WEB PROGRAMMING AND DEVELOPMENT

Degree in Engineering and Development of Digital Games

Code: 10123

Main Scientific Area: Computer Science

Lecturer: Eva Ferreira de Oliveira

Language of Instruction: Portuguese

Regime: S1

Contact Hours: 60h Total Workload: 100h

ECTS: 6,0

Objectives

This unit aims to provide students with a comprehensive understanding of web development technologies and practices, focusing on HTML, CSS, JavaScript, and React. Specifically designed for game development students, this course will serve as a bridge between game programming and web development. Students will learn how to create interactive, dynamic, and responsive games, as well as how to integrate web-based features into gaming environments.

Learning Outcomes

At the end of the course, students will be able to understand the main Web development techniques, namely for game development.

Course Contents

Introduction to Web Development

- Overview of HTML, CSS, JavaScript

HTML

- Page structure, elements, and tags

CSS

- Selectors, properties, and values

JavaScript

- Variables, functions, and loops

Introduction to React

- Components and states

Responsive Design

- Media queries and flexbox

Interactivity in Games

- Events and DOM manipulation

Advanced React

- Hooks and lifecycle

Web API Integration

- Fetch and AJAX

Recommended Bibliography

Books

Frain, B. (2022).Responsive Web Design with HTML5 and CSS. Packt Publishing.

Ltd, E., van Putten, M., Svekis, L. (2021).JavaScript from Beginner to Professional. Packt Publishing.

Banks, A., Porcello, E. (2020). Learning React. O'Reilly Media.

Simpson, K. (2015). You Don't Know JS (Series). O'Reilly Media. Websites

Hostinger. (n.d.).110 Websites to Learn Coding Online for Free. Retrieved fromhttps://www.hostinger.com/tutorials/learn-coding-online-for-free

Codecademy. (n.d.).Learn to Code - for Free. Retrieved fromhttps://www.codecademy.com/

Learning and Teaching Methods

The introduction to fundamental web technologies like HTML, CSS, and JavaScript provides a solid foundation that is often required in modern gaming environments, especially those that are web-based or have online components. The focus on React and responsive design equips students with the tools to create dynamic and adaptable user interfaces, skills that are transferable to game development. Additionally, topics such as interactivity in games and web API integration are directly applicable to the field of game development, making this curriculum highly relevant and practical.

Assessment Methods

The assessment of the course unit will be simplified to focus on three main components that will provide a comprehensive view of student performance. The assessment structure is as follows:

Continuous Assignments and Labs (30%): Throughout the semester, students will receive weekly assignments and participate in group labs. These will be assessed based on technical accuracy, functionality, and collaboration in group activities.

Midterm Project (30%): Midway through the semester, students will have the option to submit a midterm project or

take a practical exam. This component will be assessed based on the application of learned concepts and technical skills.

Final Project (40%): At the end of the semester, students will need to present a final project that integrates the concepts and skills learned throughout the course. This will be assessed based on innovation, complexity, and successful execution of the project.