1.	Course title	Visualization algorithms		
2.	Course code	SI-I-02		
3.	Study program	**Master studies of Computer Science and Engineering - Software Engineering**		
4.	Unit offering the course	**FCSE**		
5.	Undergraduate/master/PhD	**Master**		
6.	Year/semester 2/winter/elective	7. ECTS: **6**		
8.	Teacher(s)	prof. dr. Suzana Loshkovska /assist. prof. dr. Ivica Dimitrovski		
9.	Course prerequisites	None		
10.	Goals (learning outcomes): Upon completion of the course the student is expected to demonstrate knowledge of the data visualization concept, to know how to choose and implement algorithms for visualization of different data types either by programming or using visualization tools.			
11.	Course content: Introduction. Basic concepts and terminology. Representation and structure of the dataset, data primitives, data structure. Algorithms for visualization. Visualization of scalar data iso-surfaces, marching cubes, volume visualization. Visualization of vector and tensor data. Visualization symbolic data, multidimensional data, 3D techniques, dynamic techniques, distortion techniques, zoom and focus; hybrid techniques. Animation for visualization.			
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	60+0+120 = 180 hours		
15.	Teaching activities	15.1.	Lectures	60 hours
		15.2.	Training (labs, problem solving), seminar and team work	0 hours
16.	Other activities	16.1.	Project work	50 hours
		16.2.	Self study	40 hours
		16.3.	Home work	30 hours
17.	Grading			
	17.1.	Tests		45 points
	17.2.	Seminar work/project (written or oral presentation)		45 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.	B. Fry	Visualizing Data	O'Reilly Media, Inc.	2008
2.	C. D. Hansen	The Visualization Handbook	Elsevier Inc	2005
3.	H. Wright	Introduction to Scientific Visualization	Springer	2007

22.2. Additional

No.	Authors	Title	Publisher	Year
1.				
2.				
3.				