



Subject card

Subject name and code	Fundamentals of Informatics, PG_00060639						
Field of study	Transport and Logistics						
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	2		ECTS credits			3.0	
Learning profile	general academic profile		Assessment form			assessment	
Conducting unit	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. Patrycja Puzdrowska mgr inż. Olga Kazimierska				
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		6.0		24.0	75
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_U01] can obtain information from literature, databases and other sources; verify and systematize the information obtained, interpret it and draw conclusions, formulate and justify 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			[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject	
	[K6_W04] has well established knowledge in the field of computer science, electronics, automation and control, information technology and computer graphics, useful for understanding the possibilities of applying them in transport		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	

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 libraryGetting 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	Subject passing criteria	Passing threshold	Percentage of the final grade
	umiejętność rozwiązywać problemów. algorytmy	60.0%	100.0%
Recommended reading	Basic literature	1. Programming for Everybody (Getting Started with Python) 2. https://www.flynerd.pl/tag/python-kurs 3. https://www.tutorialspoint.com/python/ 4. Python.org 5. https://python.swaroopch.com/	
	Supplementary literature	Computing in Python I: Fundamentals and Procedural Programming	
	eResources addresses	Adresy na platformie eNauczanie: Podstawy informatyki IBO - 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		