1.	Course title	**Collective Intelligence**		
2.	Course code	IIS-I-05		
3.	Study program	**Master degree in computer science and engineering Study program: Intelligent Information Systems**		
4.	Unit offering the course	**FCSE**		
5.	Undergraduate/master/PhD	**Master**		
6.	Year/semester 1/winter/elective	7. ECTS: **6**		
8.	Teacher(s)	dr. Sonja Gievska		
9.	Course prerequisites	None		
10.	Goals (competences): The aim of the course is to provide the students with the knowledge for multidisciplinary approach to social network analysis based on the relevant theoretical and experimental research in mathematics, applied artificial intelligence, anthropology and sociology. After completion of the course the student is expected: - to have a knowledge of the concepts and organization of the web, social networks and large-scale smart spaces - to know the techniques and methodologies for development, analysis, and mining of the web - to demonstrate the skills to apply the advanced technologies and the state-of-the-art methodologies for a selected application domain, scenario, or context of use - to demonstrate a capacity for interdisciplinary analytical approach to the problems of interest			
11.	Course content: Selected topic of this course follows: - Web societies, social informatics - Advanced techniques for web mining – content, structure and usage - Analysis of the on-line behaviour of users and groups - Opinion mining, blog pulse, affective analysis - Pre-processing and processing of unstructured data - Interdisciplinary approach to collective intelligence research - Privacy, security, moral and ethics aspects - Modelling the dynamics and evolution of social networks - Multi-agent system as a computational paradigm especially suitable to capture the nature od collective intelligence - Trends, predictive analysis, time analysis of social networks - Wisdom of crowds - Crowdsourcing and human computation. Social games. - Evaluation and large-scale empirical studies			
12.	Teaching methods: Lectures supported by slide presentations, interactive lectures, trainings (using lab equipment and software packages), team work, case studies, invited guests and lectures, individual practical assignments presentations, seminar paper, e-learning (forums, consultations).			
13.	Total available time	6 ECTS x 30 hours = 180 hours		
14.	Distribution of the available time	30 + 15 + 135 = 180 hours		
15.	Teaching activities	15.1.	Lectures	30 hours

		15.2.	Training (labs, problem solving), seminar and team work	15 hours
16.	Other activities	16.1.	Project work	60 hours
		16.2.	Self study	25 hours
		16.3.	Home work	50 hours

17.	Grading		
	17.1.	Tests	15 points
	17.2.	Seminar work/project (written or oral presentation)	75 points
	17.3.	Active participation	10 points

18.	Grading criteria	to 59 points	5 (five) (F)
		from 60 to 68 points	6 (six) (E)
		from 69 to 76 points	7 (seven) (D)
		from 77 to 84 points	8 (eight) (C)
		from 85 to 92 points	9 (nine) (B)
		from 93 to 100 points	10 (ten) (A)
19.	Final exam prerequisites	Successfully completed activities 15.1 and 15.2	
20.	Course language	Macedonian and English	
21.	Quality assurance methods	Internal evaluation and student questionnaires	

22. Literature

22.1. Compulsory

No.	Authors	Title	Publisher	Year
1.	Duncan J. Watts	Six Degrees: The Science of a Connected Age	Norton, New York,	2003
2.	David Easley, Jon Kleinberg	Networks, Crowds, and Markets.	Cambridge University Press	2010
3.	B. Liu	Web Data Mining: Exploring Hyperlinks, Contents, and Usage Data", 2nd edition	Springer	2009

22.2. Additional

No.	Authors	Title	Publisher	Year
1.	Selected authors	A selected list of research papers from relevant conferences in journals		
2.				
3.				