Computing Systems II

Academic Year: (2022 / 2023) **Review date: 26-04-2022**

Department assigned to the subject: Systems Engineering and Automation Department

Coordinating teacher: GARCIA FERNANDEZ, FERNANDO

Type: Electives ECTS Credits : 6.0

Year : 4 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Informática Industrial I

OBJECTIVES

By the end of this content area, students will be able to have:
1. coherent knowledge of their branch of engineering including some at the forefront of the branch in computing systems;
2. the ability to apply their knowledge and understanding of computing systems to identify, formulate and solve engineering problems using established methods;
3. the ability to apply their knowledge and understanding to develop and realise designs to meet defined and specified requirements;
4. an understanding of design methodologies, and an ability to use them.
5. workshop and laboratory skills.
6. the ability to select and use appropriate equipment, tools and methods;
7. the ability to combine theory and practice to solve problems of computing systems;
8. an understanding of applicable techniques and methods in computing systems, and of their limitations

DESCRIPTION OF CONTENTS: PROGRAMME

Lesson 0. Introduction.
review of the concepts related to computer programming acquired in previous subjects. Course Introduction.
Module 1. JAVA programming. Fundaments of Java language will be acquired. Grammar, data types, classes and basic libraries.
1.1 History of JAVA.
1.2 Data Types and Operators.
1.3 Classes, Attributes y Methods
1.4 Input & Output , Vectors & Math.
1.5 Exceptions and Errors
1.6 Data structures: FIFO & LIFO

Module 2. Introduction to smartphone programming (ANDROID) . Introduction to Robotics Studio, acquiring knowledge regarding to activities life cycle, sensor management, input/outputs ...
2.1 Introduction to Android Studio.
2.2 Activities & life cycle
2.3 Sensors.
2.4 Layouts
2.5 Fragments

LEARNING ACTIVITIES AND METHODOLOGY

- Lectures, classes for resolution of doubts in small groups, student presentations, tutorials and individual work of students; aimed at the acquisition of knowledge (3 ECTS).
- Laboratory practices and sections of problems in small groups, individual tutorials and individual work of students, aimed at the acquisition of practical skills related to the syllabus of the subject (3 ECTS).

ASSESSMENT SYSTEM

Continuous assessment based on class participation, assignments, practical tests and knowledge evaluation. The extensive practical content is evaluated through practical assessments and continuous evaluation. There are 2 practices in each of the two modules.

% end-of-term-examination:	0
% of continuous assessment (assigments, laboratory, practicals…):	100

BASIC BIBLIOGRAPHY

- Braude, E Software Engineering. An Object-Oriented Perspective, John Wiley & Sons, 2001
- Herbert Schildt Java: A Beginner's Guide, Sixth Edition 6th Edition, McGraw-Hill Education, 2014
- Pressman, Roger S A Practitioner's Approach, McGraw-Hill.

ADDITIONAL BIBLIOGRAPHY

- Sommerville, I. Ingeniería del Software, Pearson-Addison Wesley, 2005