Jordan University of Science and Technology

Faculty of Engineering

Mechanical Engineering Department

ME464 Control Systems Lab

Summer Semester 2019-2020

Course Catalog
1 Credit Hours. Fundamental concepts of electronics and digital logic circuit, and microcontroller programming interfacing and applications on classical control concepts.

Text Book	
Title	Exploring Arduino: Tools and Techniques for Engineering Wizardry
Author(s)	Jeremy Blum
Edition	1st Edition
Short Name	Reference
Other Information	

Instructor	
Name	**Eng. Rana Maiaah**
Office Location	-
Office Hours	
Email	rbmaiaah@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sat, Thu : 08:30 - 11:30 Room: LAB

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
254250	ME425 Microcontroller Applications	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2	Introduction to Arduino and its Analog/Digital Inputs/Outputs and PWM.	
Week 3	Interfacing with Liquid Crystal Display and 7-segment display	
Weeks 4, 5	LM35, Ultrasonic, LDR, and accelerometer sensors applications.	
Weeks 6, 7, 8	Driving Motors, such as: DC, Stepper, and Servo motors.	
Weeks 6, 7, 8	Driving Motors, such as: DC, Stepper, and Servo motors.	
Weeks 9, 10	Wireless Communication with XBee Radios and Bluetooth Module.	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Perform the fundamental of C++ programming containing logic, loop, and program control instructions using the Arduino development board, IDE software, and electronic components. [1SLO1]	15%	
Demonstrate programming and interfacing circuits for digital/analog input/output operations and set up variety of circuits using sensors and displays using Arduino. [1SLO1, 1SLO2]	10%	
Construct circuits that implement sensors to control actuators, such as: DC, Stepper, and Servo motors. [1SLO2, 1SLO6]	20%	
Design smart system applications over serial communication Xbee and Bluetooth Module. [2SLO2, 1SLO5, 2SLO6]	20%	
The ability to work in groups [1SLO5]	10%	
The ability to design the student own system or process to meet desired needs. [1SLO2]	25%	

Relationship to Program Student Outcomes (Out of 100%)																	
A	B	C	D	E	F	G	H	I	J	K	SLO1	SLO2	SLO3	SLO4	SLO5	SLO6	SLO7
											20	48			14	18	

Evaluation	
Assessment Tool	**Weight**
Mid Term Exam	20%
Final Exam	40%
ClassWorks, Quizes, and HomeWorks	40%