



Universitat de Lleida

# DEGREE CURRICULUM **WEB PROJECT**

Coordination: GARCIA GONZALEZ, ROBERTO

Academic year 2016-17

Subject's general information

<b>Subject name</b>	WEB PROJECT			
<b>Code</b>	102023			
<b>Semester</b>	2nd Q(SEMESTER) CONTINUED EVALUATION			
<b>Typology</b>	<b>Degree</b>	<b>Course</b>	<b>Typology</b>	<b>Modality</b>
	Double bachelor's degree: Degree in Computer Engineering and Degree in Business Administration and Management	3	COMPULSORY	Attendance-based
	Bachelor's Degree in Computer Engineering	3	COMPULSORY	Attendance-based
<b>ECTS credits</b>	6			
<b>Groups</b>	1GG,2GM			
<b>Theoretical credits</b>	3			
<b>Practical credits</b>	3			
<b>Coordination</b>	GARCIA GONZALEZ, ROBERTO			
<b>Department</b>	INFORMATICA I ENGINYERIA INDUSTRIAL			
<b>Teaching load distribution between lectures and independent student work</b>	Total load: 150h - Lectures (40%) = 60h - Independent student work (60%) = 90h			
<b>Important information on data processing</b>	Consult <a href="#">this link</a> for more information.			
<b>Language</b>	Catalan			
<b>Distribution of credits</b>	Carles Mateu Piñol (3) Roberto García González (6)			
<b>Office and hour of attention</b>	To be agreed with the corresponding professor by e-mail			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
GARCIA GONZALEZ, ROBERTO	roberto.garcia@udl.cat	6	EPS-3.15, please schedule your meeting by e-mail
MATEU PIÑOL, CARLOS	carlesm@diei.udl.cat	3	

## Subject's extra information

To properly follow this subject, it is recommended to have consolidated the programming and databases skills taught in the previous Programming I and II, Data Structures and Databases courses, as well as the skills related to communication protocols presented on the Networks course.

## Learning objectives

- Understand and apply the principles, methodologies and life cycles of software engineering on the Web.
- Apply the principles of development for the creation of a Web application, including the collaborative development and shared code repositories.
- Understand the principles of the Web, from the Web 1.0 through 2.0 and future trends of Web 3.0.
- Apply the principles of the Web to the development of highly scalable applications following REST principles and resources oriented architectures ROA.
- Develop REST Web applications using Python and Django.
- Adapt the Web application developed to Web 2.0 principles and then incorporate aspects of Web 3.0.

## Competences

### Cross-disciplinary Competences

**EPS7.** Capacity to work in situations with a lack of information and/or under pressure.

### Specific Competences

**GII-CRI11.** Knowledge and application of the characteristics, functionalities and structure of the Distributed Systems, the Networks of Computers and Internet and design and implement applications based in them.

**GII-CRI14.** Knowledge and application of the basic principles and basic techniques of the parallel, concurrent, distributed and of real time programming.

**GII-CRI16.** Knowledge and application of the principles, methodologies and life cycle of the software engineering.

## Subject contents

1. **Origins, Web 1.0** (Carles Mateu)
  - Core technologies of the Web 1.0
    - HTML, CSS, XML, JSON.
    - HTTP
  - Architecture and Patterns for Web 1.0 Applications

- Client / Server, ...
  - Web 1.0 Application Development
    - Basic client development
    - Basic server development (Django)
- 2. **Success, Web 2.0** (Roberto García)
  - Core technologies of Web 2.0
    - Javascript, XMLHttpRequest, ...
  - Architecture and Patterns for Web 2.0 applications
    - REST Web services, APIs ...
  - Web 2.0 Application Development
- 3. **Future, Web 3.0 and Semantic Web** (Roberto García)
  - Core technologies of the Semantic Web
    - RDF, OWL, ...
  - Architecture and Patterns for Web 3.0 applications
    - Linked Data, ...
  - Web 3.0 Application Development

## Methodology

The methodology is based on **Project Based Learning** and a Web application is developed using one of the most appropriate frameworks from the educational point of view, Python and Django. It begins by introducing the basics of the Web, called Web 1.0, which students then apply to the lab to develop a Web application. It then continues with the concepts of Web 2.0 and Web 3.0, that students apply iterative and incrementally to develop their project during the course.

Students define their own project, under professors guidance for an homogeneous difficulty, and develop it in **groups of 3 or 4 people**.

