DEA-TEL-513 Communications Systems I

SEMESTER: Fall
CREDITS: 6 ECTS (4 hrs. per week: 3 Theory + 2 Lab, on average)
LANGUAGE: Spanish
DEGREES: MIT

Course overview
The main goal of this course is to provide the students with knowledge about the main blocks existing in commercial communication systems both wired and wireless. These concepts will be studied from an analytical perspective on theoretical classes and from a practical point of view on the laboratory sessions. Main topics will be OFDM, source coding, digital modulations and channel modelling.

Prerequisites

Course contents

Theory:
1. Introduction: Signal's theory
2. Analysis of Communication's Channels
5. Channel Coding.
6. Beam Forming
7. System design.

Laboratory:
There will be nine 2-hour sessions throughout the course.

P1. Introduction to the lab.
P2. Base-band digital transmission.
P4. Inter-symbol interference.
P5. Digital Modulations
P6. Orthogonal Frequency Division Multiplexing (OFDM)
P7. Channel coding
P8. Modeling of a commercial communication system.

Textbook

- Slides on Moodle.

Grading

The following conditions must be accomplished to pass the course:

- A minimum overall grade of at least 5 over 10.

The overall grade is obtained as follows:

- Final exam 40%.
- Other exams 10%. Typically there is 1 mid-term exam (2-hour long), although, depending on the schedule, other might be programmed. Students will be told at least a week in advance.
- Lab reports 20%.
- Modeling of commercial system (group project) 30%.