UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Introduction to Physics

Academic Year 2025/2026

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

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt

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 oscilations, obtaining relations between kinematic and dynamic quantities
* Represent quantities as vectors a operate on components and projections.
* Model mechanical waves (string, sound), calculate frequencies and get into the concepts of interference and ressonance.

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.

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt

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
10.Sound

19. Assessment Methods

According to the school's internal regulations, grading will have a continuous component, as well as a frequency test.
The continuous component will consist of:

- 2 theoretical tests

In case the student gets benefit from it, the final grade will be limited to the grade obtained in the frequency test, otherwise average of the grades achieved in the frequency test and the continuous component will be considered.

20. Didactic Resources

* Whiteboard and multimedia projection;
* Problem sheet and respective solutions;
* Moodle and Onedrive for sharing tests and other materials.

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 mechanic 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
Sound
Newton

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt

23. Main Bibliography

Author(s): Jewett & Serway
Title: Physics For Scientists and Engineers With Modern Physics
Edition: 10ª 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: 3ª Year: 2014
Local:
Publisher: Escolar Editora
ISBN Code:

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

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt

UNIVERSIDADE LUSÍADA
LISBOA

Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'INTRODUÇÃO À FISICA': Academic Year 2025/2026
Autor / Author	Prof. Doutor JOAQUIM MESQUITA DA CUNHA VIANA
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

(c) Universidade Lusíada, 2025

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt