

## Course Unit: 9119116 – Web Technologies and Mobile Environments

Year 3 Semester 4 ISCED Code: 613 ECTS: 6.0

Type of Course Unit: Compulsory Delivery Mode: Face-to-face

Language of Instruction: Portuguese

COURSE COORDINATOR: Luís Carlos da Silva Bruno

### HOURS OF WORK

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
150		15	45						90

Prerequisites (if applicable): Knowledge of XML.

### LEARNING OUTCOMES (knowledge, skills and competence)

On successful completion of this course unit, the student should be able to:

1. know different client side patterns and technologies on Web.
2. Design iterative and usable Web pages validated by usability user tests.
3. Implement Web pages in HTML and CSS patterns.
4. Develop dynamic client side Web pages using the javascript programming language
5. Develop Web sites and applications of client side using programming frameworks and libraries.
6. Evaluate and redesign the Web pages accessibility according the pattern WCAG 2.0.

### CONTENTS

1. Client side pattern and technologies on the Web.
2. Design Web interfaces across a wide range of visualization devices
3. Usability guidelines to design Web interfaces.
4. User interfaces evaluation based on users usability tests.
5. Markup language to Web content - HTML
6. Cascading style sheet - CSS.
7. Client side programming language - Javascript.
8. AJAX/XML-DOM and JSON patterns.
9. Web frameworks and libraries to develop client side Web sites and applications- Bootstrap, jQuery and AngularJS.
10. Accessibility guidelines to the Web content - WCAG2.0.

### DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

The coherence is demonstrated by specifying the relevant contents for each of the learning outcomes:

Learning Outcome 1:

Contents: 1, 5, 6, 7, 8, 9 and 10.

Learning Outcome 2:

Contents: 2, 3, and 4.

Learning Outcome 3:

Contents: 5, 6 and 9.

Learning Outcome 4:

Contents: 7, 8 and 9.

Learning Outcome 5:

Contents: 5, 6, 7, 8 and 9.

Learning Outcome 6:

Contents: 10.

## **TEACHING METHODOLOGIES**

Large class: Presentation and discussion of theoretical and practical contents using video-projector. Partial resolution of the proposed guides in laboratory classes are explained.

Computer laboratory - Design and program Web pages, sites and small applications supported on laboratory guides.

Student should continue the laboratory works outside classes as well should develop course group project divided in two phases: analysis and design, and implementation.

The course support materials are available on the course unit moodle page as well the student doubts are explained through the electronic discussion forum.

All the different classes prepare the student to the assessment activities.

## **DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES**

All the teaching methodologies contribute to all the learning outcomes and are aligned with the more theoretical and practical contents. The methodologies used in the practical classes are very relevant to the development of web pages, sites and applications.

## **EVALUATION METHODS**

Individual and group assignments.

A group project (two students) intends to develop a client side Web site or application divided in two parts: analysis and design of the system and its implementation/programming.

The Individual practical assignment is on-computer test to evaluate the HTML, CSS, javascript topics.

## **MAIN BIBLIOGRAPHY**

- World Wide Web Consortium - <http://www.w3.org/>, acedido em 30/10/2015.
- Patrick J. Lynch and Sarah Horton, Web Style Guide: Basic Design Principles for Creating Web Sites, <http://webstyleguide.com/>, consultado em 30/10/2015.
- W3Schools Online Web Tutorials , <http://www.w3schools.com>, acedido em 30/10/2015.
- Guidelines | Usability.gov, <http://guidelines.usability.gov/>, acedido em 30/10/2015.
- Usability & UX articles from Nielsen Norman Group, <http://www.nngroup.com/articles/>, acedido em 30/10/2015.
- Jon Duckett, Web Design with HTML, CSS, JavaScript and jQuery Set, Wiley, 1st Edition. 978-111-890-744-3, 2014.