



UNIVERSIDADE LUSÍADA  
LISBOA

Course Unit Program  
Physics

Academic Year 2023/2024

**1. Organic Unit**

Faculty of Business and Economic Sciences

**2. Course**

Computer Engineering

**3. Cycle**

1st

**4. Course Unit**

Physics (L9012)

**5. Scientific Area**

**6. Curricular Year**

2nd

**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 JOAQUIM MESQUITA DA CUNHA VIANA

#### 12. Assistants

#### 13. Teaching Language

Portuguese

#### 14. General Objectives

To teach the Basic concepts related to Electricity, Electromagnetism and Optics

#### 15. Specific Objectives

To introduce the principles and applications of Electricity, magnetism and Optics

To get to understand the physics basis of engineering, in what concerns Electricity, magnetism and optics through the understanding of the basic phenomena of each of these areas of knowledge.

To be able to understand and apply the laws that rule Electric, Magnetic and Optical behavior.

To get to know some of the applications resulting from that behavior.

#### 16. Skills to be acquired

Some capacity to apply the rules of Electricity, Electromagnetism and Optics

To specific situations

#### 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. ELECTRIC CHARGES AND COULOMB'S LAW
2. ELECTRIC FIELD
3. GAUSS'S LAW
4. ELECTRIC POTENTIAL
5. CAPACITANCE AND DIELECTRICS
6. CURRENT AND RESISTANCE
7. CONTINUOUS CURRENT CIRCUITS
8. MAGNETIC FIELD
9. FARADAY'S LAW
10. ELECTROMAGNETIC INDUCTION
11. ALTERNATE CURRENT CIRCUITS
12. ELECTROMAGNETIC WAVES
13. THE NATURE OF LIGHT AND THE LAWS OF GEOMETRIC OPTICS
14. INTERFERENCE OF LIGHT WAVES

## 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:

Class attendance

2 theoretical tests

Practical assignments

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

## 20. Didactic Resources

## 21. Sustainability Objectives

4. Quality Education
5. Gender Equality
9. Industry, Innovation and Infrastructure
11. Sustainable Cities and Communities

## 22. Keywords



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### 23. Main Bibliography

Author(s): Loureiro, J.  
Title: ELETROMAGNETISMO E ÓTICA  
Edition: 1 Year: 2019  
Local: Lisboa  
Publisher: IST Press

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Author(s): Giancoli, Douglas C.  
Title: Physics Principles With Applications  
Edition: 7 Year: 2015  
Local:  
Publisher: Pearson Education Limited

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Author(s): Tipler & Mosca  
Title: Física para Cientistas e Engenheiros, vol. 2 (Electricidade e Magnetismo, Óptica.)  
Edition: 6 Year: 2000  
Local:  
Publisher: LTC - GRUPO GEN

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### 24. Complementary Bibliography

Author(s): Tipler & Mosca  
Title: Physics for scientists and engineers  
Edition: 6 Year: 2007  
Local:  
Publisher: W. H. Freeman

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Author(s): Serway, R.A. & Jewett, J. W.  
Title: Physics for Scientists and Engineers with Modern Physics.  
Edition: 10 Year: 2018  
Local:  
Publisher: Cengage Learning

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| Ficha técnica MIP / MIP Datasheet |                                                       |
|-----------------------------------|-------------------------------------------------------|
| Título / Title                    | Course Unit Program 'FÍSICA': Academic Year 2023/2024 |
| Autor / Author                    | Prof. Doutor JOAQUIM MESQUITA DA CUNHA VIANA          |
| Classificação / Classification    | -                                                     |
| Descritores / Descriptors         | -                                                     |
| Colaborador(es) / Colaborator(s)  | -                                                     |
| Data Hora / Date Time             |                                                       |
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