

GDAŃSK UNIVERSITY

Subject card

Subject name and code	Linear Algebra, PG_00021032								
Field of study	Mathematics								
Date of commencement of studies	October 2022		Academic year of realisation of subject			2022/2023			
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			5.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Department of Nonlinear Analysis and Statistics -> Faculty of Applied Physics and Mathematics						CS		
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Zdzisław Dzedzej						
	Teachers		mgr inż. Tom						
			dr Joanna Cyman						
			dr hab. Zdzisław Dzedzej						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	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 ir classes includ plan	n didactic led in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	60		5.0		60.0		125	
Subject objectives	Learning of Elements of linear algebra								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	K6_W07		linear properties in calculus and other parts of mathematics			[SW1] Assessment of factual knowledge			
	K6_W02		formulates and proves basic theorems			[SW1] Assessment of factual knowledge			
	К6_U08		complex numbers, determinants, matrices, eigenvalues			[SU4] Assessment of ability to use methods and tools			
	K6_U03		proper use of algebraic objects			[SU3] Assessment of ability to use knowledge gained from the subject			
	K6_U01		proving simple properties of matrices, linear independence or orthogonality of vectors			[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools			

Subject contents	linear maps, kernel, image; matrix of a linear map, change of bases;						
	scalar multiplication, unitary spaces; orthogonal bases, ortogonalisation of Gram-Schmidt;						
	orthogonal matrices, symmetric matrices;						
	eigenvalues and eigenvectors;						
	diagonalisation;						
	bilinear forms and quadratic forms;						
	canonical form;						
Prerequisites and co-requisites	linear algebra l						
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	colloquia	50.0%	50.0%				
	exam	50.0%	40.0%				
	activity	0.0%	10.0%				
Recommended reading	Basic literature	A. Romanowski,Linear algebra, PG 2003					
		T. Jurlewicz, Z. Skoczylas, Linear algebra GiS 2005					
		J. Rutkowski, linear algebra in problems PWN 2008					
	Supplementary literature J. Topp, Algebra liniowa PG 2007 G. Banaszak, W. Gajda, Elementy algebry liniowej, WNT 2002						
							eResources addresses Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Find eigenvalues and diagonal form of a given matrix A.						
Work placement	Not applicable						