1.	Course title	Collaborative Computer Systems		
2.	Course code	IIS-Z-03		
3.	Study program	**Intelligent Information systems**		
4.	Unit offering the course	**FCSE**		
5.	Undergraduate/master/PhD	**Master**		
6.	Year/semester 1/summer/compulsory	7. ECTS: **6**		
8.	Teacher(s)	Prof. Vladimir Trajkovik		
9.	Course prerequisites	None		
10.	Goals (competences): The student will be able to model and develop collaborative computer systems.			
11.	Course content: Collaborative Computer systems types. Architectures of internet based collaborative computer systems, their advantages and disadvantages. Peer-to-Peer systems: principles and applications. Web services: principles and applications. Software agents: principles, types and applications. Multi-agent systems as collaborative systems: principles and cooperation among agents. Introduction to distributing computing. Embedded components as collaborative entities. Mobile services architectures.			
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	130 + 0 + 50 = 180 hours		
15.	Teaching activities	15.1.	Lectures	130 hours
		15.2.	Training (labs, problem solving), seminar and team work	0 hours
16.	Other activities	16.1.	Project work	15 hours
		16.2.	Self study	15 hours
		16.3.	Home work	20 hours
17.	Grading			
	17.1.	Tests		65 points
	17.2.	Seminar work/project (written or oral presentation)		25 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.	D. Comer, D. Stevens	Internetworking with TCP/IP, Vol. III: Client-Server Programming and Applications	Prentice Hall	1996
		2.	M. Knapik, J. Jonson	Developing Intelligent Agents for Distributed Systems	McGraw-Hill	1998
		3.	M. Wooldridge	An Introduction to MultiAgent Systems	John Wiley & Sons	2002
	22.2.	Additional				
		No.	Authors	Title	Publisher	Year
		1.				
		2.				
		3.				