University of Information Science and Technology
"St. Paul the Apostle" – Ohrid

Faculty of Information Systems, Visualization, Multimedia and Animation

Undergraduate FIRST CYCLE OF STUDIES

Study program: **INFORMATION SYSTEMS, VISUALIZATION, DIGITAL, MULTIMEDIA AND ANIMATION TECHNOLOGY (ISVMA) - 3 years**

Active from academic 2023/2024 year

Three-year (180 ECTS) studies

Degree: Bachelor of Science in Information Technology, Information Systems, Visualization, Digital, Multimedia and Animation Technology

Acquired skills: programming and software development, algorithm design and data structures, database management, computer graphics and visualization, 3D modeling and animation, multimedia systems, web application development, user interface design, human-computer interaction, visual arts and animation principles, scientific research methodology.

ISVMA 3 years

Year I				
Semester I				
No.	Code	Course Name	No. of classes	ECTS
Core Courses				
1	ISVMA11M01	Introduction to Programming	3+2+2	6
2	ISVMA11M02	Discrete Mathematics	3+2	6
3	ISVMA11M03	Computer Simulations in Physics	3+2	6
4	ISVMA11M04	Mathematics 1	3+2	6
5	ISVMA11M05	English for Technical Communication 1	3+2	6
Year I				
Semester II				
No.	Code	Course Name	No. of classes	ECTS
1	ISVMA12M01	Object Oriented Programming	3+2+2	6
2	ISVMA12M02	Mathematics 2	3+2	6
3	ISVMA12M03	English for Technical Communication 2	3+2	6
4	ISVMA12M04	Multimedia Data Processing	3+2	6
Elective				
5	ISVMA12EXX	Course from Faculty elective list	3+2	6

Year II				
Semester III				
No.	Code	Course Name	No. of classes	ECTS
Core Courses				
1	ISVMA13M01	Script Programming	3+2	6
2	ISVMA13M02	Computer Graphics	3+2	6
3	ISVMA13M03	Databases 1	3+2	6
4	ISVMA13M04	Algorithms and Data Structures 1	3+2	6
Elective				
5	XXX13UXX	Course from University elective list	3+2	6

Year II				
Semester IV				
No.	Code	Course Name	No. of classes	ECTS
1	ISVMA14M01	Algorithms and Data Structures 2	3+2	6
2	ISVMA14M02	Network Technologies	3+2	6
3	ISVMA14M03	Web Development	3+2	6
Elective				
4	ISVMA14EXX	Course from Faculty elective list	3+2	6
5	XXX14UXX	Course from University elective list	3+2	6

Year III				
Semester V				
No.	Code	Course Name	No. of classes	ECTS
Core Courses				
1	ISVMA15M01	Multimedia Information Systems	3+2	6
2	ISVMA15M02	Probability and Statistics	3+2	6
3	ISVMA15M03	Modeling and Simulations	3+2	6
4	ISVMA15M04	Human-Computer Interaction	3+2	6
Elective				
5	XXX15UXX	Course from University elective list	3+2	6

Year III				
Semester VI				
No.	Code	Course Name	No. of classes	ECTS
1	ISVMA16M01	Data Visualization	3+2	6
2	ISVMA16M02	Databases 2	3+2	6
3	ISVMA16M03	User Interface Design	3+2	6
4	ISVMA16M04	Graduation Thesis	3+2	6
Elective				
4	ISVMA16EXX	Course from Faculty elective list	3+2	6
	Total credits			180

The first cycle of university studies recognizes the modules:

- C - mandatory (core courses),
- MaE - elected from the scientific field of the faculty
- MiE – elected from the university list of courses.

List of Faculty Elective courses					
id	**code**	**Course**	**Semester**	**Weekly fund of hours**	**ECTS**
1	ISVMA12E01	Logic Circuits and Digital Electronics	2	3+2	6
2	ISVMA12E02	Signals and Systems	2	3+2	6
3	ISVMA12E03	Society and Technological Transformation	2	3+2	6
4	ISVMA14E01	Visual Arts and 3D Modeling	4	3+2	6
5	ISVMA14E02	Software Engineering	4	3+2	6
6	ISVMA14E03	Introduction to Robotics	4	3+2	6
7	ISVMA14E04	Legal Aspects of Computer Crime	4	3+2	6
8	ISVMA14E05	Social Networks	4	3+2	6
9	ISVMA14E06	Political Processes and Governance in the 21st Century	4	3+2	6
10	ISVMA14E07	Graph Theory	4	3+2	6
11	ISVMA14E08	Theory of Communications	4	3+2	6
12	ISVMA16E01	Internet Programming	6	3+2	6
13	ISVMA16E02	Visual Arts and 3D Character Animation	6	3+2	6
14	ISVMA16E03	Operating Systems	6	3+2	6
15	ISVMA16E04	Information Systems Management	6	3+2	6
16	ISVMA16E05	Decision Making Methods	6	3+2	6
17	ISVMA16E06	Wireless Networks	6	3+2	6
18	ISVMA16E07	Information Theory	6	3+2	6

19	ISVMA16E08	Microprocessors	6	3+2	6
20	ISVMA16E09	Programmable Logic Controllers	6	3+2	6
21	ISVMA16E10	Stochastic Processes	6	3+2	6
22	ISVMA16E11	Numerical Methods	6	3+2	6
23	ISVMA16E12	Music and Mathematics	6	3+2	6

List of University courses

id	code	Course	Semester	Weekly fund of hours	ECTS
1	CSE13U01	Economy	3	3+2	6
2	CNS13U02	Digital Art	3	3+2	6
3	ICS13U03	Ethics of Electronic Literature	3	3+2	6
4	ICS13U04	Creative Writing for Media	3	3+2	6
5	MIR13U05	Democracy and Technology	3	3+2	6
6	MIR13U06	Open Data	3	3+2	6
7	MIR13U07	Law in Information Technologies	3	3+2	6
8	MIR14U01	Business Law	4	3+2	6
9	CNS14U02	The Art of Graphic Design	4	3+2	6
10	CSE14U04	Economics of Electronic Banking	4	3+2	6
11	CSE14U05	Economics of Business Processes and Transactions	4	3+2	6
12	ICS14U06	Theory of Culture	4	3+2	6
13	ICS14U07	Literary Theories in Journalism	4	3+2	6
14	MIR14U08	Diplomacy in the Modern Age	4	3+2	6
15	CNS15U01	2D and 3D Techniques for Concept Art	5	3+2	6
16	CNS15U02	Introduction to New Media Art	5	3+2	6
17	CSE15U03	Economics of Electronic Commerce	5	3+2	6
18	CSE15U04	Economic Analysis of Business and Financial Operations	5	3+2	6
19	MIR15U05	Legal Protection of Data	5	3+2	6
20	ICS15U06	Animated Storytelling	5	3+2	6
21	ICS15U07	Intertextuality and Hypertextuality in Game Theory	5	3+2	6
22	MIR15U08	Public Speaking	5	3+2	6
23	MIR15U09	Elections, Electoral Systems and Technology	5	3+2	6