

Construction Methods and Equipment
SYLLABUS
CE 462
Spring 2012
GFS 101
T 3:30 – 6:10 PM

Text: Construction Planning, Equipment, and Methods, 8th edition, by Peurifoy, Schexnayer, Shapira and Schmitt McGraw Hill, 2006. (ISBN 978-0-07-340112-6)

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Class: Tuesdays, 3:30-6:10 PM in GFS 101

Blackboard: <http://blackboard.usc.edu>

References:

American Society of Civil Engineers (ASCE), *Journal of Construction Engineering and Management* (on the shelves at the Seaver Science Library).

Day, D.A., **Construction Equipment Guide**, John Wiley, 1995.

Griffis, F.H., and Farr, J.V., **Construction Planning for Engineers**, McGraw Hill, 2000.

Harris, F.C., **Modern Construction Equipment and Methods**, Longman Scientific & Technical, 1994.

Harris, F.C., **Construction Plant Excavating and Material Handling, Equipment and Methods**, Garland, 1981.

Harris, F.C., **Ground Engineering Equipment and Methods**, McGraw Hill, 1983.

Nunnally, S.W., **Construction Methods and Management**, Third Edition, Prentice Hall, 1992.

Parker, A.D., Barrie, D.S., and Snyder, R.M., **Planning and Estimating Heavy Construction**, McGraw Hill, 1984.

Caterpillar Performance Handbook

Course Objectives:

- Fulfill degree requirements.
- Become familiar with the types of construction equipment and their capabilities.
- Understand the basic principles and terminology of project management and construction methods.
- Skills development for successful job performance, especially communications, both written and verbal.
- Ethics comprehension.
- Teamwork

Course Outcomes:

1. Cycle Times
2. Production Rates
3. Equipment Knowledge
4. Dirt Work Estimations

Course Grading:

Homework	10%	A- to A+ = >90%	or “Weighted Curve”
Midterm	30%	B- to B+ = >80%	
Final	30%	C- to C+ = >70%	
Project	20%	D- to C = >60%	
Quizzes	10%	F <59%	

****Note: Quizzes cannot be made up without prior authorization from the Professor. Missed quizzes will count as a zero.**

Examinations:

Examination dates are shown on the attached agenda. The final examination will be comprehensive. Make-up examinations will not be allowed unless under extraordinary circumstances. Honor system is observed.

Reading Assignments:

Reading assignments are identified on the course agenda. It is important to keep up with the reading since it will form the basis for the classroom discussions and homework.

Homework Assignments:

Please be punctual in submitting your home works. Homework assignments must be submitted by the date specified on this syllabus before the class starts. I will be flexible as long as I feel the reasons are valid and are not **excessive**. Unexcused late homework will not be accepted. You should submit your homework 1) on paper **or** 2) through the online link on *den blackboard* under the *assignments*. These links will be set for each homework assignment separately. Please do not email your homeworks. The homeworks submitted online, will be graded online.

Class Project:

As part of the requirements for the class, each student will be required to complete a complete term project. In keeping with the “team” concept of the course, you are encouraged to work your term project as a team. Individual submittals are also acceptable.

Instructions:

1. Includes reading assignments, lectures, example problems, homework, examinations, a term paper, an oral presentation and field trips.
2. Intention in lecture is to: focus on key ideas, work example problems, leave less important detail for reading and question asking.
3. Students will be expected to fully participate in classroom discussions and problem solving.
4. Industry speakers will present their views and opinions.
5. Tardiness will not be tolerated.
6. Absences are only excused with prior notification via e-mail and/or telephone. Three (3) unexcused absences will result in a failure grade.
7. Cell phones, pagers, etc. must be turned off.

Extra Credits:

1. Extra Paper(s)
2. Professional organizational activities and membership in ASCE, AGC, CMAA, XE, etc.
3. Field trips
4. Seminars
5. Symposium #18 (4/25/12)
6. ASCE PSWRC @ Cal Poly Pomona
7. SPARKS Competition (2/8/12-2/11/12)

