

## COMPUTER APPLICATIONS IN MECHANICAL ENGINEERING

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**Textbook:** Mathews, John H., "Numerical Methods Using Matlab", Third Edition, Prentice Hall, 1999.

**Prerequisite:** CompE 150, Math 252

**Office hours:** Tuesday 11-12, Wednesday 11-12

**Class hours:** Monday 15-17, Tuesday 16-17, (M 4100)

**Final Exam:** December 28, Tuesday 9-12 AM

**Grading:**

Homework	30 %
Midterm 1	22 %
Midterm 2	22 %
Final	26 %

No make-up exam unless in emergency with written excuse.

Homework is due on date indicated. Late homeworks will be penalized. After one week of their due date, they will not be accepted.

Midterms and final are open book but closed notes.

Using any computer language is permitted.

### Course Content

1. Preliminaries
2. The Solution of Nonlinear Equations  $f(x) = 0$
3. The Solution of Linear Systems  $AX = B$
4. Interpolation and Polynomial Approximation
5. Curve Fitting
- Midterm 1
6. Numerical Differentiation
7. Numerical Integration
8. Numerical Optimization
9. Solution of Differential Equations
- Midterm 2
10. Solution of Partial Differential Equations