CE515 THEORY OF MATRIX STRUCTURAL ANALYSIS
2003-2004 Spring Semester

Instructor:
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Time: Tuesday 13.30- 16.15

Place: Civil Engineering Classroom

Course description: Analysis of discrete member systems; displacement and force methods; energy formulation; direct stiffness method; large displacements and stability; static and kinematic condensation; substructure analysis.

Grading: The final grades will be computed according to the following scheme:

- Homeworks 30 %
- Midterm Exam 30 %
- Take-Home Final 40 %

References:


Homework: A number of homework will be assigned during the term. All the work needs to be presented in a neat fashion. Late homework will be accepted with a penalty of 20 % for the first day and an additional of 10% for the following days.

Tentative Course Outline

1. INTRODUCTION AND REVIEW OF BASIC CONCEPTS
2. VIRTUAL WORK PRINCIPLES AND APPLICATIONS
3. DIRECT STIFFNESS METHOD
4. NONLINEAR ANALYSIS
   -GEOMETRIC NONLINEAR ANALYSIS
   -MATERIAL NONLINEAR ANALYSIS
5. SOLUTION OF LINEAR ALGEBRAIC EQUATIONS
6. SOLUTION OF NONLINEAR EQUILIBRIUM EQUATIONS
7. SPECIAL ANALYSIS PROCEDURES