

Subject card

Subject name and code	Discrete mathematics p.1, PG_00143560						
Field of study	Matematyka dyskretna I						
Date of commencement of studies	October 2025		Academic year of realisation of subject			2025/2026	
Education level	Bachelor's 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			Polish	
Semester of study	1		ECTS credits			5.0	
Learning profile	academic		Assessment form			exam	
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Andrzej Szepietowski				
	Teachers		dr inż. Agnieszka Rowińska-Schwarzweller prof. dr hab. Andrzej Szepietowski				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	0.0	0.0	60
	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	60		0.0		65.0	125
Subject objectives	Familiarization with the basics of discrete mathematics in accordance with the needs of computer science.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[INFL3_W02] has knowledge of discrete mathematics and probabilistic methods and statistics		the student has basic knowledge of discrete mathematics (computer arithmetic, combinatorics and Boolean functions), the student has basic knowledge of probability theory			[SW4] test/egzamin - ustny lub pisemny	
	[INFL3_U02] can precisely formulate questions to deepen one's understanding of a given topic or find missing elements of reasoning		can precisely formulate questions to deepen their understanding of a given topic			[SU4] test/egzamin - ustny lub pisemny	
	[INFL3_U01] can apply mathematical knowledge to formulate, analyze and solve problems related to computer science		the student is able to use discrete mathematics to design algorithms			[SU4] test/egzamin - ustny lub pisemny	
	[INFL3_U03] can design and analyze algorithms for their correctness and computational complexity using appropriate algorithmic techniques and data structures		the student is able to design simple combinatorial algorithms			[SU4] test/egzamin - ustny lub pisemny	

Subject contents	Set theory: operations on sets, relations and functions, equivalence relations and classes of abstraction. Arithmetic: counting systems, representation of numbers in computers, Combinatorics: sequences, functions, permutations, Newton's symbol, Dirichlet's drawer rule. Probability: independence of events, Bernoulli scheme, random variables, expected values, averages, variances, Markov and Chebyshev inequalities. Boolean functions: Boolean algebra, Boolean expressions and functions, Boolean networks.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	tests	51.0%	10.0%
	exam	51.0%	90.0%
Recommended reading	Basic literature	Andrzej Szepietowski, <i>Matematyka dyskretna</i> , Wyd. Uniwersytetu Gdańskiego 2004.	
	Supplementary literature	not applicable	
	eResources addresses		
Example issues/ example questions/ tasks being completed	not applicable		
Work placement	Not applicable		

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