GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mathematics I, PG_00068292		
Field of study	Spatial Development		
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
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	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Mathematics Center -> Vice-Rector For Education		
Name and surname of lecturer (lecturers)	Subject supervisor	mgr Katarzyna Kujawska	
	Teachers	mgr Katarzyna Kujawska	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	30.0	0.0	0.0	0.0	30

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	30	6.0	39.0	75

Subject objectives

Students obtain competence in the range of using methods of mathematical analysis and knowledge how to solve simple problems that can be found in the field of engineering.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W03] has knowledge in the field of mathematics and physics relating to issues related to space management, including the basic mathematical methods used in urban design, as well as analytical and design methods using information technology used in planning processes of settlement structures	Student names basic properties of elementary functions Student solves equations and inequalities with elementary functions	[SW1] Assessment of factual knowledge
[K6_U01] has the ability to abstractly understand technical problems; applies basic mathematical and simulation methods in urban planning and spatial planning	Student evaluates the limits of sequences Student evaluates the limits of functions Student gives a graphic interpretation of discontinuity points	[SU4] Assessment of ability to use methods and tools

Subject contents

Functions of one variable and their properties: The absolute value function definition, solving equations and inequalities with absolute value, graphs of functions with absolute value. Power functions solving power and polynomial equations and inequalities. Rational functions solving national equations and inequalities. Exponential function properties and graphs, solving exponential equations and inequalities. Logarithmic functions properties and graphs, solving logarithmic equations and inequalities. Trigonometric and cyclometric functions properties and graphs, solving trigonometric equations and inequalities. Limits and continuity: Infinite sequences. Fundamental definitions of limit of sequence, convergence and divergence, limit theorems.

Prerequisites and co-requisites

No requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Midterm colloquium	50.0%	90.0%
Activity	0.0%	10.0%

Recommended reading

Basic literature	Praca zbiorowa pod redakcją B. Wikieł, Matematyka - Podstawy z elementami matematyki wyższej, PG, Gdańsk 2007 K. Jankowska, T. Jankowski, Zbiór zadań z matematyki, PG, Gdańsk 1997

	Supplementary literature	Praca zbiorowa pod red. E. Mieloszyka, Matematyka – Materiały pomocnicze do ćwiczeń, PG, Gdańsk 2004 R. Leitner, Zarys matematyki wyższej I i II, Wydawnictwo Naukowo-Techniczne, Warszawa 2001 R. Leitner, W. Matuszewski, Z. Rojek, Zadania z matematyki wyższej I i II, Wydawnictwo Naukowo-Techniczne, Warszawa 1999 M. Gewert, Z. Skoczylas, Analiza matematyczna 1 – Definicje, twierdzenia, wzory, Oficyna Wydawnicza GiS, Wrocław 2001 M. Gewert, Z. Skoczylas, Analiza matematyczna 1 – Przykłady i zadania, Oficyna Wydawnicza GiS, Wrocław 2001 W. Krysicki, L. Włodarski, Analiza matematyczna w zadaniach I i II, Wydawnictwo Naukowe PWN, Warszawa 1998
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Find the domain and the set of values of the function $f(x)=\arcsin(3x-2)+\pi$. Determine the inverse function of f. 2. Find the derivative of $y=4x(3x^2+5)^5$. 3. Solve the equation $(\log_5 x)^2+3=2\log_5 x^2$. 4. Solve $x^3-3x^2-4x+6>3x\|x-1\|$.	
Work placement	Not applicable	

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