Industrial Processes Control
COURSE SYLLABUS

Course Code	Course Name	Credits	Contact Hours
0401546	Industrial Processes Control	3	3 T

INSTRUCTOR/COORDINATOR	
Name	Dr.Talal Aljaafreh
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TEXTBOOK	
Title	Fundamentals of Industrial Instrumentation and Process Control, Second Edition
Author/Year	William Dunn, 2018
Other Supplemental Materials	
Title	Instrumentation and Process Control, **6th Edition**
Author/Year	Franklyn W. Kirk , 2014
Electronic Materials	

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

Control problem in industrial processes; structure of control system in industry processes; flow of information and flow of product; cascade loops; feed forward; multivariable systems; state space models and differential equation models; root locus and pole placement design; discrete state space models for linear systems; predictive control; noise and disturbance in process control; Matlab and Simulink application in process control.

B. Pre-requisites (P) or Co-requisites (C)

Automatic control (P)

C. Course Type (Required or Elective)
Elective
SPECIFIC GOALS
A. Specific Outcomes of Instruction
By the end of this course, the student should be able to: • CLO1- Develop the necessary mathematical tools to understand and analyze the systems dynamics responses [1]. • CLO2- Solve Control problems in industrial processes [7]. • CLO3- Recognize flow of information and flow of product [7]. • CLO4- To apply Matlab and Simulink application in process control [7].
B. Student Outcomes Addressed by the Course

1	2	3	4	5	6	7				
✓						✓				

BRIEF LIST OF TOPICS TO BE COVERED		
List of Topics	**No. of Weeks**	**Contact Hours**
Introduction, Control problem in industrial processes; structure of control system in industry processes;	1	3
Flow of information and flow of product; cascade loops;	2	6
Feed forward; multivariable systems;	2	6
Sate space models and differential equation models;	2	6
Root locus and pole placement design;	2	6
Discrete state space models for linear systems;	2	6
Predictive control; noise and disturbance in process control;	2	6
Matlab and Simulink application in process control.	1	3
Total	*14*	*42*

EVALUATION

Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	30
Course Work (Homeworks, Quizzes, Projects, …etc.)	One week after being assigned	20
Final Exam	According to the university calendar	50

ABET's Students Learning Outcomes (Criterion # 3)

	Relationship to program outcome	
ABET 1-7		
1.	✓	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2.		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.
3.		an ability to communicate effectively with a range of audiences.
4.		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.
5.		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.
6.		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7.	✓	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.