



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 spanning 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

Document generated electronically. Does not require a seal or signature.