

## SUBJECT TEACHING GUIDE

G441 - PHYSICS II

Degree in Nautical Engineering and Maritime Transport

Academic year 2020-2021

| 1. IDENTIFYING DATA              |   |                  |                    |                  |              |
|----------------------------------|---|------------------|--------------------|------------------|--------------|
| Degree                           | Degree in Nautical Engineering and Maritime Transport |                  |                    | Type and Year    | Core. Year 1 |
| Faculty                          | School of Maritime Engineering                        |                  |                    |                  |              |
| Discipline                       | Subject Area: Physics<br>Basic Training Module        |                  |                    |                  |              |
| Course unit title and code       | G441 - PHYSICS II                                     |                  |                    |                  |              |
| Number of ECTS credits allocated | 6   | Term             | Semester based (2) |                  |              |
| Web                              |   |                  |                    |                  |              |
| Language of instruction          | Spanish   | English Friendly | No                 | Mode of delivery | Face-to-face |

|                  |  |  |  |  |  |
|------------------|--|--|--|--|--|
| Department       | DPTO. FISICA APLICADA                          |  |  |  |  |
| Name of lecturer | VIDAL FERNANDEZ CANALES                        |  |  |  |  |
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| Office           | E.T.S. de Náutica. Planta: + 2. DESPACHO (247) |  |  |  |  |
| Other lecturers  | JOSE ANGEL MIER MAZA                           |  |  |  |  |

### 3.1 LEARNING OUTCOMES

- Be able to solve problems related with general physics laws, and apply this ability to:
  - write technical reports
  - develop a physical model of a process
  - design and perform experiments
  - identify the key points in a physical process, and perform graphical, numerical, analytical and experimental analysis
  - check results according to the accuracy of the experimental set up –

#### 4. OBJECTIVES

Acquire basic Physics knowledge  
 Explain usual phenomena by using simple models Use experimental and mathematical tools  
 Analyze diverse physical phenomena  
 Perform experiments, acquire data, analyze results and derive conclusions  
 Write precisely technical reports  
 Solve qualitatively and quantitatively related problems

#### 6. COURSE ORGANIZATION

| CONTENTS |   |
|----------|---|
| 1        | Electromagnetism                                  |
| 1.1      | Electric field                                    |
| 1.2      | Direct current                                    |
| 1.3      | Magnetic field                                    |
| 1.4      | Electromagnetic induction                         |
| 2        | Waves   |
| 3        | Thermodynamics                                    |
| 3.1      | Introduction to thermodynamics and zero principle |
| 3.2      | First principle of thermodynamics                 |
| 3.3      | Second principle of thermodynamics                |

#### 7. ASSESSMENT METHODS AND CRITERIA

| Description  | Type                  | Final Eval. | Reassessn | %             |
|--|-----------------------|-------------|-----------|---------------|
| Laboratory   | Laboratory evaluation | No          | No        | 20,00         |
| Periodic exams   | Written exam          | No          | Yes       | 40,00         |
| Tasks  | Work                  | No          | Yes       | 15,00         |
| Final exam   | Written exam          | Yes         | Yes       | 25,00         |
| <b>TOTAL</b>   |                       |             |           | <b>100,00</b> |
| Observations   |                       |             |           |               |
| The pupils can discard those assigned tasks and periodic exams with a low mark, and retake their percentage in the final exam.                         |                       |             |           |               |
| Observations for part-time students  |                       |             |           |               |
| Part-time students who can not attend the laboratory ordinary sessions can ask for a laboratory exam in order to obtain the corresponding mark (20%) . |                       |             |           |               |

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

Física para la ciencia y la tecnología, P. Tipler y G. Mosca (Reverté)

Física para ciencias e ingeniería, Serway y Jewett (Paraninfo)

Física Universitaria, Young Freedman/Sears Zemansky, (Pearson)

Material didáctico en curso moodle y web de la asignatura <http://personales.unican.es/fernancv/Fisica>