

SUBJECT TEACHING GUIDE

G1074 - Electricity and Electrical Engineering

Degree in Marine Engineering

Academic year 2023-2024

| 1. IDENTIFYING DATA | | | | | |
|----------------------------------|--|------------------|--------------------|------------------|--------------------|
| Degree | Degree in Marine Engineering | | | Type and Year | Compulsory. Year 2 |
| Faculty | School of Maritime Engineering | | | | |
| Discipline | Subject Area: Electrical Engineering Module: Marine and Nautical Training | | | | |
| Course unit title and code | G1074 - Electricity and Electrical Engineering | | | | |
| Number of ECTS credits allocated | 6 | Term | Semester based (1) | | |
| Web | | | | | |
| Language of instruction | Spanish | English Friendly | No | Mode of delivery | Face-to-face |

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| Department | DPTO. INGENIERIA ELECTRICA Y ENERGETICA | | | | |
| Name of lecturer | JUAN ANTONIO CARDONA PARDO | | | | |
| E-mail | juan.cardona@unican.es | | | | |
| Office | E.T.S. de Náutica. Planta: + 2. DESPACHO (240) | | | | |
| Other lecturers | ALBERTO LASO PEREZ | | | | |

| 3.1 LEARNING OUTCOMES | |
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| - Know how to solve problems according to the principles of electricity , circuit theory and electric machines | |
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| 4. OBJECTIVES | |
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| Understand the process of energy conversion in electric machines and circuits | |
| Analyze electric circuits in permanent and transient regime | |
| Know the basic principles of the electric machines operation and analysis. | |

| 6. SUBJECT PROGRAM | |
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| CONTENTS | |
| 1 | Introduction to the electric circuit theory |
| 2 | Analysis of a.c. electric circuits in permanent regime |
| 3 | Analysis of three phase electric circuits |
| 4 | Analysis of electric circuits in transient regime |
| 5 | Electromagnetism principles applied to the electric machines |
| 6 | Transformers |
| 7 | Induction machines |
| 8 | Synchronous machines |
| 9 | Direct current machines |

| 7. ASSESSMENT METHODS AND CRITERIA | | | | |
|---|-----------------------|-------------|-----------|---------------|
| Description | Type | Final Eval. | Reassessn | % |
| Partial written exams | Written exam | No | Yes | 40,00 |
| Final written exam | Written exam | Yes | Yes | 40,00 |
| Laboratory practices | Laboratory evaluation | No | Yes | 20,00 |
| TOTAL | | | | 100,00 |
| Observations | | | | |
| Final qualification = 40% of partial written exams + 40% of final written exam + 20% of laboratory practices | | | | |
| In case of a COVID-19 health alarm make impossible to carry out evaluation on site, a distance evaluation will be planned | | | | |
| Observations for part-time students | | | | |
| Part-time students will take only one final exam with 100% of the qualification | | | | |

| 8. BIBLIOGRAPHY AND TEACHING MATERIALS |
|---|
| BASIC |
| Material suministrado al alumno en el Aula Virtual de la asignatura |
| Jesús Fraile Mora " Circuitos Eléctricos" ,2ª ed , Pearson, Madrid 2019 |
| Jesús Fraile Mora "Máquinas Eléctricas", 8ª ed , Garceta, 2016, Madrid |