SYLLABUS

1. Information about the program

1.1 Higher education institution	Universitatea Politehnica Timișoara
1.2 Faculty[1] / Department[2]	Electronics, Telecommunications and Information Technologies /
1.3 Field of study (name/code[3])	Electronics, Telecommunications and Information Technologies /20.20.10
1.4 Study cycle	Master
1.5 Study program (name/code/qualification)	Communications Networks Engineering / 20.20.10 / 2153

2. Information about discipline

2.1a Name of discipline/The educational classe[4]	Computer Networks Administration/ DF						
2.1b Name of discipline in Romanian							
2.2 Coordinator (holder) of course activities	Prof. dr. ing. Marius-George MARCU						
2.3 Coordinator (holder) of applied activities[5]	S.l. dr. ing. Sbastian-Onuț FUICU						
2.4 Year of study[6]	1	**2.5** Semester	2	**2.6** Type of evaluation	E	**2.7** Regime of discipline[7]	DOP

3. Total estimated time (direct activities (fully assisted), partially assisted activities and unassisted activities[8])

3.1 Number of hours fully assisted/week	4 ,of which:	course	2	seminar/laboratory/project			0/1/1
3.1* Total number of hours fully assisted/sem.	56 ,of which:	course	28	seminar/laboratory/project			28
3.2 Number of on-line hours fully assisted/sem	0 ,of which:	course	0	seminar/laboratory/project			0
3.3 Number of hours partially assisted/week	0 ,of which:	project, research	0	training	0	hours designing M.A. dissertation	0
3.3* Number of hours partially assisted/ semester	0 ,of which:	project of research	0	training	0	hours designing M.A. dissertation	0
3.4 Number of hours of unassisted activities/ week	4,92 ,of which:	Additional documentation in the library, on specialized electronic platforms, and on the field					1
		Study using a manual, course materials, bibliography and lecture notes					2
		Preparation of seminars/ laboratories, homework, assignments, portfolios, and essays					1,92
3.4* Total number of hours of unasssited asctivities/ semester	69 ,of which:	Additional documentation in the library, on specialized electronic platforms, and on the field					14
		Study using a manual, course materials, bibliography and lecture notes					28
		Preparation of seminars/ laboratories, homework, assignments, portfolios, and essays					27
3.5 Total hrs./week[9]	8,92						
3.5* Total hrs./semester	125						
3.6 No. of credits	5						

4. Prerequisites (where applicable)

4.1 Curriculum	• Computer networks
4.2 Learning outcomes	•

5. Conditions (where applicable)

5.1 of the course	• Medium-sized lecture room; • Support for oral presentations: laptop, video projector, projection screen, whiteboard
5.2 to conduct practical activities	• Laboratory with 16 PC workstations; • Windows operating system;

	• Virtual machines; • Network equipment (switch, router); • Video projector, whiteboard

6. Learning outcomes acquired through this discipline

Knowledge	• C8. The student/graduate is familiar with the terminology and conventions of technical communication. • C9. The student/graduate is familiar with ways of integrating knowledge from various domains. • C10. The student/graduate understands the concepts of traffic, bandwidth, and QoS. • C11. The student/graduate is familiar with communication technologies and protocols. • C12. The student/graduate understands the principles of scalability and resource allocation.
Skills	• A1. The student/graduate applies qualitative and quantitative methodologies. • A3. The student/graduate uses collaborative tools and contributes to projects. • A8. The student/graduate explains complex concepts to different audiences. • A10. The student/graduate assesses network needs and optimizes resources. • A11. The student/graduate selects and applies communication methods appropriate to the context. • A12. The student/graduate configures and optimizes ICT resources.
Responsibility and autonomy	• RA2. The student/graduate assumes responsibility for the performance and reliability of the designed system. • RA4. The student/graduate ensures the correctness and relevance of the conclusions drawn. • RA5. The student/graduate collaborates with and coordinates interdisciplinary teams. • RA6. The student/graduate assumes responsibility for the functionality and security of applications. • RA7. The student/graduate ensures quality and compliance with academic standards. • RA8. The student/graduate adapts to various professional communication contexts. • RA9. The student/graduate coordinates and supports collaboration across different fields. • RA10. The student/graduate proposes solutions to optimize traffic and manages resources. • RA11. The student/graduate takes responsibility for the accurate and efficient transmission of information. • RA12. The student/graduate is responsible for the stability and performance of the managed systems.

7. Objectives of the discipline (based on the grid of learning outcomes acquired)

- Presentation of detailed knowledge and development of practical skills regarding the models, techniques, mechanisms, and tools used for the administration of computer networks.
- Competencies and skills necessary for the analysis, design, and implementation of computer networks.
- Competencies and skills related to the application of models, techniques, and tools for the administration of computer networks.
- Competencies and skills in the implementation, testing, and maintenance of applications, services, and infrastructures for computer networks.
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8. Content

8.1 Course	Number of hours	Of which online	Teaching methods
Computer networks fundamentals	2	0	Interactive courses and presentations supported by PowerPoint presentations and video projections, discussions,
Communication protocols stack	2	0	
Routing mechanisms	2	0	
WLAN networks	2	0	
Computer networks security	2	0	
Resource allocation	2	0	

Computer networks design	2	0	explanations, and examples.
Computer networks management	2	0	
SNMP	2	0	
Domain names service	2	0	
Active Directory	2	0	
Network configuration	2	0	
Testing, debugging and monitoring	2	0	
Examples and applications	2	0	
	Bibliography[10] Craig Hunt, "TCP/IP Network Administration, 3rd Edition", O'Reilly Media, March 2010 Kevin Dooley and Ian J. Brown, Cisco IOS Cookbook, O'Reilly, 2007		

8.2 Applied activities[11]	Number of hours	Of which online	Teaching methods
Requirements specifications	2	0	Presentation of topics, discussions, question and answer sessions, implementation of specifications, testing and troubleshooting.
Architectural design	2	0	
Development and testing setup	4	0	
Network configuration	6	0	
Testing campaigns	6	0	
Data evaluation	4	0	
Project presentation	4	0	
	Bibliography[12] Cisco Packet Tracer, https://www.itechtics.com/packet-tracer-download/ Wireshark, https://www.wireshark.org/		

9. Evaluation

Type of activity	**9.1** Evaluation criteria[13]	**9.2** Evaluation methods	**9.3** Share of the final grade
9.4 Course	Solving theoretical questions derived from the main course topics and addressing practical problems based on examples discussed during the course and within project assignments.	CampusVirtual examination with in-person attendance in the laboratory.	50%
9.5 Applied activities	**S:**		
	L:		
	P: Project presentation and delivery of deliverables according to the specified deadlines.	Completion of an individual or team-based project.	50%
	Pr:		
	Tc-R[14]:		

9.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified[15]
• Internet addressing • TCP/IP stack • Logical network design • Network management concepts

Date of completion	**Course coordinator (signature)**	**Coordinator of applied activities (signature)**
24.09.2025		
Head of Department (signature)	**Date of approval in the Faculty Council** [16]	**Dean (signature)**
	07.10.2025	