



Subject card

Subject name and code	Computer systems, PG_00055366						
Field of study	Mechatronics						
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			Polish		
Semester of study	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Mechanics and Mechatronics -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marek Galewski					
	Teachers	dr inż. Tomasz Faş dr hab. inż. Marek Galewski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	15.0	0.0	45
	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	45	6.0		49.0		100
Subject objectives	Providing students basic knowledge about computer systems architecture, communication, data exchange and operating systems. Teach students basic structural programming with Matlab						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[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 describes elements of computer system architecture			[SW1] Assessment of factual knowledge		
	[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 uses Matlab at the basic level			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		
	[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 writes simple structural programs in Matlab			[SU1] Assessment of task fulfilment		

Subject contents	<p>History and current trends in computer science Computer Arithmetic Computer Architecture and Components Principles of CPU Operation and methods for increasing performance Principles of operation of RAM and hard drives Cooperation of computer components / Interfaces and buses / Data transmission BIOS, UEFI, and Operating Systems Computer and industrial networks Network infrastructure and protocols Network services</p> <p>Learning the basics of structured programming using Matlab: Elements of programming and algorithmics MATLAB environment Introduction to engineering calculations in MATLAB Programming languages Basic elements of programming Basics of algorithmics Principles of writing the source code Basic principles of debugging and testing</p>														
Prerequisites and co-requisites															
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 651 794 680">Subject passing criteria</th> <th data-bbox="799 651 1137 680">Passing threshold</th> <th data-bbox="1142 651 1481 680">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 687 794 714">Completing of laboratory exercises</td> <td data-bbox="799 687 1137 714">60.0%</td> <td data-bbox="1142 687 1481 714">0.0%</td> </tr> <tr> <td data-bbox="456 721 794 748">Written exam</td> <td data-bbox="799 721 1137 748">52.0%</td> <td data-bbox="1142 721 1481 748">70.0%</td> </tr> <tr> <td data-bbox="456 754 794 804">Written colloquium - laboratory exercises</td> <td data-bbox="799 754 1137 804">51.0%</td> <td data-bbox="1142 754 1481 804">30.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Completing of laboratory exercises	60.0%	0.0%	Written exam	52.0%	70.0%	Written colloquium - laboratory exercises	51.0%	30.0%
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Example issues/ example questions/ tasks being completed	<p>A list of 60 exemplary questions is provided to student 1 month before the exam, for example:</p> <p>Describe general organisation and working principles of CPU What's the difference between serial and parallel transmission? What's the difference between synchronous and asynchronous transmission? Present mechanisms for program flow control. Describe the most important tool used by programmers and software developers.</p>														
Work placement	Not applicable														

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