SUBJECT TEACHING GUIDE

G1101 - Electronics

Degree in Maritime Engineering and Naval Architecture

Academic year 2025-2026

1. IDENTIFYING DATA					
Degree	Degree in Maritime Engineering and Naval Architecture			Type and Year	Compulsory. Year 2
Faculty	School of Maritime Engineering				
Discipline	Subject Area: Electronics Module in Common with the Naval Branch				
Course unit title and code	G1101 - Electronics				
Number of ECTS credits allocated	6	Term		Semester based (1)	
Knowledge Field	Industrial engineering, mechanical engineering, automation engineering, industrial organization engineering and navigation engineering				
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA
Name of lecturer	JULIO BARROS GUADALUPE
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Other lecturers	ALBERTO PIGAZO LOPEZ RAMON IGNACIO DIEGO GARCIA

4. OBJECTIVES
To acquire the basic, most widely employed knowledge of electronic components and understand the operation and analysis techniques for application to circuits with a focus on marine electronic systems.
Knowledge, understanding and sufficiency in accordance with rule III / 1 of the STCW agreement as amended.

6. SUBJECT PROGRAM

CONTENTS	
1	Semiconductor devices. Diodes. Diode circuits. Half-wave and full-wave rectifier. Zener regulator. Bipolar and field effect transistors. Transistor amplifiers. Electronic devices and circuits with switching power at low frequency.
2	Operational amplifiers. Linear and non-linear circuits with operational amplifiers. Oscillators and timers. Use of basic laboratory equipment (power supply, signal generator, multimeter, oscilloscope, etc.).
3	Introduction to digital circuits. Logical operations. Synthesis of logic functions. Parameters of digital integrated circuits. Combinational circuits. Bistable. Registers and counters. Memories.
4	Introduction to electronic instrumentation systems. Elements of a measuring system. Transducers. Conditioners. Analog-digital interfaces. Data acquisition systems. Virtual instrumentation.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
The student will complete an individual practical test in the laboratory during the final practical session. Students may not use any supporting materials (books, notes, electronic devices except a non-programmable calculator, etc.).	Laboratory evaluation	Yes	Yes	30,00
The student will take an individual written exam during the academic term on the subject's theory and problems. Students may not use any supporting materials (books, notes, electronic devices except a non-programmable calculator, etc.).	Written exam	Yes	Yes	35,00
The student will complete an individual written assignment in a classroom session on the subject's theoretical content and problems, using the teaching materials provided and/or authorized by the instructor.	Work	Yes	Yes	35,00
TOTAL				100,00

Observations

The course assessment is based on three sections: practical assessment, written assessment, and assignment assessment.
To pass the course, students must obtain a grade equal to or greater than 5 points out of 10 in each of the three sections.
The final grade for the course is obtained by adding the three grades weighted by their respective percentages.
The three sections are taught throughout the semester. Students may retake any sections that they have not passed during the semester in the official regular and extraordinary examination sessions through tests under the same conditions as those taught during the semester.

Observations for part-time students

The same evaluation criteria as for full-time students.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

A. Malvino, Principios de Electrónica. Editorial McGraw Hill.

Roger L. Tokheim, Principios Digitales. Editorial McGraw Hill

Miguel A. Pérez, Instrumentación electrónica Editorial Thomson