CE 330
Engineering Materials

Syllabus

Spring, 2013

Dr. Jianwei Huang, P.E.
Lecture time: M & W; 5:00 p.m. –5:50 p.m. in Engineering Building 1011

Instructor: Dr. Jianwei Huang. Office: EB 2067 (Tel.: 650-2498, Email: jiahuan@siue.edu)
Office Hours: M & W & F; 1:00 pm –2:00 p.m., and by appointment.

TA: Mr. Jeremy Eck, Office: EB0044 (Tel.:618-420-4572, E-mail: jereck@siue.edu)
Office Hours: M & W; 3:30 pm-4:30pm


Materials covered under the Reference section of the CE 330 course website (http://www.siue.edu/engineering/civilengineering/courses.shtml)


“Highway Materials”, Part I and II, American Association of State Highway and Transportation Officials (AASHTO), 2008. (Reserved in Mr. Brent Vaughn’s Office in the CE Department)

Course Objective: (1) This course is to provide CE junior students with an understanding of engineering properties of materials generally used in the CE/Constructional applications. The sustainable nature of each material is emphasized during the course. Due to the time restraint, only the following materials will be discussed in this semester: Wood, Aggregates, Cement Concrete, Asphalt Concrete and Steel.

(2) Students are expected to apply the knowledge they learned from this course to various design courses in their senior year.

Prerequisites: (1) Students are expected to utilize their knowledge from CE 242 (Mechanics of Materials) course to this course when we discuss about the engineering properties, such as stress-strain behaviors, of materials.

(2) Students need to have upper-division civil engineering standing for the background required to understand the topics discussed in this course.

(3) Please also register to the course web site through the laboratory course, CE 330L, in order to get access to the restricted areas on the web site.

Tentative Course Outlines:

1. Introduction (1 class, Chapter 1)
2. Ferrous metal (3 classes, Chapter 3)
3. Sustainability, and Novel Materials (1 class, Chapter 1)
4. Fine and coarse aggregates (4 classes, Chapter 5)
5. Asphalt binder and SuperPave Asphalt mix design (2 classes and 1 lab-week, Chapter 9)
6. Performance of Asphalt concrete (3 classes, Chapter 9)
7. Portland cement (3 classes, Chapter 6)
8. Design procedures for making concrete (1 classes, Chapter 7)
9. Performance of Portland Cement Concrete (2 classes, Chapter 7)
10. Timber and manufactured wood (4 classes, Chapter 10)
11. Atomic state (2 classes, Chapter 2)
12. Exams (2 classes)

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>15 %</td>
</tr>
<tr>
<td>Lab score</td>
<td>10 %</td>
</tr>
<tr>
<td>Exam #1</td>
<td>25 %</td>
</tr>
<tr>
<td>Exam #2</td>
<td>25 %</td>
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<tr>
<td>Final Exam (comprehensive)</td>
<td>25 %</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100 %</strong></td>
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</tbody>
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**Final Exam: April 29, 4:30pm-6:10pm, in EB 1011.**

**Class, Homework and Exam Requirements:**

1. Class participation is encouraged. You should inform the instructor in advance if due to an emergency you cannot attend any sessions of the class.
2. Most lab experiments have to be conducted before the lecture sequences because each experiment takes different time periods to complete and all the experiments have to be fitted within one semester. However, exams only cover the experiments that were completed.
3. Different sets of homework problems in the textbook will be assigned on the course website under the “Homework” section. Due to the unpredictable nature of the lecture sequences, some homework may be collected before the last lecture of the assigned sections. In general, each set of homework will be given one-week time for completion, unless there is a special delay indication given by the instructor. Late work can only be accepted when an approved excuse is presented. A 20% deduction of grade will be exercised for each day of delay. You don’t have to turn in your assigned work if the delay is more than 5-day.
4. The assigned work has to be neatly done on normal size papers (8.5 x 11”), and using necessary drawing tools for making required drawings.
5. A TA will be assigned to the course, and he/she will grade a selected set of homework problems. The same TA will post homework answers on the course web pages right after the due date of the assignment.
6. Discussion among students for topics presented in this course for the purpose of increasing their understanding of the course subjects is encouraged. However, work submitted for grading must be the product of the individual. Cheating in any forms is prohibited, and no points will be granted to the work done by persons who commit cheating. Students are expected to follow the university policy for their personal behaviors in the classroom.
7. Each exam will cover the materials as instructed by the instructor before the exam date. The exam contents are covered in the textbook, reference materials posted on the web, and the experiments conducted in CE330L course. In each exam, a 20-minute open book time is allowed for students to verify their answers. This open book time is insufficient for students to search for their answers. In order to do well in these exams, students are expected to read in detail the contents in the textbook and references on the course website as well as the experiments within the exam contents before the exams.
8. Video presentations of the movies produced by the Modern Marvels from the TV History Channel will be shown. Students will be informed for the time and location for each movie. The length of each movie is exactly 50 minutes. The attendance of the presentation is voluntary. However, you could earn three bonus points for your CE330 course grade if you attend 5 out of 7 presentations by the end of the semester.

Plagiarism
Deliberate plagiarism is a serious act of academic misconduct. Students may be suspended from the University if they are found to have plagiarized their course work. Whether inadvertent or deliberate, plagiarism includes the following:

(a) word-for-word copying of sentences or whole paragraphs or presenting of substantial extracts from either paper-based or electronic sources the work or data of others that are published or unpublished (such as books, internal reports, and lecture notes or tapes) without clearly indicating their origin
(b) using very close paraphrasing of sentences or whole paragraphs without due acknowledgement in the form of reference to the original work
(c) submitting another student’s work in whole or in part
(d) use of another person’s ideas, work or research data without acknowledgement
(e) copying computer files, algorithms or computer code without clearly indicating their origin
(f) submitting work that has been written by someone else on the student’s behalf
(g) submitting work that has been derived, in whole or in part, from another student’s work by a process of mechanical transformation (e.g., changing variable names in computer programs).

Students with Disabilities:
Please notify me no later than the end of the first week of class concerning any academic accommodations you will need. You must have a documented disability and an ID CARD from Disability Support Services. If you need accommodations not indicated on the Disability Support Services ID CARD, please contact me or the Disability Support Services office as soon as possible so arrangements can be made for the additional equipment or accommodations.

Outcomes for successfully completing CE330 course:
Successful completion of this course will contribute towards satisfaction of the requirements pertaining to the following ABET (ABET is the accrediting agency for engineering programs in the U.S.) outcomes established for the civil engineering curriculum:

(a) an ability to apply knowledge of mathematics, science, and engineering
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
(l) the ability to apply knowledge of mathematics through differential equations, calculus-based physics, chemistry, and at least one additional area of basic science, consistent with the program educational objectives
(m) the ability to apply knowledge of four technical areas appropriate to civil engineering

For the complete list of departmental objectives and outcomes, please visit the Civil Engineering Department web pages at [www.ce.siue.edu](http://www.ce.siue.edu).