



**CET 200-001**

**Civil Engineering Materials**

**3 hours**

**COURSE SYLLABUS  
Spring 2005**

**INSTRUCTOR:** Mike Cooper

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

**OFFICE HOURS:** One 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:** Materials for Civil and Construction Engineers, by Michael S. Mamlouk and John P. Zaniwsky; Addison Wesley 1999

**Will classes be canceled because of the weather?** Check the local TV and radio 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 four (4) major exams and a final, plus multiple graded classroom and homework assignments. The graded homework and classroom assignment will

count as one exam in determining the semester's grade. Grades will be calculated on the basis of total points accumulated divided by total possible for the semester.

**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.

**MAKEUP WORK IN THE CASE OF AN EXCUSED ABSENCE** In the case of a documented excused absence, makeup work will be handled as follows: Homework should be submitted within a week of the absence with the excuse attached. For quizzes, the student should contact the instructor within a week of the absence and make an appointment to take the quiz as soon as possible. For exams, the student should contact the instructor immediately and a make-up exam will be given before the next class period or during the last week of classes.

**LATE WORK** Late homework and take-home assignments are subject to a 20% per day penalty except in the case of an excused absence.

**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 and 0.25" grid graph paper.

**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 provide a practical look at current practice in the use of materials for civil engineering applications. Students will learn test procedures, design considerations, and overall evaluation methods for these materials. The course will include the study of soils, aggregates, concrete and asphalt cement. Lecture, 2 hours; laboratory, 3 hours.

Prereq: [ACH 160](#)

**Major Teaching Objectives**

Upon satisfactory completion of this course, students will be able to:

- 1) Understand the use and properties of mineral aggregates.
- 2) Understand the makeup and manufacture of cement.
- 3) Design a concrete mix.

- 4) Understand concrete testing.
- 5) Identify the characteristics of quality concrete construction.
- 6) Understand the makeup and manufacture of asphalt.
- 7) Complete a pavement design.
- 8) Understand asphalt testing.
- 9) Differentiate soil types.
- 10) Perform soil testing.

### **Course Outline**

- I. Properties of mineral aggregates
  - A. Aggregate terms and types
  - B. Specifications
  - C. Sampling and testing
- II. Properties of cement
  - A. Natural cements
  - B. Manufacture of Portland Cement
  - C. Effect of admixtures
- III. Design of concrete mixtures
  - A. Concrete materials
  - B. Proportioning concrete mixes
- IV. Concrete testing
  - A. Compression tests
  - B. Tensile test
- V. Quality concrete
  - A. Failure mechanism of concrete
  - B. Factors that cause deterioration
  - C. Admixtures
- VI. Properties of asphalt
  - A. Asphalt paving material
  - B. Asphalt concrete mix design
  - C. Production and quality control
- VII. Asphalt testing
  - A. Viscosity
  - B. Flash point
  - C. Ductility
- VIII. Soil Mechanics
  - A. Soil deposits
  - B. Field investigation techniques
  - C. Engineering properties of soils
- IX. Soil testing
  - A. Soil Classification
  - B. Test procedures