses – Common part

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Algorithmization	2/1	C+Ex	4	doc. RNDr. Tomáš Dvořák, CSc.	1/WS
Programming 1	2/2	C	5	RNDr. Tomáš Holan, Ph.D.	1/WS
Principles of Computers	2/0	Ex	3	Mgr. Pavel Ježek, Ph.D.	1/WS
Introduction to Networking	2/0	GC	3	RNDr. Martin Kruliš, Ph.D.	1/WS
Discrete Mathematics	2/2	C+Ex	5	doc. RNDr. Jiří Fiala, Ph.D.	1/WS
Linear Algebra 1	2/2	C+Ex	5	doc. Mgr. Milan Hladík, Ph.D.	1/WS
Algorithms and Data Structures 1	2/2	C+Ex	5	doc. RNDr. Ondřej Čepek, Ph.D.	1/SS
Programming 2	2/2	C+Ex	5	RNDr. Tomáš Holan, Ph.D.	1/SS
Computer Systems	2/2	C+Ex	5	RNDr. Jakub Yaghob, Ph.D.	1/SS
Introduction to Linux	1/2	C	4	Ing. Lubomír Bulej, Ph.D.	1/SS
Mathematical Analysis 1	2/2	C+Ex	5	doc. RNDr. Martin Klazar, Dr.	1/SS
Linear algebra 2	2/2	C+Ex	5	doc. Mgr. Milan Hladík, Ph.D.	1/SS
Algorithms and Data Structures 2	2/2	C+Ex	5	Mgr. Martin Mareš, Ph.D.	2/WS
Combinatorics and Graph Theory 1	2/2	C+Ex	5	doc. RNDr. Vít Jelínek, Ph.D.	2/WS
Propositional and Predicate Logic	2/2	C+Ex	5	Mgr. Petr Gregor, Ph.D.	2/WS
Automata and Grammars	2/2	C+Ex	5	Mgr. Marta Vomlelová, Ph.D.	2/SS
Probability and Statistics 1	2/2	C+Ex	5	doc. Mgr. Robert Šámal, Ph.D.	2/SS
Individual Software Project	0/1	C	4	RNDr. Filip Zavoral, Ph.D.	2/SS
Database Systems	2/2	C+Ex	5	RNDr. Michal Kopecký, Ph.D.	3/WS
Bachelor Thesis	0/4	C	6	Supervisor of the thesis	3/SS
Credit subtotal for common obligatory courses			94		

Obligatory courses – General Computer Science

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Non-procedural Programming	2/2	C+Ex	5	doc. RNDr. Tomáš Dvořák, CSc.	2/SS
Linear Programming and Combinatorial Optimization	2/2	C+Ex	5	prof. RNDr. Martin Loebel, CSc.	2/SS
Mathematical Analysis 2	2/2	C+Ex	5	doc. RNDr. Martin Klazar, Dr.	2/WS
Credit subtotal			15		

Elective courses – group 1 – for the General Computer Science specialization

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Introduction to approximation and randomized algorithms	2/2	C+Ex	5	prof. RNDr. Jiří Sgall, DrSc.	3/WS
Algorithmic Game Theory	2/2	C+Ex	5	RNDr. Martin Balko, Ph.D.	3/WS
Computational Geometry	2/2	C+Ex	5	RNDr. Martin Tancer, Ph.D.	3/SS
Graph Algorithms	2/0	Ex	3	Mgr. Martin Mareš, Ph.D.	3/WS
Combinatorics and Graph Theory 2	2/2	C+Ex	5	doc. Mgr. Zdeněk Dvořák, Ph.D.	2/SS
Introduction to Combinatorial and	2/2	C+Ex	5	doc. RNDr. Pavel Valtr, Dr.	3/WS

