DEGREE CURRICULUM

WEB PROJECT

Coordination: TORRES MONTIEL, EDUARD

Academic year 2023-24

WEB PROJECT 2023-24

Subject's general information

<table>
<tr><td>Subject name</td><td>WEB PROJECT</td></tr>
<tr><td>Code</td><td>102387</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
<table>
<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's degree in Digital Interaction and Computing Techniques</td><td>3</td><td>COMPULSORY</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><td>PRALAB</td><td>TEORIA</td></tr>
<tr><th>Number of credits</th><td>3</td><td>3</td></tr>
<tr><th>Number of groups</th><td>1</td><td>1</td></tr>
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<tr><td>Coordination</td><td>TORRES MONTIEL, EDUARD</td></tr>
<tr><td>Department</td><td>COMPUTER ENGINEERING AND DIGITAL DESIGN</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>6 ECTS = 25x6 = 150 hours of work
40% -> 60 in-class hours
60% -> 90 autonomous work hours</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Spanish / Catalan</td></tr>
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WEB PROJECT 2023-24

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
TORRES MONTIEL, EDUARD	eduard.torres@udl.cat	6	

Subject's extra information

For any doubt and/or question, you can send an email to the teacher of the subject.

Learning objectives

- Know and apply methodologies and technologies, as well as the evolution of software during development in the field of the Web.
- Apply development principles when creating a Web application, including collaborative development.
- Know the evolution of the Web, from its beginnings, the so-called Web 1.0, to the future trends of Web 3.0.
- Apply REST principles and ROA resource-oriented architectures for highly scalable application development.

Competences

- CT3. Implement new technologies and information and communication technologies.
- CG1. Ability to conceive, plan and develop projects in the field of ICT.
- CG2. Ability to design, develop, evaluate and guarantee the accessibility, ergonomics, usability and security of computer systems.
- CG4. Ability to employ software engineering methods in the development of interactive computer applications.
- CG7. Ability to solve problems with initiative, decision making, autonomy and creativity.
- CE6. Ability to design, develop, select and evaluate computer applications and systems, guaranteeing their reliability, security and quality.
- CE10. Ability to analyze, design, build and maintain interactive digital applications in a robust, safe and efficient way, choosing the most appropriate paradigm and programming languages.
- CE14. Know and apply the necessary tools for storage, processing and access to information systems, including web-based ones.

Subject contents

1. Introduction to web development
    - Web 1.0, 2.0 and 3.0
    - Web applications architecture and patterns
    - HTTP
    - HTML and JavaScript
2. Backend development
    - APIs and REST web services
    - Backend development with Node.js and Express.js
    - SQL database integration
3. Frontend development
    - HTML and CSS
    - Frontend development with React
4. Deployment and advanced concepts
    - Deployment of web services
    - CSS and advanced React

- Introduction to NoSQL databases

Methodology

According to the subject's schedule, each week the student attends 2 hours of Theory and 2 hours of face-to-face laboratory (PRALAB).

The methodology is based on project-based learning, where students develop a web project in groups of up to 3 people previously designed by the teaching staff, where all the concepts studied in the subject are put into practice.

In the Theory sessions, the topics that can be consulted in the contents section are presented, incorporating illustrative examples.

In the practical sessions, the tools and methodologies that the students will have to use to develop their web project are introduced.

The web project will be developed with JavaScript for both the backend and the frontend.

