GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	GEOGRAPHIC INFORMATION SYSTEMS, PG_00048957		
Field of study	Green Technologies		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2023/2024
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	dr inż. Marek Kulawiak dr hab. inż. Marcin Kulawiak	

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_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
[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 od spatial data processing.	[SU3] Assessment of ability to use knowledge gained from the subject
[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

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
Laboratory	60.0%	50.0%
Written exam	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: Geographic Information Systems - Moodle ID: 37868 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37868

Example issues/ example questions/ tasks being completed

Spatial analysis of raster data.

Topological operations on vector data.

Building a custom Geographic Information System using computer programming tools.

Work placement

Not applicable