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Course Title: CE-469: Sustainable Design & Construction Practices

Class Meeting: Monday: 6:30pm-9:10pm

Location: ZHS252

Office Hours: Mondays prior to class start time at 5:30pm. Other times by appt.

Course Description: The sustainable design and construction movement has been called the next marketing boom of the new millennium. The US Green Building Council (USGBC) is at the forefront of this movement. In-depth knowledge of green building practices is not only invaluable in reducing environmental impacts and improving our quality of life but also in developing a long term market share and improving economic performance.

This course is composed of independent study and group exercises with proctored weekly discussions/lectures that will cover the technical requirements of nationally recognized Green Building Rating Systems. This course is primarily focused on New Construction & Major Renovations. Additionally, this course will focus on providing an overview of the knowledge required for taking industry recognized Professional Accreditation exams. The course will provide attendees with an understanding of how sustainability is being implemented nationally throughout the design and construction industries to define various levels of sustainable project design, the resources available for successfully achieving green building project certifications, and a review of the Green Building Rating System.

Individual and group projects will be administered that identify and move beyond today’s current Green Building strategies to determine the next steps of Green Building. These concepts include: understanding the process of Carbon footprinting; calculating the embodied energy of building materials during extraction, processing, manufacturing and transportation; cyclical processes in the design and construction industries that have negative environmental impacts; demolition versus deconstruction practices. Synthesizing and recognizing the importance of these key concepts will better prepare course participants with a collective understanding of the design and construction industries and our critical role in reducing our impact on the environment.
Class Focus: The following areas will constitute our core focus:

- Introduction to green-building design strategies and benefits
- When and how to use the appropriate Green Building Rating Systems
- Green building resources and references
- LEED GA and LEED AP preparation
- Advancing Green building technologies and innovations
- Construction industry’s sustainable field best practices
- Real-life project examples of achieving certifications by the USGBC
- Identifying the steps of integrating sustainability with Virtual Building and Building Information Modeling (BIM) practices
- Carbon foot printing of construction and related activities
- Understanding and measuring the embodied energy of construction materials

Required Course Text: Our core text for this class is Green Building Design & Construction Reference Guide, 2009 Edition, US Green Building Council. (Hardcopy version recommended). This LEED Reference Guide is ONLY available online through www.USGBC.org and must be pre-ordered prior to class start date as students are expected to have this text on the first day of class!

Course Protocols and Participation: Read this syllabus completely before registering for this course. By registering for this class you commit to the following:

- Be actively engaged in classroom discussions
- Complete reading assignments before classroom discussion
- Come to each seminar prepared to actively discuss the specific topic
- Complete laboratory assignments on-time and to an acceptable level of quality
- Attend ALL scheduled seminars-- To participate in this course you must attend all scheduled seminars. One unexcused absence will result in a drop from the course.

AS noted above, students are REQUIRED to attend all seminars and group meetings both physically and mentally. Students will be graded on attendance and active participation in the assignments and discussions. Students are expected to maintain an acceptable level of professionalism that exemplifies courtesy and mutual respect in the class room and groups at all times. Discourteous and disruptive behavior will not be tolerated. The following specific guidelines for proper classroom conduct are expected at all times. Students who violate these rules will be asked to leave the room.

- Always arrive on time
- Do not talk or whisper with fellow students during lecture or any other inappropriate time
- Do not read newspapers, books, or do homework during lectures
- Turn off cell phones/pagers
- Stay alert and do not eat or sleep during class
- At the end of the period do not cause a disturbance by packing up your things or by starting to leave before the class is dismissed
Grading:

- Labs and Homework: 15%
- Group Projects: 15%
- Quizzes: 15%
- Midterm Exam: 15%
- Final Exam: 30%
- Class Participation: 10%

Lab Assignments and Extra credit opportunities are discussed below and will be announced throughout the semester.

**Laboratory Assignments:** Each lab assignment will be evaluated based primarily on level of accuracy, detail, student understanding, and presentation. Sketches may be simple hand-drawings or prepared with electronic medium but must be legible and completely address the specific topic. Executive summaries and written descriptions are required in each lab assignment and should be no more than ½ page, and drawings are limited to one 8 ½ x 11 page per assignment. All labs must be submitted electronically by their assigned due date. “Hand” drawings are encouraged but must be scanned and submitted electronically. **All lab assignments are required to be submitted prior to class by Monday at 6:30pm on the due date via Black Board. Any assignment emailed to my work or USC email address will not be accepted for credit.**

To effectively answer lab based assignment questions, research is required in addition to the required reading assignments; the internet is a great source of information for these assignments. For credit you must electronically submit your drawing/description along with a brief executive summary. For each lab read the referenced text section, evaluate each of the lab assignment items, and answer the question(s). It is likely that additional research will be necessary to completely respond to each question. You must specifically reference the source of any outside information in your lab submittal. **All answers must be your own work, do not “cut-and-paste” from the internet or copy from any source!! Failure to complete and submit individual and original work will not be accepted and counted as 0 credit. Plagiarism will not be tolerated and handled directly with the University accordingly.**

Homework and lab assignments are to be turned in at the beginning of the class on the date due. Late homework assignments will not be accepted. Failure to turn in a homework assignment on-time will result in a grade of 0 for that assignment. Additional in-class individual and group assignments and quizzes may be assigned. Detailed lab assignments will be published prior to course start. For full credit each lab must include:

1. Name, Lab number, date, class number
2. Short Executive Summary (with publication request if applicable)
3. Short Executive Summary (with publication request if applicable)
4. Cited information sources

**Extra Credit Opportunities:** Several extra credit opportunities will be presented throughout the course including, but not limited to, relevant industry conference attendance, product research work, identifying new opportunities for our class’s educational experience, etc. If you thoroughly and
intelligently present something of interest to me and provide the reason why there is educational value that may merit an extra credit opportunity, I will be open to discussion.

