University of Gdańsk

Subject card

Subject name and code	Computer Network Administration, PG_00136733		
Field of study	Informatics and Econometrics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish given the specialised web terminology, it is advisable to familiarize oneself with the Cisco platform's content in English
Semester of study	4	ECTS credits	8.0
Learning profile	academic	Assessment form	exam
Conducting unit	Department of Business Informatics -> Faculty of Management -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Bartosz Marcinkowski	
	Teachers	dr hab. Bartosz Marcinkowski	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	45.0	0.0	0.0	75
	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	75	25.0	100.0	200

Subject objectives	• preparing students to build topologies as well as configure and diagnose networks based on Cisco routers and switches • developing skills of selecting routing strategies, solving intermediate-level routing configuration problems, managing switches at the VLAN level, and implementing DHCP and ACL services • getting ready for the Cisco Certified Network Associate certification

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[IiEL3_U08] The student can configure and apply advanced modern information and communication technologies in the process of business management and business communication.	- builds physical connections between network and end devices - performs basic configuration of switches - performs basic configuration of routers - selects an optimal routing method and configures related routing protocols - implements network security that features password policy, logical network separation, port security, and ACLs - extends the addressing schemas of end devices by implementing DHCP, Syslog and NAT/PAT services	[SU5] implementation of a problem task
	[IiEL3_W04] The student has advanced knowledge of mathematical, statistical, econometric and computer methods of obtaining, processing and analysing data depicting the functioning and development of the national economy and its elements, as well as the phenomena and processes occurring in their environment.	- discusses the architecture of the network (including devices and networking media) - discusses addressing schemes in computer networks - describes how a local area network works - describes how a wide area network works - explains the way given network protocols work and the datagrams they use - lists and describes given network services	[SW4] test/exam - oral or written
	[IiEL3_U02] The student is able to acquire basic information about economic processes and phenomena by direct observation, planned experiment or database queries, and collect and process it using modern information technology tools.	- analyses individual devices' configuration and detects possible errors and issues - evaluates the correct operation of the network and plans its further development	[SU5] implementation of a problem task
	[IiEL3_K01] The student understands the need to constantly supplement and deepen acquired knowledge; is open to new ideas and teaching methods.	- shows creativity in solving configuration problems	[SK8] observation of student's independent or team work
	[IiEL3_K02] The student can communicate with the public on computer science and econometrics topics in and outside the workplace, communicate his knowledge and share his skills through various media.	- assists team members with network diagnostics	[SK8] observation of student's independent or team work
	[IiEL3_K03] The student can work in, co-create and manage a team; adapts his/her behavior and conduct to his/her role in it; is ready to take responsibility for the team and bear the consequences; understands the necessity of regularity and consistency in action; is open to other team members and critical of himself.	- skilfully delegates roles within the team, - demonstrates responsibility for hardware entrusted to him/her	[SK8] observation of student's independent or team work
	[IiEL3_W07] The student has advanced knowledge of ethical norms applicable to business, good practices for its conduct and legal regulations for the protection of intellectual property. Has knowledge of the risks and responsibilities associated with the informatization of business processes, knows the principles of netiquette.	- lists and characterises the components of local network security - discusses the principles of network diagnostics	[SW4] test/exam - oral or written

<table>
<tr><td>Subject contents</td><td>A. Topics of the lecture:
• Basic networking concepts
• Layered network models
• MAC, IPv4 and IPv6 addressing
• Networking media
• Networking devices
• Networking services
• Static and dynamic routing, redistribution of routing entries
• Specialised network technologies and protocols across switches and routers
• Network monitoring
• Configuration diagnostics
B. Lab topics:
• Basic commands on hosts
• Handling network addresses
• Cabling, patch panels
• Introduction to IOS
• Building networking topologies
• Password policy
• Static routing
• Introduction to routing protocols
• DHCP service
• Port security
• VLANs
• Advanced routing protocols - EIGRP, OSPF
• Configuring NAT/PAT service on networking devices
• Access Control Lists
• ROM-monitor mode</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Bit-based operations, software classes, command line operation, general features of operating systems and input/output processes</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>certification assessment - incremental grading</td><td>51.0%</td><td>20.0%</td></tr>
<tr><td>practical assessment</td><td>51.0%</td><td>50.0%</td></tr>
<tr><td>egzam</td><td>51.0%</td><td>30.0%</td></tr>
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<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>• Cisco Networking Academy (2020); Cisco Certified Networking Associate; CCNA v7; part 1
• Cisco Networking Academy (2020); Cisco Certified Networking Associate; CCNA v7; part 2
• Cisco Networking Academy (2020); Cisco Certified Networking Associate; CCNA v7; part 3</td></tr>
<tr><td>Supplementary literature</td><td>• Empson S. (2019); CCNA 200-301 Portable Command Guide. Fifth Edition
• Winiarski J. (red); Sieci komputerowe w biznesie; Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2008</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></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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