



Subject card

Subject name and code	Programming of computer systems, PG_00060472						
Field of study	Mechatronics						
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			Polish		
Semester of study	2	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Division of Mechatronics -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marek Galewski					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	30.0	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	Teaching students of structural (in C language) and object oriented programming (in Java) basics, relational databases and essentials of software engineering (software lifecycle, development methods, system modelling).						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U05] is able to use properly chosen tools to compare design solutions of elements and mechatronics systems according to given application and economic criteria (e.g. power demand, speed, costs)	Student presents basic skills in modern programming tools and techniques			[SU4] Assessment of ability to use methods and tools		
	[K6_W11] has knowledge about the life cycle of mechatronic systems and objects	Student describes life cycle of IT systems and selected methods of development of such systems			[SW1] Assessment of factual knowledge		
	[K6_W06] has organised knowledge in the field of informatic that includes architecture of computer systems, programming of computers and embedded systems and elements of software engineering	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		

Subject contents	<p>Course content – lecture</p> <p>Lectures</p> <p>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 ; Software engineering: software life-cycle, development tehniques UML modelling language; Relational databeses (SQL);</p> <p>Project:</p> <p>Basics of programming in C language Basics of programming in Java language</p>														
Prerequisites and co-requisites															
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 689 794 716">Subject passing criteria</th> <th data-bbox="801 689 1139 716">Passing threshold</th> <th data-bbox="1145 689 1482 716">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 725 794 752">Individual projects</td> <td data-bbox="801 725 1139 752">50.0%</td> <td data-bbox="1145 725 1482 752">20.0%</td> </tr> <tr> <td data-bbox="456 761 794 788">Written exam</td> <td data-bbox="801 761 1139 788">52.0%</td> <td data-bbox="1145 761 1482 788">60.0%</td> </tr> <tr> <td data-bbox="456 797 794 824">Obligatory project excercises</td> <td data-bbox="801 797 1139 824">60.0%</td> <td data-bbox="1145 797 1482 824">20.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Individual projects	50.0%	20.0%	Written exam	52.0%	60.0%	Obligatory project excercises	60.0%	20.0%
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>[1] M. Galewski: Lecture materials published at the eNauczanie website [2] M. Galewski, P. Duba: Laboratory exercises handbooks (C/ Java)</p> <p>Kernighan B.W, Ritchie D.M, The C Programming Language, Prentice-Hall, 1988 Horstmann C.S, Java. Podstawy. Helion, 2019 (ew. wcześniejsze, ale niezbyt stare wydania) Schmuller J., UML dla kazdego, Helion 2003</p>													
Example issues/ example questions/ tasks being completed	<p>The list of sample questions for the exam (around 50) and laboratory individual projects (around 40) are given to the student during the semester.</p> <p>Sample examination questions:</p> <ul style="list-style-type: none"> - 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. 														
Practical activites within the subject	Not applicable														

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