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 2026	Academic year of realisation of subject	2027/2028
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 Geoinformatics -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marcin Kulawiak	
	Teachers	dr hab. inż. Marcin Kulawiak	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	12.0	0.0	0.0	15.0	0.0	27

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	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 outcome	Subject outcome	Method of verification
[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
[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_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

Subject contents

Course content – lecture
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	
Example issues/ example questions/ tasks being completed	Building three-dimensional data visualization using anaglyph. Creating a three-dimensional geographic information system using Web technologies.	
Practical activites within the subject	Not applicable	

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