GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Basics of computer programming, PG_00045290		
Field of study	Data Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
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		
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 and methods of instruction

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

<table>
<tr><td>Subject contents</td><td>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).

LABORATORIES Solving simple programming tasks according on knowledge provided in lectures and based on provided manual.

PROJECT Independent solving programming tasks. Student has access to dedicated tutors.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>No requirements</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>laboratories</td><td>50.0%</td><td>30.0%</td></tr>
<tr><td>written test</td><td>50.0%</td><td>40.0%</td></tr>
<tr><td>project</td><td>50.0%</td><td>30.0%</td></tr>
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<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>1. Programming lecture slides, 2013 (available on course website).

2. Materials for laboratories (2013) (available on course website).

3. Gręboszz Jerzy, Symfonia C++ Standard (vol. 1 and 2), Edition 2000, Cracow 2008.</td></tr>
<tr><td>Supplementary literature</td><td>-</td></tr>
<tr><td>eResources addresses</td><td>Uzupełniające
Adresy na platformie eNauczanie:
Podstawy Programowania 2024/25 (Informatyka & Inżynieria Danych) - Moodle ID: 40632
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=40632</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Writing a program that fulfills a given specification.

Analysis of a behavior of a given code.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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