1.	Course Title	Intelligent Information Systems
2.	Code	F18L3S106
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 / optional	7. ECTS credits 6
8.	Teacher	associate professor SoNja Gievska, associate professor Slobodan Kalajdzhiski, assistant professor Vangel Ajanovski
9.	Course enrollment prerequisites	Машинско учење
10.	Course program goals (competencies): After completion of the course the student is expected: - to know the techniques and methodologies for development and management of intelligent information systems - to have a knowledge of the techniques for web-mining, sentiment and opinion analysis, recommender systems, personalization and user profiling.	
11.	Course program content: Course topics: Introduction to web mining - content, structure and usage mining; Extracting knowledge from web content; Sentiment analysis (extracting user attitudes, opinions, mood, emotions); Recommender systems - collaborative filtering; Personalization based on User profiling (demographics, status, similarity); Analysis of social behavior of individuals and social groups; Extracting knowledge from social networks; Detecting anti-social behavior; Challenges in integration of diverse knowledge; Deep and reinforcement learning for web data analysis; Application domains: social analytics, commercial platforms such as auction and e-commerce	
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	M. Wooldridge	Introduction to Multiagent Systems	Wiley	2009
	2	David Easley & Jon Kleinberg	Networks, Crowds, and Markets: Reasoning about a Highly Connected World	Cambridge University Press	2010
	3	J. Leskove, A. Rajaraman, J. D. Ullman	Mining of Massive Datasets	Cambridge University Press	2014
	4	C. D. Manning, P. Raghavan, H. Schütze	Information Retrieval	Cambridge University Press	2008

22.2. Additional course material

No.	Author	Title	Publisher	Year