

## Mobile Applications

Academic Year: ( 2024 / 2025 )

Review date: 25-04-2024

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.

The specific objectives are the following:

- Knowing the characteristics related with hardware and software capabilities of mobile devices and their main differences with personal computers.
- Knowing what are the main operating systems for mobile devices and the main differences between them.
- Knowing the main application development languages for mobile devices in the different operating systems: Android and others.
- Designing and to program mobile applications.

## 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. Advance topics.

## Part III. Design and implementation of a mobile application.

## LEARNING ACTIVITIES AND METHODOLOGY

The learning methodology will include:

- Theoretical classes, where the teacher will present the knowledge students must acquire. The students will have the slides of the classes and some references and textbooks that will allow them to complete and to go deeply in those issues in which they are more interested.
- Laboratory sessions, where the students will implement, with teacher support, the mobile applications

according to realistic requisites specifications. These applications will be implemented in groups, to foment the collaborative work, the decomposition of the application in modules, the specification of interfaces between the modules, and the documentation.

- Tutoring sessions: Individualized attendance (individual tutoring) or in-group (group tutoring) for students with a teacher.

## ASSESSMENT SYSTEM

**% end-of-term-examination:** 30

**% of continuous assessment (assignments, laboratory, practicals...):** 70

The continuous assessment will be based in the design and implementation of a mobile application: 70%. The students will develop their projects working in teams. It will consist on the design, and development of a mobile application, in which the knowledge and capacities acquired in the course will have to be applied. The students will have to write documentation and make an oral presentation about their work. The students will use modern software tools, and will test the applications in last generation mobile devices.

External source code (e.g., GitHub) and generative AI can be reused, as long as their use is cited and their licenses are respected. Detailed instructions on how to cite these sources will be provided upon project submission.

The end-of-term exam: 30%. It will consist on a written exam to assess both the theoretical and the practical concepts acquired by the student individually.

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.

## BASIC BIBLIOGRAPHY

- Dawn Griffiths and David Griffiths Head First. Android Development. A Learner's Guide to Building Android Apps with Kotlin, O'Reilly, 2022

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

## BASIC ELECTRONIC RESOURCES

- Google . Training Android Developers: <https://developer.android.com/guide>