GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Basics of Programming, PG_00047642		
Field of study	Informatics		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
Education level	first-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	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 -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Dariusz Dereniowski	
	Teachers	prof. dr hab. inż. Dariusz Dereniowski dr inż. Robert Ostrowski dr inż. Paweł Kowalski mgr inż. Andrzej Jastrzębski dr inż. Tytus Pikies mgr inż. Krzysztof Pastuszak mgr inż. Tomasz Goluch dr hab. inż. Robert Janczewski dr inż. Krzysztof Manuszewski mgr Anna Domagalska	

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	3.0	57.0	125

Subject objectives	This course is an introduction to computer programming. Its primary objective is to teach solving of programming problems and writing programs using the C programming language.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	Student knows and understands selected programming models and the evolution of related programming languages. Student learns one of the object oriented programming platforms.	[SW1] Assessment of factual knowledge
[K6_W05] Knows and understands, to an advanced extent, methods of supporting processes and functions, specific to the field of study	Student understands the cycle of code writing.	[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	Student programs in a procedural programming language, runs and tests programs.	[SU1] Assessment of task fulfilment

Subject contents

1. Introduction.
2. Programming languages, alphabet, syntax and semantics. Translation.
3. Classification of data types. Integer and floating point types.
4. Arithmetic expressions and operators.
5. Selected standard functions.
6. Character type. Casting of types.
7. Logical type. Logical operators and expressions.
8. Input/output basiscs.
9. Conditional statements (if, switch) and conditional expression.
10. Iteration statements (for, while, do-while), nested iterations.
11. Defining types. Constants. Enumerated type.
12. One- and multi-dimensional arrays. Null-terminated strings.
13. Basic rules for scope and lifetime of variables.
14. Functions. Scope and lifetime of variables. Side effect.
15. Passing parameters of a function.
16. Pointer type and pointer arithmetics.
17. Pointers for inter-function communication.
18. Dynamic memory allocation.
19. Basic dynamic data structures.
20. Structures (records).
21. Data structures using records and their applications.
22. Basic dynamic data structures.
23. Applications of dynamic data structures (stacks, queues, graph structures)
24. Input/output streams classes. Input/output formatting.
25. Processing files.
26. Applications of recurrence (e.g., divide and conquer, greediness, dynamic programming).

Prerequisites and co-requisites

No requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Practical exercises - labs	50.0%	30.0%
Written exam	50.0%	40.0%
Project	50.0%	30.0%

Recommended reading

Basic literature	[1] Gręboszc J., Symfonia C++ Standard (tom 1 i 2), Editions 2000, Krakow 2008. [2] Dereniowski D., Podstawy programowania - notatki do wykładu. [3] Materiały przygotowujące do laboratorium z Podstaw programowania (opracowanie zespołowe, 2013) For participants of the course, [2] and [3] are available at WWW page of the course.
Supplementary literature	No requirements

	eResources addresses	Adresy na platformie eNauczanie: Podstawy Programowania 2022/23 (Informatyka & Inżynieria Danych) - Moodle ID: 23902 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23902
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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