



UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Introduction to Physics

Academic Year 2026/2027

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Computer Engineering

3. Cycle

1st

4. Course Unit

Introduction to Physics (L9007)

5. Scientific Area

6. Curricular Year

1st

7. Type of Curricular Unit / Semester

2nd 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 JOAQUIM MESQUITA DA CUNHA VIANA

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

To teach the basic concepts related to Classical Mechanics and Waves.

15. Specific Objectives

Introduce the students to the main principles of movement, work and energy.

16. Skills to be acquired

- * Describe and apply Newton's laws to model 1D and 2D movement.
- * Solve problems related to work and energy, checking the conservation principles.
- * Analyze circular movement and oscillations, obtaining relations between kinematic and dynamic quantities
- * Represent quantities as vectors and operate on components and projections.
- * Model mechanical waves (string, sound), calculate frequencies and get into the concepts of interference and resonance.

17. Teaching Methodology

Lecturing will be based on the oral transmission of information related to the subjects being studied, followed by the resolution of adequately related exercises.



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18. Course Unit Program

1. Introduction
2. Motion in one dimension
3. Motion in two dimensions
4. Vectors
5. Newton's laws
6. Work and Energy
7. Circular motion
8. Waves
9. Wave motion

19. Assessment Methods

The present Complementary Regulation for Knowledge and Competencies shall be applied. Continuous evaluation consists of oral interventions and a final written test, both with factor 3, not excluding the possibility of other evaluation elements, as defined by the Continuous evaluation Plan. The frequency test and the determination of the final information shall obey the present active Regulation.

20. Didactic Resources

The teaching resources shall be based on the suggested bibliography, on several pertinent technical papers, on the set of slides used during classes, and on some videos of interest for the studied themes.

21. Sustainability Objectives

- ODS 5 -Gender Equality: assuring an inclusive and fair transmission of knowledge related to technological areas;
- ODS 9 -Industry, innovation and infrastructure: through the acquisition of knowledge regarding how to apply classical mechanics principles in way that it can contribute to foster innovation within our society;
- ODS 11 -Sustainable Cities and Communities: By contributing to the efficiency of urban systems.

22. Keywords

Mechanics
Motion
Wave
Newton



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23. Main Bibliography

Author(s): Jewett & Serway
Title: Physics For Scientists and Engineers With Modern Physics
Edition: 10^a Year: 2018
Local:
Publisher: Cengage Learning
ISBN Code:

Author(s): Giancoli
Title: Physics for Scientists & Engineers with Modern Physics
Edition: Global Edition Year: 2023
Local:
Publisher: Pearson Education
ISBN Code:

Author(s): Tipler & Mosca
Title: Física Para Cientistas e Engenheiros Vol 1
Edition: Year: 2009
Local:
Publisher: LTC - Livros Tecnicos e Cientificos Editora
ISBN Code:

24. Complementary Bibliography

Author(s): J.D. Deus et al
Title: Introdução à Física
Edition: 3^a Year: 2014
Local:
Publisher: Escolar Editora
ISBN Code:

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



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Ficha técnica MIP / MIP Datasheet	
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Autor / Author	Prof. Doutor JOAQUIM MESQUITA DA CUNHA VIANA
Classificação / Classification	-
Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
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