INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Web Development			Field of study	Computer Science		
Bachelor in	Management Informatics			School	School of Technology and Management		
Academic Year	2023/2024	Year of study	2	Level	1-2	ECTS credits	6.0
Type	Semestral	Semester	2	Code	9186-709-2203-00-23		

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): José Luís Padrão Exposto, Luis Carlos Marques Afonso, Nuno Romeu Cardoso Sequeira

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Know the main Web languages and standards
2. Structure documents using a markup language
3. Define the format of documents using style sheet languages
4. Develop Web applications using client side and server side frameworks

Prerequisites

Before the course unit the learner is expected to be able to:
Object Oriented Programming languages and database skills.

Course contents

Web project development. Version control and collaboration. Web underlying technologies. Web page development with HTML. Cascading style sheet language (CSS). Software architectural patterns. Server side scripting. Web development frameworks.

Course contents (extended version)

1. Web project development
   - Web site definition and planning.
   - Information architecture: site map and entity-relationship diagram.
   - Site design: page structure and standard components.
   - Site construction with HTML, CSS and PHP.
   - Site Hosting, Maintenance, Marketing, Tracking and evaluation.
2. Underlying technologies
   - Internet.
   - World Wide Web.
   - Web components.
3. Version control and collaboration
   - Git and GitLab
   - Git flow
   - Git commands
   - Branching and merging
4. Web page development in HTML
   - Basic rules.
   - Head and body elements.
   - Semantic elements.
   - Links and images.
   - Lists and tables.
   - Specific structuring.
5. Cascading style sheets language (CSS)
   - HTML and CSS. Basic rules.
   - Classes and IDs. Selectors, pseudo-classes and declarations.
   - Units, colors and fonts.
   - Text attributes.
   - Box model. Margins, paddings and borders.
   - Positioning.
   - Site templating.
   - Bootstrap Library: main layout, responsive breakpoints, grid system and components.
6. Server side scripting
   - Introduction to PHP.
   - PHP syntax. Variables. Data types and constants. Operators. Control structures.
   - Functions. Classes and objects.
   - Database access: PDO library. Access using commands.
   - Form submission methods.
   - Form controls.
   - Session management.
7. Web development frameworks
   - Software architectures: model-view-controller.
   - Structure of an application
   - Working with databases: Query builder, Object-Relation mapping and Active Record.
   - Getting data from users.
   - Data visualization.
   - Security in web applications.

Recommended reading

1. Suehring, Steve; Valade, Janet (2013). PHP, MYSQL, JavaScript & HTML5. John Wiley & Sons.
2. Silvio Moreto (2016). Bootstrap By Example. Packt Publishing.
3. Andrew Bogdanov, Dmitry Eliseev (2016). Yii2 Application Development Cookbook - Third Edition. Packt Publishing.

Teaching and learning methods

Presentation of theoretical concepts and practice with tools for the development of Web applications. Resolution of practical exercises and development of small

Teaching and learning methods

prototypes. The methodology will be supported by project based learning.

Assessment methods

1. Normal period - (Regular, Student Worker) (Final)
   - Projects - 50%
   - Final Written Exam - 50% (Minimum of 7/20 to approve.)
2. Other periods - (Regular, Student Worker) (Supplementary, Special)
   - Final Written Exam - 100% (Practical implementation.)

Language of instruction

Portuguese

Electronic validation

José Luís Padrão Exposto	Tiago Miguel Ferreira Guimaraes Pedrosa	José Carlos Rufino Amaro	Nuno Adriano Baptista Ribeiro
20-02-2024	14-03-2024	16-03-2024	16-03-2024