



Field of study: **Computer Science**
Level of education: **1st degree**
Studies profile: **General**
valid from the academic year **2022/2023**

Semester 1

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
1.		Protection of intellectual property	15					15		1
2.		Occupational safety and ergonomics	15					15		1
3.		Mathematics 1	30	30				60	1	5
4.		Elements of physics	15		15			30		2
5.		Fundamentals of electronics	30		15			45		3
6.		Introduction to computer science	30		15			45	1	4
7.		Fundamentals of programming 1	30		30			60		5
8.		Theory of logic systems	30	15	15			60	1	5
9.		Computer architecture 1	30		15			45		4
10.		Physical education 1		30				30		0
TOTAL:			225	75	105	0	0	405	3	30

Semester 2

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
1.		Mathematics 2	30	30				60	1	5
2.		Digital measurements	30		15			45		3
3.		Algorithms and data structures	30	30				60	1	5
4.		Fundamentals of programming 2	15		15	15		45		4
5.		Computer architecture 2	30			30		60	1	5
6.		Object-oriented programming 1	30		30	15		75		6
7.		Foreign language 1		30				30		2
8.		Physical education 2		30				30		0
TOTAL:			165	120	60	60	0	405	3	30



Semester 3

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
1.		Mathematics 3	30	30				60	1	5
2.		Object-oriented programming 2	30		30	15		75	1	6
3.		Microcontrollers programming 1	30		30			60		4
4.		Operating systems 1	30		30			60		4
5.		Databases	30		30			60		4
6.		Basics of the computer graphics 1	30		30			60	1	5
7.		Foreign language 2		30				30		2
TOTAL:			180	60	150	15	0	405	3	30

Semester 4

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
1.		Microcontrollers programming 2				15		15		1
2.		Operating systems 2	30		30			60	1	5
3.		Advanced database techniques	30		15	15		60		4
4.		Basics of the computer graphics 2				15		15		1
5.		Scripting languages	30		30			60		4
6.		Computer networks	30		30			60	1	5
7.		Dynamic systems	15		15			30		2
8.		Intelligent systems 1	30	15				45	1	4
9.		Foreign language 3		30				30		2
10.		HES1	15					15		1
11.		HES2	15					15		1
TOTAL:			195	45	120	45	0	405	3	30

Semester 5

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
1.		Computational methods	30		30			60		4
2.		Intelligent systems 2				30		30		2



3.		Concurrent programming	30		30			60		4
4.		Internet applications	30		15			45	1	4
5.		Software engineering 1	30		30			60	1	5
6.		Foreign language 4		30				30	1	3
Mandatory specialist courses – Specialization: Information systems										
7.		Management information systems	30		30			60		4
8.		Mobile applications	30		15	15		60		4
Mandatory specialist courses – Specialization: Computer Graphics										
9.		Virtual and augmented reality	30		30	15		75		5
10.		Basics of game programming	30		15			45		3
Mandatory specialist courses – Specialization: Information Technology Networking										
11.		Internet of Things	15		15			30		2
12.		Routing and switching essentials	30		30			60		4
13.		Network programming	15		15			30		2
TOTAL:			180		225		0	405	3	30

Semester 6

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
1.		Software engineering 2				15		15		1
2.		HES3	7	8				15		1
3.		HES4	30					30		2
4.		Apprenticeships – 4 weeks					120	120		4
Mandatory specialist courses – Specialization: Information systems										
5.		Team project				45		45		3
6.		Information systems engineering	30			30		60	1	4
7.		Advanced frontend applications	15			30		45	1	3
8.		Modern data processing systems	30		30			60	1	4
Mandatory specialist courses – Specialization: Computer Graphics										
9.		Team project				45		45		3
10.		Architecture of graphics processor units	30			15		45	1	3
11.		Computer graphics programming	30		30	15		75	1	5
12.		Algorithms for computer graphics	15			30		45	1	3
Mandatory specialist courses – Specialization: Information Technology Networking										
13.		Team project				45		45		3
14.		Enterprise networks	30		30			60	1	4



15.		Cybersecurity	15		30			45	1	3
16.		Big Data & Analytics	30		30			60	1	4
Selectable specialist courses										
17.		Selectable specialist course 1	30		30			60		4
18.		Selectable specialist course 2	30		30			60		4
TOTAL:			172		218		120	510	3	30

Semester 6 – Selectable specialist courses

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
Selectable specialist courses – Specialization: Information systems										
1.		Server administration	30		30			60		4
2.		Network applications	30			30		60		4
3.		Cloud computing - infrastructures and services	30		30			60		4
4.		Natural language processing methods	30		30			60		4
5.		Modelling and visualization of physical processes	30		30			60		4
6.		Programs of raster, vector and 3d graphics	30		30			60		4
7.		User interface design	30		30			60		4
8.		Design of circuits used in electronics	30			30		60		4
9.		UX/UI design	30		30			60		4
10.		Multimedia systems	30		30			60		4
11.		Network technologies for information transport	30	15		15		60		4
12.		Software testing	30		30			60		4
13.		Introduction to human-computer interaction	30		30			60		4
14.		Advanced C++ Programming	30		30			60		4
Selectable specialist courses – Specialization: Computer Graphics										
15.		Server administration	30		30			60		4
16.		Network applications	30			30		60		4
17.		Modelling and visualization of physical processes	30		30			60		4
18.		Mobile application programming	30		15	15		60		4
19.		Computer game programming	30		30			60		4
20.		Programs of raster, vector and 3d graphics	30		30			60		4
21.		User interface design	30		30			60		4
22.		Design of circuits used in electronics	30			30		60		4



