SUBJECT TEACHING GUIDE

G879 - Home Automation and Lighting Systems

Degree in Electrical Engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Degree in Electrical Engineering			Type and Year	Optional. Year 4
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Electrotechnology Optional Module: Electrical Engineering				
Course unit title and code	G879 - Home Automation and Lighting 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. 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	CRISTINA MENDEZ GUTIERREZ

3.1 LEARNING OUTCOMES

- Students will acquire the skills of design and implementation of automation projects in housing, and design and calculation of lighting installations.

4. OBJECTIVES

This course aims to introduce students to the field of lighting and automated installations in homes and buildings, showing fundamental aspects of various lighting and automation systems, relying on the practical exercises and didactically adapted installations.

6. COURSE ORGANIZATION	
	CONTENTS
1	1-Lighting 1.1.-Lighting history. Light sources: types and characteristics. 1.2.-Nature of light. 1.3.-Luminaires: operation of incandescent and discharge lamps. Technological aspects and characteristics tables. 1.4.-Luminaires: Special lamps. 1.5.-Lighting systems: interior lighting projects. 1.6.-Lighting installations: outdoor lighting projects 1.7.-Lighting installations: public lighting projects.
2	2. Automation 2.1.-General of automation concepts and history of automation. 2.2.-Technologies used in home automation .. 2.3.-System. Standard X-10. 2.4 Components. 2.5.-Home automation facilities: Operation. 2.6.-Structure of automaton 2.7.-System components. 2.8.-System programming. 2.8.-The EIB system 2.9.-Components EIB. 2.10.-Installation components. 2.11. Programming
3	3. Regulations and Standards in the field of home automation. 3.1.-symbology. 3.2.-Rules on installation and development of lighting projects. 3.2.-Rules and regulations for automation systems.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Assessment1	Written exam	No	Yes	15,00
Assessment2	Written exam	No	Yes	15,00
Laboratory work	Work	No	Yes	15,00
Team work	Work	No	Yes	15,00
Lighting technology practices	Laboratory evaluation	Yes	Yes	15,00
Home Automation Practices	Laboratory evaluation	Yes	Yes	15,00
Luminotenia Group Exhibition	Others	Yes	Yes	2,50
Home Automation Group Exhibition	Others	Yes	Yes	2,50
Follow-up Activities Lighting	Others	Yes	Yes	2,50
Home Automation Monitoring Activities	Others	Yes	Yes	2,50
TOTAL				100,00

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. Team 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.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

-Introducción a las Instalaciones Eléctricas.
J. Fraile Mora
Colegio de Ingenieros de Caminos, Canales y Puertos
-Electrotecnia
José García Trasancos
Ed. Thomson Paraninfo
-Autómatas Programables
Ed. McGraw-Hill.
-Instalaciones Automatizadas en Viviendas y Edificios.
José Moreno Gil y otros
Ed. Paraninfo
Catálogos de fabricantes.