

**FLORIDA INTERNATIONAL UNIVERSITY  
COLLEGE OF ENGINEERING AND COMPUTING  
DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING**

**CCE 4001- Heavy Construction, Fall 2010  
Course Policies and Procedures**

**INSTRUCTOR:** Caesar Abi Shdid, Ph.D, P.E.  
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**MEETING PERIODS:** M 1:00 – 3:30 pm Room EC 2420

**OFFICE HOURS:\*** F 10:00 – 12:00 pm  
OR by appointment.

\* Office hours terminate on the last day of regular classes, i.e., no office hours are maintained during and after the final exams period.

**PREREQUISITE:** CES 4702 and CEG 4011. Students not having the required passing grade in the prerequisite course(s) should drop out during the drop-and-add period. Violators will be dropped out automatically later on during the semester. This may result in their loss of course tuition.

**COURSE WEBSITE:** <https://lms.fiu.edu>

**DESCRIPTION:** Contractor's organization, contracts, services, safety, planning and scheduling. Equipment and their economics. Special project applications, coffer-dams, dewatering, river diversions, tunneling.

**METHOD:** One 150-minutes-period lecture.

**OBJECTIVES:** By the end of this course, students will become familiar with the many facets of modern horizontal construction and the handling of earth. The course will introduce students to the problems and solutions likely to be encountered in heavy construction projects, such as roads, dams, bridges, tunnels, sewers, and excavations.

**REQUIRED TEXTS\*:** Standard Handbook of Heavy Construction, 3<sup>rd</sup> ed. By James O'Brien and John Havers. ISBN: 0-07-047971-2. Copyright 1996, McGraw-Hill Publishers.

\* Required texts, a calculator, and any construction drawings used in the course shall be in the possession of every student at all times during the class.

**SOFTWARE:** None

**SUPPLIES:** None.

**REFERENCES:** Caterpillar Performance Handbook, 36 Edition.

RS Means Site Work & Landscape Cost Data 2010. ISBN: 978-0876298398. Copyright 2010 R.S. Means Company, 2010.

RS Means Heavy Construction Cost Data 2010. ISBN: 978-0876299975. Copyright 2010 R.S. Means Company, 2010.

<u>GRADING SYSTEM:</u> Exam 1	25%
Exam 2	25%
Final Exam	25%
Homework	15% (25% for FEEDS students)
Attendance	<u>10%</u> (0% for FEEDS students)
Total	100%

Note: Final Exam is mandatory and is not cumulative and will be administered on the final exam date. NO make-ups or incompletes will be given regardless the situation.

**No extra-credit projects, homework, or any other form of extra-credit work will be permitted at the end of the semester regardless of the final grade. Students' final grade is not negotiable. If a student wants to inquire about the final grade, the inquiry shall be in a formal written letter to the instructor within one week of the final grades being posted. The Instructor's reply to the inquiry is final and any additional attempts to negotiate the grade will result in the Instructor dropping the grade to the next lower letter grade.**

All homework and exam grades will be posted on CE6. Erroneous grades on CE6 need to be reported within 2 weeks of posting. No grade changes will be made after this period. Course grades will be computed according to the following scale:

**A=90-100; B<sup>+</sup>=87-89.9; B=80-86.9; C<sup>+</sup>=77-79.9; C=70-76.9; D=60-69.9; F<60.**

Final class grades (NOT individual exams) will be curved so that the final class average is 70%.

QUIZZES: Pop Quizzes are not prescheduled and will be given during class time without any previous notice.

EXAMS: Exams are designed to encourage critical thinking. Exams will be a combination of questions, multiple choice, true or false, fill-in-the-blanks, and problems. Exams are closed-book and closed-notes. Programmable calculators are NOT allowed on any exam. NO makeup exams will be administered regardless. Students arriving late to an exam will NOT receive any time extension. Exams will be passed around by the Instructor in person and during class time.

HOMEWORK: Assigned homework is due at the beginning of the lecture period on the front desk in the classroom. **No late homework will be accepted regardless.** If a student cannot make it to class, the homework can be submitted by email, fax, or dropped in the Instructor's mailbox. However, this submission has to also be before the homework submission deadline as outlined above. Homework should be worked on engineering paper and shall be stapled. All sketches should be neatly drawn and answers underlined. Homework may be

graded by detailed checking or based on overall attempt. Sloppy, disorganized, and poorly done homework will not be graded. **Zeros will be given to homework not done according to the above-stated criteria.** The homework grade will be computed according to these policies. **Copying of homework is strictly forbidden, students doing so will be given a grade of F on the class.** No homework resubmission will be allowed under any circumstances.

Professional engineers communicate ideas through their design calculations and construction documents. Many times final engineering calculations, drawings and specs are submitted to clients as a part of the construction permitting and bidding processes. These calculations are a reflection of your competency as an engineer and on the quality of the product that your company produces. Part of your engineering training includes learning how to prepare engineering calculations and documents neatly and in the proper format. In CCE 4001, the homework policy is designed so as to capture as much as possible this spirit of professionalism sought after by the Engineering profession. Through this policy this course emphasizes the importance of training students to acquire the skills and habits necessary for presenting a finished product that exhibits the highest of professional format and reflects their abilities.

ATTENDANCE: **ATTENDANCE IS REQUIRED.** Instructor will take roll everyday.

