

**UNDERGRADUATE STUDY PROGRAM INFORMATICS FOR TEACHING  
COMPUTER SCIENCE FACULTY  
UGD – STIP, 4 YEARS STUDY PROGRAM (240 ECTS)**

2012 / 2013

<b>I SEMESTER</b>				
<b>Mandatory courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI100112	Mathematics I	8	3+2+2	216
2FI100212	Fundamentals of Computer Programming	8	3+2+2	216
2FI100312	Electrotechnics	6	2+2+1	156
	Faculty elective course *	4	2+1+1	120
	Faculty elective course	4	2+1+1	120
<b>Total:</b>		<b>30</b>	<b>12+8+7</b>	<b>828</b>

\* One of the elective courses is chosen from the field of Mathematics

<b>I SEMESTER</b>				
<b>Faculty elective courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI130112	Internet Technologies	4	2+1+1	120
2FI130212	Academic Writing	4	2+1+1	120
2FI130312	Linear Algebra *	4	2+1+1	120
2FI130412	Discrete Mathematics *	4	2+1+1	120

<b>II SEMESTER</b>				
<b>Mandatory courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI100412	Mathematics II	8	3+2+2	216
2FI100512	Object-oriented Programming	6	2+2+1	156
2FI100612	Digital Logic	6	2+2+1	156
	Faculty elective course	4	2+1+1	120
	University elective course	6	2+2+1	156
UGD102712	Sport and Recreation **	/	0+0+2	30
<b>Total:</b>		<b>30</b>	<b>11+9+8</b>	<b>834</b>

\*\* - Signature is required for enrollment in second year of the study program

<b>II SEMESTER</b>				
<b>Faculty elective courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI130512	Electronics	4	2+1+1	120
2FI130612	Computer Electronic Elements	4	2+1+1	120

<b>II SEMESTER</b>				
<b>University elective courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
	Foreign Language	6	2+2+1	156

<b>III SEMESTER</b>				
<b>Mandatory courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI100712	Data Structures and Algorithms	8	3+2+2	216
2FI100812	Visual Programming	8	3+2+2	216
2FI100912	Computer Architecture	6	2+2+1	156
	Faculty elective course *	4	2+1+1	120
	Faculty elective course	4	2+1+1	120
<b>Total:</b>		<b>30</b>	<b>12+8+7</b>	<b>828</b>

\* One of the elective courses is chosen from the field of Mathematics

<b>III SEMESTER</b>				
<b>Faculty elective courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI130712	Probability and Statistics *	4	2+1+1	120
2FI130812	Theory of Probability *	4	2+1+1	120
2FI130912	Basics of Telecommunications	4	2+1+1	120
2FI131012	Computational Tools in Engineering	4	2+1+1	120

<b>IV SEMESTER</b>				
<b>Mandatory courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI101012	Database Systems	8	3+2+2	216
2FI101112	Computer Networks	6	2+2+1	156
2FI101212	Software Engineering	6	2+2+1	156
	Faculty elective course	4	2+1+1	120
	University elective course	6	2+2+1	156
<b>Total:</b>		<b>30</b>	<b>11+9+6</b>	<b>804</b>

<b>IV SEMESTER</b>				
<b>Faculty elective courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI131112	Geometric Transformations	4	2+1+1	120
2FI131212	Algebraic structures	4	2+1+1	120

<b>V SEMESTER</b>				
<b>Mandatory courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI101312	Computer Graphics and Visualization	8	3+2+2	216
2FI101412	Internet Programming	8	3+2+2	216
2FI101512	Operating Systems	6	2+2+1	156
	Faculty elective course	4	2+1+1	120
	Faculty elective course	4	2+1+1	120
<b>Total:</b>		<b>30</b>	<b>12+8+7</b>	<b>828</b>

<b>V SEMESTER</b>				
<b>Faculty elective courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI131412	Advanced Algorithms	4	2+1+1	120
2FI131512	Introduction to Cryptography	4	2+1+1	120
2FI131712	Modeling and Simulation	4	2+1+1	120
2FI131812	Software Architecture and Design	4	2+1+1	120
2FI131312	Network Protocols	4	2+1+1	120
2FI131612	IT Infrastructure	4	2+1+1	120
2FI133612	Basics of Operations Research	4	2+1+1	120

<b>VI SEMESTER</b>				
<b>Mandatory courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI101612	Microcomputer Systems	8	3+2+2	216
2FI101712	Numerical Methods	6	2+2+1	156
2FI102012	Information Systems	6	2+2+1	156
	Faculty elective course	4	2+1+1	120
	University elective course	6	2+2+1	156
<b>Total:</b>		<b>30</b>	<b>11+9+6</b>	<b>804</b>

<b>VI SEMESTER</b>				
<b>Faculty elective courses</b>				
CODE	COURSE	ECTS	Classes	Semester workload
2FI132012	Multimedia	4	2+1+1	120
2FI132112	Fundamentals of Data Mining and Warehousing	4	2+1+1	120
2FI134212	Information Theory	4	2+1+1	120
2FI131912	Network Operating Systems	4	2+1+1	120
2FI134112	Managing Software Projects	4	2+1+1	120

<b>VII SEMESTER</b>				
<b>Mandatory courses</b>				
CODE	C O U R S E	ECTS	Classes	Semester workload
4FO107512	Psychology	8	3+2+2	216
4FO107412	Pedagogy	6	2+2+1	156
4FO115212	Methodology in Mathematics I	8	3+2+2	216
	Faculty elective course 10	4	2+1+1	120
	Faculty elective course 11	4	2+1+1	120
	<b>Total:</b>	30	12+8+7	828

<b>VII SEMESTER</b>				
<b>Faculty elective course 10</b>				
CODE	C O U R S E	ECTS	Classes	Semester workload
4FO100412	Didactics	4	2+1+1	120
4FO105612	Pedagogical Communication	4	2+1+1	120

<b>VII SEMESTER</b>				
<b>Faculty elective course 11</b>				
CODE	C O U R S E	ECTS	Classes	Semester workload
4FO102612	Inclusive Education	4	2+1+1	120
4FO107712	Educational System of the Republic of Macedonia	4	2+1+1	120

<b>VIII SEMESTER</b>				
<b>Mandatory courses</b>				
CODE	C O U R S E	ECTS	Classes	Semester workload
4FO107612	Teaching Method in Elementary School	6	2+2+1	156
4FO115312	Methodology in Mathematics II	6	2+2+1	156
	Faculty elective course 12	4	2+1+1	120
	University elective course	6	2+2+1	156
	Pedagogical Internship	*	*	*
	<i>Graduation Thesis</i>	8	0+0+8	192
	<b>Total:</b>	30	8+7+12	780

<b>VIII SEMESTER</b>				
<b>Faculty elective course 12</b>				
CODE	C O U R S E	ECTS	Classes	Semester workload
2FI141512	Using Advanced ICT in Education	4	2+1+1	120
4FO107812	Research Methods in Education	4	2+1+1	120
4FO107312	Planning of Pedagogical Work in School	4	2+1+1	120

