

Subject card

Subject name and code	Mathematical Analysis, PG_00143580						
Field of study	Informatics						
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		
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				
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	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	Equipping the student with mathematical knowledge supporting technical subjects						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[INFL3_W01] has knowledge in mathematics including issues of mathematical analysis and linear algebra with geometry and numerical methods		The student knows the basic concepts of mathematical analysis discussed during the lecture.		[SW4] test/exam - oral or written		
	[INFL3_U02] can precisely formulate questions to deepen one's understanding of a given topic or find missing elements of reasoning		The student appreciates the importance self-expansion knowledge. Performs independently exercises to consolidate knowledge.		[SU5] implementation of a problem task [SU8] observation of student's independent or team work		
	[INFL3_U01] can apply mathematical knowledge to formulate, analyze and solve problems related to computer science		The student understands that mathematical analysis is useful when creating new algorithms or optimizing and working with large amounts of data.		[SU4] test/exam - oral or written [SU8] observation of student's independent or team work		
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. 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%		
	test 1		51.0%		30.0%		
	test 2		51.0%		30.0%		

Recommended reading	Basic literature	J. Topp, Matematyka, Funkcje jednej zmiennej. Wydawnictwo Uniwersytetu Gdańskiego, 2016 M.Gewert, Z.Skoczylas, Analiza matematyczna 1. Definicje, twierdzenia, wzory. Wrocław Oficyna Wydawnicza GiS 2001 M.Gewert, Z.Skoczylas, Analiza matematyczna 1. Przykłady i zadania. Wrocław Oficyna Wydawnicza GiS 2001
	Supplementary literature	B. Wiekł, 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. Give the definition of the derivative of the appropriate function at the point, then determine the derivative of the function $f(x)=3x-5$ from the definition	
Work placement	Not applicable	

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