**Absence from class will result in points taken off the Final Grade for any given student not present during any roll (one point off the final average for each absence).**

Those who arrive late to class will **NOT** be allowed into the class and will **NOT** get to sign in later and will be considered absent. This rule will be implemented starting the second week of classes. For delays caused by emergencies, student must call and inform the instructor for permission to enter late to the class.

Those who leave the classroom before the class is dismissed by the instructor will get 10 points taken off their following exam (unless prior permission was granted by the instructor).

Attendance policy will be enforced starting on the last day of the drop-and-add period. Students missing to sign the attendance sheet will not get the chance to sign it later, as the instructor cannot verify the actual attendance of the student.

STUDENT RESPONSIBILITIES:

1. Attend all classes and turn in homework when due.
2. Be fully prepared for pop quizzes at any time.
3. Ask questions in class.
4. Be aware of all the announcements or changes made by the instructor for this course.
5. Check the course website **at least once per day.**

6. Not to engage in talking or disruptive behavior in the class.
7. Read the text assignments before the class and come prepared with questions.
8. Use office hours whenever possible for assistance and advisement.
9. Work extra problems to understand each topic. Seek timely help if you are not making satisfactory progress.
10. Be honest in all homework, quizzes and tests. Be aware of the Honor System of Florida International University.
11. Be disciplined, responsible and professional with respect to conduct and presentation.

**ACADEMIC HONESTY:** **Academic dishonesty is defined in the current edition of the Student Conduct Code. Students violating the Academic Dishonesty Policy as stated in the current Student Conduct Code will be penalized the maximum allowed by the University. The student will also be immediately dismissed from this course and will receive a final grade of “F”. All course assignments are individual assignments, unless otherwise stated by the instructor. This applies to all term papers, homework, projects, exams and any other assignments to be graded. No student shall receive, offer or give assistance not authorized by the professor in the preparation of any assignment.**

**ACADEMIC MISCONDUCT:** **"Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook."**

**STUDENTS WITH DISABILITIES:** **Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must provide this documentation to the Instructor at the beginning of the semester when requesting accommodation.**

### FIELD ACTIVITIES:

University policy requires each student to complete a waiver of liability form as provided by the professor, prior to participating in university sanctioned activities off campus. Completed forms must be in the custody of the professor prior to the onset of any off-campus field trip.

### RELATIONSHIP OF COURSE TO PROGRAM OBJECTIVES:

This course accomplishes, to various extents, the following ABET-related objectives and outcomes:

*Objective 1 - Technical Proficiency: Our graduates will have ability to:*

- 3a. Apply knowledge of mathematics, science, and engineering to solve civil engineering problems;
- 3e. Identify, formulate, and solve civil engineering problems;
- 3k. Utilize the techniques, skills, and modern scientific and engineering tools necessary for civil engineering practice.

*Objective 2 - Communication: Our graduates will have an acceptable level of proficiency in:*

- 3d. Working with others as part of multi-disciplinary teams;
- 3g. Written, oral, and graphical communication.

*Objective 3 – Responsible Citizenship: Our graduates will have an acceptable level of appreciation for and understanding of:*

- 3h. The impact of engineering solutions in a global and societal context;
- 3j. Contemporary issues facing society as a whole.

*Objective 4 – Lifelong Learning: Our graduates will:*

- 3i.1. Recognize that graduation is a first step in their development of professional engineering competency;
- 3i.2. Recognize the need for lifelong learning to maintain and enhance their professional practice of civil engineering.

*Objective 5 – Ethical Behavior: Our graduates will:*

- 3f. Have an understanding of professional and ethical responsibility.

The outcome identifiers, herein used (e.g., “3h”), correspond to the same calling system that is used in the ABET Criteria for Accrediting Engineering Programs ([www.abet.org](http://www.abet.org)).

### FALL 2010 COURSE OUTLINE:

#### SUBJECT AND COVERAGE\*

1. Course Introduction and Syllabus
2. Introduction to Heavy Construction
3. Heavy Construction Equipment Accounting
  - a. Equipment Ownership Cost
  - b. Equipment Depreciation Methods
  - c. Equipment Maintenance Cost
  - d. Equipment Operation Cost
4. Heavy Construction Estimating

5. Heavy Construction Productivity
  - a. Equipment Power Principles
  - b. Performance Charts
  - c. Cycle Time Calculation
6. Heavy Construction Scheduling and Process Productivity Calculations
- 7. Exam 1**
8. Heavy Construction Lifting Equipment
  - a. Tower Cranes
  - b. Crawler Cranes
  - c. Mobile Telescopic Cranes
9. Heavy Construction Excavation Equipment
  - a. Hydraulic and Mechanical Shovels
  - b. Backhoe Excavators
  - c. Draglines
  - d. Clamshells
10. Heavy Construction Sitework Equipment
  - a. Dozers
  - b. Scrapers
  - c. Graders
  - d. Compactors
11. Heavy Construction Hauling Equipment
  - a. Loaders
  - b. Trucks and Haulers
- 12. Exam 2**
13. Paving
  - a. Asphalt paving
  - b. Asphalt Paving Equipment
  - c. Concrete Paving
  - d. Heavy Concreting Equipment
14. Tunneling
  - a. Tunneling Methods
  - b. Shoring Equipment
  - c. Tunneling Equipment
15. Heavy Construction Law and Contract Documents
- 16. Final Exam**

\*One or more subjects, or part of a subject can be covered in a particular lecture depending on available time for the instructor. The instructor further reserves the right to make course changes (content and schedule) as he deems necessary and appropriate at any time during the academic semester.