Development plan

Week	Description	Theory Activity	PRALAB Activity	Self-Study
1	Unit 1	Subject presentation. Introduction to web technologies.	JavaScript Tutorial.	JavaScript Exercises
2	Unit 1	Introduction to web technologies.	JavaScript Tutorial.	JavaScript Exercises
3	Unit 2	Backend development.	JavaScript Backend Implementation.	Backend Exercises.
4	Unit 2	Backend development.	JavaScript Backend Implementation.	Backend Exercises.
5	Unit 2	Backend development.	Delivery 1 Presentation	Delivery 1 Development
6	Unit 2	Backend development.	Delivery 1 Development	Delivery 1 Development
7	Unit 2	Backend development.	HOLIDAYS	Delivery 1 Development
-		Easter Week	Easter Week	Delivery 1 Development and Study
8	Unit 3	Frontend development	Delivery 1 and JavaScript Frontend Implementation	Study
9		EXAMS	EXAMS	Study
10	Unit 3	Frontend development	JavaScript Frontend Implementation and Delivery 2 Presentation	Delivery 2 Development
11	Unit 3	Frontend development	HOLIDAYS	Delivery 2 Development
12	Unit 3	HOLIDAYS	Delivery 2 Development	Delivery 2 Development
13	Unit 3	Frontend development	Delivery 2 Development	Delivery 2 Development
14	Unit 4	Deployment	Delivery 2 and Delivery 3 Presentation	Delivery 3 Development and Study

15	Unit 4	Advanced concepts	Delivery 3 Development	Delivery 3 Development and Study
16/17/18		EXAMS	EXAMS	Study
19		TUTORIALS	TUTORIALS and Delivery 3	Delivery 3 Development
20		RECOVERY EXAMS	RECOVERY EXAMS	

Evaluation

Acronym	Evaluation Activity	Weight	Minimum Grade	In Group	Mandatory	Recoverable
P1	1st Partial Exam	17%	-	No	No	No
P2	2nd Partial Exam	17%	-	No	No	No
E1	1st Project Delivery	22%	-	Yes (2-3)	No	No
E2	2nd Project Delivery	22%	-	Yes (2-3)	No	No
E3	3rd Project Delivery	22%	-	Yes (2-3)	No	No

Final Grade = 0.17 * P1 + 0.17 * P2 + 0.22 * E1 + 0.22 * E2 + 0.22 * E3

Evaluation is mainly based on the development of a software project **in groups of up to 3 people** divided into three deliveries:

- 1st Delivery: 22% grade: Backend Development
- 2nd Delivery: 22% grade: Frontend Development
- 3rd Delivery: 22% grade: Advanced Concepts Application and Deployment

Evaluation is complemented by two written tests aimed at assessing the individual knowledge of each student, both theoretical aspects of the subject and the practical section developed with the project.

Each student must pass an in-person validation to confirm their active participation in the web project development.

Alternative Evaluation

Students who have been approved for alternative evaluation (see requirements and procedure in the evaluation regulations) must complete the following activities.

Acronym	Evaluation Activity	Weight	Minimum Grade	In Group	Mandatory	Recoverable
FF	Final Exam	34%	>3	No	Yes	Yes
E1	1st Project Delivery	22%	-	Yes (2-3)	No	No
E2	2nd Project Delivery	22%	-	Yes (2-3)	No	No
E3	3rd Project Delivery	22%	-	Yes (2-3)	No	No

Final Grade = 0,34 * PF + 0,22 * E1 + 0,22 * E2 + 0,22 * E3

Evaluation is mainly based on the development of a software project **individually** divided into three deliveries:

- 1st Delivery: 22% grade: Backend Development
- 2nd Delivery: 22% grade: Frontend Development
- 3rd Delivery: 22% grade: Advanced Concepts Application and Deployment

Evaluation is complemented by a final written test aimed at assessing the individual knowledge of each student, both theoretical aspects of the subject and the practical section developed with the project.

Each student must pass an in-person validation to confirm their active participation in the web project development.

Bibliography

- University of Helsinki. Full Stack Open (https://fullstackopen.com/en/). Accessed in Feb 2024.
- Leonard Richardson, Sam Ruby, David Heinemeier Hansson. RESTful Web Services. O'Reilly. 2007.
- Douglas Crockford. JavaScript: The Good Parts. O'Reilly. 2008.
- David Gourley, Brian Totty, Marjorie Sayer, Sailu Reddy, Anshu Aggarwal. HTTP: the definitive guide. O'Reilly. 2002.
- Mark Massé. Rest API. O'Reilly. 2012.