

1.	Course Title	Discrete Mathematics
2.	Code	F18L1W011
3.	Study program	Software engineering and information systems
4.	Study Program Organizer	Faculty of Computer Science and Engineering
5.	Degree (first, second, third cycle)	first cycle
6.	Academic year / semester 1 / winter / optional	7. ECTS credits 6
8.	Teacher	full professor Zhaneta Popeska, associate professor Marija Mihova, associate professor Dejan Spasov, assistant professor Natasha Ilievska, assistant professor Mile Jovanov, assistant professor Vesna Dimitrievska Ristovska, assistant professor Biljana Tojtovska, assistant professor Aleksandra Popovska Mitrovikj
9.	Course enrollment prerequisites	
10.	Course program goals (competencies): To introduce students to basic mathematical concepts as a foundation for the following courses in information technologies, computer and software engineering.	
11.	Course program content: (1) Propositions, operations with propositions, compound propositions and Laws of logic, (1) Propositional functions, predicate calculus and translating sentences into compound propositions and propositional functions, (1) Rules of inference and applications, (1) Proof methods, (1) Sets, (1) Functions, (1) Relations: equivalence relations and partial ordering, (1) Graphs: representation and properties (connectivity, Euler and Hamilton paths, shortest path (1) Isomorphism , graph coloring and planar graphs. Trees: basic terminology and rooted trees, (1) Applications of rooted trees, Spanning trees (minimum spanning trees and search trees), (1) Combinatorics (permutations and combinations), binomial formula, (1) Inclusion-exclusion principle, iterations and recursion.	
12.	Learning methods: Lectures using presentations, interactive lectures, exercises (using equipment and software packages), teamwork, case studies, invited guest lecturers, independent preparation and defense of a project assignment and seminar work.	
13.	Total available time	6 ECTS x 30 hours = 180 hours

14.	Distribution of the available time	45 + 45 + 0 + 0 + 90 = 180 hours		
15.	Teaching activity forms	15.1.	Lectures – theoretical teaching	45 hours
		15.2.	Exercises (laboratory, auditory), seminar papers, teamwork	45 hours
16.	Other activity forms	16.1.	Project Tasks	0 hours
		16.2.	Independent Learning Tasks	0 hours
		16.3.	Home learning	90 hours
17.	Assessment methodology			
	17.1.	Tests		0 points
	17.2.	Seminar paper/project (presentation: written and oral)		0 points
	17.3.	Activity and learning		0 points
	17.4.	Final exam		100 points
18.	Assessment criteria (points/grade)	up to 50 points		5 (five) (F)
		51 to 60 points		6 (six) (E)
		61 to 70 points		7 (seven) (D)
		71 to 80 points		8 (eight) (C)
		81 to 90 points		9 (nine) (B)
		91 to 100 points		10 (ten) (A)
19.	Course completion and final exam requirements	Realized activities 15.1 and 15.2		
20.	Teaching Language	Macedonian and English		
21.	Teaching quality evaluation method	Internal evaluation mechanisms and questionnaires		
22.	Course Material			
	22.1.	Mandatory course material		

No	Author	Title	Publisher	Year
1	Kenneth H. Rosen	DISCRETE MATHEMATICS AND ITS APPLICATIONS, SIXTH EDITION International Edition, ISBN-13: 978-007-124474-9	McGraw-Hill Companies	2007
2	Rowan Garnier and John Taylor	Discrete Mathematics for New Technology Second Edition, ISBN 0 7503 0652 1	OP Publishing Ltd	2002
22.2. Additional course material				
No.	Author	Title	Publisher	Year