

## BASIC DETAILS:

<b>Subject:</b>	REDES Y SISTEMAS MULTIJUGADOR		
<b>Id.:</b>	31375		
<b>Programme:</b>	GRADUADO EN DISEÑO Y DESARROLLO DE VIDEOJUEGOS. 2013 (BOE 28/03/2014)		
<b>Module:</b>	PROGRAMACIÓN DE VIDEOJUEGOS		
<b>Subject type:</b>	OBLIGATORIA		
<b>Year:</b>	3	<b>Teaching period:</b>	Segundo Cuatrimestre
<b>Credits:</b>	6	<b>Total hours:</b>	150
<b>Classroom activities:</b>	64	<b>Individual study:</b>	86
<b>Main teaching language:</b>	Inglés	<b>Secondary teaching language:</b>	Inglés
<b>Lecturer:</b>	PERALES TEJERO, NESTOR (T)	<b>Email:</b>	nperales@usj.es

## PRESENTATION:

This course presents an overview of the major concepts necessary to program a networked multiplayer game. The program starts by covering the basics of networking—how the Internet works and how to send data to other computers. Networks and their protocols are analyzed using the TCP/ IP architecture as a reference, and the basics of wireless networks and security are presented. Once the fundamentals are established, the course takes a practical approach and discusses how to add multiplayer and networking support to a game. The course ends with a practical part in which students work in teams to create a networked multiplayer game.

Notice: Due to classes imparted by the teacher of this subject in the CPA Salduie, immediately after monday sessions, these monday sessions will finish some minutes before scheduled hours. These minutes left will be recovered with out of the schedule preparatory classes for the exams.

## PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

<b>General programme competences</b>	G03	Ability to achieve common results through teamwork in a context of integration, cooperation and encouraging critical discussion.
	G07	Ability to handle different complex knowledge models through a process of abstraction and its application to approach and solve problems.
	G10	Ability to master information and communication technologies and their application in their professional field.
<b>Specific programme competences</b>	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.
	E11	Ability to develop online games for multiple players.
<b>Learning outcomes</b>	R01	Explain the TCP/ IP architecture.
	R02	Describe the fundamentals in computer networks.
	R03	Describe the basic operation of wireless networks.

## PRE-REQUISITES:

This course will be delivered in English. Academic reading and writing skills are expected from students.

## SUBJECT PROGRAMME:

### Subject contents:

<b>1 - Networking basics</b>
1.1 - Computer networks and the Internet
1.2 - Application layer
1.3 - Transport layer

1.4 - Network layer
1.5 - Link layer
1.6 - Wireless and mobile networks
1.7 - Security
<b>2 - Multiplayer systems</b>
2.1 - Specific networking issues for games
2.2 - Game servers
2.3 - Multiplayer game design and programming

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:

During this course a variety of teaching methods will be used including lectures, exercises and laboratory sessions, and group work. One of the main requirements of this course is to complete a group work project and to present it to the class. Another important requirement is to participate actively in class and to contribute to discussion about the topics being analyzed.

#### Student work load:

Teaching mode	Teaching methods	Estimated hours
<b>Classroom activities</b>	Master classes	36
	Practical work, exercises, problem-solving etc.	14
	Laboratory practice	11
	Assessment activities	3
<b>Individual study</b>	Tutorials	4
	Individual study	31
	Individual coursework preparation	15
	Group coursework preparation	26
	Research work	2
	Compulsory reading	8
<b>Total hours:</b>		<b>150</b>

### ASSESSMENT SCHEME:

#### Calculation of final mark:

Written tests:	30	%
Individual coursework:	20	%
Group coursework:	25	%
Final exam:	20	%
Attendance and participation:	5	%
<b>TOTAL</b>	<b>100</b>	<b>%</b>

\*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:

KUROSE, JF and ROSS, KW. Computer networking. A Top-down approach (6º Ed.). Pearson, 2012.

**Recommended bibliography:**

GLAZE, Joshua and MADHAV, Sanjay. Multiplayer game programming: architecting networked games. Addison-Wesley, 2016.

**Recommended websites:**

CISCO [www.cisco.com](http://www.cisco.com)