

DESCRIPTION OF THE COURSE OF STUDY

Course code		
Name of the course in	Polish	<i>Sieci komputerowe</i>
	English	<i>Computer networks</i>

1. LOCATION OF THE COURSE OF STUDY within the system of studies

1.1. Field of study	Data Engineering
1.2. Mode of study	full-time studies
1.3. Level of study	first-cycle degree
1.4. Profile of study*	general academic
1.5. Person/s preparing the course description	Prof. dr hab. Maciej Rybczyński
1.6. Contact	maciej.rybczynski@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE course of study

2.1. Language of instruction	polish
2.2. Prerequisites*	Discrete mathematics (graph theory, elements of probability theory), Fundamentals of algorithm analysis

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	lecture, laboratory exercises	
3.2. Place of classes	classes in the teaching room of the UJK	
3.3. Form of assessment	Lecture: exam, laboratory: graded test	
3.4. Teaching methods	Lecture, laboratory exercises on computers	
3.5. Bibliography	Required reading	James F. Kurose, Keith W. Ross, Computer Networking [Global Edition] Eighth Edition, Pearson Deutschland GmbH, 2021 Andrew Tanenbaum, David Wetherall, Computer Networks, Global Edition, Sixth Edition, Pearson Education Limited, 2021
	Further reading	Wendell Odom, Thomas Knott, Networking Basics CCNA 1 Companion Guide, Cisco Press, 2006

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1. Course objectives (including form of classes) Lecture C1. Presentation of the current state of development of computer networks Laboratory C1. Gaining practical knowledge of the principles of operation of modern computer networks, as well as the basis for independent design and configuration of this type of network	
4.2. Detailed syllabus (including form of classes) I. Lecture 1. Basic Concepts and Terms of Computer Networking 2. Ethernet LANs 3. IP Protocol 4. Transport Layer: UDP and TCP 5. DNS. Wireless Networks 6. Dynamic Routing Protocols 7. Application Layer: FTP and HTTP 8. Elements of Cryptography 9. Security Basics: Attacks and Tunnels 10. Peer-to-Peer Networks, NAT, and Firewalls II. Laboratory 1. Introduction to the Physical and Data Link Layers of the OSI Model 2. Basics of IP Addressing in the TCP/IP Protocol 3. Basics of Configuring Active Network Devices 4. Basics of Device Configuration – Routing, RIP, and OSPF	

5. Configuring Managed Switches
6. Configuring VLANs, Inter-VLAN Communication
7. Switch Port Security
8. Configuring Standard and Extended Access Control Lists (ACLs)

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE:		
W01	knows the mechanisms that govern modern computer networks	IDIA_W10
W02	explains the mechanisms of packet transmission in networks	IDIA_W10
within the scope of ABILITIES:		
U01	can configure network interfaces and routing	IDIA_U08
U02	can design computer networks composed of several routers	IDIA_U08
within the scope of SOCIAL COMPETENCE:		
K01	understands the need and knows the possibilities of continuous training, improving professional, personal and social competences	IDIA_K01

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes (code)	Method of assessment (+/-)																				
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* e.g. standardized test used in e-learning		
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes		
	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...
W01	+				+					+											
W02	+				+					+											
U01	+				+					+											
U02	+				+					+											
K01	+				+					+											

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes

Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	Achievement <50 - 60) % of the requirements used in the assessment methods
	3,5	Achievement <60 - 70) % of the requirements used in the assessment methods
	4	Achievement <70 - 80) % of the requirements used in the assessment methods
	4,5	Achievement <80 - 90) % of the requirements used in the assessment methods
	5	Achievement <90 - 100) % of the requirements used in the assessment methods
classes (C)* (including e-learning)	3	Achievement <50 - 60) % of the requirements used in the assessment methods
	3,5	Achievement <60 - 70) % of the requirements used in the assessment methods
	4	Achievement <70 - 80) % of the requirements used in the assessment methods
	4,5	Achievement <80 - 90) % of the requirements used in the assessment methods
	5	Achievement <90 - 100) % of the requirements used in the assessment methods

5. BALANCE OF ECTS CREDITS - STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	60	

Participation in lectures*	30	
Participation in classes, seminars, laboratories*	30	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	40	
Preparation for the lecture*	20	
Preparation for the classes, seminars, laboratories*	20	
TOTAL NUMBER OF HOURS	100	
ECTS credits for the course of study	4	

**delete as appropriate*

Accepted for execution (date and legible signatures of the teachers running the course in the given academic year)

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