

SUBJECT TEACHING GUIDE

G865 - Electrical Safety, Projects and the Environment

Degree in Electrical Engineering

Academic year 2020-2021

1. IDENTIFYING DATA					
Degree	Degree in Electrical Engineering			Type and Year	Compulsory. Year 4
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Electrical Safety, Projects and the Environment Module in Common with the Industrial Branch				
Course unit title and code	G865 - Electrical Safety, Projects and the Environment				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. TRANSPORTES Y TECNOLOGIA DE PROYECTOS Y PROCESOS				
Name of lecturer	MARIA DEL CARMEN RUIZ PUENTE				
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Other lecturers	PEDRO JOSE HERRERO LOPEZ				

3.1 LEARNING OUTCOMES

- Identify the industrial project and the different disciplines involved in their realization.
- Know the different types of industrial projects about equipment and electrical installations and the specific methodologies for their realization.
- Identify and know the economic, environmental and safety aspects that concern projects about equipment and electrical installations.
- Understand and know how to proceed with the legal processing of projects.

4. OBJECTIVES

Know the life cycle of industrial projects and the involved stakeholders.
Identify the organizational structure of a company in relation with the realization of projects.
Learn and apply a methodology to elaborate a project in its various phases of engineering and specifically to elaborate projects in electrical engineering.
Know and identify the economic and environmental sustainability criteria in the design of projects.
Know and apply the techniques of economic, social and environmental assessment to the project life cycle.
Learn how to write and elaborate the basic documents of a project as well as other legally required document.
Know the stages of legal and administrative processing of industrial projects.

6. COURSE ORGANIZATION

CONTENTS	
1	Introduction. Concept and types of industrial projects. Project life cycle and agents involved.
2	Structure of an industrial project and methodology to elaboration. Stages and planning of an industrial project. General description of phases and stages of an industrial project. Types of industrial electrical and electronic projects. Methodology to elaborate electrical and electronic projects.
3	Legal and environmental processing. Legal processing and professional endorsement. Opening and activity licenses. Integral Environmental Autorization. Environmental Impact Assessment.
4	Environmental sustainability in the design of equipment and electrical facilities. Legal and normative framework. Concurrent engineering. Environmental sustainability aspects. Sustainable design strategies. Techniques of sustainability assessment.
5	Methods and tools for life cycle analysis. Case study analysis.
6	Safety in the design of equipment and electrical facilities. Legal and normative framework. Safety aspects in the design of equipment and electrical facilities. Design strategies for safety. Techniques of safety assessment.
7	Project writing. Norms UNE-ISO 157000. Basic documents: memory, annexes, plans, construction conditions, measurements, budget. Other legally required documents: safety and health study, environmental impact study.
8	Economic assessment of industrial projects. Economic feasibility aspects of projects. Techniques for investment estimation. Techniques for operation costs estimation. Techniques for economic profitability assessment.
9	Methods and tools for the elaboration of the documents of the project. Case study analysis.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Written exam1. Evaluation of issues 1,2 and 3	Written exam	No	Yes	30,00
Written exam 2. Evaluation of issues 4, 6 and 8	Written exam	Yes	Yes	40,00
Practical exercises. Evaluation of issue 5	Laboratory evaluation	No	No	10,00
Work. Evaluation of issues 7 and 9	Work	No	No	20,00
TOTAL				100,00
Observations				
If the subject is not passed on the ordinary evaluation, the qualifications of the recoverable assessment activities which score is equal or greater than 5 out to 10 will be saved for the extraordinary evaluation, and the complete qualification of the no-recoverable assessment activities.				
Observations for part-time students				
Remember that, the part-time students can be tested of the complete theme of the course by a written exam on the official calls.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- De Cos, M., 1995; Teoría General del Proyecto. Ingeniería de Proyectos/Project Engineering. Síntesis, Madrid.
- Martínez de Pisón Ascacíbar, F., 2002; La oficina técnica y los proyectos industriales. Zaragoza: Copy Center.
- Cañizal, F. y Pérez, M.A., 1993; La Redacción del Proyecto. Aspectos Previos y Metodología. Serv. Publ. Universidad de Cantabria.
- Bond, WTF., 1996; Design Project Planning. Prentice Hall, Hempstead.
- Hubka, V. y Eder, E., 1996; Design Science. Introduction to the Needs, Scope and Organization of Engineering Design Knowledge. 2Rev., Springer-Verlag, Berlín.