Course: Automation and Programmable logic controller – 0908461 (3 Cr. – Required)

Instructor: Dr. Musa AlYaman
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Office Hours: (Sum, Tus:9.00-10.00 am), (Mon, Wed: 09.30-11.00)

Course Website: https://elearning.ju.edu.jo/

Catalog Data: Introduction to Automation, Programmable Logic Controllers (PLC), PLC hardware, PLC software, SCADA Systems and Computer Numerical Control (CNC). CNC hardware, CNC software, Lab experiments concentrate on familiarizing the student with the concepts studied especially CNC and PLC programming and applications.

Prerequisites by Course: MX0908353 Automatic Control Systems or Concurrently

Prerequisites By Topic:
1. Digital Logic fundamentals
2. Microprocessor and Microcontrollers
3. Programming with MATLAB


References:

Schedule & Duration: 16 Weeks, 48 lectures (50 minutes each) and exams.

Minimum Student Material: Textbook, class handouts, scientific calculator, and an access to a personal computer.

Minimum College Facilities: Classroom with whiteboard and projection display facilities, library, hydraulic and pneumatic lab equipped with pneumatic workbench, valves, cylinders, actuators and accessories.

Course Objectives:
1. Recognize the concept of automation
2. Identify the benefits and requirements of automation
3. Provide the student with the knowledge in the Programmable Logic Controllers (PLC), and SCADA systems
4. Provide the student with the knowledge in the Computer Numerical Control (CNC)

Course Learning Outcomes and Relation to ABET Student Outcomes:
Upon successful completion of this course, a student should:
1. Identify the benefits and requirements of automation [SO]
2. Recognize the different types of PLCs by visiting different factories [g, h]
3. Identify the strategies of SCADA and HMI systems and CNC [h]
4. Practice the Oral communication in a form of presentation [g]
5. Practice the written communication skills in a form of report [g]
Course topics:  
1. Manufacturing operations: types of manufacturing  
2. Introduction to automation: automation types and strategies  
3. Discrete control: programmable logic controllers (PLC) and personal computers (PC)  
4. Supervisory Control And Data Acquisition (SCADA) Systems  
5. Numerical control: computer numerical control (CNC)  
6. Human Machine Interface (HMI)  

Hrs
1  
2  
18  
9  
12  
6

Ground Rules:  
• Attendance:
  Students are expected to attend EVERY CLASS SESSION and they are responsible for all material, announcements, schedule changes, etc., discussed in class. The university policy regarding the attendance will be strictly adhered to.
• Make up Examinations: There will be no makeup exams for any exam that will be taken during the course. Exceptions to this rule is restricted only to the following cases:-
  1. Death of only first order relatives (father, mother, sister, or brother).
  2. Hospital entry (in-patient) during the time of the examination.
  Any other cases will be given the zero mark in the corresponding exam.
• Special Notes
  1. Seating plan will be as given in the attendance sheet.
  2. Students creativity is welcomed and will receive additional marks”

Assessments:  
Exams, Quizzes, Projects, and Assignments.

Grading Structure:

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Total  100%

Last updated: May 2018