1.	Course Title	Operations research		
2.	Code	F18L3W144		
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 4 / winter / mandatory	7. ECTS credits 6		
8.	Teacher	Ph.D. Aleksandra Kanevche, full professor Ljupcho Kocarev		
9.	Course enrollment prerequisites	Веројатност и статистика или Основи на теорија на информации		
10.	Course program goals (competencies): The goal is to familiarize the student with the problems and methods in the field of operations research, problems of resource and project optimization and optimal management, with methods and techniques of linear and nonlinear programming, decision making theories and games, operations research related to management information systems and information systems for decision making and prediction.			
11.	Course program content: 1. Introduction to operations research 2. Linear programming modeling 3. Simplex method and sensitivity analysis 4. Network models 5. Project management with PERT/CPM 6. Dynamic, goal and integer programming 7. Nonlinear programming 8. Decision making theory, game theory 9. Queuing systems 10. Simulation models 11. Markov chains 12. Prediction			
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	30 + 45 + 15 + 15 + 75 = 180 hours		
15.	Teaching activity forms	15.1.	Lectures – theoretical teaching	30 hours

		15.2.	Exercises (laboratory, auditory), seminar papers, teamwork	45 hours
16.	Other activity forms	16.1.	Project Tasks	15 hours
		16.2.	Independent Learning Tasks	15 hours
		16.3.	Home learning	75 hours

17.	Assessment methodology		
	17.1.	Tests	10 points
	17.2.	Seminar paper/project (presentation: written and oral)	10 points
	17.3.	Activity and learning	10 points
	17.4.	Final exam	70 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	Hamdy A. Taha	Operation research	Pearson Prentice Hall	2007
2	F.S.Hillier, G. J. Lieberman	Introduction to Operations Research	McGraw Hill	2010

22.2. Additional course material

No.	Author	Title	Publisher	Year