

Faculty Communication Networks and Security

Undergraduate SECOND CYCLE OF STUDIES

Study program: **Information Sciences and Technologies (IST)** 2 years

Active from academic 2023/2024 year

Two-years (120 ECTS) studies

Degree: Master of Science in Information Technology.

Acquired skills: embedded systems design, rapid prototyping, high performance computing, advanced algorithms, cloud computing, supervisory management and data acquisition, genetic algorithms and machine learning, digital forensics, database confidentiality and security, artificial intelligence, cryptography and social network analysis.

IST 2 years

Year I				
Semester I				
No.	Code	Course Name	No. of classes	ECTS
Core Courses				
1	IST21M01	Distributed systems	2+1	6
2	IST21M02	Multi-platform programming	2+1	6
3	IST21M03	Artificial intelligence	2+1	6
Elective				
4	IST21Exx	Course from elective list	2+1	6
5	IST21Exx	Course from elective list	2+1	6
Year I				
Semester II				
No.	Code	Course Name	No. of classes	ECTS
1	IST22M04	Entrepreneurship	2+1	6
2	IST22M05	Parallel programming	2+1	6
3	IST22M06	Data science	2+1	6
4	IST22M07	Platform Engineering	2+1	6
Elective				
5	IST22Exx	Course from elective list	2+1	6

Year II				
Semester III				
No.	Code	Course Name	No. of classes	ECTS
Core Courses				
1	IST21M01	Big Data Analysis	2+1	6
2	IST21M02	High performance processing	2+1	6
3	IST21M03	Developmental - research methods in science and engineering	2+1	6
4	IST21M04	Advanced algorithms	2+1	6
Elective				
5	IST21Exx	Course from elective list	2+1	6
Year II				
Semester IV				
No.	Code	Course Name	No. of classes	ECTS
1	IST22M05	Advanced cloud computing	2+1	6
2	IST22M06	Master's thesis – final project		12
Elective				
3	IST22Exx	Course from elective list	2+1	6
4	IST22Exx	Course from elective list	2+1	6
Total credits				120

The second cycle of university studies recognizes the modules:

- C - mandatory (core courses),
- MiE – elected from the list of courses.

List of Elective courses				
id	code	Course	Weekly fund of hours	ECTS
1	IST21E01	Machine learning	2+1	6
2	IST21E02	ERP systems	2+1	6
3	IST21E03	Cryptography	2+1	6
4	IST21E04	Optimization methods	2+1	
5	IST21E05	Cloud data processing	2+1	6

6	IST21E06	Wireless mobile systems	2+1	6
7	IST22E01	Virtual and augmented reality	2+1	6
8	IST22E02	Business intelligence and analytics	2+1	6
9	IST22E03	Deep learning	2+1	6
10	IST22E04	Natural language processing	2+1	6
11	IST23E01	Modern simulations and modeling	2+1	6
12	IST23E02	Artificial intelligence and expert systems	2+1	6
13	IST23E03	Analysis of large social networks	2+1	6
14	IST24E01	Automatic verification	2+1	6
15	IST24E02	Database management systems	2+1	6
16	IST24E03	Image processing technologies	2+1	6
17	IST24E04	Bioinformatics	2+1	6
18	IST24E05	Advanced cryptography	2+1	6
19	IST24E06	Supervisory management and data acquisition systems	2+1	6
20	IST24E07	Advanced Robotics	2+1	6
21	IST24E08	Communication systems and simulations	2+1	6
22	IST24E09	Data processing in the fog and at the edge	2+1	6
23	IST24E10	Embedded systems design and rapid prototyping	2+1	6
24	IST24E11	Knowledge-based decision-making systems	2+1	6
25	IST24E12	Genetic algorithms and machine learning	2+1	6
26	IST24E13	Digital forensics	2+1	6
27	IST24E14	Ethical Hacking	2+1	6
28	IST24E15	Complexity theory	2+1	6
29	IST24E16	Processing of textual data	2+1	6
30	IST24E17	Bayesian data analysis	2+1	6
31	IST24E18	Performance, reliability and security of databases	2+1	6
32	IST24E19	Business Process Mining	2+1	6
33	IST24E20	Advanced topics in artificial intelligence and machine learning	2+1	6
34	IST24E21	Time Series Analysis and Forecasting	2+1	6

35	IST24E22	Mathematical Logic for Computer Science	2+1	6
36	IST24E23	Computational game theory	2+1	6
37	IST24E24	Advanced Discrete Structures	2+1	6
38	IST24E25	Mathematical modelling	2+1	6
39	IST24E26	Infrastructure solutions for a smart society	2+1	6