SYLLABUS
COMPUTER NETWORKS
Academic Year 2024-2025

1. Program *General Data*

1.1. University	**„1 Decembrie 1918"**
1.2. Faculty	**Faculty of Informatics and Engineering**
1.3. Department	Mathematical, Informatic and ElectronicsScience and Engineering Department
1.4. Area	**Computer Science**
1.5. Level	undergraduate
1.6. Academic programme / Qualification	**Computer Science,** **ESCO-08: 2511/ Systems Analyst, 2512/ Software developers Analyst 251201** **Computer System Programmer 251204** **Computer System Engineer 251203**

2. Subject *General Data*

2.1. **Subject**		*Computer networks*			2.2. **Code**		CSE203	
2.3. **Course leader**		Ceuca Emilian						
2.4. Teaching Assistant's Name								
2.5. Year	**II**	2.6. Semester	**I**	2.7. Evaluation form (E – final exam/C-examination /VP)	**E**	2.8. Status (**C**– Compulsory, **Op** – optional, **F -** Facultative)		**C**

3. Course Structure (Weekly number of hours)

3.1. Weekly number of hours	**4**	3.2. course	*2*	3.3. seminar, laboratory	*2*
3.4. Total number of hours according to the curricula	**56**	3.5. course	*28*	3.6. seminar, laboratory	*28*

Time distribution:	Hours
Individual study using the lecture notes	*20*
Documentation (library)	*10*
Homework, Essays, Portfolios	*19*
Tutoring	*-*
Evaluation (exams)	*20*
Other activities…….	*-*

3.7 Total number of hours for individual study	**69**
3.8 Total number of hours according to the curricula	**56**
3.9 Total number of hours per semester	**125**
3.10 Credits	**5**

4. Prerequisites

4.1. Curricula prerequisites	
4.2. according to the general competencies	Basic knowledge in programming languages (C, Java) Computer architecture, Operating systems

5. Conditions

5.1. Conditions to support teaching	*Room A3 and Microsoft TEAMS*
5.2. Conditions for supporting seminar/laboratory activities	

6. Discipline specific competencies

Professional competences	*C6.1. The identification of base concepts and models for computer systems and computer networks.* *C6.2. The identification and explanation of base architectures for organizing and managing systems and networks.* *C6.3. The use of various techniques for installing, configuring and managing systems and networks.* *C6.4. The conducting of performance measurements for response times, resource consumption; establishing access rights.* *C6.5. The development of computer-network projects.*
Transversal competences	

7. Course objectives

7.1 General course objectives	*- Acquisition of knowledge about various types of computer networks,* *- Knowledge of techniques used to access the communication medium,* *- Knowledge about protocols for transmission and reception of messages,* *- Knowledge of services for users.*
7.2 Specific course objectives	

8. Course contents

Lectures	Didactic methods used	Observaţii
Introduction. Concepts, network types, characteristics, evolution, standards	*Lecture, discussions, examples*	2
ISO-OSI Reference model and Internet's TCP/IP protocol stack. OSI abstract model presentation, description of protocol functions for every layer. General presentation for TCP/IP protocol stack	Oral Presentations using multimedia and Microsoft Teams Q & A Interactive teaching	2
Data transmission techniques. Data transmission concepts, analog and digital transmission techniques, coding, communication channels		2
Types of computer networks. Architectures, evolution, topologies, physical parameters		2
Physical level. Transmission media, characteristics, performances, connectors, structured cabling system		2

Medium access control. Medium access techniques for local (wired and wireless) and wide area networks		2
Data Link level. Functions, problems, protocols, case study: HDLC.		2
Local Area Computer Networks. Fundamentals, architectures, evolution		2
Local Area Computer Networks. Systems, performances.		2
Computer Networks Interconnection. Devices for network interconnection; presentation of bridges, switches and routers		2
Internet access. IP (+ ICMP), IPv6 (+IGMP) protocols. Address resolution protocol. Routing protocols		2
Transport level protocols. TCP protocol; congestion control. TCP and UDP socket		2
General introduction to Internet applications. File transfer. Electronic mail, multimedia transmissions, network management.		2
Wireless Networks.		2

References

1. **EMILIAN CEUCA – RETELE DE CALCULATOARE SERIA DIDACTICA 2007**
2. V.Dadarlat, E.Cebuc - Reţele Locale de Calculatoare - de la cablare la interconectare, Editura Albastra (Microinformatica), Cluj, 2006, ISBN 973-650-161-2
3. 2. W. Stallings, Data and Computer Communications; Prentice Hall , 2004-2014
4. 3. A. Tanenbaum – – Computer Networks, Prentice Hall, 2005- 2010 (A. S. Tanenbaum, Reţele de Calcultoare; Agora Press)
5. TANENBAUM, A.S., ``REŢELE DE CALCULATOARE, ED. 4'', BYBLOS SRL, 2003

Seminars-laboratories	**Didactic methods used**	
Labor protection. Training. General overview of the laboratories. Introduction to computer networks.	*laboratory works*	2
LAN networks topographies: structure, components, architectures.	Practical exercises Brief presentation of possible solutions	2
Transmission media. Measurements, cabling.	Self testing programmes	2
The OSI model.		2
The IP addressing.		2
Interconnecting devices.		2
Web and FTP servers.		2
Configuring a network card. Installation in the Windows environment. Computing IP addresses.		2
Wireless components. Practical applications.		2
Case Study: LAN structure, presentation documents.		2
Practical laboratory applications.		2
Project presentation.		6

References

6. **EMILIAN CEUCA – RETELE DE CALCULATOARE SERIA DIDACTICA 2007**
7. V.Dadarlat, E.Cebuc - Reţele Locale de Calculatoare - de la cablare la interconectare, Editura Albastra (Microinformatica), Cluj, 2006, ISBN 973-650-161-2
8. 2. W. Stallings, Data and Computer Communications; Prentice Hall , 2004-2014
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10. TANENBAUM, A.S., ``REŢELE DE CALCULATOARE, ED. 4'', BYBLOS SRL, 2003

9. **Corroborating Course content expectations to the epistemic community representatives, professional associations and employers representative for the curricula**

Course content is kept state of the art by using latest protocols and devices available on the market

10. **Assessment**

Activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage from the final mark
10.1 Course	Interactivity and initial preparation, intermediary and final written examinations	Written exam (2,5 h).	70%
	-	-	-
10.2 Seminar/laboratory	Quality of practical work, participation	Continuous assessment, final written colloquium	30%
	-		-
10.3 Minimum performance standard: Grade calculus: 30% laboratory + 70% final exam Conditions for participating in the final exam: Laboratory ≥ 5 Conditions for promotion: grade ≥ 5			

Completion date   Instructor's signature   Teaching assistant's signature

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Date of approval within the department   Head of department's signature

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