

Academic Year: ( 2022 / 2023 )

Review date: 17-01-2023

Department assigned to the subject:

Coordinating teacher: MORALES CESPEDES, MAXIMO

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

## OBJECTIVES

From an academic point of view, the goal of this subject is to provide and facilitate the understanding of the basic concepts of the information and communication technologies. Based on this knowledge, the students obtain the Ability to select the best technologies to solve telecommunication problems.

## DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction: Telecommunication concept. Information. Quality and access. Telecommunication services. The Telecommunications in the Information and Knowledge Society.
2. Concept of frequency. Modulation.
3. The communication media: cable and radio. Multiple Access.
4. Digital communications and their advantages. Channel coding. Digitization of information. The transmission process.
5. Mobile communications.
6. Satellite communications.
7. Telecommunication networks. Switching. Reference levels. The Switched Telephone Network.
8. Internet. Broadband networks and Access.
9. Wireless local and personal area networks.
10. World Wide Web.

## LEARNING ACTIVITIES AND METHODOLOGY

Practice cases in collaboration with the professor of the subject. During the evolution of the subject several practice case related with distinct information and communications technologies are presented. The students must carry out autonomous research based on the obtained knowledge.

Kahoot test. At the beginning of each session, a summary of the knowledge obtain in the pervious session is carried out. After that, a test involving that knowledge is carried out using the tool Kahoot!

Organized visit of the electronica and signal processing laboratories. With the aim of presenting a practical application of the knowledge obtained during the subject, an organized visit of the communication lab is considered including a presentation relating the laboratory activities with the knowledge obtained in the subject.

## ASSESSMENT SYSTEM

The evaluation is carried out individually for each student

Participation in class and practice case (20%)

Final test (30%)

Written report with maximum 4 pages of a chosen subject supervised by one of the Professors. It is advised to decide the topic of the report and communicate it to the professor well before the end of the lecture period. Mark will be based on originality and quality of own student's work. (50%)

## BASIC BIBLIOGRAPHY

- Berners-Lee, T., Fischetti, M., & Foreword By Dertouzos, M. L Weaving the Web: The original design and ultimate destiny of the World Wide Web by its inventor., Harper Information, 2000
- E.B. Carne Telecommunications Primer: Signals Building Blocks and Networks, Upper Saddle River, NT: Prentice-Hall PTR., 1995
- J. Kurose, K. Ross Computer Networking: A Top-Down Approach, 7th Edition. , Pearson, 2017
- J.E. Cockborne et al Telecommunications for Europe. The CEC Sources., IOS Press, 1995
- P.H. Smale ntroduction to Telecommunication Systems, London: Pitman, 1986
- Sebesta, R. W. Programming the World Wide Web, 8th Edition, Pearson, 2015

