

GDAŃSK UNIVERSITY OF TECHNOLOGY GY GY

Subject card

Subject name and code	Fundamentals of programming, PG_00058347								
Field of study	Hydrogen Technologies and Electromobility								
Date of commencement of studies	October 2023		Academic year of realisation of subject			2023/2024			
Education level	ion 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			4.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Department of Biomedical Engineeri		ing -> Faculty of Electronics, Telecon			munications and Informatics			
Name and surname	Subject supervisor		prof. dr hab. inž. Piotr Jasiński						
of lecturer (lecturers)	Teachers	Teachers dr inż. Milena Marycz							
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
of instruction	Number of study hours	15.0	0.0	30.0	0.0		0.0	45	
	E-learning hours inclu	uded: 0.0							
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	a didactic Participation in ed in study consultation hours		Self-study SUM				
	Number of study hours	45		7.0		48.0		100	
Subject objectives	The aim of the course is for students to acquire knowledge and skills in programming. The student should master the ability to create and analyse algorithms and the principles of programming in the C/C++ language: instructions, data types, operators and functions. Students should acquire knowledge of structures, pointers and other basic concepts related to programming in C/C++.								
Learning outcomes	Course outcome		Subject outcome		Method of verification				
	[K6_W14] knows and at an advanced level principles, methods a techniques of progra the principles of crea software or program or controllers using microprocessors or p elements or systems the field of study, as organization of the w systems using comp devices	The student knows the principles of programming in C/C++.			[SW1] Assessment of factual knowledge				
	[K6_U09] is able to use their knowledge in the field of programming methods and techniques and select and apply appropriate programming methods and tools in creating computer software or programming devices or controllers using microprocessors or programmable elements or systems, characteristic for a given field of study		Students can use knowledge provided (from the lecture), techniques of the C/C++ language to write and compile a programme implementing given algorithms.			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools			

Subject contents	1. programming languages, alphabet, syntax and semantics. Translation.						
	2. type classification. Integer and floating point types.						
	 3 Arithmetic operators and expressions. 4 Selected standard functions. 5 Character types. Type casting. 						
	6 Logical type. Logical operators and expressions.						
	7 Fundamentals of input/output handling. 8 Conditional instructions (if, switch) and conditional expressions.						
	9. iterative instructions (for, while, do-while). Nested iterations.						
	10. defining types. Constants. Enumeration type.						
	11. one-dimensional and multi-dimensional arrays. Writers.						
	12 Validity and lifetime of variables.						
	13 Functions. Range and lifetime of variables. Side effects.						
	14. transfer of function parameters.						
	15. pointer type. The arithmetic of pointers.16. pointers in communication between functions.17. dynamic memory allocation.						
	18. structures						
Prerequisites and co-requisites							
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	Lab	50.0%	50.0%				
	Lecture	50.0%	50.0%				
Recommended reading	Basic literature	KERNIGHAN, Brian W.; RITCHIE, Dennis M. The C programming language, Prentice Hall, 2006					
	Grębosz Jerzy, Symfonia C++ Standard (tom 1 i 2), Wydanie 2000, Krakow 2008						
	Supplementary literature	Stephen Prata, "Jezyk C++. Szkoła programowania". Wydanie VI. Helion 2012					
		Mirosław J. Kubiak, "C++. Zadania z programowania z przykładowymi rozwiazaniami", Helion 2011					

	eResources addresses	Adresy na platformie eNauczanie: Podstawy Programowania TWiE [2024/25] - Moodle ID: 37659 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37659			
Example issues/ example questions/ tasks being completed	Writing a programme that implements the given functionality. Analyse how the given programme works.				
Work placement	Not applicable				