

ME 481/581—Digital Control

Spring 2008 Schedule (Revision C)

Below is a detailed schedule for the Spring 2008 semester. Some deviations may occur, but adherence to this schedule will guarantee that we cover the material.

NOTE: In the table below, “MP” and “FP” represent Midterm Project and Final Project; more accurately called Part I and Part II.

Date	Day	Chapter	Sections	Remarks
1/23	W	1	1.1,1.2	Introduction
1/25	F	2	2.2,2.3	Difference equations and Z-transforms
1/28	M	2	2.3,2.4	Transfer functions and dynamic response
1/30	W	2	2.5,2.6,2.7	s-plane, z-plane, and frequency response
2/1	F	2	HW due	HW solution discussed
2/4	M	3	3.1,3.2	Simulation using integration rules
2/6	W	3	3.2	Integration rules and pole-zero mapping
2/8	F	3	3.3,3.4,3.5,3.6	Comparison of simulation methods
2/11	M	3	HW due	HW solution discussed
2/13	W	4	4.1,4.2	Sampling modeled as impulse modulation
2/15	F	4	4.2,4.3	Frequency spectra of sampled signals (aliasing)
2/18	M	4	4.3,4.4	Desampling (signal reconstruction)
2/20	W	4	4.4,4.5	Block diagrams
2/22	F	4	Demo	Aliasing & Notch Filter Demo (MTTC lab)
2/25	M	4	HW due	HW solution discussed
2/27	W	8	8.1,8.2	System ID—models and data organization
2/29	F	8	8.3,8.4,8.5	System ID using least-squares
3/3	M	5	HW due	HW solution discussed
3/5	W	5	5.1	Intro. to transform-based pole placement
3/7	F	5	5.2,5.3	Design in s-plane, map to z-plane (sampling ignored)
3/10	M	5	5.4	Design in z-plane (sampling considered)
3/12	W	5	HW due/MP assigned	HW Solution/Transform-Based Project (Part I)
3/14	F	1–4, 8	class coverage	Midterm Exam
3/24	M	5	5.6	The use of Simulink in modeling systems
3/26	W	5	5.6,5.7	Effect of derivative and integral control action
3/28	F	5	5.7	PID-style controllers
3/31	M	5	HW due	HW solution discussed
4/2	W	6	6.1,6.2	Continuous system modeling using state variables
4/4	F	6	6.2,6.4	MATLAB tools for state-space analysis
4/7	M	6	HW Hints/Project Due	Chapter 6 HW Problem 1/Controllers due by 5:00 p.m.
4/9	W	-	MP Validation	How well do your TF-based controllers work? (MTTC lab)
4/11	F	7	HW due/7.1,7.2	HW discussion, state-variable discrete system modeling
4/14	M	7	7.3	Solution to the discrete-time state equation
4/16	W	7	7.4	State feedback control law, controllability
4/18	F	7	7.5	State prediction estimator design
4/21	M	7	HW Due/FP assigned	HW due & State-Space Project (Part II)
4/23	W	7	7.4,7.5	Recap of state feedback control law and estimator
4/25	F	7	7.6	Combining state feedback law and estimator
4/28	M	7	HW due	
4/30	W	7	7.8	Addition of reference input for SISO systems
5/2	F	7	7.9,7.10	Addition of reference input for MIMO systems
5/5	M	7	HW due (optional)	HW solution discussed
5/6	Tu	-	FP controller parameters due by 5:00 p.m.	email to starr@unm.edu
5/7	W	7	FP validation	How well do your SS controllers work? (MTTC lab)
5/9	F	7	FP discussion	Discussion of FP controller performance
5/14	W	all	Reports due	Final reports due (both MP and FP data)