

ECE421 Spring 2012
Dr. Gerald Cook Rm 3207 Nguyen Engineering Building
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Textbook: Modern Control Engineering, 5th Edition, K. Ogata, Prentice
Hall, 2010, Chapters 1,2, 5 - 7.

10:30-11:45 Monday and Wednesday, Rm 3 Lecture Hall

1. Monday Jan. 23 Introduction 1
2. Wednesday Jan 25 Introduction and Block diagrams 1, 2
3. Monday Jan 30 First-order systems 5
4. Wednesday Feb 1 Block diagrams 2
5. Monday Feb 6 Second-order systems 5
6. Wednesday Feb 8 Second-order systems 5
7. Monday Feb 13 Second-order systems 5
8. Wednesday Feb 15 Types of control actions 5
9. Monday Feb 20 Stability analysis with the Routh array 5
10. Wednesday Feb 22 Steady-state error 5
11. Monday Feb 27 Steady-state error 5
12. Wednesday Feb 29 Test 1, Chapters 1, 2, and 5
13. Monday Mar5 Introduction to pole movement, the root locus 6
14. Wednesday Mar 7 Root locus 6
- SPRING BREAK March 11-March 17
15. Monday Mar 19 Root locus 6
16. Wednesday Mar 21 Introduction to compensator design 6
17. Monday Mar 26 Compensator design using root locus 6
18. Wednesday Mar 28 Compensator design using root locus 6
19. Monday Apr 2 Compensator design using root locus 6
20. Wednesday Apr 4 Polar plots and the Nyquist stability criterion 7
21. Monday Apr 9 Review of Bode plots 7
22. Wednesday Apr 11 Test 2 Chapters 6 and 7
23. Monday Apr 16 Relative stability, gain and phase margins 7
24. Wednesday Apr 18 Gain and phase margins 7
25. Monday Apr 23 Compensator design using Bode plots, phase lag 7
26. Wednesday Apr 25 Compensator, complete phase lag, begin phase lead 7
27. Monday Apr 30 Compensator design, complete phase lead 7
28. Wednesday May 2 Compensator design, phase lead-lag combination 7

Final Exam Wednesday May 9, 10:30 to 1:15 pm,
Office Hrs Monday 2:45 to 4:15 and Tuesday 1:15 to 2:15

HOMEWORKS and Due Dates

1. Monday Jan 30 B 2.4
2. Monday Feb 6 B 2.1, 2.2, 2.3, 5.1
3. Monday Feb 13 B 5.2, 5.3, 5.5, 5.9, 5.12, 5.13
4. Monday Feb 19 B 5.15, 5.20, 5.21, 5.22, 5.23, 5.24
5. Monday Feb 26 B 5.26, 5.27, 5.28
6. Monday Mar 5 B 6.1, 6.2, 6.5, 6.6
7. Monday Mar 19 B 6.11, 6.12a, 6.14, 6.18
8. Monday Mar 26 B 6.19, 6.20
9. Monday Apr 2 B 6.21, 6.23, 6.28
10. Monday Apr 9 B 7.16, 7.18, 7.24, 7.25
11. Monday Apr 16 B 7.31, 7.34
12. Monday Apr 23 B 7.33

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

Important Dates

Wednesday Feb 29 Test 1
Wednesday, Mar 21 Project 1 due
Wednesday, Apr 11 Test 2
Monday Apr 30 Project 2 due
Wednesday May 9 Final Exam

Grading

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