60920 - Advanced communications

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures (M1), practice sessions (M8), laboratory sessions (M9), guided assignments (M4), tutorials (M10), and assessment (M11).

4.2.Learning tasks

The course includes the following learning tasks:

- **M1 Lectures** (38 hours).

- **M8 Practice sessions** (8 hours)
- **M9 Laboratory sessions** (4 hours). Lab activities and seminars.
- **M4 Guided assignments** (22 hours). A guided assignment based on the different parts of a communication system.

4.3.Syllabus

The course will address the following topics:

- Topic 1. Selective channels.
- Topic 2. TCM (Trellis Coded Modulation).
- Topic 3. Advanced Channel Coding.
- Topic 4. Multicarrier systems. OFDM.
- Topic 5. Adaptive Modulation & Coding (AMC)

4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website.

4.5.Bibliography and recommended resources

- Sklar, Bernard. Digital communications : fundamentals and applications / Bernard Sklar . - 2nd ed., repr. with corr. Upper Saddle River, New Jersey : Prentice-Hall PTR, 200

- Artés Rodríguez, Antonio. Comunicaciones digitales / Antonio Artés Rodríguez, Fernando Pérez González Madrid : Pearson Educación, D. L. 2007

- Proakis, John G.. Digital Communications / John G. Proakis . - 4th ed., International ed. Boston [etc.] : McGraw-Hill, 2001
- Proakis, John G.. Communication systems engineering / John G. Proakis, Masoud Salehi Englewood Cliffs, New Jersey : Prentice Hall, cop. 1994
- Tse, D.. Fundamentals of wireless communication / Tse, D.; Viswanath, P Cambridge: Cambridge University Press, 2005