



UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Computer Networks

Academic Year 2024/2025

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Computer Engineering

3. Cycle

1st

4. Course Unit

Computer Networks (L9025)

5. Scientific Area

6. Curricular Year

3rd

7. Type of Curricular Unit / Semester

1st Semester



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8. Class type and workload (work time)

Theoretical classes:

Practical classes:

Theoretical-Practical Classes 30,00

Tutorial Guidance: 20,00

9. ECTS Credits

6,00

10. Scientific Area Coordinator

11. Regent

Prof. Doutor JOÃO JOSÉ AMARO AMADOR LEITÃO

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

Introduction to computer networks and the protocols used on the Internet.

15. Specific Objectives

This curricular unit is an introduction to computer networks, focused on the Internet. This curricular unit studies the mechanisms of the Internet and modern computer networks. We look at protocols, architectures and implementations of it.

16. Skills to be acquired

Operation of multi-layer protocols, particularly the OSI and TCP/IP models; differences between various network topologies and gain an understanding of the most commonly used protocols on the Internet.

17. Teaching Methodology

Teaching will be based on the oral transmission of information related to the topics under study, followed by the resolution of exercises appropriate to the problems under study and laboratory practices on Alcatel's Omniswitch equipment.

18. Course Unit Program



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Application Layer: HTTP, FTP, Email, SMTP, DNS, P2P, Sockets programming

Transport Layer: Multiplexing and Demultiplexing. Connectionless Transport: UDP Reliable Data Transfer Connection-Oriented Transport: TCP Flow/Congestion Control

Network Layer: Virtual Circuit and Datagram Networks Router, IP, Routing algorithms (RIP, OSPF, BGP)

Link Layer: Error-Detection and -Correction Techniques, Multiple Access, Ethernet, VLAN

Physical Layer: Data and Signals, Bandwidth Utilization

19. Assessment Methods

According to the school's internal regulations, the assessment will have a continuous component and frequency. The continuous component will consist of the following installments:

- A programming project
- 2 Written tests.

20. Didactic Resources

Software:

PacketTracer 5

WireShark

21. Sustainability Objectives

- 4. Quality Education
- 5. Gender Equality
- 9. Industry, Innovation and Infrastructure

22. Keywords

ISO model

Protocol layers

Circuit/packet switching

Sockets

Reliable transport

Congestion contro



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23. Main Bibliography

Author(s): James F. Kurose - Keith W. Ross
Title: Computer Networking - A Top-down Approach
Edition: 8 Year: 2021
Local:
Publisher: Pearson

Author(s): Andrew S. Tanenbaum e David Wheterall
Title: Computer Networks
Edition: 5 Year: 2010
Local:
Publisher: Pearson

Author(s): William Stallings
Title: Data and Computer Communications
Edition: 9 Year: 2010
Local:
Publisher: Prentice Hall

24. Complementary Bibliography

Author(s):
Title:
Edition: Year:
Local:
Publisher:

Author(s):
Title:
Edition: Year:
Local:
Publisher:



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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'REDES DE COMPUTADORES': Academic Year 2024/2025
Autor / Author	Prof. Doutor JOÃO JOSÉ AMARO AMADOR LEITÃO
Classificação / Classification	-
Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
Data Hora / Date Time	
Formato de dados / Data Format	Texto / Text, PDF
Estatuto de utilização / Usage	Acesso público / Public Access
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