



## Subject card

Subject name and code	Basics of Programming, PG_00067422						
Field of study	Automatic Control, Cybernetics and Robotics						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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	1		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Algorithms and Systems Modelling -> Faculty of Electronics Telecommunications and Informatics -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Paweł Obszarski				
	Teachers		dr inż. Aleksander Mroziński mgr inż. Andrzej Jastrzębski dr inż. Maciej Wróbel dr inż. Andrzej Marczak dr inż. Marcin Strąkowski dr Paweł Obszarski dr inż. Joanna Raczek dr hab. inż. Robert Janczewski dr inż. Katarzyna Karpienko dr inż. Bartłomiej Dec mgr inż. Jan Glinko dr hab. inż. Iwona Kochańska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	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	60		10.0		55.0	125
Subject objectives	The course introduces computer programming. Students become familiar with basic programming techniques in C++. They learn to solve programming problems and the basics of algorithms.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U12] can analyze the operation of components, circuits and systems related to the field of study, as well as measure their parameters and examine technical specifications, and plan and conduct experiments related to the field of study, including computer simulations and measurements, and interpret obtained results and draw conclusions	The student is able to develop, test and investigate simple computer programs, including those that simulate processes.	[SU1] Assessment of task fulfilment
	[K6_W04] knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	The student knows the constructs of a high-level programming language. He is able to interpret and analyze programs written in a high-level programming language. The student knows the rules for selection of programming methods and language constructs.	[SW1] Assessment of factual knowledge
	[K6_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	The student analyzes and solves basic programming problems. The student uses high-level programming language constructs that are syntactically and semantically correct. He writes and modifies programs in a high level language. Identifies and removes the causes of program malfunctions. He explains and can apply basic programming techniques.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
Subject contents	1. introduction 2. variables - basic types and basic arithmetic, bitwise operations 3. logical operators, bool variables, conditional statement, 4. for, while, do while loops 5. arrays, array, vecotor, 6. string, c-string, cstring, 7. functions, passing by value, returning, learning effects. 8. modules, 9. pointers, 10. functions 2. recursion 11 structures 12. objects 13. stl 14. files 15. basic data structures		
Prerequisites and co-requisites	Knowledge and skills in mathematics at secondary school level.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final test	51.0%	50.0%
	Programming lab assignments	51.0%	50.0%
Recommended reading	Basic literature	[1] Grębosz J., Symfonia C++ Standard (tom 1 i 2), Editions 2000, Krakow 2008.  [2] Podstawy programowania - materiały do wykładu.	
	Supplementary literature	Cormen Thomas H. Wprowadzenie do algorytmów	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. Write a program that reads an array of integers and rearranges its elements so that even numbers are at the beginning. 2. Write a function that calculates the number of divisors of an integer.		
Work placement	Not applicable		

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