Computational Geometry					
Discrete and Continuous Optimization	2/2	C+Ex	5	doc. Mgr. Milan Hladík, Ph.D.	SS
Algebra 1	2/2	C+Ex	5	doc. Mgr. Jan Žemlička, Ph.D.	3/WS
Algebra 2	2/0	Ex	3	doc. Mgr. Jan Žemlička, Ph.D.	3/SS
Mathematical Analysis 3	2/2	C+Ex	5	doc. RNDr. Martin Klazar, Dr.	SS
Numerical Mathematics	2/2	C+Ex	5	doc. RNDr. Jiří Fečman, CSc.	3/SS
Probability and Statistics 2	2/1	C+Ex	4	doc. Mgr. Robert Šámal, Ph.D.	3/WS
Set Theory	2/0	Ex	3	Mgr. Jan Kynčl, Ph.D.	3/SS
Minimum number of credits from the group 1			30		

Elective courses – group 2 – for the General Computer Science specialization					
subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Programming in C++	2/2	C+Ex	5	RNDr. David Bednárek, Ph.D.	2/WS
Programming in Java	2/2	C+Ex	5	doc. RNDr. Petr Hnětynka, Ph.D.	2/WS
Programming in C#	2/2	C+Ex	5	Mgr. Pavel Ježek, Ph.D.	2/WS
Minimum number of credits from the group 2			5		

Elective courses – group 3 – for the General Computer Science specialization					
subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Introduction to Machine Learning	2/2	C+Ex	5	Mgr. Barbora Vidová Hladká, Ph.D.	WS
Pattern Recognition	2/2	C+Ex	5	doc. RNDr. Elena Šikudová, Ph.D.	SS
Introduction to Artificial Intelligence	2/2	C+Ex	5	prof. RNDr. Roman Barták, Ph.D.	SS
Introduction to Computer Graphics	2/2	C+Ex	5	doc. Alexander Wilkie, Dr.	WS
Digital Image Processing	3/0	Ex	4	prof. Ing. Jan Flusser, DrSc.	WS
Introduction to Game Development	2/2	C+Ex	5	doc. Ing. Jaroslav Křivánek, Ph.D.	SS
Natural Language Processing	2/1	C+Ex	4	doc. Ing. Zdeněk Žabokrtský, Ph.D.	SS
Introduction to Computer Linguistics	2/0	Ex	3	doc. RNDr. Vladislav Kuboň, Ph.D.	WS
Operating Systems	2/1	C+Ex	4	prof. Ing. Petr Tůma, Dr.	WS
Data Formats	2/2	C+Ex	5	RNDr. Jakub Klímeč, Ph.D.	SS
Computer Networks	2/0	Ex	3	RNDr. Martin Svoboda, Ph.D.	WS
Computer Architecture	2/0	Ex	3	Ing. Lubomír Bulej, Ph.D.	SS
Access Methods for Databases	2/1	C+Ex	4	RNDr. David Hoksza, Ph.D.	WS
Modern Database Concepts	2/2	C+Ex	5	doc. RNDr. Irena Holubová, Ph.D.	WS
Compiler Principles	2/2	C+Ex	5	RNDr. Jakub Yaghob, Ph.D.	WS
Programming in Parallel Environment	2/2	C+Ex	5	RNDr. Jakub Yaghob, Ph.D.	SS
Web Applications Programming	2/2	C+Ex	5	RNDr. Martin Kruliš, Ph.D.	WS
High Performance Software Development	2/2	C+Ex	5	RNDr. David Bednárek, Ph.D.	SS
Advanced C++ Programming	2/2	C+Ex	5	RNDr. David Bednárek, Ph.D.	SS
Advanced Programming for Java Platform	2/2	C+Ex	5	doc. RNDr. Petr Hnětynka, Ph.D.	SS
Advanced C# Programming	2/2	C+Ex	5	Mgr. Pavel Ježek, Ph.D.	SS
Minimum number of credits from the group 3			X ¹		

1 You need to obtain at least 45 credits from the groups 1, 2 and 3

Degree plans for bachelor's study program Computer Science

Specialization	Databases and Web
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Obligatory courses – Common part