Student Conduct

1. Students are responsible for adhering to “Academic Responsibility.”

SCHEDULE

<u>Date</u>	<u>Topic</u>	<u>Reading</u>
1/10	L1: Course Introduction, Overview First Day Quiz Handout: Caterpillar Handbook	
1/16	Martin Luther King Day – No Class	
1/17	Autobiographies Due [Past, Present, Future] with Recent Color Picture “Machines Make It Possible” “Equipment Economics”	Ch. 1 Ch. 2
1/24	L2: “Planning For Earthwork Construction” “Planning for Building Construction” “Soil and Rock” “Compaction and Stabilization Equipment” Homework Due: 1.3, 1.4 2.1, 2.5, 2.7, 2.10, 2.11-2.13, 2.20 2.23, 2.26	Ch. 3 Ch. 21 Ch. 4 Ch. 5
1/31	Guest Speaker: J. Fischer – Catalina Project Video- History Channel: Modern Marvels – “Cranes” Homework Due: 3.1, 3.4, 3.6, 3.7 21.2, 21.4 4.1, 4.2, 4.5, 4.9, 4.11 5.1-5.3	
2/7	Field Trip	
2/8-2/11	SPARKS CM COMPETITION IN SPARKS, NEVADA	
2/14	L3: “Mobile Equipment Power Requirements” “Dozers” QUIZ #1: CHAPTERS 1-4	Ch. 6 Ch. 7

2/21 L4: “Scrapers” Ch. 8
“Excavators” Ch. 9

**Homework Due: 6.1, 6.3, 6.6, 6.7, 6.18
7.2, 7.5, 7.10, 7.12, 7.16, 7.19**

3/6 **MIDTERM – CHAPTERS 1 – 9, 21**

**Homework Due: 8.1-8.5, 8.9, 8.11, 8.12
9.2, 9.3, 9.5, 9.8 9.12**

3/12-3/16 **SPRING BREAK – NO CLASS**

3/20 L5: “Trucks and Hauling Equipment” Ch. 10
“Finishing Equipment” Ch. 11
“Drilling Rock and Earth” Ch.12
“Blasting Rock” Ch. 13

3/27 L6: “Aggregate Production” Ch. 14
“Asphalt Mix Production and Placement” Ch. 15

**Homework Due: 10.3, 10.5, 10.7, 10.9
11.2, 11.4, 11.6
12.1, 12.2, 12.8, 12.10
13.1, 13.5, 13.9, 13.14**

4/3 L7: “Concrete and Concrete Equipment” Ch. 16
“Air Compressors and Pumps” Ch. 19
“Forming Systems” Ch. 21

QUIZ #2: CHAPTERS 10-13

**Homework Due: 14.1, 14.7, 14.10
15.1, 15.5, 15.8-15.11**

4/10 Field Trip

4/17 L8: “Cranes” Ch. 17
“Piles and Pile Driving Equipment” Ch. 18
“Planning for Building Construction” Ch. 20

**Homework Due: 16.1-16.5,
20.2, 20.5, 20.8-20.13, 20.17
22.2**

4/24 **Teacher/Course/TA/ABET Evaluations**
L9: Project Presentations

**Homework Due: 17.1-17.7
18.1, 18.5,
19.1-19.74/19**

4/25 **SYMPOSIUM #18 @ Bonaventure Hotel**

5/1 **STOP DAY – NO CLASS**

5/18 **FINAL EXAMINATION** 2-4 pm

5/11 **COMMENCEMENT**

ACADEMIC RESPONSIBILITY

"Students, faculty, and administrative officials at the University of Southern California, as members of the academic community fulfill a purpose and a responsibility.

The University must, therefore, provide an optimal learning environment, and all members of the University community have a responsibility to provide and maintain an atmosphere of free inquiry and expression. The relationship of the individual to this community involves these principles: Each member has an obligation to respect:

1. THE FUNDAMENTAL HUMAN RIGHTS OF OTHERS
2. THE RIGHTS OF OTHERS BASED UPON THE NATURE OF THE EDUCATIONAL PROCESS
3. THE RIGHTS OF THE INSTITUTION

ACADEMIC DISHONESTY

The following statements and examples explain specific acts of academic dishonesty.

