1.	Course Title	Geographic Information Systems		
2.	Code	F18L3S091		
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 / summer / mandatory	7. ECTS credits 6		
8.	Teacher	Ph.D. Andreja Naumoski, full professor Kosta Mitreski		
9.	Course enrollment prerequisites	Бази на податоци		
10.	Course program goals (competencies): Creation and management of spatial (Geographic) information system.			
11.	Course program content: Introduction to GIS. Principles of cartography, cartographic modeling, projections, errors and turning into different coordinate systems. Components and functions of GIS. Raster and vector models. Planning the development of GIS. Spatial-time databases and GIS. Integration of GIS with systems for global positioning. Development environments for GIS. Modern tools for design, editing and use on GIS. Data search and GIS. Different types of reports that can be obtained from GIS. Spacious data and analysis. Topological representations. Application of GIS - examples of typical information systems supported by GIS elements. Integration of various multimedia information into GIS and their meaning. Principles of Visualization in GIS. Semantic analysis of multimedia data. Web based GIS systems. Integration of GIS into other information systems. Modeling of environmental systems. Virtual modeling in GIS. Latest achievements			
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	Paul Bolstad	GIS Fundamentals: A First Text on Geographic Information Systems, Fifth Edition	Wiley & Sons	2015
	2	Paul A. Longlev, Michael F. Goodchild, David J. Maguire, David W. Rhind	Geographic Information Science and Systems 4th Edition	Wiley & Sons	2015
	3	Roger Tomlinson	Thinking About GIS: Geographic Information System Planning for Managers, Fifth edition		2015

22.2. Additional course material

No.	Author	Title	Publisher	Year