

## SUBJECT TEACHING GUIDE

M1608 - Network architectures for integration services

Master's Degree in Telecommunication Engineering

Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Master's Degree in Telecommunication Engineering			Type and Year	Compulsory. Year 1
Faculty	School of Industrial Engineering and Telecommunications				
Discipline					
Course unit title and code	M1608 - Network architectures for integration services				
Number of ECTS credits allocated	5	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIA DE COMUNICACIONES				
Name of lecturer	ALBERTO ELOY GARCIA GUTIERREZ				
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Other lecturers	JORGE LANZA CALDERON				

3.1 LEARNING OUTCOMES
- The student identifies and interprets the structure and functioning of protocol architectures aimed at integration of telecommunications services
- The student will have the ability to analyze complex network structures with control plane and differentiated data , identifying the constituent elements
- The student will have a clear view of the trend of evolution of the current scenario of operators and services

#### 4. OBJECTIVES

To know and understand the natural evolution of communications networks from individual services environments to the current environment of integrated services

To study the concept of integration of services and corresponding technological solutions

To study and analyze the most commonly used network architectures for network integration services

#### 6. COURSE ORGANIZATION

##### CONTENTS

1	Chapter 1: Concepts: Integration of Services. Networks of transport, contribution, distribution and diffusion, both wired and wireless, for multimedia signals. Broadband networks and advanced services, Integration, convergence and interoperability between telecommunications operators and between telephone, data, television and interactive services. Fixed-Mobile Convergence. Convergence of services.
2	Chapter 2: Network Architectures for Integration: VPN Networks. Multimedia services: protocols. Quality of service. Intelligent Networks, SS7, CAMEL, Multimedia IP Subsystem (IMS).
3	Chapter 3: Service Oriented Architectures: SOA. Multicast services. Distribution of Television-IP (IP-TV). Analysis of case studies of integration of technologies in communications networks
4	Team work

## 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Continuous Assessment	Activity evaluation with Virtual Media	Yes	Yes	60,00
Laboratory Assesment	Activity evaluation with Virtual Media	Yes	Yes	40,00
TOTAL				100,00

### Observations

The final grade for the course is obtained by applying the following formula, in which EC is the grade for Continuous Assessment and PRAC is the grade for Laboratory Assessment:

$$\text{NOTE} = \text{EC} * 0.6 + \text{PRAC} * 0.4$$

EC is calculated from the individualized evaluation of each theoretical block (ec1, ec2, ..., ecn), using the following expression, as long as all the values are at least equal to 4.0:

$$\text{EC} = (\text{ec1} + \text{ec2} + \dots + \text{ecn}) / n$$

Each of the evaluations of each block less than 4.0 can be retrieved on the dates assigned for the final exams of the subject.

In any case EC and PRAC must be greater than or equal to 4.0. Otherwise the final grade will be calculated as follows:

$$\text{NOTE} = \text{minimum} \{ \text{EC}, \text{PRAC} \}$$

The remote evaluation of the works, laboratory practical exercises and written tests is foreseen in the event that a new health alert by COVID-19 makes it impossible to carry out the evaluation in person.

### Observations for part-time students

The carrying out of the Laboratories and the exercises corresponding to the Continuous Assessment are mandatory, so it is recommended that at the beginning of the semester the teachers be indicated the intention to carry them out and the probable availability for their performance.

In the event that the student is unable to complete the Continuous Assessment and / or the Laboratory Assessment, they may opt for their recovery under the same conditions as the rest of the students.

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

Gonzalo Camarillo, Miguel-Angel García-Martín: "The 3G IP Multimedia Subsystem (IMS): Merging the Internet and the Cellular Worlds", Wiley, Ocurrencias 2008 | ISBN-10: 0470516623

Uyless Black: "ISDN & SS7 : architectures for digital signaling networks". Editorial: Upper Saddle River, New Jersey : Prentice Hall, cop. 1997. ISBN 0-13-259193-6

Rogier Noldus: "Camel : intelligent networks for the GSM, GPSR and UMTS network", John Wiley & Sons, cop. 2006. ISBN: 0-470-01694-9