GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Programming and Numerical Methods, PG_00062072		
Field of study	Civil Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	2.0
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 inż. Krzysztof Żerdzicki	
	Teachers	mgr inż. Milena Drozdowska	
		dr inż. Łukasz Smakosz	
		dr hab. inż. Violetta Konopińska-Zmysłowska	
		dr inż. Magdalena Oziębło	
		mgr inż. Łukasz Żmuda-Trzebiatowski	
		dr inż. Mateusz Sondej	
		dr inż. Krzysztof Żerdzicki	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	10.0	20.0	0.0	0.0	30
	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	30	0.0	0.0	30

Subject objectives	Aim of the subject is to teach advanced programming skills and numerical methods realized with Matlab software and dedicated to solve engineering problems.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W01] Demonstrate knowledge and understanding of mathematics as well as sciences and engineering disciplines underlying civil engineering at a level necessary to achieve the other programme outcomes.	Students have an extended course of programming in the Matlab environment. Students can use MATLAB software to solve engineering problems using numerical methods.	[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.	Students have an extended course of programming in the Matlab environment. Students can use MATLAB software to solve engineering problems using numerical methods.	[SW2] Assessment of knowledge contained in presentation

Subject contents	Constructing matrices, basic operations on vectors and matrices, loops, conditional instructions, functions, scripts, 2D graphics.
	Numerical integration
	Interpolation and approximation
	Elements of statistics
	Advanced graphics and reports
Prerequisites and co-requisites	Completed a course on the basics of programming in Matlab environment.

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	60.0%	100.0%

Recommended reading	Basic literature	Podstawy Programowania w języku MATLAB, R. Jankowski, I. Lubowiecka, W. Witkowski, Wyd. PG Gdańsk 2003,
		MATLAB i jego środowisko, I. Lubowiecka, A. Ambroziak, Wyd. PG Gdańsk 2016
		Metody numeryczne w mechanice konstrukcji z przykładami w programie MATLAB, P. Kłosowski, A. Ambroziak, Wyd. PG Gdańsk 2011
	Supplementary literature	Społeczeństwo Informacyjne. Praca zbiorowa pod red. Joanny Papińskiej-Kacperek, PIW, Warszawa 2008
		Podstawy technik informatycznych, W. Sikorski, Wydawnictwo Naukowe PWN, Warszawa 2007
	eResources addresses	Podstawowe
		https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33471 - subject on the e-learning platform
		Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Calculating the area under the curve from the experiment
	Interpolation and approximation of a data set
	Generating reports with data and results in text and graphic form
	Statistical analysis of selected data sets
Work placement	Not applicable

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