VNIVERSITAT Ğİ D VALÈNCIA

COURSE DATA

Data Subject

Code	34865
Name	Applications for Mobile Devices
Cycle	Grade
ECTS Credits	6.0
Academic year	2020 - 2021

Study (s)

Degree	Center	Acad. year	Period
1400 - Degree in Computer Engineering	School of Engineering	4	Second term
1407 - Degree in Multimedia Engineering	School of Engineering	4	Second term

Subject-matter

Degree	Subject-matter	Character
1400 - Degree in Computer Engineering	16 - Optional subject	Optional
1407 - Degree in Multimedia Engineering	19 - Optatividad	Optional

Coordination

Name	Department
LOZANO IBAÑEZ, MIGUEL	240 - Computer Science

SUMMARY

This subject introduces the student in the components, APIs and tools that allow to develop applications in the Android platform. Specifically, the components that can be used in an application, the visual widgets that can be used and how to listen to events that are produces when the user interacts with de device. Besides, some relevant APIS will be revised, for instance: the communication with sockets and HTTP servers, sensors (geolocation, accelerometer and camera), the access to databases and to native content providers. Finally, the generation and visualization of graphics, images and animations will be presented.

With these contents, the laboratory sessions and homeworks the student will hava a good foundation to develop applications in different fields.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Have a good knowledge in the Java programming language.
Have a good knowledge in computer graphics.

OUTCOMES

1400 - Degree in Computer Engineering

- TI6 - Ability to design systems, applications and services based on network technologies, including the Internet, the web, e-commerce, multimedia, interactive services and mobile computing.

1405 - Grado en Ingenieria Multimedia

- G1 - Be able to relate and structure information from different sources and to integrate ideas and knowledge. (RD1393/2007)

- MM1 - Have knowledge and ability to understand essential facts, concepts, principles and theories related to multimedia systems including all the disciplines covered by these systems.

- MM2 - Be able to understand and manage the different technologies involved in multimedia systems, both from the point of view of hardware and electronics and of software.

- MM21 - Communicate effectively, both in writing and verbally, knowledge, procedures, results and ideas related to ICT and specifically to multimedia, and know their socioeconomic impact.

LEARNING OUTCOMES

As learning outcomes the student should be able to

- · Develop applications that use several activities and that allow the transition among them
- · Develop applications that use existing components in a loose way
- · Use the notification system of the device
- · Develop and use services in the applications
- · Develop and use broadcast receivers to obtain information about the system
- · Develop applications that use sockets and make request to HTTP servers
- · Develop applications that use the device sensors
- · Develop applications that show graphics, images and animations using the device sensors as input

Use the IDE Eclipse and the tools that offer the Android SDK to develop, deploy and test applications.

DESCRIPTION OF CONTENTS

1. Introduction

Platform architecture
Virtual machine
Types of components that form an application

2. Activities and intents

Activity class
Widgets and containers
Layout of elements in containers
Events
Intents
Permissions

3. Local Storage

Files
Preferences
Databases

4. Concurrent programming, Notifications and Alarms

Concurrent Programming
Notifications
Alarms

5. Network programming

Communication through sockets
Making requests to HTTP servers

6. BroadcastReceiver and Service

BroadcastReceiver
Service

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7. Generation and visualization of graphics, images and animations

Introduction to Processing applications for mobile platforms
Simple interaction

8. Framework

Sensors: Geolocation, Accelerometer, Camera
Audio
Interactive 2D graphics

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Laboratory practices	20,00	100
Classroom practices	10,00	100
Development of group work	10,00	0
Development of individual work	40,00	0
Study and independent work	30,00	0
Readings supplementary material	10,00	0
TOTAL	150,00	

TEACHING METHODOLOGY

Lectures, problem solving, autonomous study and team work.

EVALUATION

In the first call we propose a continuous evaluation methodology:

1)   Along the course a set of tasks to be assessed individually (laboratory sessions, problems, projects, individual and group work, etc.) will be proposed.

2)   Laboratory sessions will be assessed through a questionnaire that will be given at the end of the session and / or by evaluating the source code. Each laboratory handout will specify the evaluation system.

3)   Other assessable tasks will be selected by the teacher from the following categories: problems, projects, individual work or group work.

4)   Since the responsibility to learn and demonstrate what they have learned is individual, the teacher may request students to explain the work done in any given task.

The second call is oriented to improve or repeat the failed tasks from the first call. The teacher must indicate each student the corresponding task/s.

In any case, the evaluation of this subject will be done in compliance with the University Regulations in this regard, approved by the Governing Council on 30th May 2017 (ACGUV 108/2017)

REFERENCES

Basic

- C. Collins, M. Galpin, M. Kaeppler. Android in Practice, Manning Publications 2011
- P.J. Deitel, H. V. Deitel, A. Deitel, M. Morgano. Android for Programmers: An App-Driven Approach. Prentice Hall; 1 edition 2011
- G. Milette, A. Stroud. Professional Android Sensor Programming, Wrox 2012
- Daniel Sauter. Rapid Android Development. Pragmatic Bookshelf - 2013

Additional

- Mario Zechner, Robert Green. Beginning Android Games, Apress 2011
- Daniel Shiffman. Learning Processing: A Beginner's Guide to Programming Images, Animation, and Interaction. 2008, Morgan Kaufmann.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

The teaching methodology for this subject will follow the model approved by the Academic Committee of the GII / GIM degrees (https://links.uv.es/catinfmult/modeloDocent). If the facilities are closed because of COVID-19 pandemics, the scheduled lectures will be replaced by synchronous online sessions within the assigned time slots of the course, using the tools provided by the university.

If the facilities need to be closed due to the pandemics causing any of the evaluation exercises to be held at ETSE-UV, these exercises will be substituted by equivalent exercises held online using the tools provided by the university. The weights for each activity will remain the same as specified in the teaching guide.