University of Gdańsk

Subject card

Subject name and code	Computer Networks, PG_00204175						
Field of study	Informatics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	4		ECTS credits		2.0		
Learning profile	practical		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Adam Kostulak				
	Teachers						
Lesson types	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		0.0		20.0	50
Subject objectives	An introduction to the principles of computer networks, the communication devices and protocols used in them and the services they offer services they offer. Preparing students for creating topologies, configuring and diagnosing networks built with the use of Cisco routers and Cisco routers and switches preparation for the Cisco Certified Network Associate (CCNA) certification in the scope of semester I Routing & Switching along with obtaining a certificate of completion of the course.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[INFPL3_U05] is able to perform tasks and solve complex and unusual problems in the area of advanced functionalities of operating systems, in particular related to network aspects, virtualization, containerization and other cloud technologies	Has knowledge of operating systems, network technologies, including basic communication protocols	[SU4] test/exam - oral or written
[INFPL3_K01] is ready to critically assess the scope and quality of knowledge acquired and the content received, recognizing their limitations and the degree of credibility; demonstrates readiness to update one's own knowledge and confront it with various sources	Is aware of the dynamic development of network technologies and the need to update knowledge in this area	[SK4] test/exam - oral or written
[INFPL3_K02] is ready to recognize the importance of knowledge in solving cognitive problems and practical and seeking opinions experts in case of difficulties with independent problem solving	Effectively uses contact with the instructor in the design of network infrastructures	[SK4] test/exam - oral or written
[INFPL3_W06] knows and understands the theory and methods to an advanced degree in the field of operating systems, network technologies including basic web communication protocols; applies this knowledge to configure, optimize and secure systems	Lists and defines the protocols used in LANs Characterises the routing protocols RIP, OSPF, EIGRP	[SW4] test/exam - oral or written
[INFPL3_U06] can take care of data security, including secure transmission; uses data compression and encryption tools	Lists and characterises the components of local network security	[SU4] test/exam - oral or written
[INFPL3_U02] is able to obtain information from literature, the Internet and other sources, critically analyze and synthesize this information, and assess its credibility and draw conclusions; can learn effectively throughout life, independently acquiring new technical competences and adapting to technological changes	Be able to extend and consolidate knowledge of operating systems and network technologies	[SU4] test/exam - oral or written

Subject contents

TCP/IP networks Network protocols and communication Network devices - hubs, bridges, switches, routers Access to the network - MAC addressing, ARP protocol, STP Ethernet technology, types of cabling Network layer - static routing, dynamic routing - RIP, OSPF, EIGRP VLAN technology Transport layer - TCP and UDP protocols IP addressing ver. 4 and 6 Application layer - WWW servers, DNS, MAIL, DHCP, NAT Network security

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test 2	51.0%	50.0%
test 1	51.0%	50.0%

Recommended reading

Basic literature	Cisco multimedia content: CCNA semestr I Routing & Switching D. Comer, Computer Netwrks
Supplementary literature	Cisco Networking Academy, Routing and Switching Essentials Companion Guide, Cisco Press, Indianapolis 2022
eResources addresses	

Example issues/ example questions/ tasks being completed

Design the network infrastructure (layers 1-3) of a given facility

Work placement

Not applicable

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