

Course Syllabus

ANTENNAS

Printed by: jfmoncay

Program: Telecommunications Engineering

1. Course number and name

TELG1014 - ANTENNAS

2. Credits and contact hours

3 credits and 4 contact hours

3. Instructor's course or coordinator's name

JOSÉ FÉLIX MONCAYO REA

4. Text book, tittle, author, and year

- Balanis, Constantine A.. Antenna Theory: Analysis and Design (4th Edition)
 - a. Other supplemental materials
- Stutzman, Warren L. & Thiele, Gary A.. Antenna Theory and Design (3rd Edition)
- Makarov, Sergey N.. Antenna and EM modeling with Matlab (1st Edition)

5. Specific course information

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

The course presents the mathematical analysis and design guidelines of linear antennas, loop, aperture and arrays. Simulation software is applied to obtain antenna characteristics, emphasizing radiation patterns, gain, directivity and bandwidth of the antenna; for its application in wireless radio communication systems. Finally, the course shows the technological evolution of antennas and their use in government and commercial systems.

- b. Prerequisites

HIGH FREQUENCY CIRCUITS AND MICROWAVES - TELG1012

- c. This course is: Required

6. Specific goals for the course

- a. Specific outcomes of instruction

- 1.- To apply mathematical models for the optimization of the antenna design.
- 2.- To differentiate the radiation patterns produced by passive and active antennas for their application in wireless radio communication systems.
- 3.- To calculate the fundamental parameters for the correct functioning of the antenna.
- 4.- To select the fundamental parameters for the design of the antennas using simulators.

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

- An ability to design and conduct experiments as well as to analyze and interpret data
- An ability to use the techniques, skills and modern tools necessary for engineering practice

7. Brief list of topics to be covered



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- 1.- Introduction to antennas
- 2.- Radiation integrals and auxiliary potential functions
- 3.- Linear antennas
- 4.- Loop and patch type antennas
- 5.- Aperture antennas
- 6.- Antenna arrays