

## 表 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	Spatial Data Processing and Presentation, PG_00047779								
Field of study	Informatics								
Date of commencement of studies	October 2022		Academic year of realisation of subject			2023/2024			
Education level	second-cycle studies		Subject group			Optional subject group Subject group related to scientific research in the field of study			
Mode of study	Part-time studies		Mode of delivery			at the university			
Year of study	2		Language of instruction			Polish			
Semester of study	3		ECTS credits			4.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Department of Geoint	Department of Geoinformatics -> Faculty of Electronics, Telecommunications and Informatics							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Marcin Kulawiak						
	Teachers dr hab. inż. Marcin Kulawiak								
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory Projec		t	Seminar	SUM	
of instruction	Number of study hours	12.0	0.0	0.0	15.0		0.0	27	
	E-learning hours inclu	E-learning hours included: 0.0							
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	27		10.0		63.0		100	
Subject objectives	Students know the basics of spatial data processing: basic types, storage, and usage in Geographical Information Systems (GIS).								
Learning outcomes	Course out	Subject outcome			Method of verification				
	[K7_U41] can select methods of modelling and analysis of information systems and applications using selected elements of theoretical computer science and modern programming tools		The student can create a simple application presenting a three- dimensional analysis of spatial data.			[SU1] Assessment of task fulfilment			
	[K7_W06] Knows and understands, to an increased extent, the basic processes taking place in the life cycle of devices, facilities and technical systems.		The student knows and understands the evolution of methods of three-dimensional visualization of spatial data.			[SW1] Assessment of factual knowledge			
	[K7_W02] Knows and understands, to an increased extent, selected laws of physics and physical phenomena, as well as methods and theories explaining the complex relationships between them, constituting advanced general knowledge in the field of technical sciences related to the field of study		The student knows and understands the principles of computer spatial graphics generation.			[SW3] Assessment of knowledge contained in written work and projects			
	[K7_U02] can perform tasks related to the field of study as well as formulate and solve problems applying recent knowledge of physics and other areas of science		The student is able to create a simple system of three- dimensional visualization of spatial data.			[SU1] Assessment of task fulfilment			
	[K7_U07] can apply advanced methods of process and function support, specific to the field of study		The student is able to use available libraries and applications to realize three-dimensional visualization of spatial data.			[SU4] Assessment of ability to use methods and tools			

Subject contents	Spatial data: types, Geographical Information systems, data models, visualization, tools; 3D Graphics: rendering techniques, scene graph, world and local coordinate systems, colors, textures, materials, lights, particle systems, programmable pipeline - shaders, OO design of 3D applications, WebGL,						
Prerequisites and co-requisites	Recommended: some experience in object oriented programming						
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	Written exam	60.0%	50.0%				
	Project	60.0%	50.0%				
Recommended reading	Basic literature	A. Abdul-Rahman, M. Pilouk: Spatial Data Modelling for 3D GIS R. Wright, B Lipchak, N. Haemel: OpenGL SuperBible					
	Supplementary literature	No requirements					
	eResources addresses	Adresy na platformie eNauczanie: Przetwarzanie i Prezentacja Danych Przestrzennych (MSU) - Moodle ID: 12912 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12912					
Example issues/	Building three-dimensional data visualization using anaglyph.						
example questions/ tasks being completed	Creating a three-dimensional geographic information system using Web technologies.						
Work placement	Not applicable						