ECE664-102 Spring 2009
Real-Time Control Systems

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Tentative Schedule

Week	Topic
1	Introduction to real-time control systems
2	Architecture of DSP systems: the TMS320C6416
3	Properties of sampled-data systems
4	Properties of sampled-data systems (cont'd)
5	Review of Z-transform
6	Solution of discrete time systems
7	Coordinate transformation, delay modeling
8	Mid-term Examination
9	Digital controller design I: Parameter optimized controllers
10	Digital controller design II: State controllers
11	Digital controller design III: Feedforward and Cancellation controllers
12	Command shaping and applications
13	Practical issues: sampling rate, dead-time, scaling, reset windup, etc.
14	Experiment/ project presentation
15	Final Exam

Grading Scheme: 30% Midterm, 30 % Final, 10% Assignment, 30% Project

Text: Lecture notes (free web site download)

- Computer Control Systems: Design and Theory, 3rd Ed., Astrom & Wittenmark, Prentice-Hall.

Required Software:
MATLAB 2008+, Mathworks, Inc. (free NJIT web site download: ist.njit.edu)

References

1. Applied Optimal Control & Estimation: digital design & implementation, by F.L. Lewis, Prentice-Hall, 1992.
2. Feedback Control Systems, Van de Vegte, Prentice-Hall.

NJIT Honor Code will be upheld, and that any violations will be brought to the immediate attention of the Dean of Students.