

## SUBJECT TEACHING GUIDE

G1068 - Electronic Communication Systems and Navigation Aid Systems  
Degree in Nautical Engineering and Maritime Transport

Academic year 2021-2022

1. IDENTIFYING DATA					
Degree	Degree in Nautical Engineering and Maritime Transport			Type and Year	Optional. Year 4
Faculty	School of Maritime Engineering				
Discipline	Subject Area: Optional Subjects Optional Module				
Course unit title and code	G1068 - Electronic Communication Systems and Navigation Aid Systems				
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. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA				
Name of lecturer	JULIO BARROS GUADALUPE				
E-mail	julio.barros@unican.es				
Office	E.T.S. de Náutica. Planta: + 2. DESPACHO (241)				
Other lecturers	RAMON IGNACIO DIEGO GARCIA				

### 3.1 LEARNING OUTCOMES

--

### 4. OBJECTIVES

- To learn basic knowledge on electronic systems in communication and electronic navigation systems

## 6. COURSE ORGANIZATION

### CONTENTS

1	-Communication systems; Modulation; Signal and spectral analysis; Amplitude modulation; Frequency modulation; Pulse modulation; Digital modulation; Transmitters and receivers
2	-Satellite systems; Radar basis; Maritime radar; Transmitter, receiver antenna and display.

## 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
- Written exam	Written exam	No	Yes	70,00
- Laboratory evaluation	Laboratory evaluation	No	Yes	30,00
<b>TOTAL</b>				<b>100,00</b>
Observations				
Written exam + laboratory evaluation				
Observations for part-time students				
Written exam + laboratory evaluation				

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

S.F. Appleyard, Marine electronic navigation, Ed. Routledge & Kegan Paul.  
 A.B. Carlson, Communication systems, Ed. McGraw Hill, 2002.  
 M.I. Skolnik, Introduction to radar systems, Ed. McGraw Hill, 2001.  
 L. Tetley, D. Calcutt, Electronic aids to navigation. Ed. Elsevier Butterworth Heinemann, 2001.