

关。GDAŃSK UNIVERSITY 创 OF TECHNOLOGY

Subject card

Subject name and code	Elementary Mathematics, PG_00047357								
Field of study	Electronics and Telecommunications								
Date of commencement of studies	October 2021		Academic year of realisation of subject			2021/2022			
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			6.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Mathematics Center -> Vice-Rector for Education								
Name and surname	Subject supervisor dr inż. Natalia Jarzębkowska								
of lecturer (lecturers)	Teachers		mgr Dorota Grott						
			dr inż. Natalia Jarzębkowska						
			mgr Anetta Bi						
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	:t	Seminar	SUM	
of instruction	Number of study hours	30.0	30.0	0.0	0.0		0.0	60	
	E-learning hours included: 0.0								
	Adresy na platformie eNauczanie: WETI - EiT - Matematyka - sem.1 - 2021/2022 (N.Jarzębkowska) - Moodle ID: 18355 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18355								
Learning activity and number of study hours	Learning activity	ty Participation in didactic Parti classes included in study plan		Participation in consultation hours		Self-study		SUM	
	Number of study hours	60		6.0		84.0		150	
Subject objectives	Students obtain comp	tudents obtain competences in the range of using methods of elementary mathematics.							
Learning outcomes	Course out	Subject outcome			Method of verification				
	[K6_W01] Knows and understands, to an advanced extent, mathematics necessary to formulate and solve simple issues related to the field of study		Student names basic properties of elementary functions. Student defines the basic concepts of differential calculus of one variable function. Student uses the first and second derivatives of a function to analyze its properties.			[SW1] Assessment of factual knowledge			
	[K6_U01] can apply mathematical knowledge to formulate and solve complex and non-typical problems related to the field of study and perform tasks, in an innovative way, in not entirely predictable conditions, by:n- appropriate selection of sources and information obtained from them, assessment, critical analysis and synthesis of this information,n- selection and application of appropriate methods and toolsn		Student solves equations and inequalities with elementary functions. Student solves exercises involving arithmetic and geometric sequences. Student applies the concepts of limit, continuity, and derivatives of functions to solve curve sketching problems.			ISU4J Assessment of ability to use methods and tools			

Subject contents	Number sets. Absolute value of a real number. Exponentiation. Rational powers. Factorial. Binomial. Functions and their properties. Polynomials. Calculus with polynomials. Rational functions. Rational equations and inequalities. Power functions. Roots equations and inequalities. Exponential functions. Exponential equations and inequalities. Hyperbolic functions. Logarithms of numbers and their properties. Logarithmic functions. Logarithmic equations and inequalities. Trygonometric functions. Trigonometric formulas and identities. Trygonometric equations and inequalities. Cyclometric functions. Number sequences and their properties. The arithmetic and the geometric sequence. Limit of a sequence. Euler"s number. Proper and improper limit of a function. Continuity. Derivatives. Differentiation rules. Derivatives and differentials of higher order. Applications of Taylor and Maclaurin formula. Increasing and decreasing functions. Maximum and minimum values. Concavity and points of inflection. Indeterminate forms and De IHospital rule. Asymptotes of function. Applications of differential calculus to studying properties of one variable functions.						
Prerequisites and co-requisites							
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	Activity	0.0%	10.0%				
	Test	50.0%	30.0%				
	Final exam	50.0%	60.0%				
Recommended reading	Basic literature	Wikieł B. (red), Matematyka. Podstawy z elementami matematyki wyższej, Wydawnictwo Politechniki Gdańskiej					
	Supplementary literature M.Bryński, N.Dróbka, K.Szymański, "Matematyka dla zerowego roku studiów wyższych. Elementy analizy matematycznej", Wydawnictwa Naukowo-Techniczne						
	eResources addresses WETI - EiT - Matematyka - sem.1 - 2021/2022 (N.Jarzębkowska) - Moodle ID: 18355 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18355						
Example issues/ example questions/ tasks being completed	ple issues/ 1. Solve the equation x-3 ² -4 x-3 -12=0. ple questions/ 2. Finf the domain and the set of values of the function f(x) = - 2 arcsin(3-x). Determine the inverse function of f. 3. Find the derivative of f(x)==(ln x) ^x . 4. Evaluate the limit of a given sequence an = n (ln(2n-1) - ln(2n+1)).						
	5. Find local extremes and intervals of monotonicity of the function $f(x) = x - \arctan 2x$.						
Work placement	Not applicable						