

University "Goce Delchev" Stip
Faculty of Computer Science



ELABORATE
for accreditation of study program in
COMPUTER ENGINEERING AND TECHNOLOGY

**UNDERGRADUATE STUDY PROGRAM , COMPUTER ENGINEERING AND TECHNOLOGY
FACULTY OF COMPUTER SCIENCE, UGD – STIP
4 YEARS STUDY PROGRAM (240 ECTS)**

2016 / 2017

I SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI100112	Mathematics I	8	3+2+2	240
2FI100212	Fundamentals of Computer Programming	6	2+2+1	180
2FI130612	Computer Electronic Elements	6	2+2+1	180
2FI130112	Introduction to Computer science	6	2+2+1	180
	Faculty elective courses 1	4	2+1+1	120
Total:		30	11+9+6	900

I SEMESTER				
Faculty elective courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI130312	Linear Algebra *	4	2+1+1	120
2FI130412	Discrete Mathematics *	4	2+1+1	120

II SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI100412	Mathematics II	6	2+2+1	180
2FI100512	Object-oriented Programming	6	2+2+1	180
2FI100612	Digital Logic	6	2+2+1	180
	Faculty elective courses 2	6	2+2+1	180
	University elective course 1	4	0+0+4	120
	Practical training	2	0+0+2	60
	Sport and Recreation ****	/	0+0+2	/
Total:		30	8+8+12	900

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

II SEMESTER				
Faculty elective courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI131212	Algebraic structures	6	2+2+1	180
2FI131112	Geometric Transformations	6	2+2+1	180

III SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI100712	Data Structures and Algorithms	6	2+2+1	180
2FI101212	Software Engineering	6	2+2+1	180
2FI100912	Computer Architecture	6	2+2+1	180
	Faculty elective course 3	6	2+2+1	180
	Faculty elective course 4	6	2+2+1	180
Total:		30	10+10+5	900

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

III SEMESTER				
Faculty elective courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI130712	Probability and Statistics *	6	2+2+1	180
2FI130812	Theory of Probability *	6	2+2+1	180
2FI134712	Graph theory	6	2+2+1	180
2FI130212	Academic writing	6	2+2+1	180

IV SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI101012	Database Systems	6	2+2+1	180
2FI101112	Computer Networks	6	2+2+1	180
2FI101512	Operating Systems	6	2+2+1	180
2FI100812	Visual Programming	6	2+2+1	180
	University elective course 2	4	0+0+4	120
	Practical training	2	0+0+2	60
Total:		30	8+8+10	900

V SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI101312	Computer graphics and visualization	6	2+2+1	180
2FI101412	Internet Programming	6	2+2+1	180
2FI101812	Information Theory	6	2+2+1	180
	Faculty elective course 5	6	2+2+1	180
	Faculty elective course 6	6	2+2+1	180
Total:		30	10+10+5	900

V SEMESTER				
Faculty elective courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI131412	Advanced Algorithms	6	2+2+1	180
2FI134812	Compilers	6	2+2+1	180
2FI101712	Numerical Methods	6	2+2+1	180
2FI135112	System software	6	2+2+1	180

VI SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI101612	Microcomputer Systems	6	2+2+1	180
2FI102612	Digital Signal Processing	6	2+2+1	180
	Faculty elective course 7	6	2+2+1	180
	Faculty elective course 8	6	2+2+1	180
	University elective course 3	4	0+0+4	120
	Practical training	2	0+0+2	60
Total:		30	8+8+10	900

VI SEMESTER				
Faculty elective courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI132612	Mobile application development	6	2+2+1	180
2FI133612	Basics of Operations Research	6	2+2+1	180
2FI131712	Modeling and Simulation	6	2+2+1	180
2FI132712	Human-Computer Interaction	6	2+2+1	180
2FI131312	Network Protocols	6	2+2+1	180
2FI130912	Signals and systems	6	2+2+1	180
2FI131012	Computational Tools in Engineering	6	2+2+1	180

VII SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI102112	Computer System Security	6	2+2+1	180
2FI102312	Artificial Intelligence	6	2+2+1	180
	Faculty elective course 9	6	2+2+1	180
	Faculty elective course 10	6	2+2+1	180
	Faculty elective course 11	6	2+2+1	180
Total:		30	10+10+5	900

VII SEMESTER				
Faculty elective courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI134912	Parallel programmig	6	2+2+1	180
2FI132312	Geoinformatics	6	2+2+1	180
2FI102512	Robotics Basics	6	2+2+1	180
2FI132512	Data Managing and Storage	6	2+2+1	180
2FI135212	Applied Software Engineering in Real Environment	6	2+2+1	180
2FI132812	Advanced programming	6	2+2+1	180
2FI132912	Mobile and Wireless Networks	6	2+2+1	180
2FI134512	Electronic commerce	6	2+2+1	180

VIII SEMESTER				
Mandatory courses				
CODE	COURSE	ECTS	Classes	Semester workload
	<i>Graduation Thesis</i>	6	0+0+8	180
2FI102812	Distributed Computer Systems	6	2+2+1	180
2FI102012	Information Systems	6	2+2+1	180
	Faculty elective course 12	4	2+1+1	120
	University elective course 4	4	0+0+4	120
	Practical training	4	0+0+4	120
Total:		30	6+5+19	900

VIII SEMESTER				
Faculty elective courses				
CODE	COURSE	ECTS	Classes	Semester workload
2FI135012	Machine learning	4	2+1+1	120
2FI131812	Software Design	4	2+1+1	120
2FI133012	Cloud Infrastructure and Services	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