Complements to Telecomunications Engineering

Academic Year: (2019 / 2020) **Review date: 03-09-2019**

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

COMPETENCES AND SKILLS THAT WILL BE ACQUIRED AND LEARNING RESULTS.

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: 70%
Final exam: 30%

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

% end-of-term-examination:	30
% of continuous assessment (assigments, laboratory, practicals…):	70

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