



## Subject card

Subject name and code	Programming Elements, PG_00044762						
Field of study	Engineering Management						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2020/2021		
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			e-learning		
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	Department of Informatics in Management -> Faculty of Management and Economics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tomasz Deręgowski					
	Teachers	dr inż. Tomasz Deręgowski mgr inż. Leszek Zięba					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 30.0						
	Adresy na platformie eNauczanie: Elementy programowania - Moodle ID: 14178 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=14178">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=14178</a>						
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	30	6.0	39.0	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_U09] obtains data for analysis and interpretation of results using information technology	The student can write a simple program, choose the appropriate data structures.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment				
	[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				

Subject contents	<ol style="list-style-type: none"> <li>1. Computational thinking methods - basic concepts</li> <li>2. Algorithmics and software life cycle</li> <li>3. Programming elements:</li> <li>4. Arithmetic operators</li> <li>5. Using variables</li> <li>6. Use of data</li> <li>7. Logic</li> <li>8. Iteration</li> <li>9. Procedures and functions</li> <li>10. Recursive functions</li> <li>11. Events</li> <li>12. Lists, tuples, sets and dictionaries</li> <li>13. File Handling</li> <li>14. Object-oriented programming</li> <li>15. Testing, debugging and production version</li> </ol>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Work during laboratories and at home	60.0%	100.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. M.Sysło, Algorytmy, Helion, Gliwice 2016,</li> <li>2. M.Lutz, Python. Wprowadzenie, wyd IV, Helion, Gliwice 2010</li> <li>3. M.Lutz, Python. Leksykon kieszonkowy, wyd V, Helion, Gliwice 2014.</li> </ol>	
	Supplementary literature	Learn Python 3 the Hard Way: A Very Simple Introduction to the Terrifyingly Beautiful World of Computers and Code - <b>Zed A. Shaw</b>	
	eResources addresses	Podstawowe <a href="https://pl.python.org/docs/tut/tut.html">https://pl.python.org/docs/tut/tut.html</a> - Technical documentation: <a href="https://docs.python.org/3/">https://docs.python.org/3/</a> Elementy programowania - Moodle ID: 14178 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=14178">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=14178</a>	
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 &lt;x; y&gt;</p>		
Work placement	Not applicable		