ECE421 Fall 2013

Dr. Gerald Cook Rm 3207 Nguyen Engineering Building
gcook@gmu.edu (703) 993-1699

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

9:00-10:15 Tuesday and Thursday, Rm 3 Lecture Hall

1.Tuesday Aug. 27 Introduction 1
2.Thursday Aug. 29 Introduction and Block diagrams 1, 2
3. Tuesday Sept 3 First-order systems 5
4. Thursday Sept 5 Block diagrams 2
5. Tuesday Sept 10 Second-order systems 5
6. Thursday Sept 12 Second-order systems 5
7. Tuesday Sept 17 Second-order systems 5
8. Thursday Sept 19Types of control actions 5
9. Tuesday Sept 24 Stability analysis with the Routh array 5
10. Thursday Sept 26 Steady-state error 5
11. Tuesday Oct 1 Steady-state error 5
12. Thursday Oct 3 Test 1, Chapters 1, 2, and 5
13. Tuesday Oct 8 Introduction to pole movement, the root locus 6
14. Thursday Oct 10 Root locus 6
15. Thursday Oct 17 Root locus 6
16. Tuesday Oct 22 Introduction to compensator design 6
17. Thursday Oct 24 Compensator design using root locus 6
18 Tuesday Oct 29 Compensator design using root locus6
19. Thursday Oct 31 Compensator design using root locus 6
20. Tuesday Nov 5 Polar plots and the Nyquist stability criterion 7
21. Thursday Nov 7 Review of Bode plots 7
22. Tuesday Nov 12 Test 2 Chapters 6 and 7
23. Thursday Nov 14 Relative stability, gain and phase margins 7
24. Tuesday Nov 19 Gain and phase margins 7
25. Thursday Nov 21 Compensator design using Bode plots, phase lag 7
26. Tuesday Nov 26 Compensator, complete phase lag, begin phase lead 7
27.Tuesday Dec 3 Compensator design, complete phase lead 7
28. Thursday Dec 5 Compensator design, phase lead-lag combination 7

Final Exam Thursday Dec 12, 7:30 to 10:15 am,
Office Hrs Tuesday 1:15 to 2:15pm and Wednesday 2:45 to 4:15pm

HOMEWORKS and Due Dates

1. Tuesday Sept 3 B 2.4
2. Tuesday Sept 10 6 B 2.1, 2.2, 2.3, 5.1
3. Tuesday Sept 17 B 5.2, 5.3, 5.5, 5.9, 5.12, 5.13
4. Tuesday Sept 24 B 5.15, 5.20, 5.21, 5.22, 5.23, 5.24
5. Tuesday Oct 1 B 5.26, 5.27, 5.28
6. Tuesday Oct 8 B 6.1, 6.2, 6.5, 6.6
7. Thursday Oct 17 B 6.11, 6.12a, 6.14, 6.18
8. Thursday Oct 24 B 6.19, 6.20
9. Thursday Oct 31 B 6.21, 6.23, 6.28
10. Thursday Nov 7 B 7.16, 7.18, 7.24, 7.25
11. Thursday Nov 14 B 7.31, 7.34
12. Thursday Nov 21 B 7.33

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

Important Dates

Thursday Oct 3, Test 1
Thursday, Oct 24 Project 1 due
Tuesday Nov 12, Test 2
Tuesday Nov 26 Project 2 due
Thursday Dec 12 Final Exam

Grading

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