Santa Clara University  
Department of Mechanical Engineering

MECH 218 - Guidance and Control I

Catalog Description: Modern and classical concepts for synthesis and analysis of guidance and control systems. Frequency and time domain methods for both continuous-time and sampled data systems. Compensation techniques for continuous-time and discrete-time control systems.

Learning Outcomes:
Modern and classical concepts for synthesis and analysis of guidance and control systems. Frequency and time domain methods for both continuous-time and sampled data systems. Compensation techniques for continuous-time and discrete-time control systems. Prerequisite: MECH 217, 142, or consent of instructor.

Topics Covered:
- Introduction and Review: Freq Response Techniques, Root Locus
- Continuous Time System Synthesis/Compensation: PID, Desired Transfer Function, Lead/Lag, Inner Loop Feedback, Feedahead, Observers, Linear Quadratic Regulator
- Digital Control Systems: Sampling, ZTransforms, Synthesis/Compensation, Quantization Effects

Textbook: Class Notes available at SCU Bookstore and on class website.

Grading: None

Course Type: Required, graduate level mechanical engineers.

Prerequisites: Undergraduate course on Ordinary Differential Equations.

Co-requisite: None

Engineering Honor Code: All students taking courses in the School of Engineering agree, individually and collectively, that they will not give or receive unpermitted aid in examinations or other course work that is to be used by the instructor as the basis of grading.

Disability Accommodation Procedure: To request academic accommodations for a disability, students must contact Disabilities Resources located on the second floor of Benson. Phone numbers are (408) 554-4111; TTY (408) 554-5445. Students must register and provide documentation of a disability to Disabilities Resources prior to receiving academic accommodations.

Prepared By: Hugh Dougherty Date: 05/05/2010