1.	Course title	Advanced 3D modeling and animation		
2.	Course code	SI-I-05		
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. Dragan Mihajlov / prof. dr. Suzana Loshkovska		
9.	Course prerequisites	None		
10.	Goals (learning outcomes): Upon the completion of the course students should develop a deep knowledge of 2D and 3D computer graphics. The course is focused on 3D modeling, geometric transformations, 3D views and rendering.			
11.	Course content: OpenGL, transformations, views, scan conversion, cutting, realism, lighting, ray-tracing, rendering polygons, texture mapping, determining visible surfaces. Animations, video games, 3D scene management, tessellation, camera, modeling and rendering, photo-realistic rendering, hardware rendering (GLSL), theory of color, physics of light, mesh structures, Fibermesh.			
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	40 hours
		16.2.	Self study	40 hours
		16.3.	Home work	40 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.	Tomas Akenine-Moller, Eric Haines and Naty Hoffman	"Real-Time Rendering". 3	AK Peters	2008
		2.	Dave Shreiner, Mason Woo, Jackie Neider, Tom Davis	"The OpenGL Programming Guide" - The Redbook, 6th ed.	Addison-Wesley Professional;	2007
		3.	Randi J. Rost	"OpenGL Shading Language"	Addison-Wesley Professional	2004
	22.2.	Additional				
		No.	Authors	Title	Publisher	Year
		1.				
		2.				
		3.				