1. Examination Behavior: Any use of external assistance during an exam is considered academically dishonest unless expressly permitted.
 - a. Communicating in any way with another student during the examination.
 - b. Copying material from another student's exam.
 - c. Using unauthorized notes, calculators or other devices.
2. Fabrication: Any intentional falsification or invention of data or citation in an academic exercise will be considered a violation of academic integrity.
 - a. Inventing or altering data for a laboratory experiment or field project.
 - b. Resubmitting returned and corrected academic work under the pretense of grader evaluation error, when, in fact the work has been altered from its original state.
3. Plagiarism: Plagiarism is the theft and subsequent passing off of another's ideas or words as one's own. If the words or ideas of another are used, acknowledgement of the original source must be made through recognized referencing practice.
 - a. Direct Quotation: Any use of a direct quotation should be acknowledged by footnote citation and by either quotation marks or appropriate indentation and spacing.
 - b. Paraphrase: If another's ideas are borrowed in whole or in part and are merely recast in the student's own words, proper acknowledgement must, nonetheless, be made. A footnote or proper internal citation must follow the paraphrase material.
4. Other Types of Academic Dishonesty:
 - a. Submitting a paper written by another;
 - b. Using a paper or essay in more than one class without the instructor's express permission;
 - c. Obtaining an advance exam copy without the knowledge or consent of the instructor;
 - d. Changing academic records outside of normal procedures;
 - e. Using another person to complete a homework assignment or take-home exam without the knowledge and consent of the instructor.

The above information is taken directly from the SCampus and the Academic Affairs Unit of the Student Senate in conjunction with the Academic Standards Committee.

APPENDIX A: ACADEMIC DISHONESTY SANCTION GUIDELINES

VIOLATION	RECOMMENDED SANCTION (assuming first offense)
Copying answers from other students on exam.	F for course.
One person allowing another to cheat from his/her exam or assignment.	F for course for both persons.
Possessing or using extra material during exam (crib sheets, notes, books, etc.)	F for course.
Continuing to write after exam has ended.	F or zero on exam.
Taking exam from room and later claiming that the instructor lost it.	F for course and recommendation for further disciplinary action (possible suspension).
Changing answers after exam has been returned.	F for course and recommendation for disciplinary action (possible suspension).
Fraudulent possession of exam prior to administration.	F for course and recommendation for suspension.
Obtaining a copy of an exam or answer key prior to administration.	Suspension or expulsion from the University; F for course.
Having someone else take an exam for oneself.	Suspension or expulsion from the University for both students; F for course.
Plagiarism.	F for course.
Submission of purchased term papers or papers done by others.	F for course and recommendation for further disciplinary action (possible suspension).
Submission of the same term papers to more than one instructor where no previous approval has been given.	F for both courses.
Unauthorized collaboration on an assignment.	F for the course for both students.
Falsification of information in admission application (including supporting documentation).	Revocation of university admission without opportunity to apply.
Documentary falsification (e.g., petitions and supporting medical documentation).	Suspension or expulsion from the university; F for course when related to a specific course.
Plagiarism in a graduate thesis or dissertation.	Expulsion from the university when discovered prior to graduation; revocation of degree when discovered subsequent to graduation.

Please refer to Trojan Integrity: A Faculty Desk Reference, for more information on assessing sanctions. You may also consult with members of the Office of Student Judicial Affairs and Community Standards at any point in the process, (213) 740-6666.

Note: The Student Conduct Code provides that graduate students who are found responsible for academic integrity violations may be sanctioned more severely than Appendix A suggests.

“Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to the TA) as early in the semester as possible. DSP is located in STU 301 and is open early, 8:30 am – 5:00 pm, Monday through Friday. The number for DSP is (213) 740-0776.”

Lower academic performance: The following health factors are associated with lower academic performance on at least one assignment (based on the 2000 Health Survey):

<u>Factor</u>	<u>Percent affecting</u>
Stress	37.1
Sleep difficulty	27.1
Relationship problems	21.2
Depression	18.6
Family concerns	18.4
Internet and game-playing	16.0
Alcohol	7.5

CE 462
Spring 2012

KEYS FOR SUCCESS

1. **FUN.** Be passionate; Enjoy what you are doing; Must love product and work; Everyone is able to tell if you are enjoying what you are doing. If you are not having FUN, then you are doing the wrong type of work.
2. **FOCUS.** Be committed to your work. Focus your energy on ideas and enjoyment of work.
3. **CREATIVE.** Not stopping at your assignment, but taking it one step beyond. Offering more than asked for, maybe that extra smile, or extra attention.
4. **PRIDE.** Self esteem.
5. **ENTHUSIASM.** Let everyone know how terrific things are going. Toot your own horn and let others toot theirs. Give individual thank yous, and give honest positives in a timely fashion.

INSTRUCTOR'S CODE OF ETHICS

I will constantly be aware of all learning styles and adapt to the class to meet those leaning needs using a variety of teaching methods.

