

Programming for Mobile Devices

Code: TSPWDM110 Acronym: PDM

Scientific Area: Computer Sciences

Occurrence: 2023/24 - 2S

Web page: <https://moodle.esgt.ipsantarem.pt/course/view.php?id=2345>Teaching Area: *Informática*

Courses

Acronym	Nº de Estudantes	Plano de Estudos	Academic Year	Credits	Horas Contacto	Total Hours
TSPWDM	27	Tesp de Tecnologias Web e Dispositivos Móveis	1º	6		

Hours Actually Taught

TTWDM-1-STR

Theoretical and Practical: 73,00

Teaching - Weekly Hours

Theoretical and Practical: 5,00

Teaching - Responsibilities

Type	Teacher	Classes	Hours	Teacher	Responsabilidade
Theoretical and Practical	Totals	1	5,00	Jorge Guerra Teixeira Constantino - ESGT	Responsável
	Mário Alexandre Martins Duarte - ESGT		5,00		

Learning outcomes and their compatibility with the teaching method (knowledge, skills and competencies to be developed by students)

Once they have passed the course, students should be able to:

- Characterize the main platforms and tools for developing, publishing and distributing mobile Apps;
- Install and use a development environment suitable for a platform;
- Explore the basics of the chosen platform, in terms of architecture, user interface, user experience in general, access to data and publication in market(s);
- Develop integrated solutions using the technologies studied.

Syllabus

A. Ecosystems and platforms for mobile apps

- Perspectives (provider, developer and user)

B. Choosing an ecosystem / platform

- Introduction to the platform
- Development environments
- Installing an environment

C. Fundamental aspects of Apps on the platform

- Architecture

- Manifest(s)
- Resources
- Programming

D. Interface aspects

- Layout components
- Layouts
- Organization and communication between activities

E. Guidelines

- User interfaces
- User interaction

F. Operational aspects

- User preferences
- Data, files, folders, data persistence
- Permissions
- Design, taking into account good performance and security practices

G. Introduction to development, based on established standards

- Models
- Views
- Controllers
- Specifics of the development process on the platform

Demonstration of the syllabus coherence with the curricular unit's learning objectives

The topics allow the student to follow a path that begins by listing the most established platforms for mobile apps, taking the perspectives of the supplier, the user and the programmer.

Once a platform has been chosen, an app development environment is selected and installed, including support for accelerated device emulation.

Before and during the practical development of solutions, architectural, design, user interface and interaction, app operation and publication in specific regulated markets are discussed.

The practical development will serve to give the student the skills to create solutions for the chosen platform, using the selected technologies.

Teaching and learning methodologies specific to the curricular unit articulated with the pedagogical model

Methodology:

- Presentation of fundamental concepts.
- Study by discovery (observation of digital content, research into concepts, ...).
- Analysis of examples and case studies;
- Practical development of solutions.

Evaluation:

- Final grade = [15% * T1 + 25% P1] + [25% * T2 + 35% P2]

T1, T2: individual tests

P1, P2: projects

- Approval conditions: T1 >= 8.0, T2 >= 8.0, P1 >= 10.0, P2 >= 10.0 and attendance >= 75%.

- Exams. Does not include oral exam.

- Grades higher than 16. The award of a grade higher than 16 may depend on a defense in an oral exam. The student may waive this defense and will then be awarded a grade of 16.

Demonstration of the coherence of teaching and evaluation methodologies between the learning objectives of the curricular unit

The presentations, examples and case studies introduce, illustrate and concretize the concepts, promoting the consolidation of learning gradually and with the active participation of the students.

Practical development exposes students to the reality of the solutions adopted and should translate into skills for creating mobile apps.

Bibliography (Mandatory resources)

Android Developers - Training. (2021). from <https://developer.android.com/training/index.html>

Bill Phillips, C. S., Brian Hardy. (2017). Android Programming: The Big Nerd Ranch Guide (3rd edition (30 January 2017) ed.): Big Nerd Ranch Guides.

Joseph Annuzzi Jr., L. D., Shane Conder. (2015). Introduction to Android Application Development: Addison Wesley.

Murphy, M. (2021). The Busy Coder's Guide to Android Development: <https://commonsware.com/Android/>.

Nanda, S., at al, Demystifying UI/UX, A client's guide on understanding User Interfaces and User Experience, Presear Softwares PVT LTD (2022).