

BASIC DETAILS:

Subject:	APLICACIONES MÓVILES		
Id.:	30547		
Programme:	GRADUADO EN INGENIERÍA INFORMÁTICA (SEMIPRESENCIAL). 2008 (BOE 15/12/2008)		
Module:	APLICACIONES DISTRIBUIDAS		
Subject type:	OBLIGATORIA		
Year:	3	Teaching period:	Segundo Cuatrimestre
Credits:	3	Total hours:	75
Classroom activities:	10	Individual study:	65
Main teaching language:	Inglés	Secondary teaching language:	Inglés
Lecturer:		Email:	

PRESENTATION:

This course will provide the student with the competencies needed to design and develop business applications for mobile devices. Given its current spread and the prospects for the future, the course will be based on the Android platform. However, the student will be taught in problems ubiquitous to all mobile platforms as connectivity, fragmentation (diversity of devices and specifications), the persistence of data or the design for all.

In this course the students will put into practice the knowledge acquired during previous courses like object oriented programming, information systems and networking to design and develop mobile applications. As part of the course, the student will learn how to interpret and use professional APIs (Application Programming Interfaces) as is the case of Android or Java. At the end of the course the student will be able to design and develop complete applications for mobile devices that make use of all the functionality provided by them (as geolocation, notifications, communication with servers or sensors handling).

What you will need to pass the course:

Coding: 9/ 10

Theory: 4/ 10

Arts: 1/ 10

PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

General programme competences	G01	Leadership capacity to be able to influence a group so they achieve some specific objectives collectively and efficiently.	
	G02	Innovative capacity to propose and find new and efficient ways to undertake any task and/ or function within the professional environment - highly motivated by quality.	
	G03	Capacity to work in multidisciplinary teams to achieve common objectives, placing group interests before personal ones.	
	G04	Capacity to always commit to working responsibly - creating a strong sense of duty and fulfilment of obligations.	
	G05	Capacity to adapt to different environments while being positive and optimistic, orienting your behaviour towards the achievement of goals.	
	G06	Capacity to analyse and find a solution to complex problems or unforeseen situations which may arise while working in any type of socio-economic organisation.	
	G07	Capacity to work flexibly and with versatility to adapt to the needs and requirements of the work situation.	
	G08	Ability to communicate effectively about different matters in a variety of professional situations and with the different media available.	
	G09	Capacity to make decisions impartially and rationally.	
	G12	Capacity to undertake professional activities with integrity, respecting social, organisational and ethical norms.	
	G13	Capacity to use individual learning strategies aimed at continuous improvement in professional life and to begin further studies independently.	
	Specific	E01	Capacity to understand the engineering profession and commitment to serve society under the

programme competences		corresponding professional code of conduct.
	E02	Capacity to apply the intrinsic engineering principles based on mathematics and a combination of scientific disciplines.
	E03	Capacity to recognise the technical principles and apply the appropriate practical methods satisfactorily to analyse and solve engineering problems.
	E04	Capacity to maintain an open mind to innovation and creativity within the framework of the engineering profession.
	E06	Capacity to apply quality assurance processes to processes and products.
	E07	Capacity to work effectively in project teams, where appropriate assuming executive responsibilities, and consider the human, technological and financial sides.
	E08	Capacity to communicate productively with clients, users and colleagues both orally and in writing, so as to pass on ideas, solve conflicts and achieve agreements.
	E09	Capacity to maintain professional competences through independent learning and continuous improvement.
	E11	Capacity to remain up-to-date in the technological and business worlds in the area of information and communication technologies.
	E12	Capacity to manage complexity through abstraction, modelling, 'best practices', patterns, standards and the use of the appropriate tools.
	E13	Capacity to identify, assess and use current and emerging technologies, considering how they apply in terms of individual or organisational needs.
	E16	Capacity to understand an application demesne so as to be able to develop suitable IT applications.
	E19	Capacity to design and define the architecture of IT systems (software, hardware and communications) under the requirements agreed upon by the parties involved.
	E20	Capacity to undertake the detailed design of the components of a project (procedures, user interface, equipment characteristics, communications system parameters, etc.).
E21	Capacity to perform tests that verify the validity of the project (functional, data integrity, performance of the computer applications, equipment, communications, etc.).	
Learning outcomes	R01	Design mobile business applications.
	R02	Develop applications for Android.
	R03	Create and innovate using mobile devices.

