

## SUBJECT TEACHING GUIDE

### 884 - Internet Architecture and Mobile Networks

#### Master's Degree in Business and Information Technologies

Academic year 2023-2024

| 1. IDENTIFYING DATA              |  |                  |                    |                  |                    |
|----------------------------------|--|------------------|--------------------|------------------|--------------------|
| Degree                           | Master's Degree in Business and Information Technologies |                  |                    | Type and Year    | Compulsory. Year 1 |
| Faculty                          | Faculty of Economics and Business Studies                |                  |                    |                  |                    |
| Discipline                       | Obligatory Subjects                                      |                  |                    |                  |                    |
| Course unit title and code       | 884 - Internet Architecture and Mobile Networks          |                  |                    |                  |                    |
| Number of ECTS credits allocated | 2,5  | Term             | Semester based (1) |                  |                    |
| Web                              |  |                  |                    |                  |                    |
| Language of instruction          | Spanish  | English Friendly | No                 | Mode of delivery | Face-to-face       |

|                  |   |
|------------------|---|
| Department       | DPTO. INGENIERIA DE COMUNICACIONES  |
| Name of lecturer | JORGE LANZA CALDERON  |
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| Office           | Edificio Ing. de Telecomunicación Prof. José Luis García García. Planta: - 2. DESPACHO JORGE LANZA (S227) |
| Other lecturers  |   |

| 3.1 LEARNING OUTCOMES  |
|--|
| - Knowledge of basic concepts to understand the main mechanisms that make possible the implementation of services and applications in the Internet |
| - Understanding of the most common TCP/IP applications, such as HTTP, FTP, e-mail.   |
| - Knowledge of the wireless technologies that provide Internet access for terminals and mobile networks  |
| - Knowledge of basic concepts on security, mainly in wireless networks   |

#### 4. OBJECTIVES

Knowledge of the basic mechanisms that explain Internet underlying operation

Understanding of TCP/IP protocol stack

Knowledge of the main TCP/IP applications protocols

Knowledge of the main wireless technologies that provide access to the Internet

Knowledge of the main wireless technologies WLANs and WPANs

Knowledge of the main basic procedures for secure access to the Internet

#### 6. COURSE ORGANIZATION

##### CONTENTS

|   |                           |
|---|---------------------------|
| 1 | Services and applications |
| 2 | Cellular networks         |
| 3 | Wireless LANs             |
| 4 | Secured environments      |

#### 7. ASSESSMENT METHODS AND CRITERIA

| Description   | Type                  | Final Eval. | Reassessn | %             |
|---|-----------------------|-------------|-----------|---------------|
| Practical work  | Laboratory evaluation | No          | Yes       | 20,00         |
| Final exam<br>It is required to obtain a mark above 5.0 | Written exam          | Yes         | Yes       | 80,00         |
| <b>TOTAL</b>  |                       |             |           | <b>100,00</b> |

##### Observations

NOTA = THEOR \* 0.8 + PRAC \* 0.2

Practices or laboratory work is compulsory, and must be done in order to pass the subject.

##### Observations for part-time students

Part-time students should contact the teacher to comment on the details regarding the evaluation method. In any case, in general, similar criteria will be applied to the evaluation method for students on a full-time basis, looking for alternatives to facilitate the practical activities.

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

- F. Halsall, Data Communications, Computer Networks and Opens Systems, (4ª edición), Addison Wesley, 1996.
- F. Halsall, Computer Networking and the Internet, (5ª edición), Addison Wesley, 2005
- A.S. Tannenbaum, Computer Networks, (5ª edición), Prentice-Hall, 2011.
- D.E.Comer, Internetworking withTCP/IP, Prentice-Hall, 1991.
- M. Gast, 802.11 Wireless Networks: The definitive guide, O'Reilly, 2005.
- W.R. Stevens, TCP/IP ilustrated. The protocols. Vol I, Addison Wesley, 1994.
- Sarikaya, B.: Principles of Protocol Engineering and ConformanceTesting , Ellis Horwood, 1993.
- Kumar, A.; Manjunath, D.; Kuri, J: Communication Networking, Morgan Kaufmann, 2004.
- Dally,W.J.; Towles, B.: Principles and Practices of Interconnection Networks, Morgan Kaufmann, 2004.
- Perlman, R.: Interconnections. Second Edition. Bridges, Routers, Switches, and Internetworking Protocols, Addison- Wesley, 2000.
- W. Stallings, L. Brown, Computer Security: Principles and Practice, Prentice Hall, 2007
- Siegmund M. Redl, Matthias K. Weber; Malcolm W. Oliphant; An Introduction to GSM; Editorial: Artech House. 1995