

BASIC DETAILS:

Subject:	REDES Y COMUNICACIONES I		
Id.:	30065		
Programme:	GRADUADO EN INGENIERÍA INFORMÁTICA. PLAN 2008 (BOE 15/12/2008)		
Module:	COMUNICACIONES		
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:	Castellano
Lecturer:	LAPEÑA MARTI, RAUL (T)	Email:	rlapena@usj.es

PRESENTATION:

The course *Networks and Communications I* presents a complete overview of the layer organization in communication networks. Networks and their protocols are analyzed using the OSI model as a reference. The OSI model has been used for many years as a standard model to compare different organizations in layers of networks.

During this course, students will learn the functionalities assigned to each of the OSI layers and they will learn their behavior by studying how the main protocols work.

In the practical sessions, students will simulate the behaviour of each of the OSI stack layers.

PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

General programme competences	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.
Specific programme competences	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.
Learning outcomes	R01	Assimilate, comprehend and manage protocols.
	R02	Comprehend and use complex architectures 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 *Fundamentals of Networks and Communications* and *Object Oriented Programming II*. Failing that, extensive knowledge of the Java language will be required.

SUBJECT PROGRAMME:

Subject contents:

1 - Basic Concepts and Terminology
1.1 - Basic terminology in Computer Networks
1.2 - Digital bandwidth
1.3 - Communications hardware

1.4 - The OSI Model
1.5 - Local Area Networks
2 - The OSI Stack
2.1 - Physical Layer
2.2 - Data Link Layer
2.3 - Network Layer
2.4 - Transport Layer
2.5 - Session Layer
2.6 - Presentation Layer
2.7 - Application Layer

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 also propose activities and resolve doubts. The students will have access to the slides of all the chapters of the course, which they should be able to expand with the contents explained in class and through other bibliographic resources. Along with the notes, the lecturer will provide the exercises and group practices that that students must complete in order to follow and pass the subject.

Practical sessions: Students will be grouped into groups of up to four students. Practical work will be the goal and responsibility of the whole group. During the resolution of the group practices, students will use the problem-based learning methodological strategy.

Tuition sessions: There will be a weekly 2 hour slot assigned for individual and group tuitions. The schedule of the tuition sessions will be agreed with the students upon the beginning of the course. The lecturer will be available for the students during the defined schedule to solve doubts in all the matters concerning the course.

Student work load:

Teaching mode	Teaching methods	Estimated hours
Classroom activities	Master classes	22
	Practical exercises	8
	Practical work, exercises, problem-solving etc.	8
	Debates	2
	Laboratory practice	20
	Assessment activities	4
Individual study	Tutorials	5
	Individual study	27
	Individual coursework preparation	21
	Group coursework preparation	28
	Research work	5
Total hours:		150

ASSESSMENT SCHEME:

Calculation of final mark:

Written tests:	50 %
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Individual coursework:	20 %
Group coursework:	30 %
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:

- STALLINGS, William. Data and Copmputer Communications. Pearson. 2007. 8th Edition

Recommended bibliography:

- COMER, Douglas. Internetworking with TCP/ IP Volume 1. ISBN: 0131876716
- STEVENS, W. Richard. TCP/ IP Illustrated, Volume 1.
- TANENBAUM, Andrew S. Computer Networks. 4th Edition. Pearson Education International
- LAMMLE, Todd. CCNA: Cisco Certified Network Associate - Study Guide. Wiley Publishing Inc., 6th Edition (2007).

Recommended websites:

CISCO	www.cisco.com
Request For Comments	www.rfc-es.org