

## Master Thesis

Academic Year: ( 2021 / 2022 )

Review date: 21-06-2021

Department assigned to the subject: Bioengineering and Aerospace Engineering Department

Coordinating teacher: ABELLA GARCIA, MONICA

Type: Master Final Project ECTS Credits : 6.0

Year : 2 Semester : 1

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

It is mandatory for the defense of the Master Thesis to have completed all master courses within the period established for this purpose in the current academic calendar for postgraduate studies and according to the regulations set by the University and by the EPS.

## OBJECTIVES

## COMPETENCES THAT THE STUDENT ACQUIRES WITH THIS MATTER

CB6 Possess and understand knowledge that provides a base or opportunity to be original in the development and / or application of ideas

CB7 That students know how to apply the acquired knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study

CB8 That students are able to integrate knowledge and face the complexity of formulating judgments based on information that, being incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of their knowledge and judgments

CB9 That students know how to communicate their conclusions and the knowledge and ultimate reasons that sustain them to specialized and non-specialized audiences in a clear and unambiguous way

CB10 That students have the learning skills that allow them to continue studying in a way that will be largely autonomous.

CG3 Ability to design and carry out technological projects in the field of the application of engineering to medicine, as well as to analyze and interpret their results.

CG4 Ability to evaluate medical equipment and instrumentation in complex multidisciplinary environments, assessing the needs of different clinical users and offering objective measures for decision making.

CE14 Ability to prepare, present and properly defend an original and rigorous Master's Thesis related to one or more of the subjects covered by the degree. The defense of work will be public and will be done individually.

## LEARNING RESULTS THAT THE STUDENT ACQUIRES

The Final Master's Project consists of the development of a fieldwork in one of the areas addressed in the development of the master's degree. Their defense will be made in a public presentation before a tribunal formed by professors of the master, professors of the university and recognized experts in the subject matter of the work.

- Prior to the defense of the Final Master's Project the student must be able to:
- Identify the needs of the productive sector, relating them to standard projects that can satisfy them.
- Design projects related to the competences expressed in the title, including and developing the phases that compose them.
- Plan the execution of the project, determining the intervention plan and the associated documentation.
- Define the procedures for monitoring and control in the execution of the project, justifying the selection of variables and instruments used.

In the defense of Master's Thesis, it is expected that the student can demonstrate that they have the knowledge, skills and abilities to:

- Apply in an original way the basic knowledge acquired in the master developing new ideas in the context of clinical engineering.
- Learn and use the principles of clinical engineering.
- Design and organize a clinical engineering project
- Critically analyze technical and scientific documents in the field of clinical engineering.
- Solve problems in new or unfamiliar environments within a multidisciplinary context such as clinical engineering.
- Explain, defend and argue their conclusions in a clear and precise way before specialized and non-specialized public.
- Show learning skills that allow you to continue studying in an autonomous way

## DESCRIPTION OF CONTENTS: PROGRAMME

The Final Master's Project consists of the development of a field work in the area of Clinical Engineering. It must be an individual and original work of the student, and may cover one or several topics of those that covered by the Master's courses or be an extension suggested by the student and supervised by the tutor of the work.

The description of the work done, as well as the results and all the necessary documentation, will be compiled in a written report by each student individually. This document, which will be public, will be evaluated by a panel of professors and experts in the field. In a public defense session, the student will present his work and answer any questions raised by the panel who, in view of the document and the presentation and defense of the work will decide the final grade.

The Master Thesis (MT) implies the development, presentation and defense of an original and individual work consisting in a complete professional project in Aeronautical Engineering, synthesizing the competences acquired during the Master program. The MT will be presented to a university committee after all other credits in the study plan have been completed.

The offer of Master Thesis can be found at TFEPE: <https://sigma-web.uc3m.es/InicioAlumno.html>

Tasks to be performed by the student include:

- Presentation of work items
- Collection and analysis of information for the work
- Development of the work
- Development of report and public defense

## LEARNING ACTIVITIES AND METHODOLOGY

The TFM will be developed under the supervision of an academic tutor, who will be a professor from one of the departments involved in the teaching activities of the Master, and who will participate as a director or advisor of the student work. The work may also have a co-director who may be from the same department, another UC3M department or even external.

Learning activities, methodology and tutorships will be organized according to the rules specified by the University and the EPS.

Regulation for the Master Thesis: <https://e-archivo.uc3m.es/handle/10016/19667>

## TRAINING ACTIVITIES

- Theoretical / practical classes / Tutorials
- Individual Student work

## ASSESSMENT SYSTEM

Master's Thesis will be evaluated by a specific committee, in agreement with the procedures and requirements stated by the University, within the periods yearly specified in the academic schedule

Act of defense :

The presentation and defense of the TFM is performed in the presence of the evaluation committee. The

student will give a presentation lasting no longer than 20 minutes, after which the committee may ask the student all the questions needed for the evaluation of the work. The committee, after consulting the tutor if required, will proceed to the qualification, which will be communicated to the student after the deliberation, sending a copy of the qualification certificate to the corresponding administrative services at UC3M .

The committee is specifically selected for each student according to tutor proposal, and to the rules established in the regulations approved by the School of Engineering (EPS) .

The University uses the Turnitin Feedback Studio program within the 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 are copied and pasted. If the student has correctly made the appointment and the bibliographic reference of the documents he uses as a source, Turnitin will not mark it as plagiarism.

#### BASIC ELECTRONIC RESOURCES

- Biblioteca UC3M . Guía bibliotecaria para el apoyo a los alumnos UC3M que realizan su Trabajo de Fin de Máster (TFM): <http://uc3m.libguides.com/TFM>