PRE-REQUISITES:

There are no pre-requisites but a good level in Java programming is recommended.

SUBJECT PROGRAMME:

Subject contents:

1 - Basic development of Apps
1.1 - Introduction to Android
1.2 - App fundamentals
1.3 - Activities and Intents
1.4 - Layouts, Views and User Input
1.5 - Listviews and Adapters
1.6 - Design Patterns in Android
2 - Advanced development of Apps
2.1 - Threads, AsyncTask, HTTP Connection
2.2 - Persistence
2.3 - Sensors and Hardware
2.4 - Bluetooth and Lego

Subject planning could be modified due unforeseen circumstances (group performance, availability of resources, changes to academic calendar etc.) and should not, therefore, be considered to be definitive.

TEACHING AND LEARNING METHODOLOGIES AND ACTIVITIES:

Teaching and learning methodologies and activities applied:

Theoretical practical sessions:

First, the lecturer will present the theoretical contents of the subject as a master class, supported by the necessary resources (blackboard, slides ...) to exemplify and illustrate the contents properly. The participation of students asking questions, theoretical situations or promoting group discussion on the topics discussed will be encouraged.

Then, the theoretical sessions will be supported by the approach and resolution of practical exercises. These exercises will be solved by the students, individually or collectively, depending on the type of problem to solve. As part of this practical session, students will present their proposed solutions.

The participation of students during these sessions will be valued positively.

Individual assignment:

Part of the learning and the grade acquired through the course comes from the resolution of the individual assignment proposed along the course. In particular, for each of the lectures a short task will be requested. Those task will conform the individual assignment that must be delivered through the PDU and presented to the teacher within the deadline .

In order to resolve the tasks, student will receive some technical guidance. In addition, a communication mechanism will be provided (PDU) to discuss and comment on the different problems that arise during the resolution of the assignments.

The resolution of these individual tasks and the individual assignment prepares the student to acquire the professional competences of this course.

Group assignment:

In addition to the individual assignments, students will develop a group assignment. This assignment will be followed by the teacher before the final presentation, to ensure the quality and guide the students when needed.

As with the individual assignment, there will be technical guidance and a communication mechanism to discuss about the assignments.

Presentation of the assignments:

An important part of the learning process for the student is the presentation of their assignments to the rest of the students. During these presentations, students will have the opportunity to highlight the most positive aspects of their work, present the solutions to address the issues and even discuss other ways of solving the problems explored by the student.

Mentoring and participation in the PDU:

Students will attend tutorials to ask the teacher questions and problems that arise during the course and that have not been properly addressed during the sessions. Also during these tutorials, the teacher will provide supervision and guidance to help students acquire the skills raised by the course.

As during tutorials with the teacher, students can use the media available on the PDU to raise concerns or judgments about the course at any time, to receive help and feedback from other students and from the teacher.

The tutorials will be held on Mondays from 16:00 to 18:00. If unable to attend tutoring during these times, they may be arranged at convenient times tutoring for students and the teacher.

Student work load:

Teaching mode	Teaching methods	Estimated hours
Classroom activities	Master classes	3
	Practical exercises	2
	Practical work, exercises, problem-solving etc.	3
	Debates	2
Individual study	Tutorials	6
	Individual study	22
	Individual coursework preparation	10
	Group coursework preparation	6
	Project work	8
	Research work	8
	Portfolio	5
Total hours:		75

ASSESSMENT SCHEME:

Calculation of final mark:

Written tests:	40 %
Individual coursework:	30 %
Group coursework:	20 %
Participation:	10 %
TOTAL	100 %

*Las observaciones específicas sobre el sistema de evaluación serán comunicadas por escrito a los alumnos al inicio de la materia.

BIBLIOGRAPHY AND DOCUMENTATION:

Basic bibliography:

MEIER, Reto. Professional Android 2 Application Development. Indiana: Wiley Publishing Inc.

Recommended bibliography:

BURNETTE, Ed. Hello, Android: Introducing Google's Mobile Development Platform (Pragmatic Programmers).

Recommended websites:

Android Developer Site	http://developer.android.com/
Android Annotations	http://androidannotations.org/
Android Maps Utility Library	https://developers.google.com/maps/documentation/android-sdk/utility/
Material Design	https://material.io/design/
Kotlin	https://kotlinlang.org/docs/tutorials/kotlin-android.html

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