I will create an environment in the class that will encourage the greatest opportunity for learning.

I will strive to continuously improve my skills as an instructor, trainer and teacher.

Emergency Training Institute

STUDENT'S CODE OF ETHICS

I will take responsibility for my own learning.

I agree to be an active participant in my quest for new knowledge and skills.

I will participate in the evaluation process in an honest manner.

I will not interfere with the learning of others.

Emergency Training Institute

ENGINEERING-IN-TRAINING (EIT/FE) EXAM

DEADLINE FOR FILING AND EXAM DATES:

April 2012 Examination

Final Post Mark date: January 23, 2012

Exam: April 14, 2012

October 2012 Examination

Final Post Mark Date: July 30, 2012

Exam: October 27, 2012

FOR MORE INFORMATION:

California State Board Registration for Professional Engineers and Land Surveyors

PO Box 349002
2535 Capitol Oaks Drive, Suite 300
Sacramento, CA 95833-2944

Phone: 916-263-2222 Fax: 916-263-2246

BPELS_Webmaster@dca.ca.gov

Website: http://www.pels.ca.gov/applicants/exam_schedule.shtml

**NOTE: STUDY BOOKS ARE AVAILABLE AT THE XE + AGC + ASCE +
CMAA OFFICE – KAP 241**

**ALL CIVIL ENGINEERING STUDENTS ARE URGED TO TAKE THIS EXAM
NOW!!**

Student Stress Calendar*

This calendar is meant to give you an idea of the stresses that many college students will be dealing with throughout the school year.

September

- Homesickness: Especially fresh people
- Values crisis: Students are confronted with questions of conscience in areas of drugs, alcohol, experimentation, morality, religion, and social expectations.
- Feelings of inadequacy and inferiority develop due to the discrepancy between high school status, grades and initial college performance.
- “In Loco Parentis Blues”: Students feel depressed because of real or perceived restrictive policies and regulations of college.
- International students sense confusion, vulnerability, and lack of any advocate in power position.
- + Students’ excitement and willingness to try new things is at a peak.

October

- Fresh people realize that college life is not as perfect as expectations led them to believe. Old problems seem to continue and new ones are added.
- Grief develops because of inadequate social skills for finding a group or not being selected by one.
- Mid-term work pressure accumulates, followed by feelings of failure and loss of self-esteem.
- Sexual conflicts and confusion begin to show a result of first time confrontation with different heterosexual and homosexual standards.
- Non-dating students feel a loss of esteem because of societal pressures. Dating students may feel pressure to perform.
- Panic about finding a job strikes mid-year graduates.

November

- Academic pressure mounts due to procrastination, difficulty of work, and lack of ability.
- Depression and anxiety increase since students feel they should have adjusted to college by now.
- Party blues for students who have not found a social group.
- Economic anxiety: Loans are due and summer finances have now dwindled.
- Some students cease to make attempts at new friendships beyond and existing two or three superficial relationships.
- + Mid-term break provides relief.

Student Stress Calendar (cont'd)

December

- Extracurricular time strain: Seasonal parties, concerts, dances, projects, etc.
- Anxiety, fear, and guilt as final examinations approach and papers are due.
- Pre-holiday depression: Those who have no home to visit; those who prefer not to go home.
- Financial strain because of holiday gifts and travel expenses.
- Vacation strains dating relationships.
- + Excitement is up because of season and vacation.

January

- Post holiday blues.
- Classes begin again.
- Less daylight hours.
- + Academic pressures are less.

February

- Vocational choice causes anxiety and depression.
- Depression increases for those who have failed to establish social groups.
- Social calendar is not active and weather is blah.
- + Transfer students and freshmen have survived the semester.
- + Energy is high because students see the end of the year in sight.

March

- Drug and alcohol use increase.
- Depression increases due to anticipated separation from friends and loved ones at college.
- Academic pressures increase – Midterm panic.
- + Spring is coming; weather improves.

April

- Frustrations and confusions develop during registration for the next semester.
- Papers and exams mount up.
- Time is extremely full with end of the year banquets, job interviews, award ceremonies, etc.
- + The end is in sight and motivation arises to finish out the school year.

May

- End of the year anxiety over leaving friends and facing conflicts at home.
- Senior panic about jobs and ability to finance oneself.
- + Euphoria over completing one year of college/graduating.
- + Friendships solidify as people face having to be separated over the summer