

Course Syllabus

MICROCONTROLLERS

Printed by: jfmoncay

Program: Telecommunications Engineering

1. Course number and name

EYAG1012 - MICROCONTROLLERS

2. Credits and contact hours

3 credits and 4 contact hours

3. Instructor's course or coordinator's name

RONALD DAVID SOLIS MESA

4. Text book, title, author, and year

- Carlos Valdivieso, Ronald Solis, Douglas Plaza. Microcontroladores Fundamentos y Aplicaciones. Diseño embebido con simulaciones interactivas. (Primera)

a. Other supplemental materials

- Carlos Valdivieso, Ronald Solis.. Microprocesadores Fundamentos y Aplicaciones. Diseño embebido con simulaciones interactivas. (Primera)

- Santiago Espinosa, Felipe. Los Microcontroladores AVR de ATMEL. (Primera)

- Kimmo Karvinen & Tero Karvinen. Measure the World with Electronics, Arduino, and Raspberry Pi (First)

5. Specific course information

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

In this course microcontrollers architecture, operation and applications for different types of microcontrollers are presented, with this knowledge, students can implement electronic solutions based on microcontrollers using various programming languages. Additionally, several developing platforms based on microcontrollers, called microcomputers are used in electronic applications.

b. Prerequisites

DIGITAL SYSTEMS I - EYAG1003

c. This course is: Required

6. Specific goals for the course

a. Specific outcomes of instruction

1.- Recognize the advantages offer by microcontrollers for the development of electronic devices in the industry.

2.- Choose the appropriate microcontroller or development board to comply with specifications and project needs.

3.- Build low cost electronic devices with sensors and actuators when dealing with prototypes.

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



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outcomes are addressed by the course

- An ability to communicate effectively in Spanish
- An ability to use the techniques, skills and modern tools necessary for engineering

practice

- A recognition of the need for entrepreneurship and the abilities to become an entrepreneur
- An ability to design a system, component or process to satisfy realistic constraints
- A recognition of the need for, and an ability to engage in life-long learning

7. Brief list of topics to be covered

- 1.- Microcontroller basic principles and architecture.
- 2.- Programming languages for microcontrollers.
- 3.- Microcontroller modules for automation.
- 4.- Data acquisition with microcontrollers.
- 5.- Developing boards with Advanced microcontrollers.
- 6.- Introduction and programming of microcomputers based on microcontrollers.

