

Course Unit	Multiplatform development		Field of study	Computer Science	
Bachelor in	Informatics Engineering		School	School of Technology and Management	
Academic Year	2021/2022	Year of study	2	Level	1-2
Type	Semestral	Semester	2	ECTS credits	6.0
Workload (hours)			162	Contact hours	
			T	-	TP
			60	PL	-
			TC	-	S
			E	-	OT
			O	-	
Code 9119-706-2203-00-21					

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 Baptista Martinho Gomes, Daniel Jose Lopes Gouveia, Henrique Joao Vidinha Alho, Pedro Filipe Fernandes Oliveira

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 - 20% (Mini-test to be carried out in the non-classroom hours of the ninth school week.)
 - Experimental Work - 40% (Practical work in groups of two elements.)
 - Final Written Exam - 40% (Written exam with approximately two hours of duration and with a minimum grade of seven in twenty.)
2. Alternative 2 - (Regular, Student Worker) (Supplementary)
 - Experimental Work - 60% (Practical work in groups of two elements.)
 - Final Written Exam - 40% (Written exam with approximately two hours of duration and with a minimum grade of seven in twenty.)
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 seven in twenty.)

Language of instruction

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

Electronic validation

Paulo Jorge Teixeira Matos	José Luís Padrão Exposto	Luísa Maria Garcia Jorge	Paulo Alexandre Vara Alves
26-02-2022	06-03-2022	22-03-2022	25-03-2022