23.		UX/UI design	30		30			60		4
24.		Multimedia systems	30		30			60		4
25.		Network technologies for information transport	30	15		15		60		4
26.		Software testing	30		30			60		4
27.		Introduction to human-computer interaction	30		30			60		4
28.		Advanced C++ Programming	30		30			60		4
Selectable specialist courses – Specialization: Information Technology Networking										
29.		Server administration	30		30			60		4
30.		Network applications	30			30		60		4
31.		Digital signal processing in teleinformatics	30		30			60		4
32.		Cloud computing infrastructure and services	30		30			60		4
33.		Natural language processing methods	30		30			60		4
34.		Mobile application programming	30		15	15		60		4
35.		Design of circuits used in electronics	30			30		60		4
36.		UX/UI design	30		30			60		4
37.		Linux Essentials 1	30		30			60		4
38.		Real time location systems	30		30			60		4
39.		Software testing	30		30			60		4
40.		Advanced C++ Programming	30		30			60		4

Semester 7

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
1.		Diploma seminar					30	30		2
2.		Diploma project							1	15
Mandatory specialist courses – Specialization: Information systems										
3.		Basics of computer system security	15			30		45		3
4.		Modelling and analysis of business processes	30	30				60		4
Mandatory specialist courses – Specialization: Computer Graphics										
5.		Speech and image recognition systems	30			30		60		4
6.		Digital signal processing	15		30			45		3
Mandatory specialist courses – Specialization: Information Technology Networking										
7.		Implementing advanced network technologies	30		30			60		4
8.		Virtualisation and containerisation	15		30			45		3
Selectable specialist courses										
9.		Selectable specialist course 3	30		45			75		6
TOTAL:			75		105		30	210	1	30



Semester 7 – Selectable specialist courses

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
Selectable specialist courses – Specialization: Information systems										
1.		Operations research	30		15	30		75		6
2.		Digital signal and image processing	30		15	30		75		6
3.		Methods of computer graphics programming	30		15	30		75		6
4.		Basics of modelling and simulation	30		30	15		75		6
5.		Practical aspects of 3D printing	30		30	15		75		6
6.		Programming applications for Windows	30		30	15		75		6
7.		C# programming	30		30	15		75		6
8.		Satellite Radio Communication	30		15	30		75		6
9.		Selected aspects of cybersecurity	30		30	15		75		6
10.		Advanced Python Programming	30		30	15		75		6
Selectable specialist courses – Specialization: Computer Graphics										
11.		Operations research	30		15	30		75		6
12.		Physics in animation and computer graphics	30		15	30		75		6
13.		Basics of modelling and simulation	30		30	15		75		6
14.		Practical aspects of 3D printing	30		30	15		75		6
15.		Programming applications for Windows	30		30	15		75		6
16.		C# programming	30		30	15		75		6
17.		Image processing and analysis	30		15	30		75		6
18.		Satellite Radio Communication	30		15	30		75		6
19.		Multimedia networks	30		15	30		75		6
20.		Information and visual communication systems	30		15	30		75		6
21.		Artificial intelligence in computer games	30		30	15		75		6
22.		Modern data processing systems	30		15	30		75		6
23.		Advanced Python Programming	30		30	15		75		6
Selectable specialist courses – Specialization: Information Technology Networking										
24.		Basics of modelling and simulation	30		30	15		75		6
25.		Practical aspects of 3D printing	30		30	15		75		6
26.		Programming applications for Windows	30		30	15		75		6
27.		C# programming	30		30	15		75		6
28.		Satellite Radio Communication	30		15	30		75		6
29.		Semantic web	30		15	30		75		6
30.		Linux Essentials 2	30		15	30		75		6



31.		Data Center	30		30	15		75		6
32.		Blockchain technologies	30		15	30		75		6
33.		Advanced Python Programming	30		30	15		75		6
34.		Advanced security techniques for teleinformatics networks	30		15	30		75		6
35.		Advanced cybersecurity solutions	30		30	15		75		6

HES courses

No.	Course code	Course name	Lecture	Classes	Laboratory	Project	Other	Total	Exam	ECTS
1.		Academic good manners	15					15		1
2.		History of music	15					15		1
3.		History of economic thought	15					15		1
4.		History of technology	15					15		1
5.		Interpersonal communication	15					15		1
6.		Negotiations in business	15					15		1
7.		The basics of Business Plan	15					15		1
8.		The basics of internet marketing	15					15		1
9.		Legal basis of business activity	15					15		1
10.		Self-presentation and public speaking	7	8				15		1
11.		The art of communication	7	8				15		1
12.		Time management	7	8				15		1
13.		Basics of economics	30					30		2
14.		Introduction to management	30					30		2

No.	Semester	l	c	l	p	o	T [h]	ECTS
1.	Semester 1	225	75	105	0	0	405	30
2.	Semester 2	165	120	60	60	0	405	30
3.	Semester 3	180	60	150	15	0	405	30
4.	Semester 4	195	45	120	45	0	405	30
5.	Semestr 5	180		225		0	405	30
6.	Semester 6	172		218		0	390	30
7.	Semester 7	75		105		30	210	30
TOTAL:		1192		1403		30	2625	210