CE 329 STRUCTURAL ANALYSIS
Unique Number: 15660
Fall 2008

Course Purpose:

CE 329 prepares you to analyze both statically determinate and statically indeterminate structural systems. This course lays the foundation for subsequent courses in reinforced concrete design, steel design, wood design, and masonry design. More importantly, it introduces the role of structural analysis in structural engineering.

Course Objectives:

By the end of the course, you should be able to do the following:

- Idealize a complicated structural system for the purpose of analysis.
- Model the behavior of structures under loads.
- Perform basic structural design.
- Compute support reactions.
- Analyze statically determinate planar trusses, beams, and frames using static equilibrium principles.
- Compute internal resultant forces in planar trusses, beams, and frames.
- Compute deflections for planar structures.
- Apply the principle of superposition.
- Compute the effects of moving loads and construct influence lines.
- Analyze statically indeterminate structures.
- Use structural analysis software to compute support reactions, internal member forces, and member defections.

Text:

Leet, K. M., Uang, C.-M., and Gilbert, A. (2008). *Fundamentals of Structural Analysis, 3rd Ed.* McGraw-Hill, New York.

Course Web Site:

Course information can be found on the Internet at http://www.ce.utexas.edu/prof/williamson/ce329/ as well as through *Blackboard*.

Suggested Reading:

The following book is recommended (but not required). It is available at bookstores.

Salvadori, M. S. (2002). *Why Buildings Stand Up: The Strength of Architecture*. W. W. Norton and Company, Inc. New York.

Office Hours:

Instructor: E. B. Williamson
MWF 10:00 – 11:00, W 2:00 – 3:00, and by appointment
Office: ECJ 4.722
Phone: 475-6175
email: ewilliamson@mail.utexas.edu

Class Hours:

W/F	1:00 – 2:00	ECJ 5.410
M	1:00 – 3:00	ECJ 5.410

The first hour on Monday will be devoted to lecture, and the second hour will be reserved for problem sessions.

Prerequisites:

EM 319 and credit or registration in CE 311K

Conduct of Course:

Attendance: The course consists primarily of lectures and in-class problems. Attendance is essential and will follow the policies set forth in the Undergraduate Catalog.

Homework: Homework problems will be assigned regularly. *Late work (any that come in after the beginning of the period on the due date) will receive a maximum grade of 50%.* Late work will not be accepted after the solution has been made available, nor will late work be accepted from any student more than three times over the course of the semester.

Homework Format: The homework problems are probably the most important vehicle for learning the material presented in this course. I expect homework to be correct and carefully prepared. There are two goals in doing the homework problems: *(a)* to learn the concept or method used in solving the given problem, and *(b)* to communicate your approach and results to someone else (the instructor or grader in this case).

To encourage the achievement of these goals I will insist that the problems be handed in according to the format shown in Figure 1 for the first *ten* homework problems. Subsequent homework solutions will not need to follow this format exactly, but bear in mind that part of your grade will still depend on appearance. *All* homework assignments for the semester should be done on engineering paper. The evaluation of each homework assignment will depend on both presentation aesthetics and technical correctness.

Tests: There will be two tests during the semester. The exams will be held on Mondays with the exact dates to be announced by the instructor. A final examination covering the entire course will be given during the regularly scheduled exam period (*Monday, December 15, 2:00 – 5:00*).

Missed Tests: If you miss a test without either a certified medical excuse or prior instructor approval, you may take a makeup test at a designated time near the end of the semester. Only one makeup test will be given. It will be fair but challenging! Tests missed with certified medical excuses or prior instructor approval will be dealt with individually. If you miss the final exam without a valid excuse, a zero will be averaged into your grade.
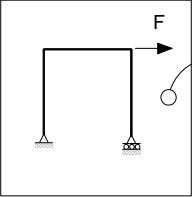
Figure 1. Homework format

Grading: Grades will be determined according to the following format: Midterm exam with higher grade (30%), midterm exam with lower grade (25%), homework (15%), and final examination (30%). ***In order to receive a passing grade for the course, you must have a cumulative exam average greater than 60***.

Notice: I do not curve grades in this course. It is theoretically possible for everyone in the class to get an A (or an F). Your performance depends only on how you do, not on how everyone else in the class does. Therefore, it is in your best interest to help your classmates in every *legal* way possible.

Gray areas between guaranteed letter grades: There will be a "gray area" of several points below the numerical cutoff for letter grades. Thus, two people getting the same numerical grade (say an 89) might receive different grades for the course. If you are in one of these gray areas, whether or not you receive the higher or the lower grade depends upon your improvement over the semester and your participation in class and group work. If your test performance has shown improvement and you actively participate in class activities, your grade will go up.

Academic Integrity: As engineers you will be responsible for upholding the canons of ethics for the profession. A test of your ability to do so is to uphold the University's Academic Honesty Policy. While I do not anticipate problems of this nature, any instances of academic dishonesty will be dealt with immediately and severely in accordance with published procedures. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Because such dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. For further information, visit the Student Judicial Services web site http://deanofstudents.utexas.edu/sjs/.

Consulting with the instructor: You are strongly encouraged to discuss academic or personal questions with the instructor during office hours or by email.

Course Evaluation:

The students will evaluate the course and the instructor on forms provided by the Measurement and Evaluation Center.

Additional Information:

Web-based, password-protected class sites will be associated with all academic courses taught at the University. Syllabi, handouts, assignments, and other resources are types of information that may be available within these sites. Site activities could include exchanging email, engaging in class discussions and chats, and exchanging files. In addition, electronic class rosters will be a component of the sites. Students who do not want their names included in these electronic class rosters must restrict their directory information in the Office of the Registrar, Main Building, Room 1. For information on restricting directory information, see the Undergraduate Catalog or go to:

http://www.utexas.edu/student/registrar/catalogs/gi00-01/app/appc09.html.

Conclusion:

Enjoy Structural Analysis! This class forms the foundation of all structures courses at U.T. To perform well, you must study diligently as the material will build from the first lesson through the remainder of the semester. Get off to a good start in your upper-division coursework – it can't possibly get any better than this!

The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4241 TDD, or the College of Engineering, Director of Students with Disabilities at 471-4382.