GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Basics of Engineering Programming, PG_00060328						
Field of study	Civil Engineering						
Date of commencement of studies	October 2025		Academic year of realisation of subject	2025/2026			
Education level	first-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	Polish			
Semester of study	2		ECTS credits	1.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Department of Mechanics of Materials and Structures -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Nowak					
	Teachers						

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	0.0	0.0	0

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=5083

Moodle ID: 5083 Podstawy programowania inżynierskiego 2025/2026
https://enauczanie.pg.edu.pl/2025/course/view.php?id=5083

Additional information:

Online course on Enauczanie platform

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	0	0.0	0.0	0

Subject objectives

- Learning the fundamentals of engineering programming in MATLAB

- Learning how to use MATLAB to solve basic data analysis problems

<table>
<tr><td>Learning outcomes</td><td>
<table>
<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[K6_U05] Conducts research (obtaining information, simulations, experimental methods) in the field of construction in order to solve specific tasks and report research results.</td><td>Student is able to solve engineering problems related to basic principles of physics and to the processing of experimental data.</td><td>[SU1] Assessment of task fulfilment
[SU3] Assessment of ability to use knowledge gained from the subject
[SU4] Assessment of ability to use methods and tools
[SU5] Assessment of ability to present the results of task</td></tr>
<tr><td>[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.</td><td>Student is able to use tools available in the MATLAB environment for graphical data analysis by creating figures and plots.</td><td>[SU2] Assessment of ability to analyse information
[SU4] Assessment of ability to use methods and tools
[SU5] Assessment of ability to present the results of task</td></tr>
<tr><td>[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</td><td>Student is able to read and use data from files for subsequent application in engineering design tasks.</td><td>[SW3] Assessment of knowledge contained in written work and projects</td></tr>
<tr><td>[K6_W05] Demonstrate knowledge and understanding of research methods (obtaining information, simulations, experimental methods) in the field of civil engineering.</td><td>Student is able to define and initialize variables and distinguish between their types. Student is able to use mathematical operators and perform matrix operations in the MATLAB environment. Student understands the basics of programming logic and is able to write conditional statements such as “if”. Student is able to use “while” and “for” loops. Student can use built-in functions of the programming environment and write their own functions. Student is able to work with external files and calculate basic statistical quantities. Student understands the basics of plotting graphs and two basic numerical methods: integration using the trapezoidal rule and linear approximation.</td><td>[SW3] Assessment of knowledge contained in written work and projects</td></tr>
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<tr><td>Subject contents</td><td></td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Mathematics, physics</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td></td><td>50.0%</td><td>50.0%</td></tr>
<tr><td></td><td>50.0%</td><td>50.0%</td></tr>
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</td></tr>
<tr><td>Recommended reading</td><td>Basic literature</td><td>https://www.mathworks.com/help/matlab/
https://www.mathworks.com/help/matlab/ref/format.html
https://www.anaconda.com/products/distribution
https://support.microsoft.com/pl-pl/excel</td></tr>
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	Supplementary literature	https://www.mathworks.com/help/matlab/ref/double.html https://www.mathworks.com/help/matlab/matlab_prog/operator-precedence.html https://www.mathworks.com/help/matlab/characters-and-strings.html https://www.mathworks.com/help/matlab/learn_matlab/matrices-and-arrays.html https://www.mathworks.com/help/matlab/dictionary.html https://www.mathworks.com/help/matlab/trigonometry.html https://www.mathworks.com/help/matlab/random-number-generation.html https://www.mathworks.com/help/matlab/ref/if.html https://www.mathworks.com/help/matlab/ref/while.html https://www.mathworks.com/help/matlab/ref/for.html https://www.mathworks.com/help/matlab/ref/function.html https://www.mathworks.com/help/matlab/ref/load.html https://www.mathworks.com/help/matlab/ref/readmatrix.html https://www.mathworks.com/help/matlab/ref/readtable.html https://www.mathworks.com/help/matlab/ref/plot.html https://www.mathworks.com/help/matlab/ref/fill.html https://www.mathworks.com/help/matlab/ref/matlab.graphics.chart.primitive.histogram.html https://www.mathworks.com/help/matlab/ref/scatter.html https://www.mathworks.com/help/matlab/ref/trapz.html https://www.mathworks.com/help/curvefit/fit.html
	eResources addresses	Basic https://enauczanie.pg.edu.pl/2025/course/view.php?id=5083 -
Example issues/ example questions/ tasks being completed	Write a function that calculates the trajectory of a bungee jumper. Perform a linear approximation for a given set of points. Calculate basic statistical quantities for a given data set.	
Practical activites within the subject	Not applicable	

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