



Subject card

Subject name and code	Programming languages, PG_00058047						
Field of study	Technical Physics						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
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	Instytut Fizyki i Informatyki Stosowanej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Patryk Jasik					
	Teachers	dr inż. Patryk Jasik					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	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		25.0		75
Subject objectives	Student learns procedural programming in the selected programming language (e.g C language, C++, Python).						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_K01	The student understands the need to learn and get to know well-known technologies.			[SK2] Assessment of progress of work		
	K6_W05	The student can write programs in the C, C++, Python language using appropriate libraries.			[SW3] Assessment of knowledge contained in written work and projects		
	K6_U03	The student is able to program in C, C++ and Python language.			[SU1] Assessment of task fulfilment		
Subject contents	Lecture: Classification, similarities, and differences between programming languages. Introduction to programming in C, C++ and Python languages. Programming technique using procedural programming languages. Classification and description of the basic libraries used in programming in C, C++ and Python. Discussion of the lexical units occurring in C, C++ and Python. Classification and description of the main control blocks in C, C++ and Python. Discussion of the syntax and mode of action: functions, tables, and pointers. Description of the preprocessor and its fundamental directives. Classification and description of operations on files. Action on strings. Discussion of the structure, union, and bit-fields.						
	Exercises in the computer laboratory: the lecture contents are realized in the practical examples.						
Prerequisites and co-requisites	Basic knowledge of operating systems Unix / Linux and MS Windows.						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	A written knowledge test of the lecture	50.0%			20.0%		
	Two tests of the practical skills of programming	50.0%			80.0%		

Recommended reading	Basic literature	<p>B.W. Kernighan, D.M. Ritchie, "C Programming Language", Prentice Hall C.L. Tondo, S.E. Gimpel, "The C Answer Book: Solutions to the Exercises in 'The C Programming Language'", Prentice Hall I. Sommerville, "Software Engineering", Addison Wesley "C Programming", from Wikibooks, the open-content textbooks collection</p> <p>Stroustrup Bjarne, "The C++ Programming Language", Pearson Education (US)</p> <p>David Beazley, Brian K. Jones, "Python Cookbook. Recipes for Mastering Python 3.", 3rd Edition, O'Reilly Media</p>
	Supplementary literature	<p>N. Wirth, "Algorithms + Data Structures = Programs", Prentice Hall S. Prata, "C Primer Plus", Sams S. Oaulline, "Practical C Programming", O'Reilly Media</p> <p>Stroustrup Bjarne, "Programming", Pearson Education (US)</p> <p>Mark Lutz, "Python Pocket Reference. Python In Your Pocket.", 5th Edition, O'Reilly Media</p>
	eResources addresses	<p>Adresy na platformie eNauczenie: Języki Programowania (2023) - Moodle ID: 25656 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=25656</p>
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	