

SUBJECT TEACHING GUIDE

G1494 - Smart Services in Networks

Degree in Telecommunication Technologies Engineering

Academic year 2023-2024

1. IDENTIFYING DATA						
Degree	Degree in Telecommunication Technologies Engineering			Type and Year	Optional. Year 4	
Faculty	School of Industrial Engineering and Telecommunications					
Discipline	Speciality Optional Subjects					
Course unit title and code	G1494 - Smart Services in Networks					
Number of ECTS credits allocated	6	Term		Semester based (2)		
Web	http://www.tlmat.unican.es					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery		Face-to-face

Department	DPTO. INGENIERIA DE COMUNICACIONES
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Other lecturers	LUIS FRANCISCO DIEZ FERNANDEZ

3.1 LEARNING OUTCOMES
- The student recognizes and interprets the structure and operation of intelligent services and networks
- The student will be able to decide, design and develop an environment of provision of intelligent services based on specific assumptions and problems
- The student will be able to identify and describe the intelligent service delivery environments.

4. OBJECTIVES

Expand and apply the knowledge acquired in the subject of third year "Network Interconnection Protocols", deepening knowledge of the control plane of different communication networks.

To know and develop the concept of intelligence, applied to the environment of the communication networks, seen from the points of view of control, management and security of the supported services.

To know and develop the concept of orchestration of services, according to the distributed computing model.

6. COURSE ORGANIZATION

CONTENTS	
1	Chapter 1: Intelligent Networks Functional and operational architecture. Intelligent network model. Smart service model. Examples of application of smart grids.
2	Chapter 2: Services Orchestration. Service model / distributed computing. Virtualization of services. Cloud service model. Orchestration of Infrastructures. Platforms Orchestration. Orchestration of Applications.
3	Chapter 3: Identity and Access Management Control of access to networks / services. Identity control. Management of identity and access in intelligent networks. Mechanisms for the management of identity and access.
4	Chapter 4: Virtualization Virtualization concept. Virtualization mechanisms. Management of virtualization environments. Application of security mechanisms in virtualized environments.
5	Chapter 5: Virtualization of Networks and Services Virtual networks, Software Defined Networks (SDN). Network Functions Virtualization (NFV)

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Laboratory Evaluation	Activity evaluation with Virtual Media	Yes	Yes	50,00
Continuous assessment	Activity evaluation with Virtual Media	Yes	Yes	30,00
Final Exam	Activity evaluation with Virtual Media	Yes	Yes	20,00
TOTAL				100,00
Observations				
<p>In any case, both in the Continuous Assessment (EC) and in the Laboratory Assessment (PRAC), it will be mandatory to obtain a grade greater than or equal to 4.0, otherwise the FINAL NOTE (NOTE) will be equal to: NOTE = minimum (EC, PRAC)</p> <p>In the rest of the cases, the FINAL NOTE (NOTE) of the subject is obtained by applying the following formula: $\text{NOTE} = 0.3 * \text{EC} + 0.5 * \text{PRAC} + 0.2 * \text{EXAM}$ in which EXAM corresponds to the note of the Final Exam</p> <p>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.</p>				
Observations for part-time students				
<p>The completion of the Laboratories and the exercises corresponding to the Continuous Assessment are obligatory , so it is recommended that at the beginning of the semester the teachers should be informed of the intention to carry them out and the probable availability</p> <p>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.</p>				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC
Ambrosch WD, Maher A, Sasscer B, Siemens AG, Bell Atlantic, IBM. The intelligent network: a joint study. Berlin. Springer; 1989.
Sosinsky B. Cloud computing bible. Indianapolis, Indiana. Wiley; 2011.
Black U. ISDN & SS7: architectures for digital signaling networks. Upper Saddle River, New Jersey: Prentice Hall; 1997