UNIVERSITY OF SOUTHERN CALIFORNIA
Department of Civil Engineering

Spring 2011

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
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Teaching Assistant: (Discussion Session) Miguel Hernandez Garcia
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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 - 3:20 p.m. MW; TTH 116
Time & Place: Discussion 5:00 - 5:50 p.m. W; KAP 144

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

Prerequisite: CE 108 or equivalent:
“Introduction to Computer Methods in Civil Engineering”


Final Exam: Monday, 09-MAY-2011, 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