ACADEMIC PROGRAM

WEB DEVELOPMENT II, SERVER

B.F.A. IN COMPUTER SCIENCE

MODALITY: ON CAMPUS

ACADEMIC YEAR: 2022-2023

Name of the course:	Web Development II, Server	
Degree :	Computer Science	
Location:	Centro Universitario de Tecnología y Arte Digital	
Area:	Web Development	
Year:	3º	
Teaching period:	2	
Type:	OB	
ECTS credits:	6	
Teaching modality:	On campus	
Language:	English	
Lecturer / Email	-	
Web page:	http://www.u-tad.com/	

SUBJECT DESCRIPTION

Area description

This subject provides the knowledge and skills necessary for a software engineer to develop a web project in its server and client components and its potential export as native or hybrid applications.

Subject description

Web browsers communicate with web servers using Hypertext Transfer Protocol (HTTP). When you click a link on a web page, submit a form, or run a search, an HTTP request is sent from your browser to the destination server. Server-side code can be written in any number of programming languages; Examples of popular server-side web languages include PHP, Python, Ruby, C#, and NodeJS (JavaScript). Server-side code has full access to the server's operating system and database. Server-side programming is very useful because it allows us to efficiently deliver personalized information to individual users and therefore create a much better user experience.

The objective of this course is to delve deep into the world of Web Server Programming, understand and practice topics as diverse as storing and delivering information efficiently, personalized user experience, controlled access to content, control of session information and status. , notifications and communication.

COMPETENCIES AND LEARNING OUTCOMES

Competencies

BASIC AND GENERAL COMPETENCIES

CG1 - Ability to understand, schedule and solve problems trough software development

CG2 - To develop software that are environmental friendly, engaged with society and natural resources and law and ethics compliant

CG9 - Ability to learn, modify and develop new software solutions

CG10 - Use of creative techniques to carry out computer projects

BC1: Students should demonstrate knowledge in an area of study that builds upon the foundation of general secondary education and goest 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.

SPECIFIC COMPETENCIES

CE5 - Ability to design and deploy client-side and server-side web applications with scalable standard technologies

CE6 - Knowledge of the use of asynchronous clientserver communication mechanisms and packaging of these web applications for mobile platforms for the development of dynamic web applications

CE10 - Ability to work with a release manager and generate application documentation automatically

Learning outcomes

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

- To understand the full stack idea

- To be able to develop front end apps in the browser using Javascript and frameworks

- To understand the HTTP protocols family

- To know and apply web services

- To develops back end applications with NodeJs and Python

- To know the development environment of mobile Android apps

- To develop a simple mobile app with Java/Kotiln.

CONTENTS

HTTP

Web development frameworks

Web Services

Scalability

Backend programming languages

SUBJECT SYLLABUS

Topic 1.- Introduction

Introduction and basic concepts. Back-end applications. Installation and versioning of Node.js. The Node.js REPL

Topic 2.- Node.js modules

First program with Node.js and its modules.

Topic 3.- Package management with NPM

Creation and installation of packages with npm. JSON format and Package-lock

Topic 3.- Asynchronous events

Events and promises. Async and await.

Topic 4.- REST API

Client-server model. HTTP requests and responses. Routing in Node.js. Nodemon.

Topic 5.- Framework Express

Concepts. Create a project with Express. Routing.

Topic 6.- Model View Controller

Structure. Validators. Roles and permissions with Tokens (JWT)

Topic 7.- Databases

MySQL (sql) and MondoDB (noSQL). Mongoose.

Topic 8.- Documentation and Testing

Swagger. JUnit.

Topic 9.- Development of a Project

TRAINING ACTIVITIES AND TEACHING METHODOLOGIES

TRAINING ACTIVITIES

LEARNING ACTIVITIES	Total hours	Hours of presence
Theoretical / Expository classes	22,00	22,00
Practical classes	31,60	31,60
Tutorials	4,00	2,00
Independent study and autonomous work of the student	48,00	0,00
Elaboration of work (group or individual)	37,60	0,00
Evaluation Activities	6,80	6,80
TOTAL	150	62,4

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 TIME PERIOD

Introduction to the subject and installation Week 1

Modules and package management with NPM. Events and asynchrony. Weeks 2

API Rest Weeks 3 to 4

Framework Express Weeks 5 to 6

MVC. Validators. Tokens. SQL and NoSQL Databases Weeks 7 to 11

Complete Proyect. Documentation and Testing. Weeks 12 to 13

Project presentations Weeks 14 to 15

EVALUATION SYSTEM

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

GRADING CRITERIA

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

General comments on the evaluations/assessments

● To pass the subject in the ordinary call, it is essential that the grade for the activities/project is greater than 5.0 (simple average presentation 1 and 2) and for the ordinary exam it is at least 5.0 (out of 10).

● If the student does not pass the ordinary session, he or she may take the extraordinary session in July. In this case, he must complete the failed part (partial or final practice), where the final grade will be calculated with the same weights as in the ordinary call.

● The use of mobile phones in the classroom is not allowed during the continuous evaluation period, unless expressly indicated otherwise by the teacher. Laptops may only be used for activities related to the subject. The teacher may withdraw the right to use the computer from those students who use it for activities that are not related to the subject (checking emails, news or social networks, consulting or preparing activities for other subjects, etc.).

● It is not allowed to consume drinks or food in the classroom. The presence of any type of drink on the tables is also not permitted, even in closed containers.

● Active participation will be required from the student, necessary for the development of the classes.

● The student will be required to behave well at all times during classes. Bad behavior that prevents the normal development of the class may lead to expulsion from the classroom for a period of time to be determined by the teacher.

LIST OF REFERENCES (BOOKS, PUBLICATIONS, WEBSITES):

Basic Bibliography:

https://nodejs.org/es/docs/

https://www.mongodb.com/docs/

https://dev.mysql.com/doc/refman/8.0/en/

Recommended Bibliography:

https://devdocs.io/express/

https://mongoosejs.com/docs/

https://decidirv2.api-docs.io/1.0/guia-de-inicio

 https://expressjs.com/en/guide/routing.html

https://kinsta.com/es/blog/nodejs-vs-python/

REQUIRED MATERIALS, SOFTWARE AND TOOLS

Type of classroom
Theory classroom

Board and projection system

Materials:

Personal Computer

Software:

VS Code

Node.js