GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Basic Computer Networks, PG_00047609		
Field of study	Automatic Control, Cybernetics and Robotics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
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	5	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Nowicki	
	Teachers	dr inż. Krzysztof Nowicki	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	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	1.0	9.0	25

Subject objectives

Student becomes familiar with logical layered architectures, classifies basic networking problems and identifies and analyzes selected protocols and mechanisms implemented in standard LAN and WAN solutions.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W03] knows and understands, to an advanced extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	The student has knowledge about basic architectures, protocols and network devices. The student has knowledge of wired and wireless networks described by the standards of the IEEE 802 series. The student has knowledge about the basic protocols of IP networks.	[SW1] Assessment of factual knowledge
[K6_W06] Knows and understands the basic processes occurring in the life cycle of devices, facilities and systems specific to a given field of study.	Student is able to analyze the work of selected devices and protocols used in LAN and IP networks. The student is able to assess the changes and trends observed in the analyzed network technologies.	[SW1] Assessment of factual knowledge
[K6_W07] Knows and understands, to an advanced extent, the general principles of setting up and development of business entities, forms of individual entrepreneurship and running ventures in the field specific to the field of study	The student is able to assess the current state and trends observed in standardization and implementation works, as well as assess processes taking place on the ICT technology market.	[SW1] Assessment of factual knowledge

Subject contents	General characteristics and goals of computer networks, applications, classifications of computer networks 0.5h Logical architectures of the ISO / OSI and TCP / IP 1h Selected technologies for wired and wireless LAN and MAN general characteristics 1h Standard Series Ethernet 802.3 1h Evolution of Ethernet-Fast Ethernet and 1/10 Gigabit Ethernet 1h 40/100 Gigabit Ethernet 0.5h Wireless WLANs - basic characteristics 1h The IEEE 802.11 (a, b, g, n) 1h Ethernet, WiFi and IP in automatic control 1h LAN connection method characteristics 1h LAN connection devices 1h IP network organization 0,5h IPv4 protocols 1h Problems of migration of operating systems, applications and services to IPv6 1h Routing protocols 1h Transport layer protocols - TCP and UDP Computer network security 1h
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
written examination	50.0%	100.0%

Recommended reading

Basic literature	Woźniak J., Nowicki K.: Sieci LAN, MAN, WAN - protokoły komunikacyjne, Kraków 2000, rozdz. 1.1, 1.2, 1.3.1, 1.3.4, 1.3.5, 4.1, 4.2.1-4.2.4, 4.2.8, Nowicki K., Woźniak J.: Przewodowe i bezprzewodowe sieci LAN, OW PW 2002, rozdz. 3, 9, 10, Nowicki K., Światowiak J.: Protokoły IPv6, Wydawnictwo PG, rozdz. 1 Nowicki K.: Ethernet – sieci, mechanizmy, Infotech 2006, rozdz.1, 2, 5
Supplementary literature	Tanenbaum A.: Sieci komputerowe, Helion 2006; Stallings W.: High-Speed Networks and Internets. Prentice Hall; Krawczyk H,. Kaczmarek S. Nowicki K.: Aplikacje i usługi a technologie sieciowe. PWN 2018
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Description of logical network architectures and basic standards. Comparison of selected standard wired and wireless LAN networks. Comparison of methods and devices for connecting networks. Description of addressing methods in LAN and WAN networks. Description and comparison of selected routing protocols and basic communication protocols in IP networks. Description of selected network applications.
Work placement	Not applicable