

## 表 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	Mathematical Analysis, PG_00021031							
Field of study	Mathematics							
Date of commencement of studies	October 2023		Academic year of realisation of subject			2023/2024		
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	2		ECTS credits			10.0		
Learning profile	general academic profile		Assessment form			exam		
Conducting unit	Department of Nonlinear Analysis and Statistics -> Faculty of Applied Physics and Mathematics							
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Styborski						
	Teachers		dr inż. Marcin Styborski					
			dr inż. Robert Krawczyk					
			dr inż Anita Zgorzelska					
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM
of instruction	Number of study	60.0	60.0	0.0	0.0		0.0	120
	E-learning hours included: 0.0						1	
	Adresy na platformie eNauczanie:							
Learning activity and number of study hours	Learning activity Participation ir classes includ blan		ı didactic Participation in ed in study consultation hours		Self-study SUM		SUM	
	Number of study 120 hours		5.0		125.0		250	
Subject objectives	To familiarize students with basic tools of mathematical analysis. Part II.							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
	K6_U06		A student calculates integrals of functions of one variable.		[SU4] Assessment of ability to use methods and tools			
	к6_U03		A student uses the language of set theory on the basis of mathematical analysis.			[SU3] Assessment of ability to use knowledge gained from the subject		
	K6_W07		A student can calculate partial and directional derivatives of functions of several variables. A student is able to find a gradient of function. A student can find the Frechet derivative of a function.			[SW1] Assessment of factual knowledge		
	K6_U04		A student knows an axiomatic theory of real numbers.			[SU3] Assessment of ability to use knowledge gained from the subject		
	K6_W04		A student knows theorems discussed in the lecture.			[SW1] Assessment of factual knowledge		
Subject contents	<ol> <li>Euclidean spaces.</li> <li>Limits and continuity of functions of several variables.</li> <li>Differentiability of functions of several variables.</li> <li>Extremes of functions of several variables.</li> <li>Inverse function theorem.</li> <li>Implicit function theorem.</li> </ol>							
Prerequisites and co-requisites	Mathematical analysis of functions of one variable.							

Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade		
and criteria	Exam	50.0%	28.0%		
	Test no. 1	50.0%	27.0%		
	Test no. 2	50.0%	27.0%		
	Activity in the classes and at the lecture	0.0%	18.0%		
Recommended reading	Basic literature	<ol> <li>J. Jost, Postmodern Analysis, U.</li> <li>W. Rudin, Podstawy analizy ma 2009.</li> <li>G. M. Fichtenholz, Rachunek ro Warszawa, 2007.</li> <li>M. Spivak, Analiza na rozmaito</li> <li>W. Kołodziej, Analiza matematyczna.</li> </ol>	;, Universitext, Springer, Berlin, 2005. matematycznej, PWN, Warszawa, < różniczkowy i całkowy, t.1, PWN, itościach, PWN, Warszawa, 1977. iatyczna, PWN, Warszawa, 2009.		
		A. BIRHOIC, Analiza matematyczna,	F WIN, Waiszawa, 1900.		
Example issues/ example questions/ tasks being completed	<ul> <li>Calculate limits of functions of several variables.</li> <li>Examine the continuity of functions of several variables.</li> <li>Determine the Frechet derivative of a function.</li> <li>Calculate partial derivatives of functions of several variables.</li> <li>Determine extremes of functions of several variables.</li> </ul>				
Work placement	Not applicable				