



Jordan University of Science and Technology
 Faculty of Engineering
 Aeronautical Engineering Department

Course name and number:

AE464 Automatic Control

Credit, contact hours and categorization:

Credit and contact hours	Contact hours	Categorization
3 Credit Hours	Sunday-Tuesday-Thursday: 1-hour lecture Monday-Wednesday 1.5-hours lecture	Engineering Topic

Instructor's or course coordinator's name:

Name	Dr. Ahmad Alshyyab
Office location	N1-L2
Email address	asalshyyab@just.edu.jo

Textbook and other supplemental materials:

Textbook			
Title	Modern Control Systems		
Author(s)	R. C. Dorf and R. H. Bishop		
Edition	12th Edition		
Other Information	Prentice Hall, 2011		
References			
Book Name	Author(s)	Edition	Other Information
Feedback Control of Dynamic Systems	G.F. Franklin, J.D. Powell and A. Emami-Naeini	6 th Edition	
Control Systems Engineering	Nise	2 nd Edition	
Modern Control Engineering	K. Ogata	4 th Edition	
Automatic Control Systems	Farid Golnaraghi and Benjamin C. K	9 th Edition	
Schaum's outline of theory and problems of feedback and control systems	J. J. Distefano, A. R. Stubberud and W. J. Williams	2 nd Edition	

Course information:

Course Catalogue
3 Credit Hours. Study of continuous-time systems, classical and modern system design methods, transfer functions models, state space, dynamics of linear systems, and frequency domain analysis and design techniques. Introduction of controllability and observability, and full-state pole placement controller design.
Course type: This course is required to fulfill the program.



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Prerequisites or co-requisites		
Line Number	Course Name	Prerequisite Type
714610	AE461 Mechanical Vibrations	Prerequisite / Study

Specific goals of the course :

Specific outcomes of instruction and the student outcomes (SO) mapping		
Outcomes	SO Mapping	Course Outcome Weight (Out of 100%)
To represent various types of dynamic systems, including transfer functions, block diagrams, and state- space.	20SO 1	20%
Learn the purposes, advantages and disadvantages, terminologies, and configurations of feedback control systems.	6SO 8, 4SO 1	10%
To develop a basic feel for the time domain and frequency domain responses for simple systems.	5SO 2, 5SO 7, 5SO 8	15%
To give students knowledge and ability of determining the stability of a system for both the classical and modern control.	10SO 2, 5SO 7, 5SO 8, 5SO1	25%
To learn how to design a controller to meet time-domain specifications.	5SO 2,5SO 3, 5SO 5, 5SO 7, 5SO 8, 5SO1	30%

Brief list of topics to be covered:

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1	Introduction to Control Systems	Chapter 1 From Textbook
Weeks 2	Mathematical Models of Systems	Chapter 2 From Textbook
Weeks 3	State Variable Models	Chapter 3 From Textbook
Weeks 4	Feedback Control System Characteristics	Chapter 4 From Textbook
Weeks 5, 6, 7	The Performance of Feedback Control Systems	Chapter 5 From Textbook
Weeks 8	The Stability of Linear Feedback Systems	Chapter 6 From Textbook
Weeks 9,10	The Root Locus Method	Chapter 7 From Textbook
Weeks 11,12	Frequency Response Methods	Chapter 8 From Textbook
Weeks 13	Stability in the Frequency Domain	Chapter 9 From Textbook
Weeks 14	The Design of Feedback Control Systems	Chapter 10 From Textbook
Weeks 15	The Design of State Variable Feedback System	Chapter 11 From Textbook