

Course Syllabus

PROPAGATION

Printed by: jfmoncay

Program: Telecommunications Engineering

1. Course number and name

TELG1015 - PROPAGATION

2. Credits and contact hours

3 credits and 4 contact hours

3. Instructor's course or coordinator's name

FRANCISCO VICENTE NOVILLO PARALES

4. Text book, title, author, and year

- Hernando, José. Transmisión por radio (7)
 - a. Other supplemental materials
- Ghasemi, A., Abedi, A., Ghasemi, F.. Propagation Engineering in Radio Links Design (1)
- Simon R. Saunders, Alejandro Aragón-Zavala. Antennas and Propagation for Wireless Communication Systems (2)
 - Simon R. Saunders, Alejandro Aragón-Zavala. Antennas and Propagation for Wireless Communication Systems (2)
 - F. Novillo, H. Galeana, R. Ferrus and R. Agusti. Spectrum Availability in Indoor Locations for Opportunistic Spectrum Access in Dense Urban Scenarios ()
 - F. Novillo, J. Gomez and W. Medina. Channel Availability Characterization in TV bands for OSA devices inside buildings ()
 - Simon R. Saunders, Alejandro Aragón-Zavala. Antennas and Propagation for Wireless Communication Systems (2)
 - Hernando, José. Comunicaciones móviles (3)

5. Specific course information

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

In this course the design and analysis of wireless links in different environments is studied, using techniques that allow the characterization of the electromagnetic wave, using signal propagation models and the modeling of wave alteration factors. Additionally, quality criteria in communication are addressed, by analyzing the behavior of the channels based on measurements and fundamental security aspects used during the design and operation of the links.

- b. Prerequisites

COMMUNICATIONS SYSTEMS - TELG1003

HIGH FREQUENCY CIRCUITS AND MICROWAVES - TELG1012

PROJECT MANAGEMENT IN TELECOMMUNICATIONS - ADMG1002

- c. This course is: Required



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6. Specific goals for the course

a. Specific outcomes of instruction

1.- To analyze characterization, propagation loss and alteration factors of electromagnetic waves by applying mathematical models.

2.- To design link budgets for determining necessary inputs in wireless communications by characterizing their parameters.

3.- To establish quality and security criteria for wireless links using techniques and procedures established in the telecommunications sector.

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

- An ability to communicate effectively in Spanish
- An ability to identify, formulate and solve engineering problems

7. Brief list of topics to be covered

1.- Introduction to radiocommunication systems.

2.- Link budget for a radio communication system.

3.- Propagation mechanisms.

4.- Radio terrestrial links of fixed service.

5.- Propagation models.

6.- Alteration factors in propagation.

7.- Propagation of waves in systems that operate in the troposphere, ionosphere and hydrosphere.

8.- Measurements and security in radiocommunications.

