

GDAŃSK UNIVERSITY

Subject card

Subject name and code	Programming of computer systems, PG_00055399								
Field of study	Mechatronics								
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 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	2		ECTS credits			6.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						hnology		
Name and surname	Subject supervisor dr hab. inż. Marek Galewski								
of lecturer (lecturers)	Teachers		dr inż. Yurii Tsybrii						
			dr hab. inż. M	nż. Marek Galewski					
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	:t	Seminar	SUM	
of instruction	Number of study hours	30.0	0.0	0.0	30.0		0.0	60	
	E-learning hours inclu	ncluded: 0.0							
Learning activity and number of study hours	earning activity Participation ir classes include plan		I didactic Participation in consultation hours		Self-study SUM				
	Number of study hours	60		16.0		74.0		150	
Subject objectives	Teaching students of structural (in C language) and object oriented programming (n Java) basics, relational databases and essentials of software engineering (software lifecycle, development methods, system modelling).								
Learning outcomes	Course out	come	Subject outcome			Method of verification			
	[K6_W11] has a basic knowledge about the life cycle of mechatronic systems and objects		Student describes life cycle of IT systems and selected methods of developement of sych systems		[SW1] Assessment of factual knowledge				
	[K6_W06] has organized knowledge in terms of informatic and methods of analog and digital signal processing		Student understands basic principles of structural and object oriented programming			[SW1] Assessment of factual knowledge			
	[K6_U09] is able to formulate an algorithm, knows low and high level programming languages and appropriate IT tools for developing computer programmes to control mechatronic system		Student develops simple structural and object oriented programs in C and Java			[SU1] Assessment of task fulfilment			
	[K6_U05] is able to use properly choosen tools to compare design solutions of elements and mechatronics systems according to given application and economic crtierions (e.g. power demand, speed, costs)		Student presnts basic skills in modern programming tools and techniques (e.g. C, Java, NetBeans, UML, SQL)		[SU4] Assessment of ability to use methods and tools				
Subject contents	Programming in C language: basic elements of the C language, basic elements of program, functions, conditional statements, loops, I/O operations, array operations, strings, pointers; Programming in Java language: basic elements of the Java language, elements of object oriented programming (Classes, objectd, inheritance), I/O operations, collections, programming for GUI ; UML modelling language; Software engineering: software life-cycle, developement tehniques Relational databeses (SQL); Introduction to Artifficial Intelligence algorithms								

Prerequisites and co-requisites	Passed Computer Systems course.					
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade			
and criteria	Exam	52.0%	60.0%			
	Obligatory laboratory excercises	60.0%	20.0%			
	Individual project	50.0%	20.0%			
Recommended reading	Basic literature	 [1] M. Galewski: Lecture materials published at the web site of the chair of Mechanics and Mechatronics [2] M. Galewski, P. Duba: Laboratory exercises handbooks 				
	Supplementary literature	Kernighan B.W, Ritchie D.M, Język ANSI C. Programowanie. wyd. II, Helion, 2020 Horstmann C.S, Java. Podstawy. Helion, 2019 (ew. wcześniejsze, ale niezbyt stare wydania) Schmuller J., UML dla każdego, Helion 2003 Flasinski, M., Introduction to Artifficial Intellignece, 2016 Rutkowska D., Piliński M., Rutkowski L., Sieci neuronowe, algorytmy genetyczne i systemy rozmyte, PWN, Warszawa, 1997				
	eResources addresses Adresy na platformie eNauczanie: Programowanie Systemów Komputerowych, WP, letni 2022/23 (PG_00055399) - Moodle ID: 26538 https://enauczanie.pg.edu.pl/moodle/course/view.		terowych, WP, MTR, I st., sem. 02, oodle ID: 26535 e/course/view.php?id=26535			
Example issues/ example questions/ tasks being completed	The list of sample questions for the exam (around 50) and laboratory individual projects (around 40) are given to the student during the semester. Sample examination questions: - How does type cast operation work? When do we use it and why? Provide examples of type casting in C. - What is pointer data type used for? When do we use it? What are it's advantages? What danger it brings for a program? Provide an example of pointer declaration and initialization. - Describe principles of Object Oriented Analysis, Modelling and Design. - Describe basic elements of relational data model.					
Work placement	Not applicable					

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