

SUBJECT TEACHING GUIDE

G1494 - Smart Services in Networks

Degree in Telecommunication Technologies Engineering

Academic year 2019-2020

| 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.tmat.unican.es | | | | |
| Language of instruction | Spanish | English Friendly | Yes | Mode of delivery | Face-to-face |

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| Department | DPTO. INGENIERIA DE COMUNICACIONES | | | | |
| Name of lecturer | ALBERTO ELOY GARCIA GUTIERREZ | | | | |
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| Other lecturers | | | | | |

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

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| 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: Risk Management. Intelligence and security. Map of risks in Intelligent Networks. Regulation. |
| 4 | Chapter 4: 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. |
| 5 | Chapter 5: Virtualization of Networks and Services Virtualization concept. Virtualization mechanisms. Management of virtualization environments. Application of security mechanisms in virtualized environments. |
| 6 | Chapter 6: Smart Terminals Concept of virtual terminal. Mobile devices. Devices for the Internet of Things. Risks and vulnerabilities of device virtualization. |

7. ASSESSMENT METHODS AND CRITERIA

| Description | Type | Final Eval. | Reassessn | % |
|--|-----------------------|-------------|-----------|---------------|
| Laboratory Evaluation | Laboratory evaluation | No | Yes | 30,00 |
| Continuous assessment | Written exam | No | Yes | 20,00 |
| Team Work | Work | No | No | 20,00 |
| Final Exam | Written exam | Yes | Yes | 30,00 |
| TOTAL | | | | 100,00 |
| Observations | | | | |
| <p>The performance of the practices is mandatory. The final grade of the subject is obtained by applying the following formula, where TEOR is the grade of theory and PRAC of practice $NOTE = TYPE * 0.5 + PRAC * 0.5$ The theoretical grade TEOR will be calculated from the grades of the Work in Group (TG) and the Final Exam (EF). In any case, it will be necessary to have completed the TG and obtain at least 4.0 in the final exam: $TEQ = TG * 0.4 + EF * 0.6$ The PRAC practice note will be calculated from the Laboratory Assessment (LAB) and Continuous Assessment (EC) grades, only if both grades (both LAB and EC) are greater than or equal to 4.0. $PRAC = LAB * 0.6 + EC * 0.4$</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> | | | | |

8. BIBLIOGRAPHY AND TEACHING MATERIALS

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| 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 |