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Algorithmization	2/1	C+Ex	4	doc. RNDr. Tomáš Dvořák, CSc.	1/WS
Programming 1	2/2	C	5	RNDr. Tomáš Holan, Ph.D.	1/WS
Principles of Computers	2/0	Ex	3	Mgr. Pavel Ježek, Ph.D.	1/WS
Introduction to Networking	2/0	GC	3	RNDr. Martin Kruliš, Ph.D.	1/WS
Discrete Mathematics	2/2	C+Ex	5	doc. RNDr. Jiří Fiala, Ph.D.	1/WS
Linear Algebra 1	2/2	C+Ex	5	doc. Mgr. Milan Hladík, Ph.D.	1/WS
Algorithms and Data Structures 1	2/2	C+Ex	5	doc. RNDr. Ondřej Čepek, Ph.D.	1/SS
Programming 2	2/2	C+Ex	5	RNDr. Tomáš Holan, Ph.D.	1/SS
Computer Systems	2/2	C+Ex	5	RNDr. Jakub Yaghob, Ph.D.	1/SS
Introduction to Linux	1/2	C	4	Ing. Lubomír Bulej, Ph.D.	1/SS
Mathematical Analysis 1	2/2	C+Ex	5	doc. RNDr. Martin Klazar, Dr.	1/SS
Linear algebra 2	2/2	C+Ex	5	doc. Mgr. Milan Hladík, Ph.D.	1/SS
Algorithms and Data Structures 2	2/2	C+Ex	5	Mgr. Martin Mareš, Ph.D.	2/WS
Combinatorics and Graph Theory 1	2/2	C+Ex	5	doc. RNDr. Vít Jelínek, Ph.D.	2/WS
Propositional and Predicate Logic	2/2	C+Ex	5	Mgr. Petr Gregor, Ph.D.	2/WS
Automata and Grammars	2/2	C+Ex	5	Mgr. Marta Vomlelová, Ph.D.	2/SS
Probability and Statistics 1	2/2	C+Ex	5	doc. Mgr. Robert Šámal, Ph.D.	2/SS
Individual Software Project	0/1	C	4	RNDr. Filip Zavoral, Ph.D.	2/SS
Database Systems	2/2	C+Ex	5	RNDr. Michal Kopecký, Ph.D.	3/WS
Bachelor Thesis	0/4	C	6	Supervisor of the thesis	3/SS
Credit subtotal for common obligatory courses			94		

Obligatory courses – Databases and Web

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Web Applications Programming	2/2	C+Ex	5	RNDr. Martin Kruliš, Ph.D.	WS
Advanced Web Applications Programming	2/2	C+Ex	5	RNDr. Martin Kruliš, Ph.D.	SS
Database Applications	1/2	CC	4	RNDr. Michal Kopecký, Ph.D.	WS
Access Methods for Databases	2/1	C+Ex	4	RNDr. David Hoksza, Ph.D.	WS
Data Management	2/2	C+Ex	5	doc. Mgr. Martin Nečaský, Ph.D.	SS
Modern Database Concepts	2/2	C+Ex	5	doc. RNDr. Irena Holubová, Ph.D.	WS
Data Formats	2/2	C+Ex	5	RNDr. Jakub Klímek, Ph.D.	SS
Searching the Web	2/1	C+Ex	4	doc. RNDr. Tomáš Skopal, Ph.D.	SS
Credit subtotal			37		

Elective courses – group 1 – for the Databases and Web specialization

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Programming in C++	2/2	C+Ex	5	RNDr. David Bednárek, Ph.D.	WS
Programming in Java	2/2	C+Ex	5	doc. RNDr. Petr Hnětynka, Ph.D.	WS
Programming in C#	2/2	C+Ex	5	Mgr. Pavel Ježek, Ph.D.	WS
Advanced C++ Programming	2/2	C+Ex	5	RNDr. David Bednárek, Ph.D.	SS

Advanced Programming for Java Platform	2/2	C+Ex	5	doc. RNDr. Petr Hnětynka, Ph.D.	SS
Advanced C# Programming	2/2	C+Ex	5	Mgr. Pavel Ježek, Ph.D.	SS
Non-procedural Programming	2/2	C+Ex	5	doc. RNDr. Tomáš Dvořák, CSc.	SS
Minimum number of credits from the group 1			15		

