ECE 3510 Spring Semester, 2023 01/23/23

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

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