

University "Goce Delchev" Stip
Faculty of Computer Science



ELABORATE
for accreditation of study program in
Mathematics for teaching

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

2016 / 2017

I SEMESTER				
CODE	COURSE	ECTS	Classes	Semester workload
2FI100112	Calculus 1	8	3+2+2	240
2FI130312	Linear Algebra	8	3+2+2	240
2FI140112	Fundamentals of Computer Programming	6	2+2+1	180
	Faculty elective course 1	4	2+1+1	120
	Faculty elective course 2	4	2+1+1	120
	Sport and Recreation ***		0+0+2	
Total:		30	12+8+7	900

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

I SEMESTER				
Faculty elective courses 1				
CODE	COURSE	ECTS	Classes	Semester workload
2FI130112	Introduction to Computer science	4	2+1+1	120
2FI130212	Academic writing	4	2+1+1	120

I SEMESTER				
Faculty elective courses 2				
CODE	COURSE	ECTS	Classes	Semester workload
2FI130412	Discrete Mathematics	4	2+1+1	120
2FI140412	Trigonometry	4	2+1+1	120

II SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI100412	Calculus 2	8	3+2+2	240
2FI110512	Analytic Geometry	6	2+2+1	180
2FI110212	Sets and Logics	6	2+2+1	180
	Faculty elective course 3	4	2+1+1	120
	University elective course 1	4	2+1+1	120
2FI135212	Practical training	2	0+0+2	60
Total:		30	11+9+6	900

II SEMESTER				
Faculty elective courses 3				
CODE	COURSE	ECTS	Classes	Semester workload
2FI140612	Computer Practice 1	4	2+1+1	120
2FI100512	Object-oriented Programming	4	2+1+1	120

III SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI110312	Mathematical Analysis	8	3+2+2	240
2FI101712	Numerical Methods	8	3+2+2	240
2FP119612	Physics	6	2+2+1	180
	Faculty elective course 4	4	2+1+1	120
	Faculty elective course 5	4	2+1+1	120
Total:		30	12+8+7	900

III SEMESTER				
Faculty elective courses 4				
CODE	COURSE	ECTS	Classes	Semester workload
2FI134712	Graph Theory	4	2+1+1	120
2FI100712	Data Structures and Algorithms	4	2+1+1	120

III SEMESTER				
Faculty elective courses 5				
CODE	COURSE	ECTS	Classes	Semester workload
2FI140712	Combinatorics	4	2+1+1	120
2FI111212	Number Theory	4	2+1+1	120

IV SEMESTER				
Mandatory courses				
CODE	C O U R S E	ECTS	Classes	Semester workload
2FI110612	Differential Equations	8	3+2+2	240
2FI110412	Algebra	6	2+2+1	180
2FI131112	Geometry Transformations	6	2+2+1	180
	Faculty elective course 6	4	2+1+1	120
	University elective course 2	4	2+1+1	120
2FI135212	Practical training	2	0+0+2	60
Total:		30	11+9+6	900

IV SEMESTER				
Faculty elective courses 6				
CODE	C O U R S E	ECTS	Classes	Semester workload
2FI140912	Computer Practice 2	4	2+1+1	120
4FO100517	Etics in teaching	4	2+1+1	120

V SEMESTER				
Mandatory courses				
CODE	C O U R S E	ECTS	Classes	Semester workload
2FI130712	Probability Theory and Statistics	8	3+2+2	240
2FI110712	Topology	8	3+2+2	240
4FO100117	Psihology	6	2+2+1	180
	Faculty elective course 7	4	2+1+1	120
	Faculty elective course 8	4	2+1+1	120
Total:		30	12+8+7	900

V SEMESTER				
Faculty elective courses 7				
CODE	C O U R S E	ECTS	Classes	Semester workload
2FI141212	Dynamical Systems and Chaos	4	2+1+1	120
2FI111112	Vector Spaces	4	2+1+1	120

V SEMESTER				
Faculty elective courses 8				
CODE	C O U R S E	ECTS	Classes	Semester workload
2FI134212	Information Theory	4	2+1+1	120
2FI134412	Computer graphics and visualization	4	2+1+1	120

