

## ADVANCED MOBILE DEVICES PROGRAMMING

Master in Engenharia Informática

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Code: 26206

Main Scientific Area: Computer Science

Lecturer: Nuno Filipe Macedo Cunha Mendes

Language of Instruction: Portuguese

Regime: S1

Contact Hours: 60h Total Workload: 108h

ECTS: 6,0

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### 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 professional-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 assessment through a single evaluation form at the end of the semester with a weight of 50%.

The practical evaluation will be done through the project , whose weight will be 50%.

Both components have a minimum grade of approval of 10 points (in a scale of 0 to 20).