ECE 3510 Spring Semester, 2024

Week	Month	Mon	Tue	Wed	Thur	Fri
1	Jan	8 L1 Syllabus, etc. Servo, Introduction to Feedback Systems, Block diagrams	9	10 L2 Transfer functions and signals, The Laplace transform of signals	11	12 L3 The Laplace transform, Relationship between pole locations and signal shapes
2		15 Martin Luther King Day	16	17 L4 Inverse of Laplace transforms using partial fraction expansions	18	19 L5 Inverse Laplace, Properties of signals (bounded, converge)
3		22 L6 Transfer functions, Interconnected systems, Feedback system	23	24 L7 Systems, Circuits, BIBO stability	25	26 L8 Responses to impulse and step inputs, 1st & 2nd order
4		29 L9 Responses to step inputs, % overshoot, effect of zeros	30	31 L10 Responses to sinusoidal inputs, sinusoidal steady-state	1	2 L11 Effect of initial conditions, State-space advantages
5	Feb	5 L12 Electrical analogies of mechanical systems	6	7 Exam 1	8	9 L13 Electrical analogies of mechanical systems
6		12 L14 Stability and Performance of Control Systems	13	14 L15 Steady-state error and integral control	15	16 L16 Routh-Hurwitz stability test
7		19 Presidents Day	20	21 L17 Root-locus introduction, main rules, RL1	22	23 L18 Root-locus main rules, examples
8		26 L19 Root-locus additional rules, examples	27	28 L20 Root-locus additional rules, examples	29	1 L21 Root-locus design, PI, Lag, PD, Lead, Example 1
	Mar	4 Spring Break	5	6	7	8
9		11 L22 Root-locus design, PID, Lag - lead, Catchup and Review	12	13 Exam 2	14	15 L23 Feedback design for phase-locked loops, discussion of PLL lab
10		18 L24 Variations of Root Locus	19	20 L25 Pole dominance, Physical realization,	21	22 L26 PID tuning and Relay logic
11		25 L27 Ladder Logic & Programmable Logic Controllers (PLCs)	26	27 L28 Frequency-Domain, Bode plots, basic examples	28	29 L29 Bode Plots complex poles & zeros, damping fact., nat. freq.
12	April	1 L30 Bode Plots to Transfer functions	2	3 Exam 3	4	5 L31 Bode Plots to Transfer functions, Gain and phase margins
13		8 L32 Relation to transient response, Frequency-Domain Design, Zin, Zout	9	10 L33 Amplifier Feedback & freq response, Op Amp compensation	11	12 L34 Discrete-time Signals and Systems
14		15 L35 The z-transform and properties	16	17 L36 Properties of the z-transform	18 ME Design Day, Union Build.	19 L37 Inverse z-transform
15		22 L38 Digital control	23 Last Day of Classes	24 Reading Day	25	26 Finals
16	May	29 3510 Final 10:30 AM	30	1	2 Freedom	3