Spring 2015

CE 402 COMPUTER METHODS IN ENGINEERING

Instructor: S.F. Masri; KAP 206A; email: masri@usc.edu

Office Hours: Monday/Wednesday: 3:30 - 5:30 pm
Telephone: 740-0602; 740-0603

Teaching Assistant: (Discussion Session) Mohamed Abdelbarr
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T.A. Office Hours: (KAP 239) M 1:00-2:00 p.m., T 2:00-3:30 p.m., W 1:00-2:00 p.m.

Class No. 29638R
Time & Place: Lecture 2:00 - 3:15 p.m. MW; KAP 144
Time & Place: Discussion 8:00 - 8:50 a.m. T; KAP 144

Textbook: “Numerical Methods for Engineers” (Sixth Ed.)
by: S.C. Chapra & R.P. Canale (McGraw-Hill)

Prerequisite: CE 108: “Introduction to Computer Methods in Civil Engineering”
MATH 245: “Mathematics of Physics and Engineering”

Final Exam: Monday, 11-MAY-2015, 2:00-4:00 p.m.

Grades: Homework/Midterm/Final: 20%/30%/50%
Remarks: About 10 homework projects will be assigned

** Late Homework will not be accepted. 
** No make-up on any examinations. 

**COURSE OUTLINE**

1. Introduction - Course Overview; Flowcharts
2. Software Tools - Mathematical Computation Software (Fortran, C, Matlab, Mathematica)
3. Solution of Nonlinear Algebraic Equations
4. Solution of Sets of Equations (Linear and nonlinear)
5. Optimization
6. Interpolation
7. Numerical Differentiation
8. Numerical Integration
9. Monte Carlo Techniques
10. Numerical Solution of Ordinary Differential Equations
11. Boundary-Value Problems and Characteristic-Value Problems
12. Curve-fitting and Approximation of Functions