GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Fundamentals of programming, PG_00058347		
Field of study	Hydrogen Technologies and Electromobility		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2023/2024
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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Biomedical Engineering -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Grzegorz Jasiński	
	Teachers	dr inż. Grzegorz Jasiński dr inż. Milena Marycz	

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	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 understands at an advanced level the principles, methods and techniques of programming and the principles of creating computer software or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, as well as the organization of the work of systems using computers or these 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.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment

<table>
<tr><td>Subject contents</td><td>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</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Lecture</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>Lab</td><td>50.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>KERNIGHAN, Brian W.; RITCHIE, Dennis M. The C programming language, Prentice Hall, 2006

Gręboszc Jerzy, Symfonia C++ Standard (tom 1 i 2), Wydanie 2000, Krakow 2008</td></tr>
<tr><td>Supplementary literature</td><td>Stephen Prata, "Jezyk C++. Szkoła programowania". Wydanie VI. Helion 2012

Mirosław J. Kubiak, "C++. Zadania z programowania z przykładowymi rozwiazaniami", Helion 2011</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:
PODSTAWY PROGRAMOWANIA [2023/24] - Moodle ID: 32113
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32113</td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Writing a programme that implements the given functionality.
Analyse how the given programme works.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.