ECE421 Fall 2009

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

Textbook: Modern Control Engineering, 4th Edition, K. Ogata, Prentice Hall, 2002, Chapters 1, 3, 5 – 9.

3:00-4:15 Monday and Wednesday, Rm 2053 David King

1. Monday Aug. 31 Introduction 1
2. Wednesday Sept 2 Introduction and Block diagrams 1, 3
3. Wednesday Sept 9 First-order systems 5
4. Monday Sept 14 Block diagrams 3
5. Wednesday Sept 16 Second-order systems 5
6. Monday Sept 21 Second-order systems 5
7. Wednesday Sept 23 Second-order systems 5
8. Monday Sept 28 Types of control actions (material not on Test 1) 5
9. Wednesday Sept. 30 Stability analysis with the Routh array 5
10. Monday Oct. 5 Steady-state error 5
11. Wednesday Oct. 7 Steady-state error 5
12. Tuesday Oct 13 Test 1, Chapters 1, 3, and 5
13. Wednesday Oct 14 Introduction to pole movement, the root locus 6
14. Monday Oct 19 Root locus 6
15. Wednesday Oct 21 Root locus 6
16. Monday Oct 26 Introduction to compensator design 7
17. Wednesday Oct 28 Compensator design using root locus 7
18. Monday Nov 2 Compensator design using root locus7
19. Wednesday Nov 4 Compensator design using root locus 7
20. Monday Nov 9 Polar plots and the Nyquist stability criterion 8
21. Wednesday Nov 11 Review of Bode plots 8
22. Monday Nov 16 Relative stability, gain and phase margins 8
23. Wednesday Nov18 Test 2 Chapters 6,7 and 8
24. Monday Nov 23 Gain and phase margins 8
25. Monday Nov 30 Compensator design using Bode plots, phase lag 9
26. Wednesday Dec 2 Compensator design using phase lag and lead 9
27. Monday Dec 7 Compensator design using Bode plots, phase lead 9
28. Wednesday Dec 9 Compensator design using Bode plots, lag-lead 9

Final Exams Dec 14-21, comprehensive, Chaps. 7, 8, 9 emphasized

HOMEWORKS

Go to ece.gmu.edu, then click on people, faculty by name, then click on Guy Beale under faculty emiriti, then syllabi from previous semesters, then Spring '06, ECE421, finally Homework Assignments. Correct due dates for this semester are given below.

- **HW #1: Date Due:** Wednesday, Sept. 9
- **HW #2: Date Due:** Wednesday, Sept. 16
- **HW #3: Date Due:** Wednesday, Sept 23
- **HW #4: Date Due:** Wednesday, Sept 30
- **HW #5: Date Due:** Wednesday, Oct 7
- **HW #6: Date Due:** Wednesday, Oct 14
- **HW #7 Date Due:** Wednesday, Oct 21
- **HW #8: Date Due:** Wednesday, Oct 28
- **HW #9: Date Due:** Wednesday, Nov 4
- **HW #10 Date Due:** Wednesday, Nov 11
- **HW #11: Date Due:** Wednesday, Nov 18
- **HW #12: Date Due:** Monday, Nov 30
- **HW #13: Date Due:** Monday, Dec 7

Important Dates

Tuesday Oct. 13 Test 1
Wednesday, Oct 21 Project 1
Wednesday, Nov 18, Test 2
Wednesday Dec 9, Project 2
Dec 14-21, Final Exams

Grading

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