

Academic Year: (2022 / 2023)

Review date: 10-06-2021

Department assigned to the subject: Department of Signal and Communications Theory

Coordinating teacher: GARCIA CASTILLO, LUIS EMILIO

Type: Electives ECTS Credits : 6.0

Year : 1 Semester : 1

OBJECTIVES

The specific competences that will be obtained by the students are:

- Knowledge of main telecommunication systems.
- Understanding of fundamentals of a communication system.
- Understanding of the main features of electromagnetic propagation and their effect on the system operation.
- Knowledge of main features and types of transmitters and receivers.
- Acquisition of competences in order to perform a link budget between emitter and receptor of a telecommunication system.
- Knowledge of fundamentals of telematic communication networks.

DESCRIPTION OF CONTENTS: PROGRAMME

Types of telecommunication systems

Theory of communication

- Sources. Concept of signal.
- Coding and encryption
- Analog and digital modulations
- Multiplexation techniques and access methods
- Communication channel. Effects (distortion, interference, noise, . . .)
- Detection
- Limitations of a communication system: noise and interference

Transmitters and receivers

- Features. Block diagrams.
- Types.

Channel. Characteristics of electromagnetic propagation (guided and radio). Link budget.

Communication networks

- Concept of network and types.
- Protocols. Network layer. Transport layer.

ASSESSMENT SYSTEM

Continuous assessment: 60%

Final exam: 40%

The mark of the final exam should be equal to or greater than 3.0 over 10

Continuous Assessment:

- *) Quiz/test at the end of (most) theoretical sessions
- *) Quiz/questionnaire at the end of lab sessions

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| % end-of-term-examination: | 40 |
| % of continuous assessment (assignments, laboratory, practicals...): | 60 |

BASIC BIBLIOGRAPHY

- J. D. Kraus. Electromagnetics with Applications, McGraw-Hill., 1986
- J. F. Kurose, K. W. Ross Computer Networking, a top-down approach;, Pearson Addison Wesley, 2013
- J. G. Proakis, M. Salehi. Communication Systems Engineering, Prentice-Hall, 2002