GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer Networks, PG_00058929		
Field of study	Informatics		
Date of commencement of studies	October 2025	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	Part-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	4	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Computer Communications -> Faculty of Electronics Telecommunications and Informatics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Nowicki	
	Teachers	dr inż. Krzysztof Nowicki prof. dr hab. inż. Józef Woźniak dr inż. Wojciech Gumiński dr inż. Michał Hoeft dr inż. Krzysztof Gierłowski dr inż. Tomasz Gierszewski dr hab. inż. Jacek Rak	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	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 didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	8.0	62.0	100

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 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. The student knows the principles of operation of switches and routers	[SW1] Assessment of factual knowledge
[K6_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment	The student is able to assess the changes and trends occurring in the analyzed network technologies. 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.	[SU2] Assessment of ability to analyse information

<table>
<tr><td>Subject contents</td><td>1. General characteristics of the goals of computer networks, applications, classifications
2. The logical architecture of the ISO / OSI and TCP / IP
3. The mechanisms controlling the flow of information in networks.
4. Access protocols. Addressing issues in LAN
5. Selected technologies for wired and wireless LAN and MAN - general characteristics.
6. Standard series 802.3 Ethernet

7. Evolution of Ethernet: Fast Ethernet and 1/10 Gigabit Ethernet
8. Wireless Networks WLAN-basic
9. IEEE 802.11 (a, b, g, e).
10 WAN standards of basic problems.
11. LAN connection method - characteristics
12. Organization of IP networks.
13. Cooperation between networks (Internet & Internet, corporate networks, VPNs),
14. Routing Protocols
15. QoS Architecture for IP networks and computer network security.

16. Network services

Lab.
1. Network Management
2. Virtual Local Area Networks
3. Static and Dynamic Routing
4. 802.11 wireless network configuration
5. IP Network Diagnostics

6. Network monitoring</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>No recomendations</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>exam</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>laboratory tasks</td><td>50.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Nowicki K., Woźniak J.: Przewodowe i bezprzewodowe sieci LAN, OW PW 2002</td></tr>
<tr><td>Supplementary literature</td><td>Nowicki K.: Ethernet - sieci, mechanizmy, Infotech 2006

Krawczyk H., Kaczmarek S., Nowicki K.: Aplikacje i usługi a technologie sieciowe, WN PWN 2018

Tannenbaum A.: Sieci komputerowe, Helion</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Description of 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.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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