Foundations of Programming

Academic Year: (2018 / 2019)   **Review date: 25-05-2018**

Department assigned to the subject:

Coordinating teacher: DELGADO KLOOS, CARLOS

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

OBJECTIVES

- Understand how to code in an imperative way using assignment, conditional, and repetition statements, being able to follow mentally the state transformations coded
- Understand functional abstraction of code snippets into methods, including recursive methods and their termination
- Understand the concepts in Java for modelling systems in an object-oriented way
- Know how to design a simple algorithm given a specification
- Have limited ability to correct buggy programs
- Have some intuition about the efficiency of programs
- Know how to use a development environment
- Know how to look for additional information needed to code

DESCRIPTION OF CONTENTS: PROGRAMME

- From the calculator to the computer (JavaMOOC1, Week 1):
Expressions, statements, programs, data types, identifiers, decisions
- State transformation (JavaMOOC1, Week 2):
Repetition, arrays, representation of data and programs
- Errors (JavaMOOC2, Week 1&2):
Debugging, testing, reasoning
- Functional abstraction (JavaMOOC1, Week 3):
Methods, scope, recursive methods
- Sorting (JavaMOOC3, Week 5):
Simple sorts, efficient sorts, intuition about efficiency
- Object encapsulation (JavaMOOC1, Week 4):
Objects and classes, information hiding, inheritance, polymorphism
- Object encapsulation (JavaMOOC1, Week 5):
Abstract classes, interfaces, packages, APIs, libraries

BASIC BIBLIOGRAPHY

 - C. Delgado Kloos et al. Introduction to Java Programming, https://www.edx.org/es/professional-certificate/uc3mx-introduction-java-programming (JavaMOOC).
 - P. Deitel, H. Deitel Java ¿ How to Program (Late Objects), Pearson, 11 edition, 2018, ISBN: 0-13-479140-1