



## Subject card

Subject name and code	Programming Elements, PG_00044761						
Field of study	Engineering Management						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2021/2022		
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	Part-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	Faculty of Management and Economics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr Grażyna Musiatowicz-Podbiał					
	Teachers	dr Grażyna Musiatowicz-Podbiał mgr Jaromir Durkiewicz					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	16.0	0.0	0.0	16
	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	16	6.0	53.0	75		
Subject objectives	<p>The course introduces participants to the subject of writing computer programs. Particular emphasis is placed on gaining practical skills.</p> <p>As part of the course, students work in a computer lab and at home (online). Independent work with a computer is interwoven with lectures introducing new issues and quizzes systematizing knowledge.</p> <p>Classes are taught in Python using the Jupyter notebook. Thanks to its simple structure and a large number of libraries Python has a very wide application in scientific applications.</p>						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W05] knows the statistical and IT methods and tools that enable the acquisition and presentation of data on the organisation's resources, including technical resources	The student can choose technology relevant to given situation.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_U09] obtains data for analysis and interpretation of results using information technology	The student can write a simple program, choose the appropriate data structures.			[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		
Subject contents	<ol style="list-style-type: none"> <li>1. Computational thinking methods - basic concepts</li> <li>2. Arithmetic operators</li> <li>3. Using variables</li> <li>4. Use of data</li> <li>5. Logic</li> <li>6. Iteration</li> <li>7. Procedures and functions, Recursive functions, Events</li> <li>8. Lists, tuples, tables and dictionaries</li> <li>9. File Handling</li> <li>10. Object-oriented programming</li> </ol>						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Work during laboratories and knowledge tests	0.0%	100.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. A.Hodorowicz, ECDL S10. Podstawy programowania w języku Python, WN PWN, Warszawa 2019.</li> <li>2. M.Sysło, Algorytmy, Helion, Gliwice 2016.</li> <li>3. Zed A. Shaw, Python. Proste wprowadzenie do fascynującego świata programowania, 2018.</li> <li>4. P.Wróblewski, Algorytmy, struktury danych i techniki programowania, wyd. Helion, Gliwice 1997.</li> <li>5. M.Kubale, Łagodne wprowadzenie do analizy algorytmów, wyd. PG, Gdańsk 2021.</li> </ol>	
	Supplementary literature	<ol style="list-style-type: none"> <li>1. M.Lutz, Python. Wprowadzenie, wyd IV, Helion, Gliwice 2010.</li> <li>2. M.Lutz, Python. Leksykon kieszonkowy, wyd V, Helion, Gliwice 2014.</li> <li>3. Zed A. Shaw, Learn Python 3 the Hard Way: A Very Simple Introduction to the Terrifyingly Beautiful World of Computers and Code</li> </ol>	
	eResources addresses	<p>Podstawowe  <a href="https://docs.python.org/3/">https://docs.python.org/3/</a> - Python 3 official documentation.</p>	
Example issues/ example questions/ tasks being completed	<p>What are key elements of computational thinking?</p> <p>Write a program that displays 10 stars on the screen. Use the loop instruction.</p> <p>Write a program that will calculate how many primes are in the range</p>		
Work placement	Not applicable		