

1.	Field of study	Computer Science
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2022/2023 (summer term), 2023/2024 (summer term), 2024/2025 (summer term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time
7.	Academic year for which the revised course structure applies	2022/2023

Obligatory courses										year 1						year 2		
										semester 1			semester 2			semester 3		
No.	Module	Lang.	E/C	form of teaching			Total ECTS	L	O	E	L	O	E	L	O	E		
				Total	L	O												
1	Algorithmics and advanced data structures	EN	E	60	30	30	4	30	30	4								
2	Computer network technologies	EN	Z	45	15	30	3	15	30	3								
3	Computer simulations	EN	E	60	30	30	4	30	30	4								
4	Concurrent programming	EN	Z	30	15	15	3	15	15	3								
5	Data mining	EN	E	60	30	30	4	30	30	4								
6	Intellectual property protection	EN	Z	15	15		2	15		2								
7	IT for the blind and visually impaired	EN	Z	15	15		2	15		2								
8	Modern programming languages	EN	E	60	30	30	4	30	30	4								
9	Managing IT projects and teams	EN	Z	30	10	20	2				10	20	2					
10	Mathematical modeling of optimization problems	EN	Z	30	15	15	3				15	15	3					
11	Monographic lecture - Combinatorial machine learning	EN	Z	30	30		2				30		2					
12	Statistical analysis in research	EN	Z	30	15	15	2				15	15	2					
13	General academic module (Humanities)	-	Z	30		30	3								30	3		
14	General academic module (Social Sciences)	-	Z	30		30	3								30	3		
TOTAL Obligatory courses:				525	250	275	41	180	165	26	70	50	9	0	60	6		

Diploma courses										year 1						year 2		
										semester 1			semester 2			semester 3		
No.	Module	Lang.	E/C	form of teaching			Total ECTS	L	O	E	L	O	E	L	O	E		
				Total	L	O												
1	Introduction to scientific research.	EN	Z	2		2	1		2	1								
2	Master's seminar I	EN	Z	15		15	2		15	2								
3	Monographic lecture	EN	Z	20	20		1	20		1								
4	Diploma courses group I <i>*[see description below]</i>	*	*	180	60	120	16				60	120	16					
5	Master's seminar II	EN	Z	30		30	2				30	2						
6	Master's workshop I	EN	Z	45		45	3				45	3						
7	Diploma courses group II <i>*[see description below]</i>	*	*	135	45	90	12							45	90	12		
8	Master's seminar III - thesis preparation	EN	Z	30		30	8							30	8			

9	Master's workshop II	EN	Z	45		45	5								45	5				
				TOTAL Diploma courses:				502	125	377	50	20	17	4	60	195	21	45	165	25
				TOTAL:				1027	375	652	91	382	30	375	30	270	31			
TOTAL														1027						

The study ends with the awarding of a Master's Degree in the field of Computer Science.

* Groups of modules

Diploma courses group I

Description:					
The student chooses three modules from the list. No module may be repeated during the entire course of education.					
Modules:	Lang.	E/C	L	O	ECTS
Administration of network services	EN	C	15	30	4
Advanced methods of data analysis	EN	C	15	30	4
Algorithmically generated graphics	EN	C	15	30	4
Artificial intelligence in computer graphics	EN	C	15	30	4
Biometric recognition and access control systems	EN	C	15	30	4
Cloud computing technologies	EN	C	15	30	4
Cluster analysis algorithms in applications	EN	C	15	30	4
Computational geometry	EN	C	15	30	4
Computational intelligence techniques	EN	C	15	30	4
Data analysis in business	EN	C	15	30	4
Data visualization	EN	C	15	30	4
Data warehouses	EN	C	15	30	4
Decision and association rules in knowledge data discovery	EN	C	15	30	4
Decision support systems	EN	C	15	30	4
Deep learning with neural networks	EN	C	15	30	4
Fractal methods in computer graphics	EN	C	15	30	4
Fuzzy sets nad systems	EN	C	15	30	4
GPGPU computing	EN	C	15	30	4
Image and video processing techniques	EN	C	15	30	4
Image processing algorithms in biometrics and bioinformatics	EN	C	15	30	4
Intelligent data processing	EN	C	15	30	4
Internet of things technologies	EN	C	15	30	4
Internet protocols	EN	C	15	30	4
Introduction to data classificatin and clusterization in biometry	EN	C	15	30	4
Introduction to reverse engineering	EN	C	15	30	4
Machine learning in biometrics and bioinformatics	EN	C	15	30	4
Methods of group decision making	EN	C	15	30	4
Microcomputers and network couplers	EN	C	15	30	4
Mobile systems and applications	EN	C	15	30	4
Network systems security	EN	C	15	30	4
Object-relational database systems in biometry	EN	C	15	30	4
Outlier detection algorithms	EN	C	15	30	4

