GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00060048						
Field of study	Environmental Engineering						
Date of commencement of studies	February 2024		Academic year of realisation of subject	2024/2025			
Education level	second-cycle studies		Subject group	Obligatory subject group in the field of study Humanistic-social subject group			
Mode of study	Full-time studies		Mode of delivery	at the university			
Year of study	2		Language of instruction	English			
Semester of study	3		ECTS credits	2.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Department of Building Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Anna Jakubczyk-Gałczyńska					
	Teachers	mgr inż. Agata Siemaszko					

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	
	The aim of the course is to improve students skills in conscious and effective decision-making in various engineering contexts. Students become familiar with methods used for analyzing and solving decision problems in projects, including choosing optimal actions under uncertainty, conducting negotiations, and evaluating the value of information that can be obtained from additional studies before making a decision. As part of the course, students acquire project management competencies, which allows them to actively participate in their implementation and play the role of a leader.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W71] has general knowledge in humanistic, social, economic or legal sciences, including their fundamentals and applications	- Student is able to work independently and as a team in solving practical problems in the field of environmental engineering.	[SW1] Assessment of factual knowledge
[K7_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems	- Student is able to use the economic knowledge to solve decision-making problems in the field of environmental engineering using appropriate methods and computer programs. - Student is able to indicate the optimal variant of the project.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
[K7_K82] is equipped to participate actively in lectures, seminars and laboratory classes conducted in foreign language	- Student knows industry terms in English, can use specialized terminology in engineering.	[SK4] Assessment of communication skills, including language correctness
[K7_K71] is able to explain the need to apply knowledge from humanistic, social, economic or legal sciences in order to function in a social environment	- The student is able to analyze the risk occurring in engineering issues, can manage the risk of the investor and contractor in the field of environmental engineering. - The student is able to work independently and in a group in solving selected organizational problems. - The student is able to cooperate with experts, respects their experience, understands the need for continuous professional development, and adheres to professional ethics.	[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice
K7_W04	- Student is able to identify the engineering problem and knows the basic techniques of its solution, and is able to combine various techniques into interdisciplinary issues. - Student is able to use in practice modern tools supporting a strategic approach in solving engineering problems - Student knows the modeling methods used to analyze and solve interactive decision problems in modern engineering projects (e.g. SWOT, PHA, Bayesian networks and the basics of Artificial Intelligence).	[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects

Subject contents

The course program includes a discussion of the following methodologies:

- Decision networks

- Risk analysis methods

- Artificial intelligence

- Lectures with experts: a group of engineers, supervision inspectors, and construction practitioners to acquire and train skills in creating decision models.

Prerequisites and co-requisites

Knowledge in the field of:

- basics of statistics and data analysis
- engineering studies in the field of environmental engineering
- use of IT tools (such as spreadsheets, data analysis software, project management tools, etc.)

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Egzamin pisemny	60.0%	30.0%
Project task	60.0%	70.0%

Recommended reading	Basic literature	Steele, Stefánsson, Decision Theory. Stanford Encyclopedia of Philosophy [online], CSLI, Stanford University, 16 grudnia 2015. C.L. Pritchard, Risk management in projects. Theory and practice. Management Training & Development Center, WIG-PRESS, Warszawa 2002. N. Fenton, M. Neil, Risk Assessment and Decision Analysis with Bayesian Networks, CRC Press, ISBN: 9781439809105, 2012. U. B. Kjaerulff, A.L. Madsen, Bayesian Networks and Influence Diagrams. A Guide to Construction and Analysis. Springer Science+Business Media, LLC, 2008.
	Supplementary literature	Project Management Institute: A *guide to the Project Management Body of Knowledge (PMBOK GUIDE)* 5th Edition, 2013.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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