

Course Unit	Multiplatform development	Field of study	Computer Science
Bachelor in	Informatics Engineering	School	School of Technology and Management
Academic Year	2023/2024	Year of study	2
Type	Semestral	Semester	2
Level	1-2	ECTS credits	6.0
Code	9119-706-2203-00-23		
Workload (hours)	162	Contact hours	T - TP 60 PL - TC - S - E - OT - O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Paulo Jorge Teixeira Matos, Daniel Jose Lopes Gouveia, Gonçalo Fernando Afonso Silva, Luis Carlos Marques Afonso, Ricardo Daniel Pinto de Freitas

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. know the development and test cycle of multiplatform mobile applications;
2. use mobile application development and testing tools for at least one multiplatform technology;
3. develop the programmatic component of the interface for the use of mobile applications, for various execution environments;
4. integrate the user interface component with technical support solutions, namely backend;
5. deliver the production version.

Prerequisites

Before the course unit the learner is expected to be able to:

1. Knowledge of object-oriented programming.
2. Knowledge of Cascading Style Sheets
3. Ideally, knowledge of Javascript.

Course contents

Development of multiplatform mobile applications using hybrid technologies. Development and test environment. Development language (Javascript). Multiplatform development technology (React Native). Publication of the application.

Course contents (extended version)

1. Introduction to the Language Processing field:
 - Tools;
 - Development cycle and methodology.
2. Development language (Javascript):
 - Concepts;
 - Specificities for the development of mobile applications;
 - Good practices and design and development standards.
3. Multiplatform development technology (React Native):
 - Fundamentals;
 - Graphics components;
 - Styles and layout;
 - Navigation;
 - Local persistence;
 - REST integration;
 - Registration, authentication and session management;
 - Push notifications;
 - Access to native components.
4. Production version:
 - Publication cycle;
 - Settings and subscription;
 - Submission for publication;
 - Internal tests, in closed and open context;
 - Publishing and updates.

Recommended reading

1. React Native for Mobile Development: Harness the Power of React Native to Create Stunning iOS and Android Applications - 2nd Edition, Akshat Paul and Abhishek Nalwaya, Apress, 2019, ISBN 1484244532.
2. React Native in Action 1st Edition, Nader Dabit, Manning, 2019, ISBN 1617294055.
3. Beginning Functional JavaScript: Uncover the Concepts of Functional Programming with EcmaScript 8, Anto Aravinth and Srikanth Machiraju, Apress, 2018, ISBN 1484240863.
4. Tutorials Point - React Native Tutorial, https://www.tutorialspoint.com/react_native/index.htm, 2021.
5. Acetatos de Desenvolvimento Multiplataforma, Daniel Gouveia, Henrique Alho, Paulo Matos, Pedro Oliveira, 2021.

Teaching and learning methods

This course is divided into theoretical lectures and practical lectures. In the theoretical lectures the language processing subject is exposed using some practical examples and asking for student participation. In practical lectures the student is invited to use specific tools to solve the exercises in a computing environment and the resolution of the proposed homework is also validated.

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Intermediate Written Test - 10% (Mini-test to be carried out in the class time)
 - Experimental Work - 60% (Practical work in groups of two or three elements.)
 - Final Written Exam - 30% (Written exam with minimum grade of 7 out of 20.)
2. Alternative 2 - (Regular, Student Worker) (Supplementary)
 - Experimental Work - 60% (Practical work in groups of two or three elements.)
 - Final Written Exam - 40% (Written exam with minimum grade of 7 out of 20.)
3. Alternative 3 - (Regular, Student Worker) (Special)

Assessment methods

- Experimental Work - 40% (Practical work in groups of two elements (for each evaluation of this alternative).)
- Final Written Exam - 60% (Written exam with approximately two hours of duration and with a minimum grade of 7 in 20.)

Language of instruction

1. Portuguese, with additional English support for foreign students.
2. English

Electronic validation

Paulo Jorge Teixeira Matos	Tiago Miguel Ferreira Guimaraes Pedrosa	Lúis Manuel Alves	José Carlos Rufino Amaro
23-02-2024	14-03-2024	16-03-2024	24-03-2024