

## BASIC DETAILS:

<b>Subject:</b>	REDES Y COMUNICACIONES II		
<b>Id.:</b>	30070		
<b>Programme:</b>	GRADUADO EN INGENIERÍA INFORMÁTICA. PLAN 2008 (BOE 15/12/2008)		
<b>Module:</b>	COMUNICACIONES		
<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>	65	<b>Individual study:</b>	85
<b>Main teaching language:</b>	Inglés	<b>Secondary teaching language:</b>	Castellano
<b>Lecturer:</b>	LAPEÑA MARTI, RAUL (T) P E R E Z F A N T O V A , ALFREDO	<b>Email:</b>	rlapena@usj.es aperez@usj.es

## PRESENTATION:

The course *Networks and Communications II* presents a complete overview of the upper layers of the TCP/ IP stack. This subject is a continuation of *Networking and Communications I*. Through this course, the students learn the main Internet protocols in the application layer (presentation and application considering the OSI standard).

## PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

<b>General programme competences</b>	G02	Innovative capacity to propose and find new and efficient ways to undertake any task and/ or function within the professional environment - highly motivated by quality.
	G04	Capacity to always commit to working responsibly - creating a strong sense of duty and fulfilment of obligations.
	G13	Capacity to use individual learning strategies aimed at continuous improvement in professional life and to begin further studies independently.
<b>Specific programme competences</b>	E10	Capacity to understand and assess the impact of technology on individuals, organisations, society and the environment, including ethical, legal and political factors, recognising and applying the pertinent standards and regulations. s éticos, legales y políticos, reconociendo y aplicando los estándares y regulaciones oportunos
	E13	Capacity to identify, assess and use current and emerging technologies, considering how they apply in terms of individual or organisational needs.
	E18	Capacity to identify and define the requirements to be satisfied by IT systems to cover the stated needs of organisations or individuals.
<b>Learning outcomes</b>	R01	Assimilate, comprehend and manage protocols.
	R02	Comprehend and use complex architecture and systems.
	R03	Master the programming linked to this discipline.
	R04	Work methodically.
	R05	Interact in English in a work situation.
	R06	Work productively in a team.
	R07	Comprehend and produce technical documents in English.

## PRE-REQUISITES:

It is recommended to have attended or have knowledge of:

- *Networking and Communications I* or, failing that, TCP/ IP and the OSI model.
- *Object Oriented Programming II*, or failing that, extensive knowledge of Java.
- Wireshark.

## SUBJECT PROGRAMME:

### Subject contents:

#### 1 - Application Protocols

1.1 - Telnet
1.2 - Hyper-Text Transfer Protocol (HTTP)
1.3 - Domain Name System (DNS)
1.4 - Simple Mail Transfer Protocol (SMTP)
1.5 - File Transfer Protocol (FTP)
<b>2 - Presentation Protocols</b>
2.1 - Multipurpose Internet Mail Extensions (MIME)
2.2 - Secure Sockets Layer (SSL) and Transport Layer Security (TLS)
<b>3 - Audio and video streaming in TCP/IP networks</b>
3.1 - IP and IPv6
3.2 - Real-time Transport Protocol
3.3 - Voice over IP (VoIP)
3.4 - IPTV

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:

**Theory Sessions:** Lectures will be used to explain the basis of the different chapters. When possible, explanations will be accompanied by images, text or sound to be used as practical examples and discussion topics. During the sessions, the lecturer will propose activities or ask for information out of the students and he will resolve doubts.

**Practical Sessions:** There are individual labs and a practice in groups. For this practice, students will be grouped into groups of up to 5 students. Practical work will be the goal of the whole group, but students will be evaluated individually according to the learning outcomes. During practice, students will use a problem-based learning methodological strategy.

The students will have the slides of all the chapters of the course. They should be able to expand it with the content explained in class and other bibliographic resources. The lecturer will be available to students during the tutorial schedule to help them in all matters concerning the course. On request, group tutorials may be programmed to control the work of the group. The course requires a significant effort by the student. The concepts explained in one chapter will be used in the following.

### Student work load:

Teaching mode	Teaching methods	Estimated hours
<b>Classroom activities</b>	Master classes	28
	Other theory activities	2
	Practical exercises	6
	Coursework presentations	2
	Laboratory practice	22
	Assessment activities	5
<b>Individual study</b>	Tutorials	6
	Individual study	26
	Individual coursework preparation	18
	Group coursework preparation	30
	Research work	5
<b>Total hours:</b>		<b>150</b>

## ASSESSMENT SCHEME:

### Calculation of final mark:

Written tests:	45 %
Individual coursework:	30 %
Group coursework:	20 %

Participation:	5 %
<b>TOTAL</b>	<b>100 %</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:**

James F. Kurose, Keith W. Ross. Addison Wesley. Computer networking. A Top-down approach Featuring the Internet. Addison-Wesley. eText: ISBN-10 0-13-608084-7, ISBN-13 978-0-13-608084-8; Print: ISBN-10 0-13-607967-9, ISBN-13 978-0-13-607967-5

W. Richard Stevens. TCP/ IP Illustrated, Volume 1. The protocols, Addison-Wesley, 1994, ISBN 0-201-63346-9

TANENBAUM, Andrew S. Computer Networks. Fourth Edition. Pearson Education International, 2003

### **Recommended bibliography:**

Comer. Internetworking with TCP/ IP Volume 1. ISBN: 0131876716- Daniel Collins. Carrier Grade VOICE OVER IP. MsGraw Hill. ISBN: 9780071406345

Mark Miller. Voice Over IP: Strategies for the Converged Network (with CD-ROM)

Daniel Collins. Carrier Grade VOICE OVER IP. MsGraw Hill. ISBN: 9780071406345

STALLINGS, William. Data and Computer Communications. 8th Edition. Pearson Prentice Hall, 2007.

### **Recommended websites:**

CISCO	<a href="http://www.cisco.com">www.cisco.com</a>
Request for Comments	<a href="http://www.rfc-es.org">www.rfc-es.org</a>
Microsoft	<a href="http://www.microsoft.com">www.microsoft.com</a>