GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Basics of programing, PG_00063345		
Field of study	Nanotechnology		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2026/2027
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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	6.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Electrochemistry and Surface Physical Chemistry -> Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Mateusz Cieślik	
	Teachers	dr inż. Mateusz Cieślik	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	30.0	15.0	0.0	60

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	60	10.0	80.0	150

Subject objectives

Celem przedmiotu jest zaznajomienie studentów z podstawami programowania w języku Python. Przedmiot obejmuje poznanie od podstaw języka Python oraz wykorzystanie go do rozwiązywania problemów w praktyce inżynierskiej.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W04] Has knowledge of IT tools (word processors, spreadsheets, etc.), preparing multimedia presentations, programming and computer graphics	The student is able to write programs in Python that allow him or her to process data from text files or spreadsheets and is able to present this data in graphical form.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K6_U03] has programming skills in a selected language, and is able to use basic software packages.	The student knows the basics of the Python language and the necessary libraries to a level that allows them to be used freely in practice to solve typical engineering and technological problems.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject
[K6_U01] can learn independently, obtain information from literature, databases and other properly selected sources	The student is able to use the documentation of Python libraries and other sources such as books and websites, which enable him to solve problems related to writing code.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools

<table>
<tr><td>Subject contents</td><td>Course content – lecture

Lecture:
1-2. Introduction to Programming - Basic Concepts
3. What is a Program
3. The Python Interpreter
4. Basics of Python Programming
a) Variables and Constants and Their Types
b) Basic Arithmetic Operations, Assignment
c) Conditional Statements
d) Loops
e) Functions
5-6. Object-Oriented Programming Classes
7. Turtle Library
8. Selenium Library
9. Good Programming Principles
10-11. Medipipe Library
12. OpenAi Library
Lab:
The lab covers practical use of Python to solve sample problems
that arise in engineering practice. Sample programs will be used during the lab to illustrate the content covered in the lecture. Typical programming constructs/solutions/algorithms will also be discussed. The lab also includes independent work on sample tasks/problems.
Project:
The project involves working on a given problem/issue and solving it from scratch using a program written in Python.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></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>40.0%</td></tr>
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</td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. M. Lutz, Python. Wprowadzenie. Wydanie V, Helion 2023.
2. Python 3.12.2 documentation, https://docs.python.org/3/
3. The Python Tutorial, https://docs.python.org/3/tutorial/index.html</td></tr>
<tr><td>Supplementary literature</td><td>2. Python 3.12.2 documentation, https://docs.python.org/3/
3. The Python Tutorial, https://docs.python.org/3/tutorial/index.html</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
</table>

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