

Bachelor Thesis

Academic Year: (2023 / 2024)

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Department assigned to the subject: Electrical Engineering 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.

CG3. Acquire the abilities to draft, sign and develop projects in the area of energy engineering for construction, renovation, repair, preservation, demolition, manufacture, installation, assembly or utilization of: structures, mechanical equipment and energetic facilities and to represent and understand technical documentation.

CG5. Acquire the ability to lead and organize energy engineering project activities.

CG8. Know and deal with current legislation in addition to mandatory specifications, regulations and norms within the energy engineering field.

CG10. Being able to work in a multi-lingual and multidisciplinary environment

CE16 Módulo CRI. Knowledge of the organizational structure and functions of a project office.

TFG1. Original individual work presented and defended in the presence of a university examining committee. It should consist of a project in the area of energy engineering technologies, and be of a professional nature, synthesizing and integrating the competences acquired in the program

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

CT2. Ability to establish good interpersonal communication and to work in multidisciplinary and international teams.

CT3. Ability to organize and plan work, making appropriate decisions 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.

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>
- Biblioteca . Biblioteca 2: https://uc3m.libguides.com/c.php?g=666632&p=4726190
- Biblioteca . Turnitin guide: <https://uc3m.libguides.com/EN/Turnitin>
- Secretaría Virtual . Secretaría 1:
https://www.uc3m.es/ss/Satellite/SecretariaVirtual/es/TextoMixta/1371210936260/Trabajo_de_Fin_de_Grado