

ECE 1010

Problem Solving in Electrical and Computer Engineering I

Fall Semester 1997

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<http://ece.uccs.edu/wickert/ece1010/>

Office Hrs: Tue./Thurs. 1:30–2:30 pm Mon./Wed. 3:30–4:15 pm, others by appointment.
 Note: These hours may be adjusted if needed.

Required Texts: Delores M. Etter, *Engineering Problem Solving with MATLAB*, second edition, Prentice Hall, 1997.

Grading:

- 1.) Attendance 15% (two absences excused).
- 2.) Computer exercises 25% (hand-ins).
- 3.) Midterm Exam 25%.
- 4.) Final Exam 35%.

Objectives:

- 1.) To provide an introduction to electrical and computer engineering.
- 2.) To provide an awareness of the different areas of study in electrical and computer engineering in the ECE curriculum at CU–Colorado Springs.
- 3.) To develop problem solving skills that will be useful throughout an engineering education.
- 4.) To become proficient with MATLAB for solving engineering problems.

Outline:

Topics	Reading	Weeks
1. Lab Safety & Engineering problem solving	Chapter 1	0.5
2. The MATLAB environment	Chapter 2	1.5
3. MATLAB functions	Chapter 3	3
4. Linear algebra and matrices	Chapter 4	1
5. Solutions to systems of linear equations	Chapter 5	1
6. Interpolation and curve fitting	Chapter 6	1
7. Numerical integration and differentiation	Chapter 7	1
8. Ordinary differential equations	Chapter 8	1
9. Symbolic mathematics	Chapter 9	1
10. Special topics: signal processing, controls	Chapter 10–11	2
11. Graphical user interface (GUI) building in MATLAB	Notes	1

**Detailed
Course
Outline and
Assign-
ments¹:**

Note: Unless otherwise told, all class work is to be handed in at the beginning of the following class period.

Date	Topic	Reading	Classwork Turned In
8/26	Intro to course & safety	Chapter 1	Prob. 4, Chapt. 1
8/28	Scalars, vectors, and matrices	pp. 32–43	Practice!, p. 40
9/4	Output options and scalar and array operations	pp. 44–55	Practice!, p. 54
9/8	Additional plotting capabilities & Advanced Turboprop Engine	pp. 56–63	Prob. 8, p. 67

1. I hope to hand out a detailed schedule for the entire semester in the near future (watch the What's New Web page at <http://ece.uccs.edu/wickert/ece1010/>).