ADVANCED MOBILE DEVICES PROGRAMMING

Master in Engenharia Informática

Code: 26206

Main Scientific Area: Computer Science

Lecturer: Nuno Filipe Macedo Cunha Mendes

Language of Instruction: Portuguese

Regime: S2

Contact Hours: 60h Total Workload: 108h

ECTS: 6,0

Objectives

This UC focuses on providing students with proficient knowledge of the Android platform and its respective APIs, through advanced theoretical and practical knowledge in the field of mobile computing. At the end of this course, students will be able to develop complex and profissional-graded apps for the Android platform. They will also be able to apply the same principles and techniques on different platforms, such as developing apps for the iOS platform.

Learning Outcomes

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Course Contents

Concept Revision (OO; MVC; Design Patterns; SQL / SQlite)

Project Architecture and Best Practices

Android and GIT

Debugging and error analysis of an Android application

Main graphic elements (ListView, RecyclerViews, Adapters)

Secondary graphic elements (Spinner; ProgressDialog; Special Buttons; Webview)

Adapters and Content Providers

Storage

Fragments

Sensors

Threading and AsyncTasks

Webservices Management (Networking)

Services and Push Notifications

External Libraries

Remote Storage

Awareness regarding Code obfuscation

Monetization Strategies and Submission to the Google Play Store

Brief concept of Multiplatform/Hybrid Apps

Recommended Bibliography

Ricardo Queiros, Android Profissional Desenvolvimento Moderno de Aplicacoes, FCA, 2018

Kotlin in Action, Dmitry Jemerov and Svetlana Isakova, 2017, Manning

Android 9 Development Cookbook: Over 100 recipes and solutions to solve the most common problems faced by Android developers, Rick Boyer, 2018, Packt Publishing

High Performance Android Apps Improve Ratings with Speed, Optimizations, and Testing, Doug Sillars, 2015, O'Reilly Media

Mobile Design Pattern Gallery, 2012, O'Reilly Media

Learning and Teaching Methods

The content of this discipline was defined envisaging the learning of advanced techniques in application development for the Android platform. The concepts are gradually presented and explored. They will be consolidated, in the end, with the development of a “real” application. Whenever applicable, generic patterns of software development (that may as well be applied in other contexts/platforms) will be identified and highlighted.

Assessment Methods

Theoretical Component (TC) through a single evaluation form at the end of the semester with a weight of 50%.
Practical Component (PC) will be done through the project (Multimodal), with a weight of 50%.

TC * 0.50 + PC * 0.50 = Final Grade

TC >= 9.5 and PC >= 9.5 (Minimum grade in both components is 9.5 values)

Those who fail the practical component, fail the curricular unit without any possibility of an exam.

In the exam the weights will be equal for the theoretical and practical components:

TC * 0.50 + PC * 0.50 = Final Grade

Any type of exam moments that involves assessment includes in the formula the project component. The formula is the same as the exam formula to calculate the final grade.