BASIC DETAILS:

Subject:	DISEÑO Y DESARROLLO DE JUEGOS WEB		
Id.:	31371		
Programme:	GRADUADO EN DISEÑO Y DESARROLLO DE VIDEOJUEGOS. 2013 (BOE 28/03/2014)		
Module:	DISEÑO DE VIDEOJUEGOS		
Subject type:	OBLIGATORIA		
Year:	3	**Teaching period:**	Primer Cuatrimestre
Credits:	6	**Total hours:**	150
Classroom activities:	64	**Individual study:**	86
Main teaching language:	Inglés	**Secondary teaching language:**	Inglés
Lecturer:	FONT BURDEUS, JAIME IGNACIO (T)	**Email:**	jfont@usj.es

PRESENTATION:

This course will provide the student with the competences needed to design and develop web games and interactive applications. Web browsers are becoming ubiquitous and can be found in almost any device, from an old-fashioned computer to a modern fridge. That is, when creating web games, the target public that can be reached is huge and it shouldn't be neglected. Web platfroms are not the most powerful setups for videogames but it has proven to be effective and is being used daily by millions of players.

The course will start reviewing the history of the internet and the web, focusing on the different standards and protocols arised that are still in use nowadays. Then, the course will cover the three basic languages used to build webs (HTML CSS and JavaScript). These three languages will lay the foundations for the creation of the first web games, students will learn how to build a web game from scratch, leveraging the functionality of HTML, CSS and JS. Then, the Canvas will be presented, the media provided in HTML5 to build interactive applications and games.

Finally, a game engine based on JS will be presented. In addition, several tools tipically associated to web games will be presented, so the students are aware of the universe of resources available when creating a web game and become capable of selecting the best suited one for each task.

The workload of the course can be classified as:

Coding: 9/ 10

Theory: 5/ 10

Arts: 3/ 10

PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

General programme competences	G01	Ability to use learning strategies independently for use in the continuous improvement of professional practice.
	G02	Ability to analyse and synthesise problems of their professional activity and apply in similar environments.
	G03	Ability to achieve common results through teamwork in a context of integration, cooperation and encouraging critical discussion.
	G05	Ability to communicate in Spanish and English for professional issues in oral and written form.
	G10	Ability to master information and communication technologies and their application in their professional field.
Specific programme competences	E08	Ability to learn and master the features, functionality and structure of the Distributed Systems, Computer Networks and the Internet and design and implement applications based on them.
	E09	Ability to learn and master the tools necessary for the storage, processing and access to information systems, including web-based.
	E16	Ability to fully manage and plan software projects and handle suitable tools to do so.
	E18	Ability to understand and apply the principles of ergonomy and
	E30	Ability to design, develop, select and evaluate applications and systems, ensuring reliability,

		safety and quality, according to ethical principles and legislation and regulations.
Learning outcomes	R01	Design and develop games and interactive web applications and in web environments and the corresponding documentation.
	R02	Design web games to ensure the principles of universal accessibility
	R03	Evaluate the main characteristics of games and interactive web applications in web environments
	R04	Be familiar with technical characteristics of current technologies to develop games for the web
	R05	Communicate in a professional manner correctly.
	R06	Be able to select the right tools for each specific project.

PRE-REQUISITES:

There are no formal pre-requisites, but previous knowledge on game development, web development and programming skills will be useful.

SUBJECT PROGRAMME:

Subject contents:

1 - WEB foundations
1.1 - Origins and Standards of the Web
1.2 - HTTP and client-server architecture
1.3 - HTML
1.4 - CSS
1.5 - Hello JS
1.6 - Objects in JS
1.7 - Functions in JS
1.8 - DOM tree
1.9 - Individual Assignment I - DOM-Based Game
2 - Advanced Games for the Web
2.1 - OOP with JS
2.2 - Hello Canvas
2.3 - Advanced Canvas and Drawing API
2.4 - Individual Assignment II - Canvas-Based Game
2.5 - Hello Phaser
2.6 - Group Assignment - Phaser-Based Game

Subject planning could be modified due unforeseen circumstances (group performance, availability of resources, changes to academic calendar etc.) and should not, therefore, be considered to be definitive.

