

**EE 4406-001 Controls Laboratory
Fall 2009**

University of Colorado at Denver
College of Engineering and Applied Science

Course dates/times: F 2:30-5:20 pm

Course location: NC2609

Instructor: Kelly Campbell

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Website: <http://blackboard.cuonline.edu/>

Phone: 303-981-2803

Office: NC 2404C

Office Hours: M 3:00 – 4:00 pm, W noon – 1:00 pm

Course Catalogue Description:

This lab includes system identification, design of velocity control systems, design of PID controllers, and control systems using state variable feedback.

Prerequisites: EE 3225 Electronics II, EE 3316 Linear Systems, EE 3735 Junior Laboratory, EE 3817 Probability and Statistics

Requirements: Laboratory manual and hardware will be provided.

Assessment: Grades will be based on experiment reports and laboratory participation. Each group will submit a report, meaning every group member will receive the grade on the report. Late reports will be accepted no later than one week past due, after which reports will not be accepted.

50% **Experiment Reports:** Each report should conform to the format outlined in the laboratory manual and should contain all preliminary calculations, simulation plots and schematics, and raw data collected during the experiment.

50% **Laboratory Participation:** Each member of the group must actively participate in experiment design, hardware implementation, test equipment operation, and data collection. **Every experiment must be demonstrated in order to be completed.**

Attendance:

Attendance will taken every lab session. Prior notification of an absence must be given. In an emergency, notification is made by email or phone no later than the day of the experiment.

Course Schedule

Aug 21,	Experiment 1, System Identification – Plant Emulator
Aug 28,	Experiment 1
Sep 4,	Experiment 1
Sep 11,	Experiment 2, Rigid body PD and PID Control, report 1 due
Sep 18,	Experiment 2
Sep 25,	Experiment 2
Oct 2,	Experiment 3, Fundamentals of servo control, report 2 due
Oct 9,	Experiment 3
Oct 16,	Experiment 3
Oct 23,	Experiment 4, Control of plant with drive flexibility, report 3 due
Oct 30,	Experiment 4
Nov 6,	Experiment 4
Nov 13,	Experiment 5, Control of plant with backlash, report 4 due
Nov 20,	Experiment 5
Nov 27,	Fall break, no lab
Dec 4,	Experiment 6, Inverted pendulum
Dec 11,	Finals week, report 6 due

Students called for military duty

- “If you are a student in the military with the potential of being called to military service and /or training during the course of the semester, you are encouraged to contact Paul Rakowski in the Dean’s office.