GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00072697		
Field of study	Civil Engineering, Geodesy and Cartography		
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	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish -
Semester of study	1	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Building Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Szczepański	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	40.0	0.0	40

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=8254

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	40	0.0	0.0	40

Subject objectives

The aim of the course is to develop skills in identifying, analyzing, and solving complex problems related to key objects and phenomena specific to the field of study. Students deepen their theoretical and practical knowledge, learn to apply appropriate analytical and design methods, and develop collaborative skills within a research team.
The course aims to prepare students for independent and teamwork in solving scientific and practical challenges, while also developing skills in presenting research results.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W101] is able to make an in-depth identification of key objects and phenomena related to the field of study, as well as theories that describe them and applicable analytical and design methods	Students can identify key objects and phenomena related to the subject matter and analyze them in depth using appropriate theories and analytical or design methods. They demonstrate the ability to apply acquired knowledge in practice, proposing solutions tailored to the specific nature of the issue being studied.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	[K7_K101] acknowledges the importance of knowledge related to the field of study in solving cognitive and practical problems, critically assessing the information obtained	The student recognizes the importance of scientific and specialized knowledge in solving research and practical problems in the field of spatial management. Critically evaluates acquired information and sources, demonstrates responsibility for the implementation of assigned tasks, and actively collaborates within a research team.	[SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work [SK1] Assessment of group work skills
	[K7_U101] is able to formulate complex research problems and adopts appropriate methods, obtaining innovative solutions, cooperating with other people, both as a leader and a team member	The student is able to identify and precisely formulate a complex research problem, plan activities leading to its solution, selecting appropriate research methods and tools. Demonstrates the ability to collaborate effectively in a team, acting as a leader or team member, and develops innovative solutions, presenting them in a form consistent with scientific and/ or practical requirements.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
		The student is able to identify key objects and phenomena related to the subject matter and analyze them in depth using appropriate theories and analytical or design methods. Demonstrates the ability to apply acquired knowledge in practice, proposing solutions adapted to the specific	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
		The student is able to identify and precisely formulate a complex research problem, plan activities leading to its solution, selecting appropriate research methods and tools. Demonstrates the ability to collaborate effectively in a team, acting as a leader or member, and develops innovative solutions, presenting them in a form that meets scientific and/or practical requirements.	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SK5] Assessment of ability to solve problems that arise in practice
		The student is able to formulate a complex research problem, plan its solution, select appropriate research methods and tools. Actively collaborates within a research team, acting as a leader or team member, communicating effectively and carrying out tasks, leading to the development of innovative solutions and the presentation of results in a scientifically acceptable form.	[SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work [SK3] Assessment of ability to organize work [SK1] Assessment of group work skills

<table>
<tr><td>Subject contents</td><td>Course content – project

The course begins with an introduction to the research project, which discusses the goals, assumptions, and structure of the research team, including the division of roles and responsibilities. Students become familiar with the principles of research methodology and the selection of appropriate research methods and tools adapted to the specific nature of the project. This is followed by an analysis of the research problem, which includes the identification and precise formulation of the issue, analysis of literature and secondary sources, and examination of the theoretical and practical context. The next stage involves planning and organizing the team's work, including developing a schedule of activities and allocating tasks within the team using project management tools. Research activities include fieldwork, laboratory experiments, and computer simulations, as well as data collection, processing, and analysis, including testing research hypotheses. During the project, students participate in specialized seminars and workshops with experts, aimed at expanding knowledge and improving the solutions developed. An important element is the creation of innovative solutions, including generating concepts
based on research results, prototyping, and developing a strategy for implementing the results. At the end of the project, students prepare a final report and present the results in multimedia form,
e.g., a presentation, scientific poster, or 3D visualization. Another important element is
publication of the results in a scientific journal or presentation at a conference.
The project process concludes with an evaluation (research report/scientific article), including an assessment
of the achievement of the objectives, a reflection on the effectiveness of the methods used and the organization of the team's work, as well as
drawing conclusions and recommendations for the future.</td></tr>
<tr><td>Prerequisites
and co-requisites</td><td>Students are expected to have knowledge of basic research and analytical methods used within their field of study, teamwork skills, and effective interpersonal communication.
A basic understanding of tools and programs supporting the research process, such as CAD software, statistical tools, and project management platforms, is also essential. Critical literature and data analysis skills, as well as knowledge of the principles of writing scientific reports and presenting results, are important elements.
Furthermore, it is recommended that students demonstrate openness to interdisciplinary collaboration and consultation with experts, be willing to participate in specialized seminars and workshops, and take initiative and independently solve research problems. An interest in developing innovative solutions within the context of the project and a command of English sufficient to utilize scientific literature and present results internationally will be considered additional advantages.</td></tr>
<tr><td>Assessment methods
and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td></td><td>70.0%</td><td>25.0%</td></tr>
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<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>According to the recommendations of the project supervisor.</td></tr>
<tr><td>Supplementary literature</td><td>According to the recommendations of the project supervisor.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/
example questions/
tasks being completed</td><td>According to requirements and design assumptions.</td></tr>
<tr><td>Practical activites within
the subject</td><td>Not applicable</td></tr>
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