

Academic Year: (2020 / 2021)

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Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: IGLESIAS MARTINEZ, JOSE ANTONIO

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Programación de Altas prestaciones.
Sistemas de Información.

OBJECTIVES

- Application of theoretical knowledge to practical and new problems in a broader context related with the corresponding study area.
- The students need the ability to learn how to continue learning in an autonomous manner.
- Ability to apply the different methods and techniques of the Computer Science área in the financial markets.
- Capacity of design, develop and implement a process to develop software for financial markets.
- Ability to solve new problems in a broader and multidisciplinary context applying the theoretical concepts.
- Multidisciplinary Team work.
- Development of financial software, from the analysis phase to its implementation and integration with other systems.
- Implementation of algorithms and techniques of the financial markets following the corresponding standards and procedures.

Results of the learning process:

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- Knowledge of the main programming languages used in the development of financial software.
 - Ability to develop software in the financial software.
 - Knowledge about the high performance computing.
 - Knowledge about the different algorithms used in the financial market: front-office and back-office.
 - Capacity to develop financial algorithms in all their layers.
 - Knowledge of the main Open sources proposals available.
 - Knowledge about the validation and verification of the financial software.
 - Knowledge about the main management tools.
 - To understand the Project Management in financial markets.

DESCRIPTION OF CONTENTS: PROGRAMME

Back-Office Algorithms:

1. Introduction of the financial market.
2. Algorithms to calculate profitability.
3. Calculate of supplies and stores
4. Open source financial tools and platforms.
5. Development of practices and projects.

LEARNING ACTIVITIES AND METHODOLOGY

Theory classes:

Basic theoretical knowledge and skills will be presented in large groups. Total amount of hours: 30. Attendance: 100%

Theory - practice classes:

Theory lessons and resolution of practical exercises. Total amount of hours: 24. Attendance: 100%

Laboratory sessions:

Small groups classes, in which problems proposed to the students are discussed and developed using the computer.

Total amount of hours: 18. Attendance: 100%

Tutorials: Tutorials in person (one-by-one) or videoconference. Total amount of hours: 12,5 .Attendance: 100%

e-Learning activities: forum about subjects, recorded-contents and other educational activities. Total amount of hours: 72. Attendance: 100%

Teaching methodologies:

- Theoretical lectures to develop the main concepts of the subject
- Practical cases and problems that students must solve individually or in small groups
- Oral presentations and discussions in class under teacher moderation
- Practical work individually or in small groups
- e-Learning activities

For the practical component of the subject, students have to develop works on: (1) parallel programming on clusters and

distributed storage, using typical tools in this area; (2) algorithms for front-office and back-office, such as price monitoring, order histories, etc. and (3) management and software engineering, using some of the common tools in this sector.

ASSESSMENT SYSTEM

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| % end-of-term-examination/test: | 60 |
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| % of continuous assessment (assignments, laboratory, practicals...): | 40 |
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Theory classes: 10%-30%

Individual or groups projects during the course ¿ presential or e-learning activities: 30%-60%.

Final Exam: 30% - 60%.