

## Course Syllabus

### COMMUNICATIONS SYSTEMS

Printed by: jfmoncay

Program: Telecommunications Engineering

#### 1. Course number and name

TELG1003 - COMMUNICATIONS SYSTEMS

#### 2. Credits and contact hours

3 credits and 4 contact hours

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

MARIA ANTONIETA ALVAREZ VILLANUEVA

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

- Simon Haykin. Digital Communication Systems (1st Edition)
  - a. Other supplemental materials
- Proakis, John G. Salehi, Masoud. Fundamentals of Communication Systems (2nd Edition)
  - Haykin Simon, Moher Michael. An Introduction to Analog and Digital Communications, 2nd Edition (2nd Edition)
- Haykin, Simon S & Michael Moher. Communication systems (5th Edition)

#### 5. Specific course information

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

This course presents the basic concepts of digital communication systems and their performance under the effect of noise. The operation and design of optimal receptors are studied in depth applying mathematical, probabilistic and random process concepts, and representing the signals through the vector-space scheme. The basic digital modulation techniques and their performance in the presence of additive white Gaussian noise are analyzed. In addition, the concepts of information theory and coding are reviewed.

- b. Prerequisites

INTRODUCTION TO TELECOMMUNICATION SYSTEMS - TELG1002

- c. This course is: Required

#### 6. Specific goals for the course

- a. Specific outcomes of instruction

- 1.- To understand the basic principles of a digital communication system for the respective analysis of the system performance against noise.

- 2.- To apply passband modulation schemes to meet the requirements of a communication system.

- 3.- To evaluate the impact of coding techniques in a digital communication system using the concepts of information theory.

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



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- A recognition of the need for, and an ability to engage in life-long learning
- An ability to design and conduct experiments as well as to analyze and interpret data

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

- 1.- Principles of digital data transmission.
- 2.- Passband digital transmission.
- 3.- Information theory.
- 4.- Coding.

