

## FACULTY OF ENGINEERING STUDY COURSE DESCRIPTION

	Geometry processing and visualization									
Course code (LAIS):	The course code will be specified after receiving the license									
Study programme:	Information Technologies									
Level of Study programme:		1st level p	orofessional l	nigher education						
		Profession	nal Bachelor							
		PhD level								
		<del></del>								
Type of Study programme:	<ul> <li>□ Professional specialization courses (Part B, compulsory)</li> <li>□ Professional specialization optional courses (Part B, optional)</li> <li>□ Elective courses (Part C)</li> </ul>									
Course Workload:		Credits	ECTS	Academic hours	<b>Contact hours</b>	Independent work hours				
		2	3	80	24	56				
	Ima	nts Zareml	bo							
Common Anthony / The	Dr.s	sc.ing.								
Course Author/ Tutor:	ima	nts.zarembo	@va.lv							
	Con	sultation: by	y agreement							
Study Form:		time studies								
Study year, semester:	1 <sup>st</sup> v	ear, 2 <sup>nd</sup> sem	nester							
Language:	-	vian, English								
Prerequisites for the Course:	-	, ,								
Prerequisites for the Course:	The	aim of this	course is to	o give practical an	d theoretical knowled	ge about geometry				
				~ .	and 3D graphics and					
Course Summary:	_	-								
	systems, projections, curves and rendering. Students will be able to improve their practical skills in computer graphics by completing practical activities.									
Assessment:	_ ^	mination	ii computer g	graphics by comple	ung practical activities	•				
Assessment.	Exa		_1		:1					
				Practical exercises completed and submitted						
	<ol> <li>Final assessment completed</li> <li>Final examination consists of oral questions. If all requirements are not met on time,</li> </ol>									
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	Knowledge of rendering principles.	Submitted practical tasks.				
	Skills					
	Skill to apply mathematics and programming to visualize information.	Submitted practical tasks.				
	Skill to work with elements of 2D and 3D graphics.	Submitted practical tasks.				
	Skill to develop simple graphical applications.	Submitted practical tasks.				
	Competency					
	Ability to use computer graphics terminology correctly.	Individual exam and presentation of completed practical tasks.				
	Ability to use appropriate elements of 2D and 3D graphics to reach a specific goal.	Individual exam and presentation of completed practical tasks.				
Course Compulsory literature:	<ol> <li>Colleen Macklin, John Sharp, Games, Design and Play: A detailed approach to iterative game design, June 13, 2016, 288 pages, Addison-Wesley Professional</li> <li>Jesse Schell, Jesse Schell, The Art of Game Design: A Book of Lenses, Second Edition, November 6, 2014 by A K Peters/CRC Press</li> <li>David Michael, Sande Chen, Serious Games: Games That Educate, Train, and Inform, October 10, 2005, 312 pages, Cengage Learning PTR</li> </ol>					
Course additional literature:	<ol> <li>Katie Salen Tekinbaş, Eric Zimmerman, Rules of Play: Game Design Fundamentals, September 25, 2003, 688 pages, The MIT Press</li> <li>Tracy Fullerton, Game Design Workshop: A Playcentric Approach to Creating Innovative Games, March 7, 2014, 535 pages, A K Peters/CRC Press</li> </ol>					
Course confirmation date:	13.06.2018					
Date of course description update:						

**Study Course Plan:** 

		Academic hours		Study Form/
Date	Theme	Contact hours	Independent work hours	Organization of independent work of students and task description
The date is specified before the implementation of the course	Sprites, two-dimensional objects. Polygons, three-dimensional objects. Trigonometry and coordinate systems. Applied geometry and homogenous coordinates and transformations of space.	8	0	Theoretical lecture.
	Transformations, scaling, translation, rotation shearing, reflection and identity matrix.  Shape description in 2D and 3D.  Motion and visibility determination.  Projections and the viewing pipeline.	8	0	Theoretical lecture.
	Curves, curve rendering, parametric curves and reparametriazation, Bezier curves. Rendering, lighting, shaders, antialiasing.	8	0	Theoretical lecture.
	Completion of practical exercises.  Hours total:	0 24	56 56	Practical activity.