Mobile Applications

Academic Year: (2019 / 2020) **Review date: 05-05-2020**

Department assigned to the subject: Telematic Engineering Department

Coordinating teacher: CAMPO VAZQUEZ, MARIA CELESTE

Type: Electives ECTS Credits : 3.0

Year : Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Systems Programming
Systems Architecture

OBJECTIVES

The general goal of this course is that the students will know and manage the core technologies for mobile and multimedia applications. For achieving this purpose, students must acquire a series of knowledge and skills.
Regarding the knowledge that student acquires in this course, it is the following:
- To know the characteristics related with hardware and software capabilities of mobile devices and their main differences with personal computers.
- To know what are the main operating systems for mobile devices and the main differences between them.
- To know the main application development languages for mobile devices in the different operating systems: Android and others.
- To design and to program mobile applications.

Regarding the abilities that the student acquires in this course, these can be divided in specific and generic. The specific ones are the following:
- The ability to evaluate the viability of deploying an application on a mobile device.
- The ability to design and deploy an application on a mobile device.

The generic abilities or skills are the following:
- (P0 a) an ability to apply knowledge of telecommunication technologies and engineering, specifically about mobile applications.
- (PO b) an ability to design and conduct experiments, as well as to analyze and interpret data. This ability will be carried out specifically in laboratory practices.
- (PO g) an ability to effectively communicate information in speech, presentation, and in writing. Students will have to do an oral presentation of their work done in the laboratory practices, as well as to submit documentation related with it.
- (PO j) a knowledge of contemporary issues. Students will work with some of the more contemporary languages and operating systems for mobile devices. Students will validate their developments in mobile devices.
- (PO k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. Students will use different software tools and mobile devices to carry out and validate their practical developments.

DESCRIPTION OF CONTENTS: PROGRAMME

The content of the program is divided in three blocks:

Part I. Introduction
1. Operating systems for mobile devices.
2. General Concepts of development of mobile applications.

Part II. Development of mobile applications: Android platform.
1. Introduction.
2. Creating applications and activities.
3. User interfaces.
4. Intents, Broadcast Receivers and Internet.
5. Files, state and preferences.
6. Databases and content providers.

7. Maps and location based services.
8. Services and threads.
9. Advance topics.

Part III. Design and implementation of a mobile application.

LEARNING ACTIVITIES AND METHODOLOGY

The activities that will be carried out during the course will be the following:
- Master lectures. Presentation by the teacher of the main concepts as a summary. To facilitate the development of these lectures, students will previously receive the lecture notes and they will have basic bibliographic references that will allow to complete and to go more deeply into some issues in which they are more interested. (PO a, j).
- Programming labs. Students will work in groups to design and implement mobile applications. Teachers will supervise the development of these projects. (PO b, g, j, k).

ASSESSMENT SYSTEM

The continuous evaluation will be based in the following criteria:

- Development of a mobile app (70%). Students will develop projects in groups that will consist on the design and development (PO b) of a mobile application, in which they will have to apply the knowledge and abilities acquired in the course. Students will have to do a written documentation and oral presentations of their works (PO g). Students will do a prototype of theirs applications using current software tools and they will validate it in last-generation mobile devices (PO j, k).

- Final exam (30%). It will consist on a written exam to assess both the theoretical and the practical concepts acquired by the student (PO a, j, k).

As an alternative to the continuous evaluation, there will be a final exam with a total value of 60% in the ordinary exam, and of 100% in the extraordinary exam, for the students that will decide not to integrate in the previous scheme of continuous evaluation.

% end-of-term-examination:	30
% of continuous assessment (assigments, laboratory, practicals…):	70

BASIC BIBLIOGRAPHY

- Reto Meier Professional Android 4 Application Development, Wiley Publishing, 2012
- Reto Meier Professional Android 4th Edition, Wiley Publishing, 2018

BASIC ELECTRONIC RESOURCES

- Google . Training Android Developers: https://developer.android.com/guide
- Google Developer Training Team . Android Developer Fundamentals v2: https://developer.android.com/courses/fundamentals-training/overview-v2