



Subject card

Subject name and code	Introduction to application programming , PG_00028709						
Field of study	Mathematics						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group			Optional subject group 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	3	Language of instruction			Polish		
Semester of study	6	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Divison of Nonlinear Analysis -> Institute of Applied Mathematics -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Jakub Maksymiuk					
	Teachers	dr inż. Jakub Maksymiuk					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	45.0	0.0	0.0	60
	E-learning hours included: 0.0 Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19344						
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	60	0.0		0.0		60
Subject objectives	The student learns object-oriented programming techniques on the example of the Python programming language. Presentation of advantages of using object-oriented techniques. Creating applications using available Python libraries. Selected topics of software engineering and tools supporting application development.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W08	The student knows programming languages such as C++, C# and Python.			[SW3] Assessment of knowledge contained in written work and projects		
	K6_K02	The student can precisely formulate enabling questions to search for information in C++, C# language documentation and Python.			[SK2] Assessment of progress of work		
	K6_W03	The student understands selected theories mathematical and can use mathematical formalism as foundation for implementation computer algorithms.			[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Lecture <ul style="list-style-type: none">elements of software engineeringselected tool in software developmentThe Python programming language Computer laboratory <ul style="list-style-type: none">a short introduction to Pythonsoftware design and developmentcreating sample applicationssoftware development tools						

Prerequisites and co-requisites	Knowledge of the courses Programming (MAT1007) and Algorithms and data structures (MAT1036/2)		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test of the practical programming skills in C++	50.0%	33.0%
	Test of the practical programming skills in Python	50.0%	33.0%
	Test of the lecture topics	50.0%	34.0%
Recommended reading	Basic literature	<p>1) B. Meyer <i>Programowanie zorientowane obiektowo</i>, Helion</p> <p>2) M. Lutz - "Python. Wprowadzenie. Wydanie IV", Helion</p> <p>3) J. Matulewski, M. Grabek, M. Pakulski, D. Borycki - "ASP.NET Web Forms. Kompletny przewodnik dla programistów interaktywnych aplikacji internetowych w Visual Studio", Helion</p> <p>4) https://docs.python.org/3/index.html</p> <p>5) J. Hunt, A Beginners Guide to Python 3 Programming</p> <p>6) B. Stephenson, The Python Workbook: A Brief Introduction</p>	
	Supplementary literature	<p>1) S. Prata - "Język C++. Szkoła programowania. Wydanie VI", Helion 2012</p> <p>2) G. Arora - "Język C# w 7 dni. Solidne podstawy programowania obiektowego", Helion 2018</p> <p>3) S. Orłowski, M. Grabek - "C#. Tworzenie aplikacji sieciowych. Gotowe projekty", Helion</p> <p>4) A. Boschetti, L. Massaron - "Python. Podstawy nauki o danych. Wydanie II", Helion 2017</p> <p>5) D. Borycki, M. Pakulski, M. Grabek, J. Matulewski - "ASP.NET MVC. Kompletny przewodnik dla programistów interaktywnych aplikacji internetowych w Visual Studio", Helion</p>	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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