GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Systems of Geographical Information in Electrical Power Engineering, PG_00066177		
Field of study	Electrical Engineering		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Andrzej Augusiak	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	10.0	0.0	0.0	10.0	0.0	20

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	20	0.0	0.0	20

Subject objectives

Learning the methods and tools used in geographical information systems in power engineering

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U11] is able to analyse the variability of electricity loads, calculate power and energy losses, can carry out cost accounting	develops a GIS project concerning a wind farm, using publicly available spatial data, acquired knowledge, and the methods and tools learned within the course	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task
[K7_W08] has an extended knowledge of power supply systems power supply and control systems including the use of computer networks and design of these systems in industrial facilities industrial facilities	is familiar with both technical and non-technical conditions of designing power supply systems	[SW3] Assessment of knowledge contained in written work and projects
[K7_W03] has an extended and deepened knowledge of the field related to electrical power systems and electrical equipment	understands the specifics of designing power supply systems related to renewable energy sources (RES)	[SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture

Map as a tool for spatial information management, the application of GIS systems including in the power industry, coordinates and cartographic projections in the practice of design engineers, the use of maps in the design process in accordance with the provisions of construction law in Poland

Course content – project

Practical implementation of a simple GIS project using QGIS software (open source) using the example of a wind farm and associated power grids and substations, learning and implementing typical GIS design tasks encountered in the power industry, utilizing public spatial data useful in a designer's work (Geoportal, BDOT10K, WMS servers)

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Rating of final project	50.0%	100.0%

<table>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Gandhi, U. (n.d.). QGIS Tutorials and Tips. Available at: https://www.qgistutorials.com/

• Description: A comprehensive collection of practical, step-by-step guides for advanced spatial analysis and data processing using QGIS software.

2. Oklahoma State University Libraries. (2024). Geography: Library Guides. Available at: https://info.library.okstate.edu/geography

• Description: An academic resource hub providing access to geographic databases, spatial datasets, and GIS research tools.

3. Green, H., & Vaughan, S. (2019). The ArcGIS Book: 10 Big Ideas about Applying The Science of Where. Esri Press. Available at: https://www.esri.com/en-us/arcgis-book-series/the-arcgis-book

• Description: An educational resource illustrating the modern applications of geoinformation and best practices in cartographic visualization and spatial problem-solving.

2. Oklahoma State University Libraries. (2024). Geography: Library Guides. Available at: https://info.library.okstate.edu/geography

o Opis: Centrum zasobów akademickich zapewniające dostęp do baz danych geograficznych, zbiorów danych przestrzennych oraz narzędzi badawczych GIS.</td></tr>
<tr><td>Supplementary literature</td><td>4. QGIS Project. (2024). QGIS User Guide. QGIS Association. Available at: https://docs.qgis.org/

• The official technical documentation for the QGIS software suite, providing detailed tool and algorithm descriptions.

2. Oklahoma State University Libraries. (2024). Geography: Library Guides. Available at: https://info.library.okstate.edu/geography

Opis: Centrum zasobów akademickich zapewniające dostęp do baz danych geograficznych, zbiorów danych przestrzennych oraz narzędzi badawczych GIS.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Concepts and definitions related to GIS The hardware and software of GIS systems Other technical systems working with GIS Spatial Analysis in GIS - be able to give an example Differences between raster and vector-layers in GIS Examples of graphical attributes and database layers vector Inquiries (query) SQL - be able to give an example Types of GIS software Examples of GIS software for the power sector.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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