



## Subject card

Subject name and code	Geographical information Systems, PG_00042795						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Geodesy -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Adam Ingłot				
	Teachers		dr inż. Adam Ingłot				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	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		20.0		55
Subject objectives	Understanding the origins, evolution and development forecasts for GIS and GIS functions in decision-making, as well as the importance of standardization and sharing of data in the GIS.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U05] can apply in engineering practice the basic geodetic instruments and instruments, make measurement sketches and read information from the map and surveying documents		The student is able to read information from standard cartographic studies.		[SU4] Assessment of ability to use methods and tools		
	[K6_W15] knows the rules of descriptive geometry and technical drawing regarding the recording and reading of architectural drawings, construction and surveying drawings, as well as their preparation with the use of CAD		The student has a basic knowledge of the tools of spatial information systems for the preparation of cartographic studies or technical drawings.		[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W16] has basic knowledge of geodesy in the range of applied measurement equipment and techniques, geodetic information systems and documentation necessary in the preparation process, investment implementation		The student has a basic knowledge of spatial information systems.		[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Origin, evolution and prevision for GIS development as definition and conceptual range in perspective of other information systems. Modelling, model definition. Relational data model in the context of GIS. Components/standard elements of GIS and basic terms from this subject (GIS, SIP, SIT, LIS, LBS, geoinformation, data, attributes, spatial information). Data exchange (problem description, attribute data exchange, spatial data exchange, popular languages , formats and standards: GML, DXF and allied products) - in GIS context. Information about relational data model extended with SQL and its practical use, question optimization and creation of dedicated data structure. Standardization of relational dataset. Data visualization. Raster and vector data model.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	50.0%	50.0%
	report	50.0%	50.0%
Recommended reading	Basic literature	1. P.Longley, M.Goodchild, D.Maguire, D.Rhind GIS Teoria i praktyka  2. DavidE.Davis Gis dla każdego  3. Jerzy Gaździcki Systemy Informacji przestrzennej  4. Bielecka, Elżbieta. Systemy informacji geograficznej: teoria i zastosowania. Wydawnictwo Polsko-Japońskiej Wyższej Szkoły Technik Komputerowych, 2006.  5. Laska, M., Systemy informacji przestrzennej  6. Litwin, L., Myrda, G., Systemy Informacji Geograficznej. Zarządzanie danymi przestrzennymi w GIS, SIP, SIT, LIS.  7. Urbański, J. GIS w badaniach przyrodniczych	
	Supplementary literature	8. J.Pomykała,J.Pomykała Systemy informacyjne  9. M.Kraak,F.Ormeling Kartografia wizualizacja danych przestrzennych  10. A.Magnuszewski GIS w geografii fizycznej  11. Gotlib D., Iwaniak A., Olszewski R.: GIS. Obszary zastosowań. Wyd. Naukowe PWN. Warszawa. 2007	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1. Replace the components and functions of SIP  2. Introduce the impact of the curvature of the Earth on engineering calculations.  3. Describe principles of topology collection  4. Characterize the importance of data exchange standards for engineering work  5. Replace and present examples of cartographic representation and coordinate systems in force in Poland and in Europe generally.		
Work placement	Not applicable		