

ECE421 Spring 2017  
Dr. Gerald Cook Rm 3207 Nguyen Engineering Building  
gcook@gmu.edu (703) 993-1699  
Textbook: Modern Control Engineering, 5th Edition, K. Ogata, PrenticeHall,  
Chapters 1,2, 5 – 7

10:30-11:45 Monday -Wednesday, Planetary 131

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 Mar 1 Test 1, Chapters 1, 2, and 5
  13. Monday Mar 6 Introduction to pole movement, the root locus 6
  14. Wednesday Mar 8 Root locus 6
  15. Monday Mar 20 Root locus 6
  16. Wednesday Mar 22 Introduction to compensator design 6
  17. Monday Mar 27 Compensator design using root locus 6
  18. Wednesday Mar 29 Compensator design using root locus 6
  19. Monday Apr 3 Compensator design using root locus 6
  20. Wednesday Apr 5 Polar plots and the Nyquist stability criterion 7
  21. Monday Apr 10 Review of Bode plots 7
  22. Wednesday Apr 12 Test 2 Chapters 6 and 7
  23. Monday Apr 17 Relative stability, gain and phase margins 7
  24. Wednesday Apr 19 Gain and phase margins 7
  25. Monday Apr 24 Compensator design using Bode plots, phase lag 7
  26. Wednesday Apr 26 Compensator, complete lag, begin phase lead 7
  27. Monday May 1 Compensator design, complete phase lead 7
  28. Wednesday May 3 Compensator design, phase lead-lag combination 7
- Final Exam Wednesday May 10, 10:30am to 1:15 pm,

Office Hrs for Dr. Cook Monday 3 to 4pm and Wednesday 1 to 3pm  
GTA Rm 3204

## **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 20 B 5.15, 5.20, 5.21, 5.22, 5.23, 5.24
5. Monday Feb 27 B 5.26, 5.27, 5.28
6. Monday Mar 6 B 6.1, 6.2, 6.5, 6.6
7. Monday Mar 20 B 6.11, 6.12a, 6.14, 6.18
8. Monday y Mar 27 B 6.19, 6.20
9. Monday Apr 3, B 6.23, 6.28
10. Monday Apr 10, B 7.016, 7.18, 7.24, 7.25
11. Monday Apr 17, B 7.31, 7.34
12. Monday Apr 24, B 7.33

Project assignments will be emailed to the class.

## **Important Dates**

Wednesday Mar 1, Test 1

Wednesday, Mar8, Project 1 due

Wednesday, Apr 12, Test 2

Monday Apr 24 , Project 2 due

Wednesday May 10, Final Exam 9:45am-11:45pm

## **Grading**

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