EE438 Digital Signal Processing with Applications
Fall 2007 - Lecture and Laboratory Schedule

Wk	Day	HW due	Laboratory	Lecture number and title	Readings
1	Aug. 20			1. Introduction	1
	Aug. 21		Lab 1: D-T and C-T Sig.		
	Aug. 22			2. Signal Properties	1
	Aug. 23		Lab 1: D-T and C-T Sig.		
	Aug. 24			3. System Properties	1
2	Aug. 27			4. CTFT & DTFT	2
	Aug. 28		Lab 2: Dis.-Time Systems		
	Aug. 29			5. Frequency analysis	2
	Aug. 30		Lab 2: Dis.-Time Systems		
	Aug. 31	HW#1		6. Sampling	3
3	Sept. 3		******************Labor Day******************		
	Sept. 4		Lab 3: Freq. Analysis		
	Sept. 5			7. Reconstruction	3
	Sept. 6		Lab 3: Freq. Analysis		
	Sept. 7	HW#2		8. D-T Filt. & Zero Order Hold	3
4	Sept. 10			9. Interpolation & Decimation	4
	Sept. 11		Lab 4: Sampling and Recon.		
	Sept. 12			10. Z-transform	5
	Sept. 13		Lab 4: Sampling and Recon.		
	Sept. 14	HW#3		11. Z-transform	5
5	Sept. 17			12. DFT	6
	Sept. 18		Lab 5: Digital Filter Designs (week 1)		
	Sept. 19			13. FFT	6
	Sept. 20		Lab 5: Digital Filter Designs (week 1)		
	Sept. 21			**EXAM**	
6	Sept. 24			14. Circular Convolution	6
	Sept. 25		Lab 5: Digital Filter Designs (week 2)		
	Sept. 26			15. Quantization	
	Sept. 27		Lab 5: Digital Filter Designs (week 2)		
	Sept. 28	HW#4		16. 2-D Intro. & CSFT	
7	Oct. 1			17. CSFT properties	
	Oct. 2		Lab 6: DFT & FFT (week 1)		
	Oct. 3			18. 2-D Transform pairs	
	Oct. 4		Lab 6: DFT & FFT (week 1)		
	Oct. 5	HW#5		19. 2-D scanning & sampling	
8	Oct. 8		***************Fall Break*****************		
	Oct. 9		***************Fall Break*****************		
	Oct. 10			20. Tomography	
	Oct. 11		Lab 6: DFT & FFT (week 2)		

	Oct. 12	HW#6	21. Tomography

	Oct. 15		22. Tomography
9	Oct. 16	Lab 6: DFT & FFT (week 2)	
	Oct. 17		23. Tomography
	Oct. 18	Lab 7: D-T Random Processes (week 1)	
	Oct. 19		**EXAM**

	Oct. 22		24. Tomography
10	Oct. 23	Lab 7: D-T Random Processes (week 1)	
	Oct. 24		25. Point wise image mappings
	Oct. 25	Lab 7: D-T Random Processes (week 2)	
	Oct. 26	HW#7	26. 2-D Filtering

	Oct. 29		27. Probability
11	Oct. 30	Lab 7: D-T Random Processes (week 2)	
	Oct. 31		28. Expectation
	Nov. 1	Lab 8: Quantization	
	Nov. 2	HW#8	29. Covariance and autocorrelation

	Nov. 5		30. Random Processes
12	Nov. 6	Lab 8: Quantization	
	Nov. 7		32. Speech
	Nov. 8	Lab 9: Speech Processing (week 1)	
	Nov. 9	HW#9	33. Power Spectrum

	Nov. 12		
13	Nov. 13	Lab 9: Speech Processing (week 1)	
	Nov. 14		34. Speech
	Nov. 15	Lab 9: Speech Processing (week 2)	
	Nov. 16		**EXAM**

	Nov. 19		35. Speech
14	Nov. 20	Lab 9: Speech Processing (week 2)	
	Nov. 21	********Thanksgiving Break*************	
	Nov. 22	********Thanksgiving Break*************	
	Nov. 23	********Thanksgiving Break*************	

	Nov. 26		36. Speech
15	Nov. 27	Lab 10: Image Processing (week 1)	
	Nov. 28		37. Speech
	Nov. 29	Lab 10: Image Processing (week 1)	
	Nov. 30	HW#10	38. Speech

	Dec. 3		39. Speech
16	Dec. 4	Lab 10: Image Processing (week 2)	
	Dec. 5		40. Speech
	Dec. 6	Lab 10: Image Processing (week 2)	
	Dec. 7		41. Speech

Recommended Reading

1. Signals and systems:

   P&M Chapter 1, Sec. 1.1 - 1.3 (pp. 1-21)

   P&M Chapter 2, Sec. 2.1 - 2.3 (pp. 43-95)

   P&M Chapter 2, Sec. 2.4.4 (pp. 108-111).

2. Discrete-time Fourier transform:

   P&M Chapter 4, Sec. 4.2.3 - 4.4.4 (pp. 253-319).

3. Sampling:

   P&M Chapter 1, Sec. 1.4.1 – 1.4.2 (pp. 22-33);

   P&M Chapter 9, Sec. 9.3 (pp. 763-774);

4. Sampling rate conversion

   P&M Chapter 10, Sec. 10.1-10.4 (pp. 782-792).

5. Z transform:

   P&M Chapter 3, Sec. 3.1 – 3.4 (pp. 151-196)

   P&M Chapter 3, Sec. 3.6.1 - 3.6.6 (pp. 203-212).

6. Discrete Fourier transform

   P&M Chapter 5, Sec. 5.1 – 5.4 (pp. 394-439);

   P&M Chapter 6, Sec. 6.1 – 6.2 (pp. 448-478).

Key

P&M   *Digital Signal Processing*, 3rd edition, John G. Proakis and Dimitris G. Manolakis, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, ISBN 0-13-373762-4, 1996.