ELE457 Feedback Control Systems

Syllabus Fall 2009

Lecture: TTH 12:30-1:45 Kelley 103

Description Introduction to feedback control systems, transfer function, state-variable models, second order systems response and identification, steady-state errors, root locus analysis and design, Bode plots, Nyquist theory and frequency domain compensation techniques, modern control design, and introduction to Matlab/Simulink.

Text: Feedback Control System, 4th edition, Charles L. Phillips and Royce D. Harbor

Course Pre-requisites ELE313 Linear system
ELE314 Linear systems and signals

Instructor:

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No.	Topic	Read Sections
1.	Introduction to control system;	Chapter 1 &2
2	Laplace transform; System modeling; Transfer function	Chapter 2, Appendix B
3.	Block diagrams; Signal flow graphs, First and second order system	Chapter 4
4.	Transient response; Frequency response	Chapter 5
5.	Stability; Stead-state errors;	Chapter 5 Chapter 6
	EXAM 1	
6.	Stability analysis	Chapter 7
7.	Root Locus analysis	Chapter 7
8.	Root locus examples	Chapter 7
9.	PID design	Chapter 8
	EXAM 2	
10.	Bode diagram	Chapter 8
11.	Nyquist criterion	Chapter 8
12.	Frequency response design	Chapter 9
	FINAL EXAM	

Grades:

EXAM 1	25%
EXAM 2	25%
FINAL	35%
Homework & Quizzes	15%