ECE421 Fall 2016

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Textbook: Modern Control Engineering, 5th Edition, K. Ogata, Prentice Hall, 2010, Chapters 1,2, 5 - 7.

9:00-10:15 Tuesday -Thursday, David King Hall, Rm 1006

1. Tuesday Aug. 30 Introduction 1
2. Thursday Sept. 1 Introduction and Block diagrams 1, 2
3. Tuesday Sept 6 First-order systems 5
4. Thursday Sept.8 Block diagrams 2
5. Tuesday Sept. 13 Second-order systems 5
6. Thursday Sept. 15 Second-order systems 5
7. Tuesday Sept. 20 Second-order systems 5
8. Thursday Sept. 22 Types of control actions 5
9. Tuesday Sept. 27 Stability analysis with the Routh array 5
10. Thursday Sept 29. Steady-state error 5
11. Tuesday Oct.4 Steady-state error 5
12. Thursday Oct. 6 Test 1, Chapters 1, 2, and 5
13. Thursday Oct. 13 Introduction to pole movement, the root locus 6
14. Tuesday Oct. 18 Root locus 6
15. Thursday Oct. 20 Root locus 6
16. Tuesday Oct. 25 Introduction to compensator design 6
17. Thursday Oct. 27 Compensator design using root locus 6
18. Tuesday Nov. 1 Compensator design using root locus6
19. Thursday Nov. 3 Compensator design using root locus 6
20. Tuesday Nov. 8 Polar plots and the Nyquist stability criterion 7
21. Thursday Nov. 10 Review of Bode plots 7
22. Tuesday Nov. 15 Test 2 Chapters 6 and 7
23. Thursday Nov. 17 Relative stability, gain and phase margins 7
24. Tuesday Nov. 22 Gain and phase margins 7
25. Tuesday Nov. 29 Compensator design using Bode plots, phase lag 7
26. Thursday Dec. 1 Compensator, complete phase lag, begin phase lead 7
27. Tuesday Dec. 6 Compensator design, complete phase lead 7
28. Thursday Dec. 8 Compensator design, phase lead-lag combination 7

Final Exam Thursday Dec. 15, 7:30 to 10:15 am,
Office Hrs Tuesday 12 to 1pm and Thursday 3 to 4pm

HOMEWORKS and Due Dates

1. Tuesday Sept 6 B 2.4
2. Tuesday Sept 13 B 2.1, 2.2, 2.3, 5.1
3. Tuesday Sept 20 B 5.2, 5.3, 5.5, 5.9, 5.12, 5.13
4. Tuesday Sept 22 B 5.15, 5.20, 5.21, 5.22, 5.23, 5.24
5. Tuesday Oct 4 B 5.26, 5.27, 5.28
6. Thursday Oct 13 B 6.1, 6.2, 6.5, 6.6
7. Thursday Oct 20 B 6.11, 6.12a, 6.14, 6.18
8. Thursday Oct 27 B 6.19, 6.20
9. Thursday Nov 3 B 6.21, 6.23, 6.28
10. Thursday Nov 10 B 7.16, 7.18, 7.24, 7.25
11. Thursday Nov 17 B 7.31, 7.34
12. Thursday Dec 1 B 7.33

Project assignments will be emailed to the class as well as being posted on the class website.

Important Dates

Thursday Oct 6, Test 1
Thursday, Oct 13, Project 1 due
Tuesday, Nov 15, Test 2
Tuesday Nov 29, Project 2 due
Thursday Dec 15, Final Exam 7:30-10:15 am

Grading

Test 1	25%
Test 2	25%
Homework	10%
Project 1	5%
Project 2	5%
Exam	30%