uc3m | Universidad Carlos III de Madrid

Master's Thesis

Academic Year: (2023 / 2024)   Review date: 09-05-2023

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: FUENTETAJA PIZAN, RAQUEL

Type: Master Final Project ECTS Credits : 6.0

Year : 1 Semester : 0

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

The presentation of the TFM can be made once all the credits of the study plan have been obtained. Exceptionally, it may be possible to present it in the absence of finishing the Academic Practices in a Company.

OBJECTIVES

The purpose of the Final Master's Thesis (TFM) is the realization, presentation and defense of an original work consisting of a project of analysis, design, development and evaluation related to some of the subjects in the study plan, under the direction of a academic tutor. The student must carry out an original project, memory, study or investigation in which the knowledge and skills acquired in the master's degree are projected, proposed or developed.

Basic skills:
CB6: possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a context of
investigation.
CB7: that students know how to apply the knowledge acquired and their ability to solve problems in new or little-known 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, include reflections on the social and ethical responsibilities linked to the application of your knowledge and judgments.
CB9: that students know how to communicate their conclusions and the ultimate knowledge and reasons that support them to specialized and non-specialized audiences in a
clear and unambiguous manner.

General skills:
CG2: ability to conceive, design or create, put into practice and adopt a substantial process of development or creation of software for financial markets.
CG3: ability to apply the knowledge acquired and to solve problems in new and little-known environments within broader contexts and
multidisciplinary, until being able to integrate this knowledge.
CG4: ability to prepare adequately and with a certain originality written compositions or reasoned arguments, to write work plans or projects.

Specific skills:
CE1: understand the main concepts related to financial markets.
CE2: analyze and evaluate the main information and communication technologies applied in the financial sector.
CE3: participate in the development of financial software, from its conception in the analysis phases, to its implementation in integration with other systems.
CE4: implement classical algorithms and techniques of financial markets following the standards and procedures established at the time.
CE5: analyze and understand the main tools for handling large amounts of data, their storage, access

and review.

DESCRIPTION OF CONTENTS: PROGRAMME

The student will proceed to the realization, presentation and defense, once all the credits of the study plan have been obtained, of an original exercise carried out individually, in a public session with an university commitee. It is expected that the work is related to one of several subjects of the master's programme:

1. Mercados Financieros: asignaturas de Introducción a los Mercados Financieros, Regulación Financiera y Creación de Empresas Basadas en Tecnología en el Sector Financiero.

2. Tecnologías Aplicadas a los Mercados Financieros: asignaturas de Sistemas de Información, Tecnologías del Sector Financiero e Infraestructuras Tecnológicas.

3. Desarrollo de Software Financiero: asignaturas de Programación de Altas Prestaciones, Algoritmos de Front-Office, Algoritmos de Back-Office, Programación de Aplicaciones Móviles Financieras y Gestión e Ingeniería del Software Financiero.

4. Sistemas de Soporte a la Decisión en el Sector Financiero: asignaturas de Big Data, Sistemas de Soporte a la Decisión y Análisis de Datos.

ASSESSMENT SYSTEM

The evaluation will be carried out following the regulations for the completion of the TFM in this master's degree