SACRAMENTO STATE
Construction Management

CALIFORNIA STATE UNIVERSITY, SACRAMENTO

College of Engineering and Computer Science

Construction Management Program

CM 40
Properties of Construction Materials

Course Syllabus
Fall 2008

Instructor: Dr. Karen Lee Hansen

Lecture: M, W 2:00 – 2:50 PM
456 Sequoia Hall

Lab: M 3:00 – 5:50 PM, W 11:00 AM – 1:50 PM, or W 3:00 – 5:50 PM
Riverside and Santa Clara Labs

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Office Hours:
Wednesday 11 – 11:45 AM and by appointment
Room 4042 Riverside

CM 40 - Properties of Construction Materials

Course Description
CM 40 is a course focussed on the study of the engineering performance characteristics of materials. The course covers testing concepts and procedures. It includes the basic properties of metals, aggregates, cements, concrete, timber, asphalt, masonry, and plastic with emphasis on construction applications.

Prerequisites
CM 020 and Physics 005A are the prerequisites for this class. Students must have completed these prerequisites with a grade of C- or better. Qualified students who have enrolled through Casper will be given the highest priority for admittance to overenrolled classes. Other qualified students will be admitted if room is available.

Academic Honesty and Grading System
All students are subject to the policies described in the University Catalogue. In particular, students should be familiar with the policies described in the most recent CSUS Catalogue.

General Course Objectives
1. To identify the basic properties that affect the engineering performance of the various materials used in construction

2. To give the students an opportunity to understand better these relationships through performance of standardized testing procedures

3. To instill in the students the proper respect for the exacting performance and evaluation procedures required to obtain valid, repeatable results

Specific Learning Outcomes
After completing this course, students should be able to:

1. Understand the engineering performance characteristics of a variety of construction materials
2. Conduct lab experiments following prescribed testing procedures
3. Evaluate the results obtained through performance of exacting testing procedures
4. Produce well-written laboratory reports
5. Explain the importance of standardized testing and why it is used within the construction industry
6. Make oral presentations regarding the engineering performance characteristics of materials

Textbook (Required)
Somayaji, Shan. (2001). *Civil Engineering Materials,* 2nd Edition. Prentice Hall, Upper Saddle River, NJ. ISBN: 0-13-083906-X

Other Required Materials
Safety glasses for use in laboratories

Course Organization
1. Lecture sessions will be held on Monday and Wednesday each week. Each student is responsible for reading the assigned material prior to the lecture session as noted on the attached schedule. This includes a careful review of the sample calculations within the assigned pages.

2. Each laboratory testing section will be conducted once each week. Students must attend the laboratory section on the day and time for which they are enrolled. As laboratory time is critically limited, each student must adequately prepare in advance for the session. In addition to the text material, students are also expected to make use of the engineering section of the CSUS Library in preparing for laboratory work and in writing of lab reports. Failure to complete the laboratory section of work satisfactorily will result in a grade of 'Incomplete.' Lab reports are due no later than one week after the laboratory has been performed***. Late lab reports will not be accepted.*** (Exceptions will only be made for medical emergencies.)

3. Exams will be conducted as noted on the attached schedule. There will be a total of two one-hour exams and one two-hour final. The final exam will be given at the date and time to be determined by the university final exam schedule.

Evaluation of Students' Performance

Grades will be weighted as follows:

Laboratory Participation and Reports	40%
First one-hour exam	20%
Second one-hour exam	20%
Final Exam	20%
Total	**100%**

Grading

Grades will be assigned in accordance with the grading policy of the university as outlined in the section entitled "Grading System" in the current copy of the university catalog. Any instance of academic dishonesty will result in a grade of "F" for the course and all other sanctions as applicable by the current university policy. Academic dishonesty includes, but is not limited to, copying another student's work.

Tentative Lab Schedule

Lab No.	Date Mon.	Date Wed.	Topic	Due Mon.	Due Wed.
1	9/8	9/10	Introduction & Safety	9/15	9/17
2	9/15	9/17	Fineness Modulus	9/22	9/24
3	9/22	9/24	Concrete Mix Design & Cast Cylinders	10/1	10/3
4	9/29	10/1	Aggregate Plant Field Trip	10/6	10/8
5	10/6	10/8	Construction Failure – Technical Report	10/13	10/15
6	10/13	10/15	Field Trip	10/20	10/22
7	10/20	10/22	Compression and Tension Tests of Concrete	10/27	10/29
8	10/27	10/29	Preparation of Asphalt Test Specimens	11/3	11/5
9	11/3	11/5	Marshall Stability Test	11/10	11/12
10	11/10	11/12	Timber Test	11/17	11/19
11	11/17	11/19	Tension Test of Steel	11/24	11/26
12	11/24	11/26	Green Building Materials – Technical Report	12/3	12/5
13	12/1	12/3	Rockwell Hardness Test	12/8	12/10

Tentative Instruction Schedule

Week	Date	Topic	Text Chapters
1	9/3	Introduction, Syllabus Review	
2	9/8	Materials and Methods, Lab Safety	1
	9/10	Mineral Aggregates	2
3	9/15	Mineral Aggregates	2
	9/17	Cements	3
4	9/22	Design Procedure in Making Concrete	3
	9/24	Cements	3
5	9/29	Field Trip	
	10/1	Field Trip	
6	10/6	Strength of Concrete	3
	10/8	Strength of Concrete	3
7	10/13	Field Trip	
	10/15	Field Trip	
8	10/20	Soils, Review	1,2,3,8
	10/22	**EXAM 1**	
9	10/27	Bituminous Materials	6
	10/29	Bituminous Materials	6
10	11/3	Wood and Wood Products	5
	11/5	Wood and Wood Products	5
11	11/10	Masonry	4
	11/12	Masonry, Review	4,5,6
12	11/17	**EXAM 2**	
	11/19	Iron and Steel	7
13	11/24	Iron and Steel	7
	11/26	Iron and Steel	7
14	12/1	Green Construction Materials	Outside Reading
	12/3	Green Construction Materials	Outside Reading
15	12/8	Plastics	8
	12/10	Final Exam Review	1-8, Outside