

## Course Syllabus

### SOFTWARE DEFINED RADIO

Printed by: jfmoncay

Program: Telecommunications Engineering

#### 1. Course number and name

TELG1026 - SOFTWARE DEFINED RADIO

#### 2. Credits and contact hours

3 credits and 3 contact hours

#### 3. Instructor's course or coordinator's name

ALFREDO JOSÉ NÚÑEZ UNDA

#### 4. Text book, tittle, author, and year

- Ziemer, R., Tranter, W.. Principles of Communications: Systems, Modulation, and Noise ((7th Edition))

- a. Other supplemental materials

- Heath, R.W.. Introduction to Wireless Digital Communication (1st Edition)

#### 5. Specific course information

- a. Brief description of the content of the course (catalog description)

The course describes the basic methodology of wireless communication operation systems based on the radio frequency transceivers programming. We present cases of design and implementation that involve the application of signal spectrum concepts and digital signal modulation as well as stochastic processes. In addition, asynchronous serial communication and frequency division multiplexing are analyzed.

- b. This course is: Selected elective

#### 6. Specific goals for the course

- a. Specific outcomes of instruction

- 1.- To apply the fundamental concepts of digital modulations and signals in the domain of frequency using radio algorithms for its simulation.

- 2.- To analyze the noise and interference effects on wireless communication systems spectral measurements through radiofrequency platforms in baseband.

- 3.- To implement prototypes of wireless communication systems based on digital communication.

- b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

#### 7. Brief list of topics to be covered

- 1.- Introduction to radio simulation systems

- 2.- Spectrum of radio signals

- 3.- Stochastic processes in radio systems

- 4.- Frequency domain multiplexing

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5.- Asynchronous serial communication

6.- Eye diagram

