

Academic Year: (2023 / 2024)

Review date: 06-09-2023

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: CALLE GOMEZ, FRANCISCO JAVIER

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 1

OBJECTIVES

- Acquire and understand knowledge the basis and opportunity to be original in the development and / or application of ideas, often in a research context.
- Students will learn how to apply the both knowledge acquired and their skills in problem solving in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study.
- Students will be 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.
- Students will know how to communicate, both to specialized and non-specialized audiences, their conclusions and the ultimate knowledge and reasons sustaining them, in a clear and unambiguous way.
- Students will acquire learning skills allowing them to continue studying in a largely self-directed and autonomous way.
- Ability to understand and apply methods and techniques in the field of Computer Engineering in financial markets.
- Ability to conceive, design or create, implement and put into practice a substantial process of development or creation of software for financial markets.
- Ability to apply the knowledge acquired and to solve problems in new or unfamiliar environments within broader and multidisciplinary contexts, and to be able of integrating this knowledge.
- Capacity to elaborate, properly and with a certain originality, written compositions or motivated arguments, to write plans or work projects.
- Analyze and evaluate the main ICTs applied in the financial sector.
- Participate in the development of financial software, from its conception in the analysis phases, to its implementation and integration with other systems.
- Implement algorithms and classic techniques of financial markets environment, following the established procedures and standards at each momento.
- Analyze and understand the main tools for handling, storing, accessing and reviewing large amounts of data.

Learning results

Understand the use of Information Systems in the Financial Markets

Know the main Technological Standards

Understand the main technologies of the financial sector

Get an overview of the main Financial Products

Ability of analyzing the technological infrastructures set for the Financial Markets

Understand the main Application Examples

Understand the requirements in infrastructure to implement financial information systems

DESCRIPTION OF CONTENTS: PROGRAMME

- Introduction to the Investment Banking ecosystem
- Life Cycle of Products and Systems
- Trading Systems. Electronic Markets
- Middle Office Systems and Risk Control
- Machine Learning and its application to Global Markets
- Introduction to BackOffice Systems
- Panoramic vision of GTB. The Corporate Client
- New products in the Financial Markets: Tokenization of Assets, Digital Currencies, etc.

LEARNING ACTIVITIES AND METHODOLOGY

Theoretical sessions: Theoretical presentations accompanied by learning materials, such as presentation supporting slides. Total hours: 50. Presence: 100%

Theoretical-practical sessions: Combination of theoretical classes accompanied by the resolution of practical exercises. Total hours: 16. Presence: 100%

Practical assignments: Practical cases to be developed in specific laboratory sessions. Total hours: 8. Presence: 100%

Tutorials: Face-to-face and/or remote tutorials (through videoconference). Total hours: 12.5. Presence: 100%

E-learning activities: Forum of the course, discussion forums, visualization of pre-recorded contents, and other e-learning training activities. Total hours: 40. Presence: 0%

Individual student work: Individual learning activities that complement the rest (both face-to-face and non-face-to-face), as well as exam preparation. Total hours: 50. Presence: 0%

Teaching methodology

- Lecturing with support of computer and audiovisual media, in which the main concepts of the subject are developed and the bibliography is provided to complement the students' learning.

- Critical reading of texts recommended by the lecturer: Press articles, reports, manuals and academic papers, either for further discussion in class, or to extend and consolidate the knowledge of the subject.

- Resolution of practical cases, problems, etc., proposed by the lecturer and to be attained either individually or in teams.

- Exhibition and discussion in class, under the lecturer's moderation, of topics related to the content of the subject, as well as discussion on practical cases.

- Elaboration of work and reports individually or in teams.

- Specific e-learning activities, including watching to videos, tutorials, self-correction activities, participation in forums, and any other online teaching mechanism the lecturer deems appropriate.

In this subject there are both theoretical and practical contents, which are distributed somewhat unbalanced between Information Systems (more theoretical) and the other two courses related to this subject (Financial Sector Technologies and Technological Infrastructures).

For the more theoretical contents of the subject, remote teaching methodologies such as content recording or discussion forums can be used, as well as classic methods such as the development of individual or group work.

The practical component of this subject will focus on practical exercises to be carried out by the student to help them internalize the concepts that are taught in the presential classes. The use of trading platform simulation software is also proposed to allow the student becoming familiar with this type of technology, which is a key element in the Financial Markets.

For these more practical contents, presential attendance at the laboratories can be combined with individual or group assignments out of the classroom, but combining the Remote Classroom with the monitoring and tutoring of students through forums and other discussion mechanisms. This part will also be carried out with other e-learning strategies, such as the self-evaluation of the achievements, all supported through Aula Global. In the event that in any practice or laboratory it is decided to use licensed software that cannot be easily acquired by students, attendance in these laboratory classes will be promoted, to the detriment of others that are more affordable for a semi-presential methodology.

ASSESSMENT SYSTEM

Final exam: 60% (minimum mark: 5 out of 10)

Work done during the course including class activities: 40%

% end-of-term-examination:	60
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% of continuous assessment (assignments, laboratory, practicals...):	40
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