



## Subject card

Subject name and code	GEOGRAPHIC INFORMATION SYSTEMS, PG_00048957						
Field of study	Green Technologies						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			English		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Geoinformatics -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marcin Kulawiak					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	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	30	5.0		40.0		75
Subject objectives	Teaching students the basic knowledge and practical skills in the field of Geographic Information Systems (GIS).						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W05] has an broader knowledge of the advanced concepts and problems of quality management, application of the principles of work organization and integrated management and the knowledge necessary to understand the social, economic, legal and other non-technical considerations engineering activities, knows the basic principles of health and safety in force in environmental	The student can describe methods of geographic data application.			[SW1] Assessment of factual knowledge		
	[K7_U01] able to obtain information from literature, databases and other sources, can integrate the information obtained, to make their interpretation and critical evaluation, as well as draw conclusions and formulate and fully justify opinions, able to prepare a study in Polish and short scientific report in a foreign language on the results of their own research	The student can briefly summarize the main issues of spatial data processing.			[SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_K02] is ready to work together as a team, taking in the different roles, can properly identify priorities for implementation specified by you or other tasks, is able to think and act in a creative and enterprising, has the ability to negotiate, is aware of its own limitations and know when to ask the experts	The student can realize an exercise using partial instructions.			[SK2] Assessment of progress of work		

Subject contents	Introduction to GIS. Map attributes: scale, projection, coordinate system. Types of spatial data. Vector and Raster data formats. Three-dimensional data in GIS. Topological operations. The electromagnetic spectrum. Raster data classification. Overview of popular GIS software. Sample applications of GIS. Managing spatial data with ArcGIS. Raster data operations in ER Mapper. Creating a Web-based GIS in OpenLayers.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam	60.0%	50.0%
	Laboratory	60.0%	50.0%
Recommended reading	Basic literature	Longley P.A., Goodchild M.F., Maguire D.J., and Rhind D.W., Geographic Information Systems and Science, John Wiley & Sons, 2001, ISBN: 0471892750.	
	Supplementary literature	Thakur, J.K., Singh, S.K., Ramanathan, A., Prasad, M.B.K., Gossel, W. (Eds.). Geospatial Techniques for Managing Environmental Resources. Springer, 2012. ISBN 978-94-007-1858-6	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<p>Spatial analysis of raster data.</p> <p>Topological operations on vector data.</p> <p>Building a custom Geographic Information System using computer programming tools.</p>		
Work placement	Not applicable		