TEACHING AND LEARNING METHODOLOGIES AND ACTIVITIES:

Teaching and learning methodologies and activities applied:

Theoretical-practical sessions:

First, the lecturer will present the theoretical contents of the subject as a master class, supported by the necessary resources (blackboard, slides, and live demos ...) to exemplify and illustrate the contents properly. The participation of students asking questions, theoretical situations or promoting group discussion on the topics discussed will be encouraged.

Then, the theoretical sessions will be supported by the approach and resolution of practical exercises. These exercises will be solved by the students, individually or collectively, depending on the type of problem to solve. As part of this practical session, students will present their proposed solutions.

Participation:

Participation of the students will be required during the theoretical-practical sessions. The participation will be assessed and taken into account for the final marks. In addition, each unit will include some exercises that students should

complete for their individual portfolios. The solution of the exercises will be shown and explained by the students, computing for the final grade.

Individual assignments:

Part of the learning and the grade acquired through the course comes from the resolution of the two individual assignments proposed along the course. Those assignments must be delivered through the PDU within the deadline.

In order to solve the assignments, students will receive some technical guidance. In addition, a communication mechanism will be provided (PDU) to discuss and comment on the different problems that arise during the resolution of the assignments.

The development of these individual assignments prepares the student to acquire the professional competences of this course.

Group assignments:

In addition to the individual assignments, students will develop a group assignment that will put in practice all the topics covered by the course. This assignment will be followed by the teacher before the final presentation, to ensure the quality and guide the students when needed.

As with the individual assignments, there will be technical guidance and a communication mechanism to discuss about the assignments.

Presentation of the assignments:

An important part of the learning process for the student is the presentation of their assignments to the rest of the students. During these presentations, students will have the opportunity to highlight the most positive aspects of their work, present the solutions to address the issues and even discuss other ways of solving the problems explored by the student.

Mentoring:

Students will attend tutorials to ask the teacher questions and problems that arise during the course and that have not been properly addressed during the sessions. Also during these tutorials, the teacher will provide supervision and guidance to help students acquire the skills raised by the course.

As during tutorials with the teacher, students can use the media available on the PDU to raise concerns or judgments about the course at any time, to receive help and feedback from other students and from the teacher.

The tutorials will be held on Mondays from 16:00 to 18:00. If unable to attend tutoring during these times, they may be arranged at convenient times tutoring for students and the teacher.

Student work load:

Teaching mode	Teaching methods	Estimated hours
Classroom activities	Master classes	20
	Practical exercises	13
	Practical work, exercises, problem-solving etc.	6
	Coursework presentations	2
	Laboratory practice	14
	Other practical activities	3
	Assessment activities	6
Individual study	Tutorials	3
	Individual study	18
	Individual coursework preparation	20
	Group cousework preparation	10
	Project work	30
	Research work	5
	Total hours:	150

ASSESSMENT SCHEME:

Calculation of final mark:

Written tests:	25	%
Individual coursework:	30	%
Group coursework:	20	%
Final exam:	15	%
Participation:	10	%
TOTAL	100	%

*Las observaciones específicas sobre el sistema de evaluación serán comunicadas por escrito a los alumnos al inicio de la materia.

BIBLIOGRAPHY AND DOCUMENTATION:

Basic bibliography:

CASTRO, Elizabeth. HTML, XHTML y CSS. Madrid: Anayet, 2007.
MEYER, Eric. CSS : the definitive guide. Cambridge: O\'Reilly, 2006.
GOODMAN, Danny. JavaScript y DHTML. Madrid: Anaya Multimedia, 2008.
MAKZAN, HTML5 Game Development by Example: Beginner's Guide. Birmingham: Packt publishing, 2011.
VAN DER SPUY, Rex, Foundation game design with HTML5 and JavaScript. Apress, 2012.

Recommended bibliography:

Recommended websites:

W3schools	http://www.w3schools.com/