Cyber-physical Systems Institute			Semester 5. of the curriculum 2026-27-1			
Name of the subject:	Code of the subject:	Credits:	Weekly hours:			
				lec	sem	lab
Network Technologies	NKXHT1EBNF	5	full-time	2	0	2
Responsible person for the subject: Balázsné Dr. Kail Eszter			Classification: senior lecturer			
Subject lecturer(s): Balázsné Dr. Kail Eszter						
Prerequisites:	NKXSH1EBNF	Computer Networks				
Way of the assessment:	exam					

Course description	
Goal:	To obtain deeper insight into LAN and WAN technologies, advanced switching and routing to plan, configure, manage and troubleshoot small-to-medium size networks and to implement basic security considerations.
Course description:	The curriculum introduces LAN design concepts and network scaling possibilities. The course familiarizes the advanced distance-vector and link-state routing concepts (multi-area OSPF, EIGRP) and redistribution between them. It also introduces WAN technologies. The course materials also contain the quality requirements of the transmission and Quality of Service (QoS) basics, troubleshooting concepts, basic security features. Students are also introduced to network management tools.

Lecture schedule	
Education week	Topic
1.	Revision
2.	Advanced switching
3.	Redundancy protocols
4.	Advanced routing I. – OSPF
5.	Advanced routing II. – multi-area OSPF
6.	Advanced routing III. - EIGRP
7.	Redistribution
8.	Network Address Translation
9.	Network monitoring
10.	WAN
11.	Summary
12.	Holiday
13.	Test – Lab exam
14.	Retake test

Mid-term requirements	
Conditions for obtaining a mid-term grade/signature	**Participation at the lessons is mandatory. Students cannot miss more than 30% of the lessons. A successful test is mandatory to acquire the signature.**

Assessment schedule	
Education week	Topic

Method used to calculate the *mid-term grade* (to be filled out only for subjects with mid-term grades)

The evaluation of the test is binary

Type of the replacement

Type of the replacement of written test/mid-term grade/signature	**In the case if the mid-term test does not reach 50%, the student can replace the test in the form of re-take test in the 14th week. Replacement of the mid-term mark: once in the first 10 working days of the examination period.**

Type of the exam (to be filled out only for subjects with exams)

Lab exam and oral exam.

Calculation of the exam mark (to be filled only for subjects with exams)

The final grade is the average value of the Lab exam and the Oral exam grades. Students must successfully complete both the oral exam and the laboratory exam.

Final grade calculation methods:

The final grade will be calculated using the following scale:

Achieved result	Grade
87% - 100%	excellent (5)
75%- 86%	good (4)
64% -74%	satisfactory (3)
51% - 63%	pass (2)
0 - 50 %	failed (1)

References

Obligatory:	Lecture notes, Cisco Network Academy course material
Recommended:	Tannenbaum A. S.: Computer Networks, 3rd extended edition, Prentice Hall-Panem, 2013 Anurag Kumar; D. Manjunath; Joy Kuri: Communcation Networking - Analytical approach; Elsevier; 2004 Larry L. Peterson; Bruce S. Davie: Computer networks - a systems approach; Elsevier; 2007 TCP/IP Tutorial and Technical Overview; IBM; 2006
Other references:	