GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer Networks, PG_00047711		
Field of study	Informatics		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	second-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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	7.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Computer Communications -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Nowicki	
	Teachers	dr inż. Krzysztof Gierłowski dr inż. Wojciech Gumiński dr inż. Michał Hoeft mgr inż. Jakub Grochowski dr inż. Krzysztof Nowicki	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	24.0	0.0	15.0	0.0	0.0	39

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	39	12.0	124.0	175

Subject objectives

Student 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
[K7_W02] knows and understands, to an increased extent, selected laws of physics and physical phenomena, as well as methods and theories explaining the complex relationships between them, constituting advanced general knowledge in the field of technical sciences related to the field of study	1.Student knows the principles of assessing reliability of networks. 2. Defines the QoS models of services in IP networks (IP QoS). 3. Defines the concept of justice and geolocation in networks. 4. Defines the concept of net neutrality	[SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td>Course content – lecture
Transmission media - structured cabling standards

Basic networking concepts - overview and analysis of layered architectures
Fundamentals of signal and information theory
Mechanisms of data link layer - multiplexing, synchronization and coding principles
Flow control in the data link layer - ARQ algorithms
Methods to ensure fairness of service and proper access to network resources

Providing differentiated quality of service in IP networks - IP QoS models

IPv6 solutions

Methods for flow control at the transport layer protocol for example TCP

Basic problems of geolocation in computer networks

Problems of ensuring net neutrality

Cloud systems</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Required knowledge of the basics of computer networks operation</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>lecture</td><td>50.0%</td><td>60.0%</td></tr>
<tr><td>lab</td><td>50.0%</td><td>40.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>K. Nowicki, J. Światowiak: Protokoły IPv6

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

F. Halsall: Data Communications, Computer Networks and Open Systems. Addison-Wesley

Lecture materials available in the form of pdf files</td></tr>
<tr><td>Supplementary literature</td><td>J. Woźniak, K. Nowicki; Sieci LAN, MAN, WAN: protokoły komunikacyjne. O.W Politechniki Warszawskiej

A. Tanenbaum: Computer Networks, J. Wiley

W. Stallings: High-Speed Networks. Performance and Quality of Service, Prentice Hal</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Issues and exam questions include a list of lecture topics</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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