VI SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI111012	Financial Mathematics	8	3+2+2	240
2FI131712	Modeling and simulation	6	2+2+1	180
4FO100217	Pedagogy	6	2+2+1	180
	University elective course 3	4	2+2+1	120
	Faculty elective course 9	4	2+1+1	120
2FI135212	Practical training	2	0+0+2	60
Total:		30	9+7+11	900

VI SEMESTER				
Faculty elective courses 9				
CODE	COURSE	ECTS	Classes	Semester workload
4FO112817	Didactics	4	2+1+1	120
2FI141512	History of Mathematics	4	2+1+1	120

VII SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI110812	Complex Functions and Fourier Analysis	8	3+2+2	240
4FO120418	Planning and Programming of the pedagogical activities in the schools	6	2+2+1	180
2FI111312	Methodology in Mathematics I	8	3+2+2	240
	Faculty elective course 10	4	2+1+1	120
	Faculty elective course 11	4	2+1+1	120
Total:		30	12+8+7	900

VII SEMESTER				
Faculty elective courses 10				
CODE	COURSE	ECTS	Classes	Semester workload
2FI141612	Educational Software	4	2+1+1	120
2FI141812	Electronical systems for teaching	4	2+1+1	120

VII SEMESTER				
Faculty elective courses 11				
CODE	C O U R S E	ECTS	Classes	Semester workload
4FO104417	Inclusive education	4	2+1+1	120
4FO103717	Interactive approaches in education	4	2+1+1	120

VIII SEMESTER				
Mandatory courses				
CODE	C O U R S E	ECTS	Classes	Semester workload
2FI141712	ICT in Math teaching	6	2+2+1	180
2FI111512	Methodology in Mathematics II	6	2+2+1	180
	Faculty elective course 12	4	2+1+1	120
	University elective course 4	4	2+2+1	120
2FI135212	Practical training - Interdisciplinary project	4	0+0+6	120
	<i>Graduation Thesis</i>	6	2+2+1	180
Total:		30	8+7+12	900

VIII SEMESTER				
Faculty elective courses 12				
CODE	C O U R S E	ECTS	Classes	Semester workload
4FO105217	Pedagogical communication	4	2+1+1	120
4FO102317	Methodology in Educational Research	4	2+1+1	120

Code	List of university elective courses II, IV, VI and VIII semester			
	COURSE	ECTS	Classes	Semester workload
UGD100117	Macedonian literature and culture	4	0+0+4	120
UGD100217	Macedonian language, spelling and pronunciation	4	0+0+4	120
UGD100317	Etics	4	0+0+4	120
UGD100417	History of Macedonia	4	0+0+4	120
UGD100517	Copyright	4	0+0+4	120
UGD100617	Tolerance and conflict resolution	4	0+0+4	120
UGD100717	Business systems	4	0+0+4	120
UGD100817	Tourism industry	4	0+0+4	120
UGD100917	Entrepreneurship and Innovation	4	0+0+4	120
UGD101017	Management of self development and behavior	4	0+0+4	120
UGD101117	Business economy	4	0+0+4	120
UGD101217	Choral singing	4	0+0+4	120
UGD101317	Music and art	4	0+0+4	120
UGD101417	Introduction to the history of film	4	0+0+4	120
UGD101517	Screenwriting	4	0+0+4	120
UGD101617	Fundamentals of Drawing	4	0+0+4	120
UGD101717	History of classical painting	4	0+0+4	120
UGD101817	Health promotion	4	0+0+4	120
UGD101917	Oral health and hygiene	4	0+0+4	120
UGD102017	Precious and semi-precious minerals	4	0+0+4	120
UGD102117	Earth Science	4	0+0+4	120
UGD102217	Science of living world	4	0+0+4	120
UGD102317	Protection of the Environment	4	0+0+4	120
UGD102417	Intelligent electronic components and devices	4	0+0+4	120
UGD102517	Planning of an experiment	4	0+0+4	120
UGD102617	History of clothing	4	0+0+4	120
UGD102717	Management and quality control	4	0+0+4	120
UGD102817	Informatics	4	0+0+4	120
UGD102917	Programming Fundamentals	4	0+0+4	120