



## Subject card

Subject name and code	Fundamentals of Informatics, PG_00060501						
Field of study	Design and Construction of Yachts						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2026/2027	
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	1	ECTS credits				4.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Transport and Logistics -> Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Życzkowski					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	30.0	0.0	45
	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	45	5.0	50.0	100		
Subject objectives	The aim of the course is to master the skills in the field of programming, problem-solving and algorithm creation, building block diagrams and using pseudocode and scripting language in the Python environment. Writing programs, creating functions and procedures. Using tables and variables of various types. Using functions that allow you to visualize test results in the Python.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W04] has knowledge in the field of computer science, electronics, electrical engineering, automation and control, information technology, computer graphics, useful for understanding the possibilities of their use in ocean engineering	The student can independently develop a solution using a block diagram and scripting language in the PYTHON environment			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	[K6_U01] can obtain information from literature, databases and other sources, can verify and organize the obtained information, interpret them and form conclusions and justified opinions	The student can independently find information to solve tasks and tests in the field of learning about programming, creating and building simple programs in the PYTHON environment.			[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		

Subject contents	<p>Course content – lecture</p> <p>Range:</p> <ul style="list-style-type: none"> <li>Getting acquainted with the Anaconda development environment,</li> <li>Familiarization with Spyder (selected IDE), importing and using Python libraries,</li> <li>Getting to know the basics of the Python language.</li> </ul> <p>Python basics:</p> <ul style="list-style-type: none"> <li>Functions (creation, use)</li> <li>familiarization with operators (arithmetic, logical, relational),</li> <li>Retrieving and formatting data entered by the user,</li> <li>operations on strings (cutting strings, separating strings, joining strings, capitalization, finding patterns in the text, replacing the pattern, removing spaces, new line and tabulation, special characters in the text),</li> <li>Conditional statements (if, else, elif),</li> <li>getting acquainted with new data structures (lists, sets, tuples, dictionaries),</li> <li>familiarization with generating expressions (lists, dictionaries, sets),</li> <li>Using loops (for, while),</li> <li>File handling (loading, reading), data transfer format (TXT, CSV, JSON)</li> <li>Generating random events (random),</li> <li>Getting to know the NumPy library. ndarray - basic data type, creating arrays with np.array(), np.arange(), np.linspace(), array operations, viewing arrays in NumPy, generating pseudo-random numbers (eg random), Indexing and cutting arrays , Iteration over arrays, resizing, statistical functions in the NumPy library</li> <li>Getting to know matplotlib and seaborn, bar and scatter plots, displaying images, subplots and other data visualization possibilities</li> </ul>								
Prerequisites and co-requisites									
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="454 913 794 943">Subject passing criteria</th> <th data-bbox="799 913 1139 943">Passing threshold</th> <th data-bbox="1144 913 1482 943">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="454 949 794 987">umiejętność rozwiązywać problemów. algorytmy</td> <td data-bbox="799 949 1139 987">60.0%</td> <td data-bbox="1144 949 1482 987">100.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	umiejętność rozwiązywać problemów. algorytmy	60.0%	100.0%
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Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Programming for Everybody (Getting Started with Python)</li> <li>2. <a href="https://www.flynerd.pl/tag/python-kurs">https://www.flynerd.pl/tag/python-kurs</a></li> <li>3. <a href="https://www.tutorialspoint.com/python/">https://www.tutorialspoint.com/python/</a></li> <li>4. <a href="https://python.org">Python.org</a></li> <li>5. <a href="https://python.swaroopch.com/">https://python.swaroopch.com/</a></li> </ol>							
	Supplementary literature	Computing in Python I: Fundamentals and Procedural Programming							
	eResources addresses								
Example issues/ example questions/ tasks being completed	Function construction. Input and output parameters. Application of functions and algorithms. Searching for vector and matrix elements that meet given conditions, sorting, checking if a given number is a prime number, compute greatest common divisor, calculating factorials, recursion.								
Practical activities within the subject	Not applicable								

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