UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Operating Systems

Academic Year 2025/2026

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Computer Engineering

3. Cycle

1st

4. Course Unit

Operating Systems (L9022)

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 PEDRO RAMOS DOS SANTOS BRANDÃO

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

O1 Understand the architecture of a client operating system.
O2 Understand the architecture of a server operating system.
O3 Understand how a client operating system works.
O4 Understand how a server operating system works.
O5 Understand how a Domain works.
O6 Learn how to develop a structured network architecture.
O7 Understand how Active Directory and its components work.
O8 Learn how to manage a network using Group Policy.
O9 Fully understand how to centrally manage a network.

15. Specific Objectives

Know how to implement and configure operating systems, and create a structured computer network.

16. Skills to be acquired

Students should be able to:
? Install and configure modern operating systems;
? Manage processes, memory, and files in multi-user environments;
? Use virtualization and server administration tools;
? Identify basic security vulnerabilities and apply corrective measures;
? Resolve problems related to operating system performance and stability.

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17. Teaching Methodology

The programmatic contents were divided into nine major themes. For each topic, pedagogical material (documentary, audiovisual, among others) will be made available in addition to the mandatory bibliography, these contents may be presented synchronously (sessions by videoconference) or asynchronously.
There will also be recourse to discussion forums and clarification of doubts, with collaboration among peers guided by the teacher (or tutor) of the discipline, seeking to promote collaborative w

18. Course Unit Program

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1. The current network infrastructures
1.1. Network technologies
1.2. Addressing
2. DNS
3. Authentication
4. Solutions to common problems
4.1. Ping
4.2. Traceroute
4.3. MTR
4.4. Interrogating a DNS server
4.5. Netsat
4.6. Nmap
4.7. Iperf
4.8. TCPdump
5. Windows Server 2019: settings and initial environments
5.1. Initial settings
5.2. Server Roles
5.3. Features
5.4. Administration tools
5.5. PowerShell
6. Active Directory
6.1. Introduction
6.2. Settings
6.3. Workgroup
6.4. Domain
6.5. Domain Controller
6.6. Organizational Units
6.7. Site
6.8. Trees
6.9. Forests
6.10. Active Directory Benefits
6.11. New Administrative Tools
6.12. FSMO Roles
7. Users Management
8. File Server

9. Linux Administration

19. Assessment Methods

There will also be recourse to discussion forums and clarification of doubts, with collaboration among peers guided by the teacher (or tutor) of the discipline, seeking to promote collaborative work and asynchronous communication.
There will also be proposed formative activities of reading, reflection and production, which will culminate in the digital portfolio of the discipline.
University regulations will be followed, and two continuous assessment tests will be carried out.

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20. Didactic Resources

They are mainly practical for building labs, such as:
Windows Server 2016,
Windows 11,
Hyper-V,
Computers using virtualization,
Whiteboard,
Multimedia projection,
Spreadsheets,
Computers using virtualization,
Specialized software: Windows 11, Windows Server 2011, Ubuntu,
Moodle

21. Sustainability Objectives

? SDG 4 ? Quality education: promotes technical skills in the field of operating systems administration and security, fundamental in Computer Engineering training; ? SDG 9 ? Industry, innovation and infrastructure: trains students to implement and manage complex technological infrastructures; ? SDG 16 ? Peace, justice and strong institutions: contributes to the security and robustness of IT systems, with an impact on organizational and institutional reliability.

22. Keywords

Operative Systems
Computing

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23. Main Bibliography

Author(s): Krause, Jordan
Title: Mastering Windows Server 2019: The complete guide for IT professionals to install and manage Windows
Edition: Year: 2019
Local: EUA
Publisher: Packt Publishing.

Author(s): Rosa, A.
Title: Windows Server 2016: Curso Completo
Edition: Year: 2018
Local: Lisboa
Publisher: FCA

Author(s): Thomas, O.
Title: Windows Server 2019 Inside Out
Edition: Year: 2019
Local: EUA
Publisher: Microsoft Press

24. Complementary Bibliography

Author(s): Peterson, R.
Title: Ubuntu - Server Administration
Edition: Year: 2019
Local: EUA
Publisher: Xenial

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

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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'SISTEMAS OPERATIVOS': Academic Year 2025/2026
Autor / Author	Prof. Doutor PEDRO RAMOS DOS SANTOS BRANDÃO
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Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
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