GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mathematics 1, PG_00068394		
Field of study	Engineering Management		
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	6.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Mathematics Center -> Vice-Rector For Education		
Name and surname of lecturer (lecturers)	Subject supervisor		
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	45.0	0.0	0.0	0.0	75

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	75	5.0	70.0	150

Subject objectives

Uses the apparatus of linear algebra and mathematical analysis to solve theoretical and practical problems occurring in social sciences

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U04] develops logical solutions to complex or unstructured problems, even under conditions of uncertainty.	integrates the information obtained from solving complex problems, interpreting them, drawing conclusions and formulating and justifying opinions	[SU4] Assessment of ability to use methods and tools
[K6_W02] possesses advanced knowledge of methods and techniques that enable precise formulation and effective problem solving.	uses a mathematical apparatus to solve management problems, combining knowledge of mathematics with knowledge of social sciences	[SW1] Assessment of factual knowledge

Subject contents

Functions of one variable and their properties
Elementary functions: absolute value, polynomials, rational functions, power functions, exponential and logarithmic functions, trigonometric and inverse trigonometric functions - properties, graphs, solving equations and inequalities
Infinite sequences - properties, limits
The limit and continuity of a function
Derivatives and differentials of first and higher orders
Rolle, Lagrange, de l'Hospital, Taylor-Maclaurin theorems
Monotonicity and local extrema
Convexity, concavity and inflexion points of a function
Asymptotes
Matrices, their properties and operations on matrices
Determinants
Systems of linear equations

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Midterm colloquium	50.0%	20.0%
Exam	50.0%	60.0%
Class activity	50.0%	20.0%

Recommended reading	Basic literature	Wikieł, B. (2009). Matematyka, Podstawy z elementami matematyki wyższej. Gdańsk: Wydawnictwo PG Jurlewicz, T, Gewert, M. Algebra liniowa 1, Definicje, twierdzenia wzory. Wrocław: Wydawnictwo GiS Jankowska, K., Jankowski, T. Zbiór zadań z matematyki, Gdańsk: Wydawnictwo PG
	Supplementary literature	Gewert, M., Skoczylas, Z. Wstęp do analizy i algebry. Wrocław: Wydawnictwo GiS Batóg, B., i in. Matematyka dla kierunków ekonomicznych. Warszawa: Wydawnictwo Difin Banaś J., Podstawy matematyki dla ekonomistów. Warszawa: Wydawnictwa Naukowo-Techniczne Dymkowska J., Beger D., Rachunek różniczkowy w zadaniach. Gdańsk: Wydawnictwo PG
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Find the derivatives of the following functions Find local extremes and intervals of monotonicity of the following function f(x)= Sketch the graph of the function f(x) Identify any local extrema and points of inflection Find the rank of the matrix A Solve the systems of linear equations using the back substitution method Solve the systems of linear equations by Cramer rule Formulate the Kronecker-Capelli theorem	
Work placement	Not applicable	

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