

Programming techniques

Academic Year: (2019 / 2020)

Review date: 30-04-2020

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: RUIZ MEZCUA, MARIA BELEN

Type: Compulsory ECTS Credits : 6.0

Year : 2 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

None

OBJECTIVES

In a generic way, the subject aims for the student to acquire a series of knowledge, skills and abilities in relation to the basic elements of programming. Data structure, syntax, pseudocode.

Additionally students will acquire skills to propose solutions to solve problems in teams.

RA OF THE MATTER

Possess knowledge of the basic concepts of programming

Possess basic knowledge of the syntax of a programming language

Basic ad generals competences: CG1,CG2, CG7, CB4

Cross Competences: CT1,CT3, CT4

Specific competences: CE4, CE8, CE10

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction- Programming languages- Compilation and execution of programs
2. Fundamentals of programming- Programming paradigms: structured programming, modular programming.- Elements of a program: data and algorithms-Basic programming tools: algorithms, flowcharts and pseudocode.
3. Programming in Python - Characteristics of the Python language Data types. Input and output .
4. Flow Control - Conditional Bleeding - Loops: while loop and list loop
5. .Functions, Libraries and Modules. Built-in functions (BIF). Functions developed to measure. Documentation and test of functions.
6. Sequences in Python. Mutable sequences (lists, sets) and immutable (chains, tuples). Tour of sequences. 'Slicing'. Most common operations. Dictionaries
- 7.Introduction to the connection with external resources. Basic handling of files. CSV files. Basic connection operations with relational databases (SQLite ...)

LEARNING ACTIVITIES AND METHODOLOGY

Acquisition of theoretical and practical knowledge (3 ECTS) with theoretical classes, tutorials, to forums and chats of the global classroom platform, seminars and workshops on tools, problem solving the case studies, both individually and in groups

Acquisition of competences and skills (3 ECTS) in solving problems, proposing a solution, writing the pseudocode, programming in python and presenting the solution to the class..

The days and hours of the tutorials can be viewed in the space dedicated to the subject in Aula Global
It is very important that the students keep the subject up to date and try to solve on their own the exercises and practical cases proposed by the teacher, prior to their resolution in the classroom. Success in the subject depends to a large extent on the constancy of the student's personal work.

ASSESSMENT SYSTEM

- Given that this subject has a large component of presentation of new knowledge, the acquisition of cognitive and attitudinal skills is of great importance. The evaluation system is based mainly on the measurement of these competences. These competences will be measured through the following instruments:

-Examination (written and / or with resolution of computer exercises) 50%.

-Continuous evaluation: 50%, distributed in turn in:

¿ First test of continuous evaluation: 10%

¿ Second test of continuous evaluation: 20%

¿ Final practice, to be done individually or in a group: 20%

The continuous assessment tests will be individual and will include written questions and / or resolution of computer exercises.

To pass the evaluation, it will be necessary to reach at least 40% of the maximum score of the exam, and 50% of the grade among all the previous sections.

Extraordinary Evaluation

Students who do not pass the subject in the ordinary call may opt in the extraordinary call for one of the following options:

1. Maintain all the marks obtained in the continuous evaluation and take an exam. This exam will score 50% of the grade

2. Perform a final test, renouncing the grades obtained in the continuous evaluation. Said final test will include a written part and resolution of exercises, and will include the entirety of the grade.

% end-of-term-examination: 50

% of continuous assessment (assignments, laboratory, practicals...): 50

BASIC BIBLIOGRAPHY

- González Duque, Raúl Python para todos , (Distribuido con licencia Creative Commons. Disponible en <http://mundogeek.net/tutorial-python/>).

- Peña, Rosalía Resolución de problemas para ingenieros con Python® estructurado, ibergaceta, 2016

- Severance, Charles. Python for Everybody: exploring data in Python 3., Distribuido bajo licencia Creative Commons by-nc-sa..

BASIC ELECTRONIC RESOURCES

- . The Python Wiki: <http://wiki.python.org/moin/FrontPage>

- . Documentación oficial de Python:: <http://docs.python.org/3.6/>

- . The Python Wik: <http://wiki.python.org/moin/FrontPage>

- . Pythontutor (simulador en línea de código Python): <http://www.pythontutor.com>

- . ¿ PSInt (para la confección de diagramas de flujo y pseudocódigo).: <http://pseint.sourceforge.net/>

- . ¿ IDLE (entorno de desarrollo básico para Python).: <http://www.python.org/downloads/>

- . ¿ Spyder (entorno de desarrollo para Python más potente y versátil que el anterior): <http://www.anaconda.com/distribution/>

- Bartolomé Sintes Marco . Esta página forma parte del curso Introducción a la programación con Python : <http://www.mclibre.org/consultar/python/>

- Bartolomé Sintes Marco . curso Introducción a la programación con Python : <http://www.mclibre.org/consultar/python/>