

Subject card

Subject name and code	Mathematical Analysis, PG_00198503						
Field of study	Informatics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study		
Mode of study	part-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		dr inż. Magda Dettlaff				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	20.0	0.0	0.0	0.0	40
	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	40		0.0		85.0	125
Subject objectives	Equipping the student with mathematical knowledge supporting IT subjects						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[INFOL3_W01] knows and understands advanced concepts of mathematical analysis and linear algebra with geometry and numerical methods		The student knows and understands the concepts and theorems in mathematical analysis discussed in the lecture. The student is able to calculate the limit of a numerical sequence and the limit of a single-variable function, examine its continuity and differentiability, calculate its integral, and interpret the results obtained.		[SW4] test/exam - oral or written [SW5] implementation of a problem task		
	[INFOL3_U02] is able to use his/her knowledge of higher mathematics to model and solve complex problems		The student is able to select appropriate methods of mathematical analysis for a given optimization or decision-making problem. The student applies the methodology learned for constructing mathematical models using derivatives and integrals.		[SU4] test/exam - oral or written [SU5] implementation of a problem task		
Subject contents	Numerical sequences. Convergent (divergent) sequence. Functions of one variable. Limit of functions, continuous functions. Differential calculus of functions of one variable. Derivative of a function. Monotonic, convex (concave) function, function extrema, function asymptotes. d'Hospital's rule. Geometric and physical application of derivatives. Indefinite and definite integrals. Number sequences and their convergence. To familiarize students with the nomenclature in English.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam	51.0%	35.0%
	homeworks	51.0%	5.0%
	tests	51.0%	60.0%
Recommended reading	Basic literature	J. Topp, Matematyka, Funkcje jednej zmiennej. Wydawnictwo Uniwersytetu Gdańskiego, 2016 W. Krywicki, L. Włodarski, Analiza matematyczna w zadaniach. Część 1, Wydawnictwo Naukowe PWN, 2005 M.Gewert, Z.Skoczylas, Analiza matematyczna 1. Definicje, twierdzenia, wzory. Wrocław Oficyna Wydawnicza GiS, 2025 M.Gewert, Z.Skoczylas, Analiza matematyczna 1. Przykłady i zadania. Wrocław Oficyna Wydawnicza GiS, 2025	
	Supplementary literature	B. Wikieł, Matematyka. Podstawy z elementami matematyki wyższej, Wydawnictwo Politechniki Gdańskiej, 2015	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Calculate the limit of the sequence. Test the monotonicity of a given function. Formulate Weierstrass's theorem.		
Work placement	Not applicable		

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