



## Subject card

Subject name and code	Digital maps technologies - lecture, PG_00070920						
Field of study	Informatics						
Date of commencement of studies	February 2025	Academic year of realisation of subject			2025/2026		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			1.0		
Learning profile	general academic profile	Assessment form			assessment		
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 inż. Andrzej Chybicki					
	Teachers	dr inż. Andrzej Chybicki					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	eNauczanie source address: <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=645">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=645</a>						
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	15	1.0	9.0	25		
Subject objectives	The objective of the course is to familiarize students with the specifics of developing GIS solutions based on digital maps. During the classes, we focus on the aspects of designing and implementing digital mapping solutions, taking into account the characteristics of spatial data, the availability of technologies, the tools that can be applied in the field of spatial data processing, and the legal frameworks regulating the GIS market both in Poland and in the European Union.						
Learning outcomes	Course outcome	Subject outcome	Method of verification				
	[K7_W01] knows and understands, to an increased extent, mathematics to the extent necessary to formulate and solve complex issues related to the field of study	The student knows and is able to apply mathematical relationships related to cartographic transformations in the analysis of spatial data.	[SW1] Assessment of factual knowledge				
	[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	The student knows and understands the principles of constructing electronic digital map systems and understands the functional relationships between the individual components of a digital map.	[SW1] Assessment of factual knowledge				
Subject contents	Course content – lecture Types of data in digital map systems. Application of cartographic projections in digital map systems use of EPSG databases, as well as libraries such as GDAL, GeoTools, and other related tools. Basic tools for spatial data processing used in digital map systems. The INSPIRE Directive in the context of digital map systems and its impact on the geoinformatics market in Poland. Standards for spatial data exchange in digital map systems. Examples of digital map systems in Poland and the EU GeoPortal-class systems. Key initiatives and projects related to the geoinformatics market in Poland and their relation to electronic digital map systems.						

Prerequisites and co-requisites	<p>Basics of Java, C++ and C# programming.</p> <p><b>Basic knowledge in the field of IT, including:</b></p> <ul style="list-style-type: none"> <li>• computer systems architecture</li> <li>• network solutions architecture</li> <li>• basic knowledge of mobile application development (Android, iOS)</li> <li>• software design and testing</li> <li>• IT project management</li> </ul>		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
Recommended reading	Lecture	51.0%	100.0%
	Basic literature	<p>OGC -Standards available at <a href="http://www.opengeospatial.org/">http://www.opengeospatial.org/</a>.  GeoTools library - details available at <a href="http://www.geotools.org/">http://www.geotools.org/</a>.  OpenStreetMap API available at <a href="http://www.openstreetmap.org/">http://www.openstreetmap.org/</a>.  Andrzej Stepnowski , Akustyczne systemy telemonitoringu środowiska morskiego.  Gdańskie Towarzystwo Naukowe, 2001.  Longley P., Goodchild M., Maguire D., Rhind D., <i>Geographic Information Systems and Science</i>, Wiley.</p>	
Example issues/ example questions/ tasks being completed	Supplementary literature	INSPIRE directive: <a href="http://inspire.ec.europa.eu/">http://inspire.ec.europa.eu/</a> . GDAL documentation available at <a href="http://www.gdal.org/">http://www.gdal.org/</a> .	
Practical activities within the subject	eResources addresses	Not applicable	

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