

Faculty Communication Networks and Security

Undergraduate SECOND CYCLE OF STUDIES

Study program: **Information Sciences and Technologies (IST)** 1 year

Active from academic 2023/2024 year

One-year (60 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 1 year

Year I				
Semester I				
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 I				
Semester II				
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				60

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	Modern simulations and modeling	2+1	6
2	IST21E02	Artificial intelligence and expert systems	2+1	6
3	IST21E03	Mathematics of large social networks	2+1	6
4	IST22E01	Automatic verification	2+1	
5	IST22E02	Database management systems	2+1	6
6	IST22E04	Bioautomation, bioinformatics and bioengineering systems	2+1	6
7	IST22E05	Advanced cryptography	2+1	6
8	IST22E06	Supervisory management and data acquisition systems	2+1	6
9	IST22E08	Communication systems and simulations	2+1	6
10	IST22E09	Data processing in the fog and at the edge	2+1	6
11	IST22E10	Embedded systems design and rapid prototyping	2+1	6
12	IST22E11	Knowledge-based decision-making systems	2+1	6
13	IST22E12	Genetic algorithms and machine learning	2+1	6
14	IST22E13	Digital forensics	2+1	6
15	IST22E14	Ethical Hacking	2+1	6
16	IST22E15	Complexity theory	2+1	6
17	IST22E16	Processing of textual data	2+1	6
18	IST22E17	Bayesian data analysis	2+1	6
19	IST22E18	Performance, reliability and security of databases	2+1	6
20	IST22E19	Business Process Mining	2+1	6
21	IST22E20	Advanced topics in artificial intelligence and machine learning	2+1	6
22	IST22E21	Time Series Analysis and Forecasting	2+1	6

23	IST22E22	Mathematical Logic for Computer Science	2+1	6
24	IST22E23	Computational game theory	2+1	6
25	IST22E24	Advanced Discrete Structures	2+1	6
26	IST22E25	Mathematical modelling	2+1	6
27	IST22E26	Network technologies and solutions for smart cities	2+1	6