GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00072696		
Field of study	Transport, Real Estate 5.0		
Date of commencement of studies	February 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	2	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=4323

Additional information:
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 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	2.0	33.0	75

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_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 to solve it, 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.	[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
[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	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 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 spatial management. Critically evaluates information and sources, demonstrates responsibility for 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
	The student is able to identify and precisely formulate a complex research problem, plan activities to solve it, 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 [SU1] Assessment of task fulfilment

Subject contents

Course content – project

According to the project requirements specified by the project supervisor.
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, including 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, or computer simulations, as well as data collection, processing, and analysis, including testing of 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.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	70.0%	25.0%
	70.0%	25.0%
	70.0%	25.0%
	70.0%	25.0%

Recommended reading

Basic literature	According to the recommendations of the project supervisor.

	Supplementary literature	According to the recommendations of the project supervisor.
	eResources addresses	
Example issues/ example questions/ tasks being completed	-	
Practical activites within the subject	Not applicable	

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