Escuela Superior Politécnica del Litoral

Guayaquil - Ecuador
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Course Syllabus

PROGRAMMING APPLIED TO TELECOMMUNICATIONS

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Program: Telecommunications Engineering

1. Course number and name
TELG1010 - PROGRAMMING APPLIED TO TELECOMMUNICATIONS

2. Credits and contact hours
3 credits and 3 contact hours

3. Instructor's course or coordinator's name
LUIS FERNANDO VÁSQUEZ VERA

4. Text book, tittle, author, and year
• Ortega Ruiz Mauricio. Matlab Aplicado a Telecomunicaciones (Primera edición)

 a.Other supplemental materials

• Báez López David; Cervantes Villagómez Ofelia. Matlab con aplicaciones a la Ingeniería (Segunda Edición)

• Lajara Vizcaíno José; Pelegrí Sebastián José. Labview: Entorno Gráfico de Programación (Segunda Edición)

• Tojeiro Calaza Germán. Taller de Arduino (Primera edición)

5. Specific course information
   a.   Brief description of the content of the course (catalog description)

   In this course it is presented several simulation-based exercises for prototyping in telecommunication problem solutions, as well as a general description of telecommunications area concepts that focus on the basic modulations of analog and digital systems, frequency analysis using Fourier series and transforms. Finally, the fundamentals of radio-communication and the effects caused by noise in a communication channel are addressed through simulations.

   b.   Prerequisites

   PROGRAMMING FUNDAMENTALS - CCPG1001

   DISCRETE MATHEMATICS - MATG1005

   TELECOMMUNICATIONS FUNDAMENTALS - TELG1009

   c.   This course is: Required

6. Specific goals for the course
   a.   Specific outcomes of instruction

   1.- To perform discrete signals and sequences representation using graphical tools of specialized simulation software.

   2.- To produce sounds by filtering or modulation of audio signals.

   3.- To simulate a communication channel with noise for analyzing the effects caused in a telecommunications system.

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    4.- To propose prototypes and measurement, control and monitoring applications for problem solution related to the telecommunications area.

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

    • A recognition of the need for entrepreneurship and the abilities to become an entrepreneur

    • An ability to communicate effectively in Spanish

7. Brief list of topics to be covered

    1.- Representation of systems and signals.

    2.- Communication systems modeling.

    3.- Digital signal processing.

    4.- Programmable platform applied to Telecommunications.

    5.- Applications in graphic programming software.