UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Systems Analysis

Academic Year 2025/2026

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Computer Engineering

3. Cycle

1st

4. Course Unit

Systems Analysis (L9003)

5. Scientific Area

6. Curricular Year

1st

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

The Systems Analysis course will provide students with the skills to analyze systems and represent this analysis using the UML language. As a conseuqnce the students will also be introduced to the concept of objects.

15. Specific Objectives

Upon successful completion of this course, students should be able to:
- Understand in detail the fundamental concepts of UML and Modeling and their practical applications.
- Understand in detail the use of the Open Standard, Graphical Notation, for specifying, visualizing, building, and documenting software.
- Develop a language for detailed design of software throughout its lifecycle using practical examples.
- Understand object modeling and its implementation.

16. Skills to be acquired

Understand the UML language and modeling.
Understand the concepts of Open Standard and Graphical Notation.
Understand object modeling.

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17. Teaching Methodology

Practical theoretical classes.
The development will be through exposure, exercises, discussion and student participation.
The formative assessment methodologies, translated into the analysis of questions and the resolution of practical exercises, guarantee that the defined objectives, in terms of theoretical understanding and practical abilities, will be achieved by the students who participate in these activities.

18. Course Unit Program

1. Definition of UML.
2. Following UML best practices.
3. Objects and Classes.
4. Relationship of objects that work together.
5. Use of super classes: generalization and inheritance.
6. Organization of classes of diagrams.
7. Use and construction of diagrams.
8. Relationship between cases.
9. Functional modeling.
10. Capture scenarios from sequential diagrams.
11. Workflows with diagram activities.
12. Collaboration between objects.
13. Patterns of behavior.
14. Implementation of system components.
15. Common Modeling Mistakes.
16. Useful Sites for UML.
17. Tools for UML.
18. Ways to use UML diagrams.

19. Assessment Methods

The continuous assessment methodology is that expressed in the General Regulation for continuous assessment in force.

20. Didactic Resources

Powerpoint presentations
Computers

21. Sustainability Objectives

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

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22. Keywords

UML
Modeling

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23. Main Bibliography

Author(s): Dennis, A., Wixom, B. H., & Tegarden, D
Title: Systems Analysis and Design: An Object-Oriented Approach with UML
Edition: 6 Year: 2020
Local:
Publisher: Addison Wesley
ISBN Code: 978-1119559917

Author(s): Russ Miles
Title: Learning UML 2.0: A Pragmatic Introduction to UML
Edition: First Year: 2006
Local: London
Publisher: O'Reilly Media
ISBN Code: 978-0596009823

Author(s): Dan Pilone
Title: UML 2.0 in a Nutshell: A Desktop Quick Reference
Edition: Second Year: 2005
Local: NY
Publisher: O'Reilly Media
ISBN Code: 978-0596007959

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24. Complementary Bibliography

Author(s): Van Der Heyde
Title: UML 2.5 - Iniciación, ejemplos y ejercicios corregidos
Edition: Primeira Year: 2020
Local: Madrid
Publisher: Ediciones ENI
ISBN Code: 978-2409003721

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

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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'ANÁLISE DE SISTEMAS': Academic Year 2025/2026
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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