GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer System Organization - laboratory, PG_00068331		
Field of study	Automatic Control, Cybernetics and Robotics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
Education level	first-cycle studies	Subject group	Optional subject group 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	3	Language of instruction	Polish
Semester of study	6	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Automatic Control -> Faculty of Electronics Telecommunications and Informatics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Cisowski	
	Teachers	dr inż. Krzysztof Cisowski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	15.0	0.0	0.0	15

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	15	4.0	31.0	50

Subject objectives

The main aim of the subject is to gain knowledge about the most common computer systems organization and
basic knowledge of computer system components and principles of their operation. The knowledge is applied for designing of computer PC programs.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	The student describes and knows how to use in practice the design methods, in accordance with the given specification, and perform a simple device, object, system typical for the field of automation, or implement the process using appropriately selected methods, techniques, tools and materials, using engineering standards and norms, applying technologies relevant to the field of automation and using experience gained in an environment professionally engaged in engineering activities	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
[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 describes and put to use in practice elements of computer system architecture. Student describes and knows how to use in practice the elementary principles of programming a computer system. Student describes and knows how to use it in practice a system of inputs and outputs of the computer system. Student describes and put to use in practice the interrupt system. Student describes and put to use in practice PC computers and the PC BIOS programming module	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools

Subject contents	Implementation of six projects in the form of computer programs written in any PC-based programming environment. Project topics: 1. an application using graphical user interface techniques; 2. a program containing time-dependent components for precise time measurement or counting; 3. a simulator of a fictitious production line's control station; 4. a program emulating serial transmission compliant with the RS232 standard; 5. a software simulator model of an example microprocessor; 6. extending the capabilities of the microprocessor simulator software model developed in Task 5 to enable simulation of ten processor interrupt functions offered by the BIOS module (DOS interrupts can also be used).
Prerequisites and co-requisites	Knowledge of the basic issues of digital technology and programming in one of languages: C++, C#, Visual C++ or Java etc.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Average rating of the projects	50.0%	100.0%

Recommended reading

Basic literature	A. Pyrchla, B. Danowski, BIOS, Przewodnik, Helion 2007, A. S. Tanenbaum, Strukturalna organizacja systemów komputerowych, Helion 2006, R. Irvine, Asembler dla procesorów Intel, vademekum profesjonalisty, Helion 2003, Katalogi, Strony WWW
Supplementary literature	_
eResources addresses	

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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