Procedural content generation	EN	C	15	30	4
Real-time graphics	EN	C	15	30	4
Recommendation systems and social networks	EN	C	15	30	4
Scripting languages in data analysis	EN	C	15	30	4
Selected graph algorithms	EN	C	15	30	4
Techniques for optimizing computer programs	EN	C	15	30	4
The concept of programming languages	EN	C	15	30	4
Web applications	EN	C	15	30	4
Wireless and sensor networks	EN	C	15	30	4

Diploma courses group II

Description:					
The student chooses three modules from the list. No module may be repeated during the entire course of education.					
Modules:	Lang.	E/C	L	O	ECTS
Administration of network services	EN	C	15	30	4
Advanced methods of data analysis	EN	C	15	30	4
Algorithmically generated graphics	EN	C	15	30	4
Artificial intelligence in computer graphics	EN	C	15	30	4
Biometric recognition and access control systems	EN	C	15	30	4
Cloud computing technologies	EN	C	15	30	4
Cluster analysis algorithms in applications	EN	C	15	30	4
Computational geometry	EN	C	15	30	4
Computational intelligence techniques	EN	C	15	30	4
Data analysis in business	EN	C	15	30	4
Data visualization	EN	C	15	30	4
Data warehouses	EN	C	15	30	4
Decision and association rules in knowledge data discovery	EN	C	15	30	4
Decision support systems	EN	C	15	30	4
Deep learning with neural networks	EN	C	15	30	4
Fractal methods in computer graphics	EN	C	15	30	4
Fuzzy sets nad systems	EN	C	15	30	4
GPGPU computing	EN	C	15	30	4
Image and video processing techniques	EN	C	15	30	4
Image processing algorithms in biometrics and bioinformatics	EN	C	15	30	4
Intelligent data processing	EN	C	15	30	4
Internet of things technologies	EN	C	15	30	4
Internet protocols	EN	C	15	30	4
Introduction to data classificatin and clusterization in biometry	EN	C	15	30	4
Introduction to reverse engineering	EN	C	15	30	4
Machine learning in biometrics and bioinformatics	EN	C	15	30	4
Methods of group decision making	EN	C	15	30	4
Microcomputers and network couplers	EN	C	15	30	4
Mobile systems and applications	EN	C	15	30	4
Network systems security	EN	C	15	30	4
Object-relational database systems in biometry	EN	C	15	30	4

Outlier detection algorithms	EN	C	15	30	4
Procedural content generation	EN	C	15	30	4
Real-time graphics	EN	C	15	30	4
Recommendation systems and social networks	EN	C	15	30	4
Scripting languages in data analysis	EN	C	15	30	4
Selected graph algorithms	EN	C	15	30	4
Techniques for optimizing computer programs	EN	C	15	30	4
The concept of programming languages	EN	C	15	30	4
Web applications	EN	C	15	30	4
Wireless and sensor networks	EN	C	15	30	4

Legend

Each semester consists of 15 weeks

E/C - examination/course work

E - ECTS

L - lecture, O - all forms of teaching excluding lecture (practical classes, laboratory classes, discussion classes, seminar, proseminar, language classes, field practice, workshop, internship, tutoring)