



## Subject card

Subject name and code	Programming, PG_00064129						
Field of study	Electronics and Telecommunications, Informatics, Automatic Control, Cybernetics and Robotics						
Date of commencement of studies	October 2024	Academic year of realisation of subject				2024/2025	
Education level	second-cycle studies	Subject group				Obligatory subject group in the field of study	
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	1	Language of instruction				English	
Semester of study	1	ECTS credits				7.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Algorithms and Systems Modelling -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr Marcin Jurkiewicz					
	Teachers	dr Marcin Jurkiewicz					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	20.0	0.0	80
	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	80	11.0		84.0		175
Subject objectives	The aim of the course is to learn students programming and implementation of programs in the Linux/Visual Studio environment. Students should master C/C++ instructions, data resources, operators and functions. Students should acquire knowledge about structures, functions and other basic concepts related to programming in C/C++.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W04] knows and understands, to an increased extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or other elements or programmable devices specific to the field of study, and organization of work of systems using computers or such devices	A student knows the basic rules of C/C++.			[SW1] Assessment of factual knowledge		
	[K7_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, making assessment and critical analysis of the prepared software as well as a synthesis and creative interpretation of information presented with it	A student is able to use the given knowledge (from the lecture), basic techniques of C/C++ and software in Linux/Visual Studio to write and compile programs.			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		

Subject contents	<ol style="list-style-type: none"> <li>1. Programming languages, alphabet, syntax and semantics. Translation.</li> <li>2. Classification of data types. Integer and floating point types.</li> <li>3. Arithmetic expressions and operators.</li> <li>4. Selected standard functions.</li> <li>5. Character type. Casting of types.</li> <li>6. Logical type. Logical operators and expressions.</li> <li>7. Input/output basics.</li> <li>8. Conditional statements (if, switch) and conditional expression.</li> <li>9. Iteration statements (for, while, do-while), nested iterations.</li> <li>10. Defining types. Constants. Enumerated type.</li> <li>11. One- and multi-dimensional arrays. Null-terminated strings.</li> <li>12. Basic rules for scope and lifetime of variables.</li> <li>13. Functions. Scope and lifetime of variables. Side effect.</li> <li>14. Passing parameters of a function.</li> <li>15. Pointer type and pointer arithmetics.</li> <li>16. Pointers for inter-function communication.</li> <li>17. Dynamic memory allocation.</li> <li>18. Structures.</li> </ol>														
Prerequisites and co-requisites	No requirements														
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Subject passing criteria</th> <th style="width: 25%;">Passing threshold</th> <th style="width: 25%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Laboratory: correctness, algorithms, structures, runtime and universality.</td> <td>50.0%</td> <td>30.0%</td> </tr> <tr> <td>Project: correctness, algorithms, structures, runtime and universality.</td> <td>50.0%</td> <td>30.0%</td> </tr> <tr> <td>Exam</td> <td>50.0%</td> <td>40.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Laboratory: correctness, algorithms, structures, runtime and universality.	50.0%	30.0%	Project: correctness, algorithms, structures, runtime and universality.	50.0%	30.0%	Exam	50.0%	40.0%
Subject passing criteria	Passing threshold	Percentage of the final grade													
Laboratory: correctness, algorithms, structures, runtime and universality.	50.0%	30.0%													
Project: correctness, algorithms, structures, runtime and universality.	50.0%	30.0%													
Exam	50.0%	40.0%													
Recommended reading	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 50%;">Basic literature</td> <td colspan="2">1. KERNIGHAN, Brian W.; RITCHIE, Dennis M. <i>The C programming language</i>, Prentice Hall, 2006</td> </tr> <tr> <td>Supplementary literature</td> <td colspan="2">1. B. Stroustrup, <i>The C++ Programming Language</i>, Addison Wesley Longman, 2000</td> </tr> <tr> <td>eResources addresses</td> <td colspan="2">Adresy na platformie eNauczenie: 2024 Programming ABC - Moodle ID: 41431 <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41431">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41431</a></td> </tr> </tbody> </table>			Basic literature	1. KERNIGHAN, Brian W.; RITCHIE, Dennis M. <i>The C programming language</i> , Prentice Hall, 2006		Supplementary literature	1. B. Stroustrup, <i>The C++ Programming Language</i> , Addison Wesley Longman, 2000		eResources addresses	Adresy na platformie eNauczenie: 2024 Programming ABC - Moodle ID: 41431 <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41431">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41431</a>				
Basic literature	1. KERNIGHAN, Brian W.; RITCHIE, Dennis M. <i>The C programming language</i> , Prentice Hall, 2006														
Supplementary literature	1. B. Stroustrup, <i>The C++ Programming Language</i> , Addison Wesley Longman, 2000														
eResources addresses	Adresy na platformie eNauczenie: 2024 Programming ABC - Moodle ID: 41431 <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41431">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41431</a>														
Example issues/ example questions/ tasks being completed	<p><b>What is the result of the following code?</b></p> <pre style="margin-left: 20px;">int i;  for(i=0;i&lt;3;i++); cout &lt;&lt; i; cout &lt;&lt; i+1;</pre> <p>a) 011223 b) 0124 c) 0123 d) 34 e) 124 f) 45</p>														
Work placement	Not applicable														

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