



## **ACADEMIC PROGRAM**

### **WEB DEVELOPMENT FUNDAMENTALS**

### **B.F.A. IN COMPUTER SCIENCE**

***MODALITY: ON CAMPUS***

***ACADEMIC YEAR: 2022-2023***

<b>Name of the course:</b>	<b>Web development fundamentals</b>
Degree :	Computer Science
Location:	Centro Universitario de Tecnología y Arte Digital
Area:	Fundamentals of Computer Science
Year:	1º
Teaching period:	1
Type:	B
ECTS credits:	6
Teaching modality:	On campus
Language:	English
Lecturer / Email	Manoel Fernando Alonso Gadi / manoel.alonso@u-tad.com
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## SUBJECT DESCRIPTION

### Area description

This course belongs to the subject “Fundamentals of Computer Science”, where the student acquires basic knowledge of the principles that underpin software engineering

### Subject description

This subject allows the student to acquire basic knowledge of web development on the client side, and carry out a simple web project using HTML, CSS and JavaScript web development techniques.

## COMPETENCIES AND LEARNING OUTCOMES

### Competencies

#### BASIC AND GENERAL SKILLS

BC1: Students should demonstrate knowledge in an area of study that builds upon the foundation of general secondary education and goes beyond at a level that, while supported by advanced textbooks, also encompasses certain aspects derived from the cutting edge of their field of study.

BC2: Students should be able to apply their knowledge to their work or vocation in a professional manner, and they should possess the competencies typically demonstrated through the development and defence of arguments as well as problem-solving within their field of study.

BC3: Students must possess the ability to gather and interpret relevant data (usually within their field of study) in order to make judgments that involve reflection on socially, scientifically, or ethically significant issues.

BC4: Students should be capable of conveying information, ideas, problems, and solutions to both specialized and non-specialized audiences.

BC5: Students should have developed the learning skills necessary to pursue further studies with a high degree of autonomy.

CG1 - Ability to understand, plan and solve problems through the development of computing solutions.

GC3 - Knowledge of the scientific fundamentals applicable to the resolution of computing problems.

GC5 - Management of human and technological resources for the correct realization of computer science projects

GC9 - Ability to learn, modify and produce new computer technologies.

#### SPECIFIC COMPETENCES

CE3 - Knowledge of the relational algebra and the performance of queries in procedural languages for the design of standardized database schemas based on

database schemas based on entity-relational models.

CE9 - Knowledge of control structures, variables, programming syntax and memory usage management in an effective way in the development of a computer application.

in the development of a software application

CE11 - Knowledge of the architecture of the Operating Systems as well as the different mechanisms for the management of processes,

communication and synchronization of processes

CE13 - Knowledge of the fundamentals of computer networks, the different topologies and their communication protocols.

communication protocols

CE16 - Knowledge of the operation of computer systems.

#### **Learning outcomes**

Upon completion of the degree, the graduate will be able to:

- To understand the life cycle of an application using different programming languages
- To know how to debug a software application.

- To know and use markup languages (HTML)
- To build web pages using style sheets (CSS)
- To use the control version tool Git in collaborative development
- To know the fundamentals of Boolean Algebra
- To be able to handle logic gates and simple sequential circuits
- To handle the binary representation of different data types
- To understand von Neumann's model
- To understand the hardware architecture of a computer.
- To be able to code basic programs in assembly language
- To know common network technologies (WiFi, Bluetooth, Ethernet)
- To know network topologies
- To understand computer communication using protocols such as ARP, IP, TCP, etc.
- To be able to set basic routing configurations.
- To be able to develop simple network applications
- To know the basic architecture of an Operating System
- To understand the principles of process scheduling
- To understand how the hierarchy of memory works
- To be able to develop a simple file system
- To be able to develop a toy driver
- To understand processes/threads communications and synchronization mechanisms

## **CONTENTS**

HTML

CSS

Version control with Git

## **SUBJECT SYLLABUS**

Topic 1:

Introduction to Markup Languages

Topic 2:

Html

Theme 3:

css

Theme 4:

Web layout

Topic 5:

flexbox

Topic 6:

JavaScript

## TRAINING ACTIVITIES AND TEACHING METHODOLOGIES

### TRAINING ACTIVITIES

LEARNING ACTIVITIES	Total hours	Hours of presence
<i>Theoretical / Expository classes</i>	32,00	32,00
<i>Practical classes</i>	22,00	22,00
<i>Tutorials</i>	4,00	2,00
<i>Independent study and autonomous work of the student</i>	50,00	0,00
<i>Elaboration of work (group or individual)</i>	36,00	0,00
<i>Evaluation Activities</i>	6,00	6,00
<b>TOTAL</b>	150	62

### Teaching methodologies

Expository method or master lesson

Case learning

Learning based on problem solving

Cooperative or collaborative learning

inquiry learning

Flipped classroom methodology

Gamification

Just in time Teaching (JITT) or classroom on time

Expository method or master lesson

Case method

Learning based on problem solving

Cooperative or collaborative learning

inquiry learning

Flipped classroom methodology

Gamification

## TEMPORAL DEVELOPMENT

DIDACTIC UNITS / TOPICS

TEMPORARY PERIOD

Introduction to Markup Languages. Week 1

HTML Weeks 2, 3, 4

CSS Weeks 5, 6, 7

Web Layout Weeks 8, 9

Flexbox Week 10

JavaScript Weeks 11,12,13, 14,15

## EVALUATION SYSTEM

ASSESSMENT SYSTEM	MINIMUM SCORE RESPECT TO THE FINAL ASSESSMENT (%)	MAXIMUM SCORE RESPECT TO THE FINAL ASSESSMENT (%)
<i>Assessment of participation in class, exercises or projects of the course</i>	0	30
<i>Assessment of assignments, projects, reports, memos</i>	30	80
<i>Objective test</i>	10	60

## GRADING CRITERIA

ASSESSMENT SYSTEM	ORDINARY EVALUATION	EXTRAORDINARY EVALUATION
<i>Assessment of participation in class, exercises or projects of the course</i>	10	10
<i>Assessment of assignments, projects, reports, memos</i>	40	40
<i>Objective test</i>	50	50

### General comments on the evaluations/assessments

- To pass the subject in the ordinary call, it is essential that the grade for the activities and the project is greater than 5.0 and the grade for the final exam is at least 4.0 (out of 10).

- If the student does not pass the ordinary session, the student may take the extraordinary session in July, where the average will only be taken if the exam grade is at least 5.0. The notes of the continuous evaluation will be saved (participation in class, project...).

### LIST OF REFERENCES (BOOKS, PUBLICATIONS, WEBSITES):

Basic Bibliography:

- <https://developer.mozilla.org/es/docs/Web>
- <http://www.w3.org/standards/webdesign/htmlcss>
- <https://www.w3schools.com/>

Recommended Bibliography:

- Rob Larsen, "Beginning HTML and CSS." Wrox (2013)
- Douglas Crockford. "JavaScript: The Good Parts." O'Reilly Media, Inc. (2008)
- David Flanagan. "JavaScript: The Definitive Guide" (6th Ed.) O'Reilly

### REQUIRED MATERIALS, SOFTWARE AND TOOLS

#### Type of classroom

Theory classroom

Board and projection system

**Materials:**

Windows PC

**Software:**

Notepad++