## Development plan

Week	Description	Big Group Face-to-Face Activities	Small Group Face-to-Face Activities	Student Autonomous Activities
1	Web 1.0	Subject presentation Core technologies of the Web 1.0	Python tools configuration for project	Skills consolidation and application to project
2	Web 1.0	Core technologies of the Web 1.0	Python tools configuration for project	Skills consolidation and application to project
3	Web 1.0	Core technologies of the Web 1.0	HTTP client tools	Skills consolidation and application to project Deliverable 0 (non qualifiable)
4	Web 1.0	Architecture and Patterns for Web 1.0 Applications	HTTP client tools	Skills consolidation and application to project
5	Web 1.0	Architecture and Patterns for Web 1.0 Applications	Django Web 1.0 Tutorial	Skills consolidation and application to project
6	Web 1.0	Architecture and Patterns for Web 1.0 Applications	Django Web 1.0 Tutorial	Skills consolidation and application to project
7	Web 2.0	Web 2.0 Introduction	Django Web 2.0 Tutorial	Skills consolidation and application to project
8	Web 2.0	Web 2.0 Introduction	Django Web 2.0 Tutorial	Skills consolidation and application to project Deliverable 1
9		1st Midterm Exam		Study

Week	Description	Big Group Face-to-Face Activities	Small Group Face-to-Face Activities	Student Autonomous Activities
10		HOLIDAY	HOLIDAY	
11	Web 2.0	HOLIDAY	Django Web 2.0 Tutorial	Skills consolidation and application to project
2	Web 2.0	AJAX	Django Web 2.0 JQuery Autocomplete Tutorial	Skills consolidation and application to project
13	Web 2.0	HOLIDAY	Django Web 2.0 JQuery Autocomplete Tutorial	Skills consolidation and application to project
14	Web 2.0	Resource Oriented Architecture	Django Web 2.0 RESTful API Tutorial	Skills consolidation and application to project
15	Web 2.0	Resource Oriented Architecture	Django Web 2.0 RESTful API Tutorial	Skills consolidation and application to project Deliverable 2
16	Web 3.0	Web 3.0 Introduction	Django Web 3.0 RDFa Tutorial	Skills consolidation and application to project
17-18		2nd Midterm Exam		Study Deliverable 3

## Evaluation

Ac.	Evaluation Activity	Rate	Minimum Qualification	Group Activity	Mandatory	Remedia Exam
P1	1st Midterm Exam	17%	NO	NO	YES	NO
P2	2nd Midterm Exam	17%	NO	NO	YES	NO
E1	1st Project Deliverable	22%	NO	3 o 4	YES	NO
E2	2ª Project Deliverable	22%	NO	3 o 4	YES	NO
E3	3ª Project Deliverable	22%	NO	3 o 4	YES	NO
Final Qualification = $0,17 \cdot P1 + 0,17 \cdot P2 + 0,22 \cdot E1 + 0,22 \cdot E2 + 0,22 \cdot E3$						

The evaluation is fundamentally based on the development of a project in a **group of 3 or 4 people**, chosen by the students under the professor guidance, with two intermediate deliverables and a final one:

- 1st Deliverable: 22% grade  
Basic Web application using Web 1.0.
- 2nd Deliverable: 22% grade  
Modern Web application following Web 2.0 principles.
- 3rd Deliverable: 22% grade  
Advanced Web application including Web 3.0 technologies.

The evaluation is complemented with two exams:

- 1<sup>st</sup> Midterm exam: 17% grade, individual evaluation. Validate knowledge about Web 1.0.
- 2<sup>nd</sup> Midterm exam: 17% grade, individual evaluation. Validate knowledge about Web 2.0, Web 3.0 and project development.

## Bibliography

- Martelli, Alex (2003). Python : guía de referencia. Madrid : Anaya Multimedia. ISBN 9788441523173.

- Martelli, Alex (2006). Python in a nutshell (2<sup>nd</sup> ed.). Sebastopol : O'Reilly. ISBN 0596100469.
- Richardson, Leonard (2007). RESTful Web Services. Newton, Massachusetts: O'Reilly. ISBN 9780596529260
- Bennett, James (2009). Practical Django projects (2nd ed.). New York, NY: Apress. ISBN 9781430219392.
  - Electronic version: [https://cataleg.udl.cat/record=b1304148~S11\\*cat](https://cataleg.udl.cat/record=b1304148~S11*cat)
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