Elective courses – group 2 – for the Databases and Web specialization					
subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Operating Systems	2/1	C+Ex	4	prof. Ing. Petr Tůma, Dr.	WS
Introduction to Machine Learning	2/2	C+Ex	5	Mgr. Barbora Vidová Hladká, Ph.D.	WS
Video Retrieval and Exploration	2/2	C+Ex	4	RNDr. Jakub Lokoč, PhD.	WS
Information Models with Ordering	2/2	C+Ex	5	prof. RNDr. Peter Vojtáš, DrSc.	WS
Oracle Administration	0/2	C	2	RNDr. Michal Kopecký, Ph.D.	SS
Minimum number of credits from the group 2			6		

Elective courses – group 3 – for the Databases and Web specialization					
subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Mathematical Analysis 2	2/2	C+Ex	5	doc. RNDr. Martin Klazar, Dr.	SS
Introduction to Computer Vision	2/2	C+Ex	5	doc. RNDr. Elena Šikudová, Ph.D.	SS
Digital Image Processing	3/0	Ex	5	prof. Ing. Jan Flusser, DrSc.	WS
Programming for Mobile Devices	0/2	C	3	RNDr. Jan Kofroň, Ph.D.	SS
Introduction to Artificial Intelligence	2/2	C+Ex	5	prof. RNDr. Roman Barták, Ph.D.	SS
Software System Architectures	2/2	C+Ex	5	doc. Mgr. Martin Nečaský, Ph.D.	WS
Seminar on Data Mining	1/2	C+Ex	4	Mgr. Marta Vomlelová, Ph.D.	SS
Pattern Recognition	2/2	C+Ex	5	doc. RNDr. Elena Šikudová, Ph.D.	WS
Computer Networks	2/0	Ex	3	RNDr. Martin Svoboda, Ph.D.	WS
Minimum number of credits from the group 3			3		

Degree plans for bachelor's study program Computer Science

Specialization	Artificial Intelligence
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Obligatory courses – Common part

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Algorithmization	2/1	C+Ex	4	doc. RNDr. Tomáš Dvořák, CSc.	1/WS
Programming 1	2/2	C	5	RNDr. Tomáš Holan, Ph.D.	1/WS
Principles of Computers	2/0	Ex	3	Mgr. Pavel Ježek, Ph.D.	1/WS
Introduction to Networking	2/0	GC	3	RNDr. Martin Kruliš, Ph.D.	1/WS
Discrete Mathematics	2/2	C+Ex	5	doc. RNDr. Jiří Fiala, Ph.D.	1/WS
Linear Algebra 1	2/2	C+Ex	5	doc. Mgr. Milan Hladík, Ph.D.	1/WS
Algorithms and Data Structures 1	2/2	C+Ex	5	doc. RNDr. Ondřej Čepek, Ph.D.	1/SS
Programming 2	2/2	C+Ex	5	RNDr. Tomáš Holan, Ph.D.	1/SS
Computer Systems	2/2	C+Ex	5	RNDr. Jakub Yaghob, Ph.D.	1/SS
Introduction to Linux	1/2	C	4	Ing. Lubomír Bulej, Ph.D.	1/SS
Mathematical Analysis 1	2/2	C+Ex	5	doc. RNDr. Martin Klazar, Dr.	1/SS
Linear algebra 2	2/2	C+Ex	5	doc. Mgr. Milan Hladík, Ph.D.	1/SS
Algorithms and Data Structures 2	2/2	C+Ex	5	Mgr. Martin Mareš, Ph.D.	2/WS
Combinatorics and Graph Theory 1	2/2	C+Ex	5	doc. RNDr. Vít Jelínek, Ph.D.	2/WS
Propositional and Predicate Logic	2/2	C+Ex	5	Mgr. Petr Gregor, Ph.D.	2/WS
Automata and Grammars	2/2	C+Ex	5	Mgr. Marta Vomlelová, Ph.D.	2/SS
Probability and Statistics 1	2/2	C+Ex	5	doc. Mgr. Robert Šámal, Ph.D.	2/SS
Individual Software Project	0/1	C	4	RNDr. Filip Zavoral, Ph.D.	2/SS
Database Systems	2/2	C+Ex	5	RNDr. Michal Kopecký, Ph.D.	3/WS
Bachelor Thesis	0/4	C	6	Supervisor of the thesis	3/SS
Credit subtotal for common obligatory courses			94		

