

Academic Year: ( 2023 / 2024 )

Review date: 28/04/2023 13:16:53

Department assigned to the subject: Electronic Technology Department

Coordinating teacher: LINDOSO MUÑOZ, ALMUDENA

Type: Bachelor Thesis ECTS Credits : 12.0

Year : 4 Semester :

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Those required by the University in relation to the conditions to start and present the Bachelor Thesis:

<http://www.uc3m.es/ss/Satellite/SecretariaVirtual/es/TextoMixta/1371210936260/>

**LEARNING OUTCOMES**

CB1. Students have demonstrated possession and understanding of knowledge in an area of study that builds on the foundation of general secondary education, and is usually at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.

CB2. Students are able to apply their knowledge to their work or vocation in a professional manner and possess the competences usually demonstrated through the development and defence of arguments and problem solving within their field of study.

CB3. Students have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgements which include reflection on relevant social, scientific or ethical issues.

CB4. Students should be able to communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.

CB5. Students will have developed the learning skills necessary to undertake further study with a high degree of autonomy.

COCIN1. Ability to draft, sign and develop projects in the area of industrial engineering for construction, renovation, repair, preservation, demolition, manufacture, installation, assembly or operation of: structures, mechanical equipment, energy installations, electrical and electronic installations, industrial plants and installations and automation and manufacturing processes.

COCIN4. Ability to resolve problems with initiative, decision-making, creativity, and critical reasoning skills and to communicate and transmit knowledge, skills and abilities in the Industrial Engineering field.

COCIN5. Knowledge to perform measurements, calculations, assessments, appraisals, surveys, studies, reports, work plans and other similar jobs.

COCIN6. Ability to deal with mandatory specifications, regulations and norms.

COCIN10. Ability to work in a multi-lingual and multidisciplinary environment.

COCIN11. Knowledge, understanding, and capacity to apply the necessary regulations while pursuing the profession of Technical Industrial Engineer.

CEP1. Capacity to design a system, component or process in the area of electrical engineering in compliance with required specifications.

CEP2. Knowledge and ability to apply computational and experimental tools for analysis and quantification of electrical engineering problems.

ECRT1. Capacity for calculation and design of electric machinery.

ECRT3. Capacity for calculation and design of low and medium voltage electrical installations.

ECRT4. Capacity for calculation and design of high voltage electrical installations.

ECRT5. Capacity for calculation and design of electrical power lines and electric energy transport.

ECRT9. Ability to design electrical power plants.

ECRTFG1. Original individual work presented and defended before a university examining committee. It should consist of a project in the area of technologies specific to Industrial Engineering, and be of a professional nature, which synthesizes and integrates the competences acquired in the program.

CT1. Ability to communicate knowledge orally as well as in writing to a specialized and non-specialized public.

CT3. Ability to organize and plan work, making appropriate decision based on available information, gathering and interpreting relevant data to make sound judgement within the study area.

CT4. Motivation and ability to commit to lifelong autonomous learning to enable graduates to adapt to

any new situation.

By the end of this content area, students will be able to have:

RA1.2. A systematic understanding of the key aspects and concepts of their branch of engineering.

RA2.1. The ability to apply their knowledge and understanding to identify, formulate and solve engineering problems using established methods.

RA3.2. An understanding of design methodologies, and an ability to use them.

RA4.1. The ability to conduct searches of literature, and to use data bases and other sources of information.

RA5.1. The ability to select and use appropriate equipment, tools and methods.

RA5.3. An understanding of applicable techniques and methods, and of their limitations.

RA5.4. An awareness of the non-technical implications of engineering practice.

RA6.2. Use diverse methods to communicate effectively with the engineering community and with society at large;

RA6.3. Demonstrate awareness of the health, safety and legal issues and responsibilities of engineering practice, the impact of engineering solutions in a societal and environmental context, and commit to professional ethics, responsibilities and norms of engineering practice;

RA6.5. Recognise the need for, and have the ability to engage in independent, life-long learning.

## OBJECTIVES

By the end of this subject, students will be prepared to have:

1. A systematic understanding of the key aspects and concepts of their branch of engineering;
2. The ability to apply their knowledge and understanding to identify, formulate and solve engineering problems using established methods;
3. An understanding of design methodologies, and an ability to use them.
4. The ability to conduct searches of literature, and to use data bases and other sources of information;
5. The ability to select and use appropriate equipment, tools and methods;
6. An understanding of applicable techniques and methods, and of their limitations;
7. An awareness of the non-technical implications of engineering practice.
8. Use diverse methods to communicate effectively with the engineering community and with society at large
9. Demonstrate awareness of the health, safety and legal issues and responsibilities of engineering practice, the impact of engineering solutions in a societal and environmental context, and commit to professional ethics, responsibilities and norms of engineering practice;
10. Recognize the need for, and have the ability to engage in independent, life-long learning.

## DESCRIPTION OF CONTENTS: PROGRAMME

Original exercise to be presented and defended in front of an academic committee. The work will be an integral project in the field of the Bachelor degree that will be professionally oriented where the different competences acquired during the degree courses should be demonstrated or an innovative work developing an idea, prototype or a model of systems or equipments within the field developed during the Bachelor degree.

## LEARNING ACTIVITIES AND METHODOLOGY

Students will apply competences and knowledge acquired during their studies in a Project from an area of the degree program, concluding with a written report. The foregoing reflects the corresponding project's analysis, resolution of issues and conclusions. The Project represents 299 hours/0% on-site.

The students will defend and present their Project in front of a tribunal, clearly discussing the corresponding points with resolution of any problems arising in the Project. 1 hour/100% on-site.

The tutor for the Bachelor's Degree Final Project will help and guide the student in all aspects necessary to carry out a solid final Project, and to write a corresponding clear and professional report. The tutoring sessions can be on-site or on line.

## ASSESSMENT SYSTEM

This is done through an oral Bachelor's Degree Final Project defense in front of a tribunal selected to assess the student's work, the obtained results, and its presentation, according to an evaluation model.

Prior to the defense, the student must present their written report to the tribunal members in advance.

The students of the English track must write and defend their bachelor thesis completely in English.

In addition, the originality of the Bachelor Thesis is evaluated. The University uses the Turnitin Feedback Studio program within Aula Global for the delivery of student work. This program compares the originality of the work delivered by each student with millions of electronic resources and detects those parts of the text that may be copied and pasted.

Represents 100% of the evaluation.

## BASIC BIBLIOGRAPHY

- Antonio Sánchez Asín Trabajos fin de grado y de postgrado: guía práctica para su elaboración, Aljibe, 2016
- Iria Da Cunha El trabajo de fin de grado y de máster: redacción, defensa y publicación, UOC, 2016
- Juana Mª González García Cómo escribir un trabajo de fin de grado,, Síntesis, 2014

## BASIC ELECTRONIC RESOURCES

- Biblioteca . Biblioteca 1: <http://uc3m.libguides.com/TFG/EN/Home>
- Biblioteca . Biblioteca 2: <a href="https://uc3m.libguides.com/c.php?g=666632&p=4726190" target="\_blank">https://uc3m.libguides.com/c.php?g=666632&p=4726190</a>
- Biblioteca . Turnitin guide: <https://uc3m.libguides.com/EN/Turnitin>
- Secretaría . Instrucciones TFG:  
[https://www.uc3m.es/ss/Satellite/SecretariaVirtual/es/TextoMixta/1371210936260/Trabajo\\_de\\_Fin\\_de\\_Grado](https://www.uc3m.es/ss/Satellite/SecretariaVirtual/es/TextoMixta/1371210936260/Trabajo_de_Fin_de_Grado)