

NAME OF THE COURSE		Computer Graphics				
Code	PMII50	Year of study				
Course teacher	doc.dr. sc. Hrvoje Kalinić	Credits (ECTS)	5,0			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30		30	
Status of the course		Percentage of application of e-learning	10%			
COURSE DESCRIPTION						
Course objectives	Basics of computer graphics system, image and graphic objects formation. Students should be able to implement and apply computer graphics algorithms and and utilize computer graphics libraries.					
Course enrolment requirements and entry competences required for the course						
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<ol style="list-style-type: none"> 1. Digital information and image representation. Sampling, information loss and aliasing. 2. Limits of human perception and its relation to the digital representation of continuous signals. Compression methods, information loss and standard compression formats like JPG, PNG and MP3. 3. Color models and their use in computer graphics. 4. Tradeoffs between storing information vs. storing enough information to reproduce the information. Difference between vector and raster rendering. 5. Basics of producing continuous motion from a sequence of discrete frames 6. Program implementation of 3D models of simple graphics images 7. Affine and perspective transformation of objects and images, matrix transformation in 2D and 3D space 					
Course content broken down in detail by weekly class schedule (syllabus)	<ol style="list-style-type: none"> 1. Computer graphics applications (2) 2. Human perception and storage of information in digital computer(4) 3. Graphical devices, graphical pipeline (2) 4. Image elements, algorithms, filling and cutting object for rendering (2) 5. Mathematical foundations of computer graphics, aliasing (2) 6. Midterm 7. Animation basics, tools for animation, how to create basic animation (6) 8. Transformations and projections (4) 9. Vector and raster rendering (2) 10. Depth and lighting (2) 11. Image representation and visualization: lines, curves, planes and bodies (2) 12. Final term 1. Python and OpenGL introduction(2) 2. OpenGL introduction (2) 3. Point plotting (2) 4. OpenGL primitives (2) 5. Color and symmetry in computer graphics (2) 6. 3D objects (2) 7. Transformations and projections (2) 8. Animation (2) 9. Object interaction (4) 10. Classes and objects (OO programming with OpenGL) (4) 					

	11. Individual project assignment (6)					
Format of instruction	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> seminars and workshops <input type="checkbox"/> exercises <input type="checkbox"/> on line in entirety <input type="checkbox"/> partial e-learning <input type="checkbox"/> field work			<input checked="" type="checkbox"/> independent assignments <input type="checkbox"/> multimedia <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input type="checkbox"/> homework assignments		
Student responsibilities	Participate in course activities. Homework. Exam.					
Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Name	Ects	Name	Ects	Name	Ects
	Class attendance	1	Research		Experimental work	
	Oral exam	0.5	Report		Homework assignments	
	Seminar essay		Essay			
	Tests	1	Practical training	1		
	Written exam	0.5	Project	1		
Grading and evaluating student work in class and at the final exam	Student activities in class (25%) Project (20%) Exam (55%)					
Required literature (available in the library and via other media)	Title			Number of copies in the library	Availability via other media	
	Lecture notes in Computer Graphics, Hrvoje Kalinić			0		
Optional literature (at the time of submission of study programme proposal)	Lecture notes available on the Internet including solved problems and additional links					
Quality assurance methods that ensure the acquisition of exit competences	Students feedback, students results and self-evaluation					
Other (as the proposer wishes to add)						