



Subject card

Subject name and code	Fundamentals of Informatics, PG_00060521						
Field of study	Naval Architecture and Offshore Structures						
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 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	Zakład Informatyki Technicznej -> Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Życzkowski					
	Teachers	dr inż. Marcin Życzkowski dr inż. Aleksandra Nabożny					
Lesson types and methods of instruction	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		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	[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.		[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject		

Subject contents	<p>Range:</p> <ul style="list-style-type: none"> Getting acquainted with the Anaconda development environment, Familiarization with Spyder (selected IDE), importing and using Python libraries, Getting to know the basics of the Python language. <p>Python basics:</p> <ul style="list-style-type: none"> Functions (creation, use) familiarization with operators (arithmetic, logical, relational), Retrieving and formatting data entered by the user, 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), Conditional statements (if, else, elif), getting acquainted with new data structures (lists, sets, tuples, dictionaries), familiarization with generating expressions (lists, dictionaries, sets), Using loops (for, while), File handling (loading, reading), data transfer format (TXT, CSV, JSON) Generating random events (random), 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 Getting to know matplotlib and seaborn, bar and scatter plots, displaying images, subplots and other data visualization possibilities 											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="448 875 794 909">Subject passing criteria</th> <th data-bbox="794 875 1141 909">Passing threshold</th> <th data-bbox="1141 875 1487 909">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 909 794 969">umiejętność rozwiązywać problemów. algorytmy</td> <td data-bbox="794 909 1141 969">60.0%</td> <td data-bbox="1141 909 1487 969">100.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	umiejętność rozwiązywać problemów. algorytmy	60.0%	100.0%			
Subject passing criteria	Passing threshold	Percentage of the final grade										
umiejętność rozwiązywać problemów. algorytmy	60.0%	100.0%										
Recommended reading	<table border="1"> <tbody> <tr> <td data-bbox="448 976 794 1104">Basic literature</td> <td colspan="2" data-bbox="794 976 1487 1104"> <ol style="list-style-type: none"> Programming for Everybody (Getting Started with Python) https://www.flynerd.pl/tag/python-kurs https://www.tutorialspoint.com/python/ Python.org https://python.swaroopch.com/ </td> </tr> <tr> <td data-bbox="448 1104 794 1137">Supplementary literature</td> <td colspan="2" data-bbox="794 1104 1487 1137">Computing in Python I: Fundamentals and Procedural Programming</td> </tr> <tr> <td data-bbox="448 1137 794 1234">eResources addresses</td> <td colspan="2" data-bbox="794 1137 1487 1234"> Adresy na platformie eNauczanie: Podstawy informatyki - Moodle ID: 31949 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=31949 </td> </tr> </tbody> </table>			Basic literature	<ol style="list-style-type: none"> Programming for Everybody (Getting Started with Python) https://www.flynerd.pl/tag/python-kurs https://www.tutorialspoint.com/python/ Python.org https://python.swaroopch.com/ 		Supplementary literature	Computing in Python I: Fundamentals and Procedural Programming		eResources addresses	Adresy na platformie eNauczanie: Podstawy informatyki - Moodle ID: 31949 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=31949	
Basic literature	<ol style="list-style-type: none"> Programming for Everybody (Getting Started with Python) https://www.flynerd.pl/tag/python-kurs https://www.tutorialspoint.com/python/ Python.org https://python.swaroopch.com/ 											
Supplementary literature	Computing in Python I: Fundamentals and Procedural Programming											
eResources addresses	Adresy na platformie eNauczanie: Podstawy informatyki - Moodle ID: 31949 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=31949											
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.											
Work placement	Not applicable											