

## SUBJECT TEACHING GUIDE

G1307 - The Electric Ship

Degree in Marine Engineering

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Degree in Marine Engineering			Type and Year	Optional. Year 4
Faculty	School of Maritime Engineering				
Discipline	Subject Area: Optional Subjects Optional Module				
Course unit title and code	G1307 - The Electric Ship				
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. INGENIERIA ELECTRICA Y ENERGETICA
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### 3.1 LEARNING OUTCOMES

- Analysis of the marine electric power systems
- Analysis of electric drives. To know how to choose the right electric motor for each application . Introduction to the control and protection of electric motors. Introduction to electric maintenance .
- Know the nature, causes, effects , international standards, measurement and assesment of the quality perturbations of the electric energy on ships
- Know the operation of electric generators under different regimes.
- Know the electric power distribution system and its protection system
- Make the electric, electronic an control systems work in accordance to the rule III/I of the STCW
- Maintenance and repairing of the electric, electronic according to the norm III/1 of the STCW

### 4. OBJECTIVES

Know the electric power system.
Know the operation, regulation ,control , protection and maintenance of alternators
Know the speed control, protection and maintenance of electric motors. Know the main components of an electric drive and the electric propulsion systems
Introduction to the computation of electric power distribution lines and protection systems in distribution networks
Know the nature, causes, effects , international standards, measurement and assesment of the quality perturbations of the electric energy on ships
Basic configuration , principles and operation of generators
Basic configuration , principles and starting methods of induction motors
Basic configuration of HVelectric installations
Know the electric power system

### 6. SUBJECT PROGRAM

CONTENTS	
1	Marine electric power system
2	Electric power plant
3	Electric power distribution network
4	Electric drives and electric propulsion
5	Electric power quality on ships

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Written exam	Others	No	Yes	60,00
Written exam	Others	No	Yes	40,00
TOTAL				100,00
Observations				
In case of a COVID-19 health alarm make impossible to carry out evaluation on site, a distance evaluation method will be planned				
Observations for part-time students				
Part-time students will take a final exam of theory and practice that will account for 100% of the mark.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
Documentación suministrada al alumno en el Aula Virtual de la asignatura
Gross C., "Power System Analysis" ,Wiley, 2005
Wildi T. , "Electrical Machines,Drives and Power System" , Prentice-Hall, 2005
Krishnan R., "Electric Motor Drives:Modelling , Analysis and Control", Pearson
Lajara Vizcaíno J.R. y Pegleri Sebastián J. , "LABVIEW: Entorno Gráfico de Programación", Editorial Marcombo , ISBN:9788426716965 , 2ªedición , EAN :9788426716965