GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mathematical Analysis, PG_00021019		
Field of study	Mathematics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
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	Polish
Semester of study	1	ECTS credits	9.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Divison Of Nonlinear Analysis -> Institute Of Applied Mathematics -> Faculty Of Applied Physics And Mathematics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Zdzisław Dzedzej	
	Teachers	mgr inż. Tomasz Gzella dr inż. Robert Krawczyk dr hab. Zdzisław Dzedzej dr inż. Anita Zgorzelska dr Maryna Shcholokova	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	60.0	60.0	0.0	0.0	0.0	120
	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	120	5.0	100.0	225

Subject objectives	To familiarize students with the basic tools of mathematical analysis.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W07	knowledge of derivatives and their properties, and integral calculus	[SW1] Assessment of factual knowledge
K6_U06	calculates simple integrals and geometric applications	[SU4] Assessment of ability to use methods and tools
K6_U02	simple deduction, verification of theorems and definitions on examples	[SU3] Assessment of ability to use knowledge gained from the subject
K6_W02	knowledge of basic theorems and definitions	[SW1] Assessment of factual knowledge
K6_U04	calculates limits of sequences and functions, verifies series for convergence	[SU4] Assessment of ability to use methods and tools

Subject contents	1. Real numbers. 2. Theory of sequences of numbers. 3. Theory of series. 4. Limit of a function. Continuity of a function. 5. Differentiability of a function. 6. Theory of Riemann integral. 7. Indefinite integral. 8. Improper integral. 9. Sequences and series of functions.
Prerequisites and co-requisites	No requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Exam	50.0%	40.0%
Activity at the lectures	0.0%	0.0%
Activity in the classes	0.0%	15.0%
Test no. 1	50.0%	15.0%
Test no 3	50.0%	15.0%
Test no. 2	50.0%	15.0%

Recommended reading

Basic literature	1. W. Kołodziej, Analiza matematyczna, Wydawnictwo Naukowe PWN, Warszawa, 2009 2. W. Kryszewski, Wykład analizy matematycznej, cz. I, Funkcje jednej zmiennej, Wydawnictwo Naukowe UMK, Toruń, 2009 3. M. Gewert, Z. Skoczylas, Analiza Matematyczna I, II, zeszyty, GiS dowolne wydania
Supplementary literature	1. R. Rudnicki, Wykłady z analizy matematycznej, Wydawnictwo Naukowe PWN, Warszawa, 2006 2. W. Rudin, Podstawy analizy matematycznej, Wydawnictwo Naukowe PWN, Warszawa, 2009 3. K. Kuratowski, Rachunek różniczkowy i całkowy, PWN, Warszawa, 1964 4. G.M. Fichtenholz, Rachunek różniczkowy i całkowy, Tom 1, Wydawnictwo Naukowe PWN 2007 5. K. Maurin, Analiza, Tom 1, Wydawnictwo Naukowe PWN, Warszawa, 2010 6 J. Jost, Postmodern Analysis, Universitext, Springer, Berlin, 2010
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	• Calculate the limit of a sequence. • Calculate the limit of a function. • Check the continuity of a function. • Check the differentiability of a function. • Calculate the derivative of a function. • Find an antiderivative of a function. • Calculate a Riemann integral. • Examine the convergence of a series. • Calculate the sum of a series.
Work placement	Not applicable

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