Obligatory courses – Artificial Intelligence

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Introduction to Artificial Intelligence	2/2	C+Ex	5	prof. RNDr. Roman Barták, Ph.D.	2/SS
Non-procedural Programming	2/2	C+Ex	5	doc. RNDr. Tomáš Dvořák, CSc.	2/SS
Mathematical Analysis 2	2/2	C+Ex	5	doc. RNDr. Martin Klazar, Dr.	2/WS
Credit subtotal			15		

Elective courses – group 1 – for the Artificial Intelligence specialization

subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Programming in C++	2/2	C+Ex	5	RNDr. David Bednárek, Ph.D.	2/WS
Programming in Java	2/2	C+Ex	5	doc. RNDr. Petr Hnětynka, Ph.D.	3/WS
Programming in C#	2/2	C+Ex	5	Mgr. Pavel Ježek, Ph.D.	WS
Minimum number of credits from the group 1			10		

Elective courses – group 2 – for the Artificial Intelligence specialization					
subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Introduction to Robotics	2/2	C+Ex	5	RNDr. David Obdržálek, Ph.D.	3/WS
Digital Image Processing	3/0	Ex	4	prof. Ing. Jan Flusser, DrSc.	WS
Introduction to Computer Vision	2/2	C+Ex	5	doc. RNDr. Elena Šikudová, Ph.D.	3/SS
Introduction to Machine Learning	2/2	C+Ex	5	Mgr. Barbora Vidová Hladká, Ph.D.	3/WS
Pattern Recognition	2/2	C+Ex	5	doc. RNDr. Elena Šikudová, Ph.D.	SS
Seminar on Data Mining	1/2	CC	4	Mgr. Marta Vomlelová, Ph.D.	3/SS
Algorithmic Game Theory	2/2	C+Ex	5	RNDr. Martin Balko, Ph.D.	WS
Introduction to Computer Linguistics	2/0	Ex	3	doc. RNDr. Vladislav Kuboň, Ph.D.	3/WS
Text Processing in UNIX	0/2	CC	3	doc. Ing. Zdeněk Žabokrtský, Ph.D.	WS
Natural Language Processing	2/1	C+Ex	4	doc. Ing. Zdeněk Žabokrtský, Ph.D.	3/SS
Competing in Machine Translation	0/2	C	3	RNDr. Ondřej Bojar, Ph.D.	WS
Dialogue systems	2/2	C+Ex	5	Mgr. Ondřej Dušek, Ph.D.	SS
Nature Inspired Algorithms	2/2	C+Ex	5	Mgr. Martin Pilát, Ph.D.	SS
Minimum number of credits from the group 2			25		

Elective courses – group 3 – for the Artificial Intelligence specialization					
subject	hours per week	exam type	credits	guarantor / teacher	suggested yr/sem
Advanced C++ Programming	2/2	C+Ex	5	RNDr. David Bednárek, Ph.D.	2/SS
Advanced Programming for Java Platform	2/2	C+Ex	5	doc. RNDr. Petr Hnětynka, Ph.D.	SS
Advanced C# Programming	2/2	C+Ex	5	Mgr. Pavel Ježek, Ph.D.	SS
Programming in Parallel Environment	2/2	C+Ex	5	RNDr. Jakub Yaghob, Ph.D.	SS
Data Formats	2/2	C+Ex	5	RNDr. Jakub Klímeck, Ph.D.	3/SS
Probability and Statistics 2	2/1	C+Ex	4	doc. Mgr. Robert Šámal, Ph.D.	WS
Video Retrieval and Exploration	1/2	C+Ex	4	RNDr. Jakub Lokoč, Ph.D.	WS
Discrete and Continuous Optimization	2/2	C+Ex	5	doc. Mgr. Milan Hladík, Ph.D.	SS
Introduction to Game Development	2/2	C+Ex	5	doc. Ing. Jaroslav Křivánek, Ph.D.	SS
Microcontroller Programming	2/2	C+Ex	5	RNDr. David Obdržálek, Ph.D.	WS
Minimum number of credits from the group 3			10		