GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Elements of discrete mathematics, PG_00045294		
Field of study	Data Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
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	English
Semester of study	2	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Algorithms and Systems Modelling -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Joanna Raczek	
	Teachers	dr inż. Joanna Raczek	

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	4.0	16.0	50

Subject objectives

Acquiring the ability to use a formal mathematical language. Acquiring the ability to express relationships, dependencies, configurations in a strict form. Understanding the essence of proof reasoning and construction.

Learning outcomes

Course outcome	Subject outcome	Method of verification

Subject contents

Review of mathematical logic. Set algebra. Propositional statements. Predicate calculus. Mathematical induction. Binary relations: equivalence relations, orders. Basic counting and combinatorics. Graph theory - notation, basic concepts, Eulerian graphs with applications, the Chinese postman problem, Hamiltonian graphs, the traveling salesman problem, properties of trees, planarity, graph colourings, domination in graphs. Dijkstra algorithm, algorithms for minimal spannig tree.

Prerequisites and co-requisites

Basic mathematical skills

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Activity in class	0.0%	0.0%
Tests	50.0%	100.0%

Recommended reading

Basic literature	K. H. Rosen, Discrete Mathematics and Its Applications K. A. Ross, C. R. Wright, Discrete Mathematics
Supplementary literature	R.J. Wilson, Introduction to graph theory. E.G. Goodaire, M. M. Parmenter, Discrete Mathematics with Graph Theory, Prentice Hall
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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