ME 655
Introduction to Modern Control Methods

Number of credits: 3

Prerequisites: undergraduate system dynamics

Description: Introduction to modern control methods applied to mechanical, manufacturing, and mechatronic systems.

Instructor:	Dr. Zhiming Ji
Office:	MEC 305
Phone:	973-596-3341
Email:	ji@njit.edu

Text:	Modern Control Systems (10th Edition), by Richard C. Dorf and Robert H Bishop, Prentice Hall, ISBN 0131457330,
Software:	MATLAB with Control Toolbox

Grading:		
	Weekly Homework	40%
	Midterm Exam	25%
	Final Exam	35%

Topics:

Introduction; Dynamic System Modeling
Block Diagram and Transfer Function
State Variable Models
Control System Characteristics
Measures of Performance
Stability: Routh–Hurwitz method
Root Locus Method
Frequency Response: Bode Diagrams
Stability: Nyquist Criterion
Design of Compensators
Controllability and Observability

Week 8:   Midterm Exam
Week 15: Final Exam.

NJIT HONOR CODE
All Students should be aware that the Department of Mechanical Engineering takes the NJIT Honor Code very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the Honor Code, students are obligated to report any such activities to the Instructor.