

Academic Year: (2019 / 2020)

Review date: 03/05/2019 11:41:25

Department assigned to the subject: Signal and Communications Theory Department

Coordinating teacher: GIL JIMENEZ, VICTOR PEDRO

Type: Compulsory ECTS Credits : 6.0

Year : 4 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

- Digital Communications: 3th year, 1st Semester

OBJECTIVES

The student will acquire knowledge about the principles of contemporary telecommunication systems. With an integrating and systemic character, the student acquires the ability to analyze and design complete telecommunication systems according to the fundamental quality parameters and requirements. He/She will also be able to evaluate the pros and cons of different technological alternatives. (PO a, c, e, h, j, k)

Also, the student will be capable of communicating efficiently in written and oral form, the procedure followed to solve problems of design of mobile communication systems. (PO g)

DESCRIPTION OF CONTENTS: PROGRAMME

- Introduction to Telecommunications systems: Systems, networks and services; core and Access networks; regulation
- Main parameters: coverage, transmission, multiple access, traffic, quality of service
 - Broadband communications: IDSN, xDSL, SDH, (D)WDM
 - Terrestrial Mobile Communications systems: Coverage, design, 2G, 2.5G, 3G, 3.5G, 4G, 5G
 - Satellite Systems: fixed and mobile
 - Broadcast Systems:

LEARNING ACTIVITIES AND METHODOLOGY

Two learning activities are proposed, namely, theoretical clases and study cases.

Theoretical Classes (4 ECTS):

Theoretical classes using the blackboard, slides or video presentations where all the concepts are explained. In these lectures, the student will acquire the main concepts about mobile communications systems and their design and performance. Also practical excercises are included here.

Study Cases and Practical Classes (2 ECTS):

In order to acquire a more integrate view on the systems, several study cases have to be solved by the students either individual or in groups.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	60
% of continuous assessment (assigments, laboratory, practicals...):	40

The final mark is obtained as a weighted sum of the marks of the final exam (60%) and continuous assesment (40%).

BASIC BIBLIOGRAPHY

- Roger L. Freeman Telecommunication System Engineering. 4th Edition, Wiley, 2004

ADDITIONAL BIBLIOGRAPHY

- Gerard Maral, Michel Bousquet, Zhili Sun Satellite communications systems: systems, techniques and technology, Wiley, 2009
- Harri Holma, Antti Toskala LTE for UMTS: Evolution to LTE-Advanced, 2nd Edition, Wiley, 2011
- Klaus Grobe, Michael Eiselt Wavelength Division multiplexing: a practical engineering guide, Wiley, 2013
- Roger L. Freeman Telecommunication Transmission Handbook. 4th Edition, Wiley, 1998