

Subject card

Subject name and code	Elementary mathematics, PG_00155292						
Field of study	Informatics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2024/2025		
Education level	undergraduate studies		Subject group		Obligatory subject group 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 polish		
Semester of study	1		ECTS credits		6.0		
Learning profile	practical		Assessment form				
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Joanna Czarnowska				
	Teachers		dr inż. Monika Rosicka				
			dr Joanna Czarnowska				
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		90.0	150
Subject objectives	The objective of the course is to familiarize students with selected topics in logic, set theory, and mathematical analysis, in order to develop the skills necessary for precisely formulating, analyzing, and solving problems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[INFL3_U01] can apply mathematical knowledge to formulate, analyse and solve tasks related to computer science, design and analyze algorithms in terms of their correctness and computational complexity	Can apply basic methods of mathematical logic and set theory to solve problems. • Can use methods of differential calculus to analyze and solve problems involving functions of one and several variables. • Can apply integral calculus to compute integrals of functions of one variable.	[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written
	[INFL3_W01] has knowledge in mathematics covering the basics of algebra, discrete mathematics (elements of logic and set theory, combinatorics and graph theory), probabilistic methods	• Knows basic concepts as well as selected methods and theorems of mathematical logic and set theory, including fundamental methods of inference. • Knows basic concepts of differential calculus for functions of one and several variables, and has knowledge of basic optimization issues. • Knows basic concepts of integral calculus for one variable.	[SW4] test/exam - oral or written
	[INFL3_K02] can precisely formulate questions to deepen his/ her own understanding of a given topic or to find missing elements of reasoning	Is able to formulate their own conclusions and questions, listen to the arguments of others, and build strategies for solving posed problems.	[SK1] oral statement/conversation/discussion [SK8] observation of student's independent or team work
Subject contents	1. Language of logic: propositional calculus and predicate calculus. 2. Set algebra, relations and their properties, equivalence relations and orderings, equivalence classes. 3. Functions, properties of functions, inverse function. 4. Derivative of one and multiple variables. Applications in optimization problems. 5. Integral of one variable with examples of applications.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	auditorium exercises	50.0%	60.0%
	exam	50.0%	40.0%
Recommended reading	Basic literature	1. J. Topp, Wstęp do matematyki, Wydawnictwo Uniwersytetu Gdańskiego 2. J. Kraszewski, Wstęp do matematyki, WNT 3. M. Oberguggenberger, A. Ostermann, Analysis for Computer Scientists Foundations, Method and Algorithms, Springer 4. J. Vince, Foundation Mathematics for Computer Science. A Visual Approach, Springer	
	Supplementary literature	1. K.H. Rosen, Discrete mathematics and its application, McGraw-Hill 2. W. Kryszicki, L. Włodarski, Analiza matematyczna w zadaniach, Wydawnictwo Naukowe PWN, Warszawa	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	no applicable		
Work placement	Not applicable		

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