Programming

Academic Year: (2019 / 2020) **Review date: 10/12/2019 13:06:58**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: VELASCO DE DIEGO, MANUEL

Type: Basic Core ECTS Credits : 6.0

Year : 1 Semester : 1

Branch of knowledge: Engineering and Architecture

OBJECTIVES

When passing this subject, students will be able to:
1. Have basic knowledge and comprehension about computer systems and programming applied to Engineering
2. Be aware of the multidisciplinary context of Industrial Engineering
3. Identify, formulate and solve engineering problems using computing methods
4. Combine theory and practice to solve engineering problems using computing methods, programming methoids

DESCRIPTION OF CONTENTS: PROGRAMME

1 Basic Concepts
- 1.1 Algorithm
- 1.2 Program
- 1.3 Pseudocode
- 1.4 Structured Programming

2 C language programming
- 2.1 C syntax
  - a Parts of program
  - b Include, define
  - c Constants
  - d main() function
- 2.2 Datatypes
- 2.3 Flow Control
- 2.4 Libraries
- 2.5 Functions
  - a Declaration
  - b Definition
  - c Parameters
  - d Reference and value parameters
- 2.6 Input/Output
- 2.7 Arrays
  - a Vectors
  - b Matrix
  - c Strings
  - d Parameters in functions
- 2.8 Structs
  - a Definition
  - b Referenced in functions
- 2.9 Memory management
  - a Pointers
  - b Static Memory
  - c Dynamic Memory
- 2.10 Files management

a Read
b Write

LEARNING ACTIVITIES AND METHODOLOGY

- Master lectures, reduced groups classes for resolution of doubts, students' presentations, individual tutorships and student's personal work; guided to the acquisition of theoretical knowledge (3 credits ECTS).
- Reduced groups for both laboratory practices and classes of problems, individual tutorships and student's personal work; guided to the acquisition of practical abilities related to the program of the subject (3 credits ECTS).

ASSESSMENT SYSTEM

% end-of-term-examination/test:	40
% of continuous assessment (assigments, laboratory, practicals…):	60

Continuous evaluation based on homework, participation during the classes and tests for the evaluation of abilities and knowledge.
Theory accounts for the 50% of the grade.
Practices account for the other 50%
It is necessary to pass both theory and practices

Students will pass the course by means of continuous evaluation as long as:
- In every partial exam student obtains, at least, 50% of each part (theory and problems)
- Student passes all the practices.

BASIC BIBLIOGRAPHY

- Brian Kernighan C Programming Language, Prentice Hall.

ADDITIONAL BIBLIOGRAPHY

- Bjarne Stroustrup The C++ Programming Language, Addison Wesley, 2013