Programming I

Academic Year: (2022 / 2023)   Review date: 19-05-2022

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: LOPEZ CUADRADO, JOSE LUIS

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

OBJECTIVES

The course's main objectives are to understand and apply fundamental programming concepts through the R language. To do so and to lay the necessary foundations for programming, the general concepts of computer science will first be introduced, as well as fundamental concepts such as coding and information processing, Operating Systems, Information Systems, Spreadsheets and Databases.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction
1.3 - General computer concepts
1.4 - Communication and Networks
1.3 - Structure of the information and its representation
1.4 - Introduction to Operating Systems
1.5 - Software tools
1.6 - Introduction to Programming

2 - Application software: Spreadsheets and Databases
2.1 - Environments
2.2 - Formulas and Functions
2.3 - Expression Builder
2.4 - Events
2.5 - Macro Designer

3 - Introduction to Programming
3.1 - Introduction. Algorithms and programs
3.2 - Compilers and interpreters
3.3 - Structure of a program
3.4 - Variables and constants
3.5 - Notation and vocabulary: characters, line formats and sentences. Comments
3.6 - Operators and Expressions
3.7 - Assignment Statements
 3.8 - Input / output statements
3.9 - R Environment
3.10 - Data types in R
3.11 - Conditional statements and loops
3.12 - Functions
3.13 - External data
3.14 - Libraries and Packages

LEARNING ACTIVITIES AND METHODOLOGY

The teaching will be developed focused on the student in order to let him acquire the competences on working efficiently with the most common computing applications.
Therefore, the 6 ETCS credits are distributed in the following manner:
1. Theoretical lectures: 1.2 ETCS credits
2. Practice lectures: 1.7 ETCS credits
3. Individual work: 3.1 ETCS credits
4. Tutorials: Individualised assistance (individual tutorials) or group assistance (group tutorials) to students by the lecturer.

ASSESSMENT SYSTEM

Continuous assessment is introduced allowing students to obtain their final grade. To do so:
The practices carried out throughout the semester will be evaluated. (60%)
At the end of each lesson a continuous assessment exam will be held (40%)

The final grade of the subject will be calculated based on the grades obtained in the practices and the continuous assessment exams. It is necessary a grade greater than or equal to 3 (out of 10) in the continuous evaluation exams of each lesson.

% end-of-term-examination: 0

% of continuous assessment (assigments, laboratory, practicals…):   100

BASIC BIBLIOGRAPHY

- BEEKMAN, George COMPUTACION & INFORMATICA HOY, ADDISON-WESLEY/DIAZ DE SANTOS, 2015

ADDITIONAL BIBLIOGRAPHY

- GÓMEZ, A. Y OTROS REDES DE ORDENADORES E INTERNET: FUNCIONAMIENTO, SERVICIOS OFRECIDOS Y ALTERNATIVAS DE CONEXIÓN, RA-MA, 2011