

表 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Introduction to computer graphics and computational geometry, PG_00050169								
Field of study	Mathematics								
Date of commencement of studies	October 2022		Academic year of realisation of subject			2022/2023			
Education level	second-cycle studies		Subject group			Optional subject group Subject group related to scientific research in the field of study			
Mode of study	Full-time studies		Mode of delivery			at the university			
Year of study	1		Language of instruction			Polish			
Semester of study	1		ECTS credits			5.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Department of Nonlinear Analysis and Statistics -> Faculty of Applied Physics and Mathematics						S		
Name and surname	Subject supervisor	dr inż. Jakub Maksymiuk							
of lecturer (lecturers)	Teachers		dr inż. Jakub Maksymiuk						
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
of instruction	Number of study hours	30.0	0.0	30.0 0.0			0.0	60	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=6678								
	Learning activity Participation ir classes include plan		ed in study		Self-study SUM		SUM		
	Number of study hours	60		0.0		0.0		60	
Subject objectives	The aim of the course is to familiarize students with selected topics of computer graphics and computational geometry.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	K7_U11		Student can create and analyze basic algorithms.			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools			
	K7_U07		Student is able to apply the methods of linear algebra and geometry in computer graphics.			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools			
	K7_W04		Student knows the basic methods and algorithms of computer graphics and computational geometry.			[SW1] Assessment of factual knowledge			
Subject contents	 Geometric transormations in 2D and 3D. Homogenoeus coordinates. Projections in 2D and 3D. Representation of curves and surfaces: Bezier, B-splain and NURBS. Selected topics of rendering: colors, reflections, shading, ray tracing, cliping Data structures in computer graphics. Introduction to computational geometry. Convex hull. Intersections of lines and poygons. Triangulation. Voronoi diagrams. Delunay triangulation. Determning position. Range searching. Motion planning. 								
Prerequisites and co-requisites									
Assessment methods and criteria	Subject passing criteria Project assignments		Passing threshold 50.0%			Percentage of the final grade 100.0%			

Recommended reading	Basic literature	 D. Marsh, Applied geometry for computer graphics and CAD, Springer Science & Business Media, 2006 M. de Berg, O. Cheong, M. van Kreveld, M. Overmars, Computational Geometry. Algorithms and Applications. Third Ed., Springer Science & Business Media 2008 			
	Supplementary literature	brak			
	eResources addresses	Adresy na platformie eNauczanie:			
Example issues/ example questions/ tasks being completed	Create an algorithm drawing a given shape using the given primitives. Describe Bezier curves. Propose and analyze the algorithm finding the points of intersection in the set of intervals.				
Work placement	Not applicable				