

School of Industrial Engineering and Telecommunications

SUBJECT TEACHING GUIDE

G738 - Electrical Engineering and Electric Machinery

Degree in Mechanical Engineering

Academic year 2023-2024

1. IDENTIFYING DATA									
Degree	Degree in Mechanical Engineering				Type and Year	Compulsory. Year 2			
Faculty	School of Industrial Engineering and Telecommunications								
Discipline	Subject Area: Electrotechnics and Electrical Machines Module in Common with the Industrial Branch								
Course unit title and code	G738 - Electrical Engineering and Electric Machinery								
Number of ECTS credits allocated	6	Term Semeste		r based (1)					
Web									
Language of instruction	Spanish	English Friendly	No	Mode of o	delivery	Face-to-face			

Department	DPTO. INGENIERIA ELECTRICA Y ENERGETICA	
Name of lecturer	ALFREDO ORTIZ FERNANDEZ	
E-mail	alfredo.ortiz@unican.es	
Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 2. DESPACHO PROFESOR (S2029)	
Other lecturers	GERARDO DIEZ CAGIGAL	

3.1 LEARNING OUTCOMES

- Students will be able to solve electric circuits in DC and AC, both three-phase and single-phase. To do this they will know the basic laws that govern the fundamentals of circuit theory. An overview of the fundamentals of calculation in electrical installations will also be offered. In the same way, they will know the basic principles of operation of electrical machines, with special emphasis on transformers and induction motors.



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4. OBJECTIVES

The student should be able to solve electric circuits both single phase and three phase. They will size correctly electrical equipment taking into account the basics of electrical safety.

Students should understand the operation and basic parts of transformers and induction motors, being able to perform typical calculations associated with both electric machines.

6. COURSE ORGANIZATION

0. COORCE ORGANIZATION				
	CONTENTS			
1	Electrical circuits			
2	Three-phase system			
3	Introduction to electrical machines			
4	Transformers and asynchronous motors			
5	Low voltage electrical installations			

7. ASSESSMENT METHODS AND CRITERIA								
Туре	Final Eval.	Reassessn	%					
Written exam	No	Yes	40,00					
Written exam	Yes	Yes	40,00					
Work	No	Yes	10,00					
Work	No	Yes	10,00					
			100,00					
	Type Written exam Written exam Work Work	TypeFinal Eval.Written examNoWritten examYesWorkNoWorkNo	TypeFinal Eval.ReassessnWritten examNoYesWritten examYesYesWorkNoYesWorkNoYes					

Observations

Students can pass the subject in two ways:

1- Continuous assessment

To pass on this way is required attendance to at least 80% of the classroom activities of the subject. Students must pass the assessments 1 and 2, needing to obtain a grade superior to 4 out of 10 to pass the course. Group work and Lab memory will add up to 10% to each final grade.

2-. FINAL EXAM

Students who have not followed or passed the continuous assessment, need to perform the final examination of the whole subject, in which must take a score equal to or greater than 5 out of 10.

Observations for part-time students

Part-time students will be assessed in the same way as full-time students.



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8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Electromagnetismo y Circuitos Eléctricos, Fraile, J., McGraw-Hill

Análisis Introductorio de Circuitos, Boylestad, Pearson

Teoría de Circuitos: Problemas y Pruebas Objetivas orientadas al Aprendizaje, Sánchez, P., Pearson

Pruebas Objetivas de Circuitos Eléctricos, Eguíluz, L.I., Eunsa

Instalaciones Eléctricas, Conejo, A.J., McGraw-Hill

Reglamento Electrotécnico de Baja Tensión

Manual de Instalaciones Eléctricas, Martín, F., Madrid Vicente

Instalaciones Eléctricas en las Edificaciones, Guerrero, A., McGraw-Hill

Máquinas Eléctricas, Fraile, J., McGraw-Hill

Máquinas Eléctricas, Sanz, J., Prentice Hall

Problemas de Máquinas Eléctricas, Fraile, J., Schaum