



CET 210-001      Structural Analysis and Design      3 credit hours

**COURSE SYLLABUS  
Spring 2005**

**INSTRUCTOR:** Mike Cooper

**OFFICE:** 320C OB Phone 257-4872 ext. 4329

**OFFICE HOURS:** One half hour before and after class, or as scheduled.

Email [michael.cooper@kctcs.edu](mailto:michael.cooper@kctcs.edu)

**DIVISION OFFICE:** Room 114 Maloney Building; phone ext. 4004

**AREA COORDINATOR:** Mike Binzer, 125 MB, 257-4872 ext. 4109

**DIVISION CHAIR:** Cindy Barber, 118 MB, 257-4872 ext. 4112

**TEXT:** Applied Statics, Strength of Materials, and Building Structural Design, by Joseph Wujek; Prentice Hall, 1999

Class Meets Tuesday and Thursday from 9:30 until 10:45 AM in room MB 151

**Will classes be canceled because of the weather?** Check the local radio and TV stations.

**CLASS POLICIES:**

Students are expected to attend all class meetings. An excused absence will be granted only if the Instructor is notified within 24 hours of the missed class. Coming into class late is not acceptable. Homework must be completed on time and in a neat and orderly manner. **NO CREDIT WILL BE GIVEN FOR LATE HOMEWORK.** Announced and unannounced quizzes are to be expected throughout the semester. Missed quizzes, tests, and homework resulting from an unexcused absence will receive a grade of zero. Every student is expected to read the textbook, study class notes, and be prepared for each class. You will be expected to contribute to each class session. For an excused absence, a test can be made up within one week of the absence. Please refer to the *Student Code of Conduct* booklet for the policy on excused absences.

<http://www.kctcs.edu/student/code.htm>.

**SPECIAL SERVICES** Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course **must** contact a staff member in LCC's Disability Support Services (DSS) office, 103 Oswald Building. The DSS telephone number is (859) 257-4872 x 4194. Please do not request accommodations directly from the instructor but do inform them of the situation no later than the end of the second class meeting.

**GRADING PROCEDURES:**

**GRADING SCALE:**

A = 100 - 94  
B = 93 - 85  
C = 84 - 75  
D = 74 - 65  
E = below 65 (failure)

There will be at least three (3) major exams and a final plus, multiple graded classroom and homework assignments. The semester average of the graded homework and classroom assignment will count as one exam in determining the semester's grade.

**WRITTEN WORK** Quizzes, homework, and exams may include some questions that require a written response. Proper use of mathematical notation and symbolism as well as the proper use of grammar rules will be required on all assignments.

**WITHDRAWAL POLICY** Students may withdraw from the class at any time before the last regularly scheduled day of class with the permission of the instructor.

**EQUIPMENT AND SUPPLIES** Access to the Internet, calculator, and 0.25" grid graph paper. Some assignments may be submitted electronically.

**ANGEL** The course syllabus, homework and reading assignments, grades and other topics of interest will be available on the Angel facility provided by the college. Students can access this via the Internet using <http://www.kcvu.org/home.htm>. To login, your User ID will be the first letter of your first name and your whole last name plus the last four digits of your Social Security Number (SSN). Your Password will be the last four digits of your SSN. Once you get in to your account you may change your profile. You should enroll before the next class period.

Angel has email capability. It will be important to have your email address when you establish your account. If possible use your UKy email address since some of the other providers limit the size of documents that can be sent through their facilities

Angel also will allow for the submission of electronic files directly to the Instructor for grading. If you chose to use this capability the submissions should have the Homework or lab number and your initials in the title.

**Course Description:**

The course will cover building structure for civil engineering technology students, including different types of building loads and their effect upon the various materials used by architects, engineers and technologists. The students will be introduced to quality construction techniques utilizing steel, concrete and reinforced concrete. Industry manuals, specifications and computer programs will be utilized to familiarize the student with current technology. 3 hours. Prereq: [ACH 225](#)

**Major teaching objectives**

- 1) Upon satisfactory completion of this course, students will be able to:
- 2) Determine types of building loads.
- 3) Calculate forces on beams and columns.
- 4) Identify types of structural steel and calculate the effect of forces placed on the structure.
- 5) Design simple structural steel beams using the current industry Steel Manual.
- 6) Design open-web steel joists.
- 7) Design simple structural steel columns.
- 8) Understand reinforced concrete principles.
- 9) Design simple reinforced concrete beams.
- 10) Design simple reinforced concrete columns.

**Course Outline – CET 210**

I. Introduction to building loads

- A. Types of building loads
- B. Service and design loads
- C. Reaction to loads

II. Fundamental beam design

- A. Types of force systems
- B. Components of force, resultants and moments

III. Fundamentals of column design

- A. Types of force systems
- B. Column design procedures

IV. Structural steel design

- A. Types of structural steel
- B. Structural steel design standards
- C. Using the current industry Steel Manual

V. Design of simple structural steel beams

- A. Selection from beam tables
- B. Basic beam design procedures

VI Design of steel joists

- A. Types of steel joists
- B. Selection from joist tables

VII. Design of simple structural steel columns

- A. Selection from column tables
- B. Basic column design procedures
- C. Design of column base plates

VIII. Principles of reinforced concrete

- A. Basics of concrete
- B. Basics of reinforced concrete
- C. Understanding reinforced concrete design standards

IX. Design of simple reinforced concrete beams

- A. Basic beam design procedure
- B. Design of tensile and web reinforcement

X. Design of simple reinforced concrete columns

- A. Basic column design procedure
- B. Design of reinforcement