

WINTER COURSE 2007
NONLINEAR CONTROL SYSTEMS
ECE/MEE 236

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This is an introductory course presenting the fundamentals of nonlinear dynamical systems and several feedback control designs for stabilization and tracking. Basic concepts are illustrated by real-life examples. Understanding the meaning of the main theorems is the primary goal, with less emphasis on the details of their proofs.

TOPICS:

- Lyapunov Stability
- Invariance Principle
- Design with Control Lyapunov Functions
- Input-Output Stability
- Passivity
- Circle and Popov Criteria
- Center Manifold
- Perturbations and Averaging
- Feedback Control Design

PREREQUISITES:

ECE 230A and one ODE course, or consent of the instructor.

TEXT:

Nonlinear Systems, by H.K. Khalil
Prentice Hall (any edition)
ISBN 0-13-067389-7