UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Computer Networks

Academic Year 2026/2027

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

Upon successful completion of the course, students will be able to operate multi-layer protocols, particularly the OSI and TCP/IP models, understand the differences between various network topologies, and have 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, when relevant, laboratory practices.

18. Course Unit Program

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Application Layer: HTTP, FTP, E-mail, 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, Routers, IP.
Link Layer: Error-Detection and -Correction Techniques, Multiple Access
Physical Layer: Data and Signals, Bandwidth Utilization

19. Assessment Methods

In accordance with the school's internal regulations, the assessment will comprise a continuous assessment component and/or an examination. The continuous assessment component will adhere to the rules established by the relevant regulations?specifically, the prevailing Supplementary Regulation on the Assessment of Knowledge and Competencies will be applied, as defined in the corresponding Continuous Assessment Plan.

20. Didactic Resources

Classes will be taught using visual presentations and computer systems will be made available for carrying out pratical exercises.

21. Sustainability Objectives

This course unit contributes to the following Sustainable Development Goals within the UN framework and definitions:
4 - Quality Education - Through the acquisition of technical skills regarding computer networks.
5 - Gender Equality - By promoting inclusive and gender-sensitive pedagogical practices.
9 - Industry, Innovation and Infrastructure - Through the application of innovative tools in the design of computer systems.

22. Keywords

OSI model
Circuit/packet switching
Sockets
Reliable transport
Traffic control

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23. Main Bibliography

Author(s): James F. Kurose - Keith W. Ross
Title: Computer Networking - A Top-down Approach, Global Edition
Edition: 8 Year: 2021
Local:
Publisher: Pearson
ISBN Code: 9781292405469

Author(s): Andrew S. Tanenbaum e David Whetherall
Title: Computer Networks, Global Edition
Edition: 6 Year: 2021
Local:
Publisher: Pearson
ISBN Code: 978-1292374062

Author(s): William Stallings
Title: Data and Computer Communications
Edition: 19 Year: 2013
Local:
Publisher: Prentice Hall
ISBN Code: 978-0133506488

24. Complementary Bibliography

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

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

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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'REDES DE COMPUTADORES': Academic Year 2026/2027
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
Relação / Relation	Version 1,0

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