

SDAŃSK UNIVERSITY 的 OF TECHNOLOGY

Subject card

Subject name and code	Network Programming, PG_00016975							
Field of study	Automation, Robotics and Control Systems							
Date of commencement of studies	February 2023		Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies		Subject group					
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			3.0		
Learning profile	general academic profile		Assessment form			assessment		
Conducting unit	Department of Controlled Electric Drives -> Faculty of Electrical and Control Engineering							
Name and surname	Subject supervisor		dr inż. Piotr Kołodziejek					
of lecturer (lecturers)	Teachers		dr inż. Piotr Kołodziejek					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	y Project		Seminar	SUM
	Number of study hours	15.0	0.0	15.0 0.0			0.0	30
	E-learning hours included: 0.0							
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM
	Number of study hours	30		7.0		38.0		75
Subject objectives	The aim of the course is learning to create computer programs that communicate in computer network in the client-server model architecture using the TCP / IP protocols stack with ANSI C, C ++, C #, JAVA, Python programming languages. The course covers programming of the network socket interface, multithreaded programming issues, concurrent programming, distributed applications, broadcasting protocols and technologies for creating web applications (design patterns) and blockchain technology applications.							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
	К7_К02		Student explains functional classification of the informatic project.			[SK5] Assessment of ability to solve problems that arise in practice		
	K7_U12		Student explains layered model of the TCP/IP protocols, client-server model of communication, network libraries, classes, functions/ methods and methods of their application.			[SU1] Assessment of task fulfilment		
	K7_W02		student explains network programming environment and language selection criteria		[SW1] Assessment of factual knowledge			
Subject contents	Computer network definitions and issues, types of transmission, network topologies, protocol stack network, TCP / IP, network addressing, ports, network socket interface, broadcast transmission, network configuration and diagnostics, client-server communication architecture, event programming, object-oriented programming, multi-threaded programming, transmission and service priorities customers, network communication web browser - server application, programming client-server application in ANSI C, C ++, C #, JAVA, Python, web service programming with using blockchain technology and dedicated API.							
Prerequisites and co-requisites	Informatic basics.							
Assessment methods and criteria	Subject passing criteria		Passing threshold			Percentage of the final grade		
	Laboratory tasks and project		100.0%		50.0%			
	Lectures colloquium		50.0%			50.0%		

Recommended reading	Basic literature	 Sosinsky Barrie: "Sieci komputerowe - Biblia", Helion, 2011. R.Blum: "C# Network Programming", John Wiley&Sons, 2006 A. Jones, J. Ohlund Programowanie sieciowe Microsoft Windows, 2000. Troelsen A., Japikse P., "C# 6.0 and .NET 4.6 Framework", Nowy Jork 2015 Beej's Guide to Network Programming Using Internet Sockets: http://beej.us/guide/bgnet/ Sierra K., Bates B.: "Head First Java" 2004 				
	Supplementary literature	1. Metsker S. J.,"C#. Wzorce projektowe" 2005 2. Drescher D., "Blockchain. Podstawy technologii łańcucha bloków w 25 krokach"				
	eResources addresses	Adresy na platformie eNauczanie:				
Example issues/ example questions/ tasks being completed	 object programming in the client-server model application of the network socket interface multithreded client-server appliations network GUI with virtual measurement devices interactive web-browser GUI design application design pattern utilization blockchain technology application 					
Work placement	Not applicable					