**Course Readings:** The attached Course Outline in Blackboard includes the chapters from the assigned text that will be covered in each class period. Additional reading assignments may be assigned in class. All assigned reading must be completed prior to the corresponding class period to facilitate class discussion and the student’s overall understanding of the subject matter. A one paragraph (½-page max) “reading review” or quiz may be due/conducted at the beginning of each class. Make it a point to regularly log into and check Blackboard as it will note any changes or updates associated with class readings, assignments, quizzes, tests, field trips, etc.

**Academic Integrity:** Academic integrity is both a concept and a practice and will be a cornerstone of this class. Please note the following:

1. The University, as an instrument of learning, is predicated on the existence of an environment of integrity. As members of the academic community, faculty, students, and administrative officials share the responsibility for maintaining this environment. Faculties have the primary responsibility for establishing and maintaining an atmosphere and attitude of academic integrity such that the enterprise may flourish in an open and honest way. Students share this responsibility for maintaining standards of academic performance and classroom behavior conducive to the learning process. Administrative officials are responsible for the establishment and maintenance of procedures to support and enforce those academic standards. Thus, the entire University community bears the responsibility for maintaining an environment of integrity and for taking appropriate action to sanction individuals involved in any violation. When there is a clear indication that such individuals are unwilling or unable to support these standards, they should not be allowed to remain in the University.” (Faculty Handbook, 1994:20)

2. Academic dishonesty includes: (Faculty Handbook, 1994: 21-22)
   - Examination behavior – any use of external assistance during an examination shall be considered academically dishonest unless expressly permitted by the teacher.
   - Fabrication – any intentional falsification or invention of data or citation in an academic exercise will be considered a violation of academic integrity.
   - Plagiarism – the appropriation and subsequent passing off of another’s ideas or words as one’s own. If the words or ideas of another are used, acknowledgment of the original source must be made through recognized referencing practices.
   - Other Types of Academic Dishonesty – submitting a paper written by or obtained from another, using a paper or essay in more than one class without the teacher’s express permission, obtaining a copy of an examination in advance without the knowledge and consent of the teacher, changing academic records outside of normal procedures and/or petitions, using another person to complete homework assignments or take-home exams without the knowledge or consent of the teacher.

3. The use of unauthorized material, communication with fellow students for course assignments, or during a mid-term examination, attempting to benefit from work of another student, past or present and similar behavior that defeats the intent of an assignment or mid-term examination, is unacceptable to
the University. It is often difficult to distinguish between a culpable act and inadvertent behavior resulting from the nervous tensions accompanying examinations. Where a clear violation has occurred, however, the instructor may disqualify the student’s work as unacceptable and assign a failing mark on the paper.

**Statement for students with disabilities:** 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 as early in the semester as possible. Your letter must be specific as to the nature of any accommodations granted. DSP is located in STU 301 and is open 8:30 am to 5 pm, Monday through Friday. The telephone number for DSP is (213) 740-0776.

**Guest Speaker Presentations:** We will schedule and hope to have a few guest speakers during our semester class. The guest speakers will be drawn from the most highly respected firms in the design, construction, and related industries. Come prepared to become actively engaged in the conversations. The guest speakers will share their expertise and much can be gained from their experiences. They deserve our utmost respect. These sessions can also be used as additional networking and employment resources for internships and full-time employment. Hence, come prepared to engage and learn from these distinguished individuals.

**LEED GA and AP Examination:** Extra credit will be rewarded to any student that successfully completes and provides the appropriate documentation of receiving a passing score on their LEED GA and AP exams. I strongly suggest that you make every effort to take advantage of this valuable opportunity. This is a professional accreditation that you will have for the rest of your career. Employers see it as a strong advantage credential when looking to recruit and hire students out of school. The course is geared toward preparing students to have the necessary tools to pass this exam. Study sessions, sample exams, and other study tools will be provided throughout the semester as part of the course. All USGBC and GBCI costs will be borne by the students. Exam sign-up is done through any Prometric testing site (www.prometric.com) and is the sole responsibility of the student. More details will be addressed in class.

**Off-Campus Field Trips:** As part of the learning process, our class will visit at least one completed structure that exemplifies LEED practices and one or more construction project sites that are currently in various stages of construction. These projects are applying for LEED certification within the LA area and will provide a greater level of understanding of the in-class/text education and discussions. It is advised that you make every effort possible to attend these informative meetings as they provide detailed application of the “how to” LEED process on real projects. Class carpooling efforts should be made as these urban high-density project sites have limited parking (and it is costly).