



The University of Jordan
School of Engineering
Industrial Engineering Department
First Semester 2019/2020

Course name:	Systems Dynamics and Control Laboratory		
Course code:	IE0906346		
Credits hours	1		
Contact hours/room:	Section 1 :1-4 M control lab. Section 2 :1-4 T control lab. Section 3 :1-4 W control lab.		
Course instructor's name, E-mail, and phone:	Dr. Yazan M. Al-Rawashdeh		
	y.alrawashdeh@ju.edu.jo 22936		
Course Coordinator:	Dr. Yazan M. Al-Rawashdeh		
Text book:	Lab. Sheets		
Other reference(s):	1) Modern Control Systems Richard C. Dorf Robert H. Bishop Pearson, 2) Katsuhiko Ogata, Modern control Engineering, 2002. 3) De Vegte, Feedback control systems 1992 . 3rd edition 3) The open automation and control systems https://benthamopen.com/TOAUTO CJ/home/		
Course Description:	Lab experiments that include using existing System control packages such as MATLAB and LabView. PID controllers. Systems characteristics and stability.		
Providing Department:	Industrial Engineering		
Prerequisite Course:	System Dynamics and Control – 0906345.		
Course type	Mandatory		
Assessment Methods:	Method	Weight %	Date
	Laboratory experiments	30	
	Mid Exam	30	To be announced
	Final Exam Course	40	To be announced
Course Learning Outcomes:	#	After successful completion of this course, the student will be able to	SO
	CLO1	Using MATLAB to solve differential equations (through Simulink)	6
	CLO2	Using MATLAB to understand the behavior of mechanical and electrical systems and using MATLAB to design the dynamic behavior of systems	1
	CLO3	Using Micro-controllers to build controller systems	6
	CLO4	System identification of practical systems and tuning of controllers	7

	Week #	Topic
Brief list of topics	1-3	Introduction to Simulink and first and second order systems
	4-5	Design of PID controllers
	6-7	System identifications and tuning of controllers
	8-16	Practical Implementation of control systems using Arduino
Important Notes:	<ul style="list-style-type: none"> • Do not hesitate to ask questions • You are required to bring a notebook and take notes in classes. • Students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class. • Discuss the assignments among yourselves • Don't Cheat; direct copying of others work will NOT be allowed or tolerated and will result in a reduction of grade. If you are found to be cheating in any way, on an exam or assignment, even signing the roll sheet for another student, you will be given an "F" for the course. There will be no exceptions. • All cases of academic dishonesty will be handled in accordance with university policies and regulations. JU policy requires the faculty member to assign ZERO grade (F) if a student misses 15% of the classes that are not excused, and 20% of the classes that are excused • Students are expected to be ready to take a quiz any time they have a class. There will be no make-up quizzes or home works. • Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodation 	
<i>The B.Sc. in industrial Engineering program enables students to achieve, by the time of graduation the following program learning outcome (SOs)</i>		
1	<i>An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics</i>	5 <i>An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives</i>
2	<i>An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors</i>	6 <i>An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions</i>
3	<i>An ability to communicate effectively with a range of audiences</i>	7 <i>An ability to acquire and apply new knowledge as needed, using appropriate learning strategies</i>
4	<i>An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts</i>	