



Subject card

Subject name and code	Basics of computer programming, PG_00045290						
Field of study	Data Engineering, Data Engineering						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
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			English		
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 -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Dariusz Dereniowski					
	Teachers	prof. dr hab. inż. Dariusz Dereniowski dr hab. inż. Robert Janczewski dr inż. Tytus Pikies					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	20.0	0.0	65
	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	65	10.0		50.0		125
Subject objectives	The aim of the course is an introduction to computer programming, whose main goal is to teach student solving programming tasks and writing programs in C/C++.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U04] formulates logical solutions to complex or unstructured problems	Student codes in a procedural programming language, runs and tests programs.			[SU1] Assessment of task fulfilment		
	[K6_U02] prepares and presents convincingly professional presentations of the results of undertaken activities, with their advanced interpretation	Student presents code along with its analysis.			[SU1] Assessment of task fulfilment		
	[K6_W01] identifies conditioning of the processes occurring in the analyzed systems and selects methods for solving them, using the accumulated knowledge and taking into account the mutual relations between the analyzed phenomena	Student knows and understands models of programming and evolution of the corresponding programming languages. Student learns one of the object oriented programming platforms.			[SW1] Assessment of factual knowledge		

Subject contents	<p>Course content – lecture LECTURES Introduction. Programming languages, alphabet, syntax and semantics. Translation. Classification of data types. Integer and floating point types. Arithmetic expressions and operators. Standard mathematical functions. Character type. Casting. Logical type. Logical operators and expressions. Basics of input/output processing. Conditional statements (if, switch) and conditional expression. Iteration statements (for, while, do-while). Nested iterations. Defining types. Enumerated type. Constants. One- and multi-dimensional arrays. Null-terminated strings. Scope and lifetime of variables. Functions. Side effect. Passing parameters to functions. Pointer type. Pointer arithmetic. Pointers for inter-function communication. Dynamic memory allocation. Basic dynamic data structures. Records (structures). Data structures using records and their applications. Applications of dynamic data structures (stacks, queues). Input/output formatting. File processing. Applications of recurrence (e.g. divide and conquer, greediness, dynamic programming).</p> <p>Course content – laboratory</p> <p>The laboratories cover the following syntax element of the language (each point is the main theme of a particular laboratory meeting):</p> <ol style="list-style-type: none"> 1. Introduction. 2. Basic instructions. 3. Data types and arithmetics. 4. Arrays. 5. Functions. 6. Recurrence. 7. Input/output. 8. Basic data types. <p>Course content – project The project is conducted by writing two more involved programming tasks. Each task covers all programming elements listed in the section regarding lecture and laboratories. The tasks are done independently by students with access to dedicated tutors.</p>														
Prerequisites and co-requisites	No requirements														
Assessment methods and criteria	<table border="1" data-bbox="450 922 1489 1057"> <thead> <tr> <th data-bbox="450 922 794 958">Subject passing criteria</th> <th data-bbox="794 922 1139 958">Passing threshold</th> <th data-bbox="1139 922 1489 958">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="450 958 794 994">project</td> <td data-bbox="794 958 1139 994">50.0%</td> <td data-bbox="1139 958 1489 994">30.0%</td> </tr> <tr> <td data-bbox="450 994 794 1030">laboratories</td> <td data-bbox="794 994 1139 1030">50.0%</td> <td data-bbox="1139 994 1489 1030">30.0%</td> </tr> <tr> <td data-bbox="450 1030 794 1057">written test</td> <td data-bbox="794 1030 1139 1057">50.0%</td> <td data-bbox="1139 1030 1489 1057">40.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	project	50.0%	30.0%	laboratories	50.0%	30.0%	written test	50.0%	40.0%
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<ol style="list-style-type: none"> 1. Programming lecture slides, 2013 (available on course website). 2. Materials for laboratories (2013) (available on course website). 3. Brian W. Kernighan, Dennis M. Ritchie, C Programming Language, Prentice Hall <p>-</p>													
Example issues/ example questions/ tasks being completed	<p>Writing a program that fulfills a given specification.</p> <p>Analysis of a behavior of a given code.</p>														
Practical activities within the subject	Not applicable														

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