DEA-IND-412 Industrial Automation and Robotics

SEASON: Fall
CREDITS: 6 ECTS (4 hrs. per week. 2h Theory + 2h Lab)
LANGUAGE: Spanish
DEGREES: IEM

Course overview
This course is an introduction to industrial automation and robotics. Upon satisfactory completion of the course, the student will be able to: identify the components of an automatized system; model the system from the point of view of Boolean logic and Grafcet methodology; use a Programmable Logic Controller (PLC) for implementing the control functions of the system; use of a SCADA to supervise the system; describe the basic anatomy and attributes of an industrial robot; and program the industrial robot.

Prerequisites
Electric Circuits, Logic Circuits, Programming principles.

Course contents

Theory:
1. Introduction.
2. Input and Output devices.
4. Programmable Logic Controllers (PLC).
5. Methodologies for Industrial Automation (Grafcet, GEMMA).
6. Introduction to Industrial Robots.
7. Automated System with Industrial Robots.
8. Human Interface and Supervision.

Laboratory:
P1. Relay logic.
P2. Introduction to PLC programming.
P4. PLC Integrated functions.
P5. Human interface and supervision.
P6. Project with PLC and SCADA.

This document is a brief outline of the course and does not replace the official program of study

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P7. Introduction to industrial robot.
P8. Robot programming.

Textbook

- No textbook.

Grading

- Final exam accounts for 40% of the final grade.
- Mid-term exam accounts for 10%.
- Laboratory exam accounts for 25% of the final grade.
- Lab reports must be handed in every week and they are graded and returned the following week. They account for 25% of the grade.
- To obtain a passing grade in the course, a mark of 50% or more must be achieved separately on the final exam, on the laboratory exam and on the lab reports.