

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mathematics, PG_00046325									
Field of study	Electronics and Telecommunications, Informatics, Automatic Control, Cybernetics and Robotics									
Date of commencement of studies	October 2024		Academic year of realisation of subject			2024/2025				
Education level	second-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			English				
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		dr Magdalena Musielak							
	Teachers		dr Magdalena Musielak							
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	ory Project		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									
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM		
	Number of study hours	60		20.0		70.0		150		
Subject objectives	Students obtain competence in using methods of mathematical analysis (calculus) necessary to begin their graduate studies.									
Learning outcomes	Course out	Subject outcome				Method of verification				
	IK/_UU1J can apply mathematical knowledge to formulate and solve complex and non-typical problems related to the field of study by: - appropriate selection of source information and its critical analysis, synthesis, creative interpretation and presentation, - application of appropriate methods and tools		Student recognizes the importance of skillful use of basic mathematical apparatus in terms of study in the future. Student uses the basic methods of mathematical analysis to formulate and solve engineering problems.			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information				
	understands, to an increased extent, mathematics to the extent necessary to formulate and solve complex issues related to the field of study		Student defines the basic concepts of differential and integral calculus of one variable and multivariable function. Student applies the basic rules to calculate ordinary and partial derivatives. Student applies basic techniques to evaluate single, double and triple integrals. Student uses definite integral to solve geometrical problems. Student uses the differential calculus to analyze properties of one variable and multivariable functions. Student gives the definitions of basic notions of probability theory, elements of field theory, line ans surface integrals, number and function series, and the Fourier series . Student demonstrates different methods of solving ordinary differential equations, also using Laplace transform.			knowledge				

Subject contents	 Differential and integral calculus of function of one variable. Ordinary differential equations. Differential and integral calculus of function of several variable. Elements of field theor. Number sequences and series. Power series. The Fourier series. Elements of probability theory. 					
Prerequisites and co-requisites						
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade			
	Tests	50.0%	50.0%			
	Final exam	50.0%	50.0%			
Recommended reading	Basic literature	 Sherman K. Stein, Calculus and analytic geometry, McGraw-Hill Book Company, 4th edition, 1987, George B. Thomas, Jr., Ross L.Finney, Calculus and Analytic Geometry, Addison-Wesley Publishing Company, 7th edition, 1988 John E.Hanke, Arthur G.Reitsch, "Understanding Business Statistics", IRWIN, 1991 M.Bednarczyk, A.Dąbrowicz - Tlałka, "Elementy rachunku prawdopodobieństwa w zadaniach",Wydawnictwo PG, 2012 				
	Supplementary literature	 K.T. Jankowscy, Zbiór zadań z matematyki, cz.1, PG Gdańsk K.T. Jankowscy, "Funkcje wielu zmiennych. Całki wielokrotne. Geometria analityczna", Wydawnictwo PG, 2005 K.T. Jankowscy "Zadania z matematyki wyższej", Wydawnictwo PG, 2001 				
	eResources addresses	Adresy na platformie eNauczanie: WETI (ACiR, EiT, Inf) – Mathematics 2024/25 (M.Musielak) - Moodle ID: 40716 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=40716				
Example issues/ example questions/ tasks being completed	 Find the general solution of the differential equation Find the local extreme values of the function f(x,y). Find the volume of a solid bounded by the surfaces. Determine convergence of the series. 					
Work placement	Not applicable					

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