



## Subject card

Subject name and code	, PG_00060098						
Field of study	Civil Engineering						
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		
Mode of study	Part-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Structural Mechanics Department -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Andrzej Ambroziak				
	Teachers		dr hab. inż. Andrzej Ambroziak				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	10.0	10.0	0.0	0.0	20
	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	20		0.0		0.0	20
Subject objectives	The aim of the course is to discuss the basic numerical methods in structural mechanics (approximation, interpolation, numerical integration) and to acquire skills in programming in the MATLAB language in the field of the discussed numerical methods.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U04] Reads and prepares construction documentation (including drawings, graphic documentation in the CAD environment), efficiently uses maps as well as architectural, construction and geodetic drawings.	The student knows and understands basic numerical methods (approximation, interpolation and numerical integration).			[SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
	[K6_U05] Conducts research (obtaining information, simulations, experimental methods) in the field of construction in order to solve specific tasks and report research results.	The student is able to use numerical methods in the context of the basics of computer science. He is also able to analyze the methods themselves and assess their cognitive and practical value. Can choose the right IT tools and use them fluently.			[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools		
	[K6_W04] Knows the rules of descriptive geometry and technical drawing for preparing and reading architectural, construction and geodetic drawings; also with the use of CAD	The student knows the terminology in the field of computer science basics in the field of programming in the MATLAB language.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	[K6_W05] Demonstrate knowledge and understanding of research methods (obtaining information, simulations, experimental methods) in the field of civil engineering.	The student is able to use numerical and research methods in the field of information acquisition, simulation and use in experimental research.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		

Subject contents	Discussion of selected numerical methods: approximation, interpolation, numerical integration. Basics of programming in the MATLAB program.		
Prerequisites and co-requisites	mathematics structural mechanics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final test	50.0%	50.0%
	Final projects	0.0%	50.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. P. Kłosowski, A. AMBROZIAK: Metody numeryczne w mechanice konstrukcji z przykładami w programie Matlab - Gdańsk: Wydawnictwo Politechniki Gdańskiej, 2011</li> <li>2. R. Jankowski, I. Lubowiecka, W. Witkowski: Podstawy Programowania w języku MATLAB. Wyd. PG Gdańsk 2003.</li> <li>3. B. Mrozek, Z. Mrozek: MATLAB i Simulink. Poradnik użytkownika, Wyd. III, Helion 12/2010.</li> <li>4. I. Lubowiecka, A. Ambroziak: MATLAB i jego środowisko, Wyd. PG Gdańsk 2016.</li> </ol>	
	Supplementary literature	Materials for the laboratory and exercises placed on e-learning.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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