

**CE 332 – PROFESSIONALISM, ENGINEERING ECONOMICS AND
CONSTRUCTION PROJECT DELIVERY**

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Office Hours: M/W/F 10:30 AM – 11:30 AM; or by appointment.

OBJECTIVES

CE 332 introduces the engineering design and management process. Although CE 332 is primarily a qualitative course, quantitative skills (e.g. engineering economics, quality calculations, cost estimating, etc.) are required. The material is conducive to questions and instructor-student interaction. Questions during lecture and in office hours are expected.

COURSE REQUIREMENTS

A. **Class Notes:** The class notes are posted on CANVAS. The intention is not that you can miss class, but that you are prepared for class so that the lecture can be spent reinforcing material, providing supplemental information, and asking/answering questions. Bring the class notes to class with you in a format that is conducive to your note taking.

B. **CANVAS:** In addition to the class notes, all course emails, announcements and other information will be disseminated through CANVAS. Students are responsible to regularly login to CANVAS to check on this information.

C. **Grade Components:** The grading policy is:

Quizzes and Assignments:	20%
Semester Project:	20%
Examinations (2 and optional 3 rd Exam):	<u>60%</u>
Total	100%

D. **Exams:** Exams 1 (on or around February 26th) and Exam 2 (on or around April 9th) will be given in the evening. Exam 3 (non-cumulative) will be given during the final exam period. All exams will be closed book and closed notes. Only engineering calculators can be used in the exams. iPads, tablets, smart phones, cell phones, computers, etc. are prohibited. The grading component for the exams will be based upon the average of Exams 1 and 2, or the average of Exams 1, 2 and 3. Taking Exam 3 does not eliminate the lowest score of either Exams 1 or 2. If you come to Exam 3 and touch the exam, you will be required to take it or a grade of zero will be entered for this exam.

If a student has a conflict with a scheduled exam date/time, he or she must notify the instructor as soon as possible of the conflict, but no later than one (1) week prior to the scheduled exam date. The primary reason for a conflict is another course occurring at the same time as the scheduled exam. Students will be required to provide both the name of the course causing the conflict and the name of the instructor. A make-up exam date and time will be established upon receipt of all student conflicts and evaluation of instructor/students' schedules.

E. **Quizzes:** Quizzes will be given periodically at the beginning or during the class period. Quizzes will cover the material for that day's or previous lectures. All quizzes will be closed book and closed notes. There will be no makeup quizzes. There will be random unannounced "attendance" quizzes given, especially at the end of the semester, after the second exam, etc. If you are not present when your name is called or recorded via Clicker, you will be given a zero for that attendance quiz. Additionally, if you come to class during an attendance quiz

process, you will be given a zero for that attendance quiz. If you must be out of town or are ill, advise the instructor (via email) before the absence. It is the prerogative of the instructor to consider the absence as excused.

- F. Assignments:** Assignments and Problem Sets will be graded on a 100-point basis. Due dates will be established at the time the assignment is given. Assignments will be accepted at the beginning of class or posted to the indicated Dropbox by the established date and time. Late assignments, except for Assignment 2, will be accepted up to five (5) days after the due date; however, ten (10) points will be deducted for each day the assignment is late. Assignments will not be accepted after the fifth day from the original due date and consequently, a grade of zero will be entered for that particular assignment. Submitted assignments (written or electronic) shall be organized and done legibly. Submitted written assignments shall be on single sided 8.5 x 11 paper, stapled and all work shown. Assignments with answers only will receive the grade of zero.

All electronic submissions will have file authorship verified. Any student who submits a file where they are not the original author will receive a zero for that particular submission. Additionally, if a student submits a file that was not authored by them, the original author of the file will also receive a zero for that particular submission. No exceptions taken.

- G. Semester Project:** The requirements for the project will be distributed during the semester.
- H. Extra Credit Opportunities:** There may be opportunities during the semester to attend various functions or "extra credit" assignments. Sign-in sheets are usually available at these opportunities. Each attendance at one of these opportunities will earn one (1.0) point. At the end of the semester, each student's points will be summed and then 50% applied to the sum to compute an extra credit value. This computed extra credit value will be added directly to the student's final computed grade for the class.
- I. Grades:** The Instructor ***does not use*** the Canvas Gradebook. There are numerous grade components to this course and it is the student's responsibility to track his or her grades on exams, projects, assignments, etc. over the course of the semester.
- J. Clickers:** This course may utilize Clickers for quizzes, lesson assessments and/or unannounced attendance quizzes. The Instructor will inform the class if Clickers will be used within two (2) weeks of the start of the course. Not having a Clicker for quizzes and/or unannounced attendance quizzes will result in a zero for that specific quiz. Any student who is discovered with multiple Clickers will receive a zero for the specific quiz and those students whose Clickers this individual has in his/her possession will also receive a zero for that specific quiz.
- K. Student Evaluation/Course Grade Determination:** The following grading system will be used:

$93.0 < A \leq 100$	$80.0 \leq B^- < 83.0$	$F < 60.0$
$90.0 \leq A^- \leq 93.0$	$77.0 \leq C^+ < 80.0$	
$87.0 \leq B^+ < 90.0$	$70.0 \leq C < 77.0$	
$83.0 \leq B < 87.0$	$60.0 \leq D < 70.0$	

- L. **Class Discussion Topics:** It is anticipated that the lectures will include the following topics. It is the Instructor's prerogative to add, delete and/or modify the topics on this list.

Part 1: Introduction

Academic Integrity and Intro to Ethics
Course Introduction
The Project Delivery Process
Summary of the Design Process

Part 2: Evaluation and Development Phase

Engineering Economics
Project Financing
The Delivery Process
Project Delivery Systems

Part 3: Selecting a Design Professional

Scope of Design Services
Methods of Design Professional
Compensation
Contract Environment and Formation
Fiduciary vs. Commercial Arms-Length
Contracts
Agency

Part 4: Schematic Design

Developing a Work Plan
Conceptual Cost Estimates
Preliminary Cost Estimates

Part 5: Developing the Contract Documents

Contract Documents: Drawings
Case Study: Hyatt Regency Collapse
Contract Documents: Specifications
Contract Documents: General and Supplemental Conditions
Contract Documents: Form of Agreement; Proposal Form

Part 6: Other Topics

Environmental Considerations
"Green" Construction and LEED
Ethics in the Engineering Profession
Professional Licensure

Part 7: Procuring Construction Services

*Contractor Qualification and Procurement
Pricing Arrangements
The Bidding Process
Contract Award
Subcontracts and Purchase Orders
Contract Bonds
Risk Management/Insurance*

Part 8: Developing the Bid

*The Estimating Process
Bid Components
Direct and Indirect Job Costs
Risk*

M. **Academic Integrity:**

Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

In concert with Penn State's Academic Integrity Policy, this course will adhere to the five fundamental academic integrity values established by the International Center for Academic Integrity (ICAC): Honesty, Trust, Fairness, Respect, and Responsibility. These values will be upheld by both the course instructor and students. This means that the work you submit must be an honest reflection of your individual learning and abilities, when you work with others (e.g. on the semester projects), you act fairly and responsibly as a team member, when you work with others on assignments and problem sets, you acknowledge your collaborators, when you attend an extra credit opportunity, you stay for the entire presentation or meeting, you do not use any Clicker aside from your own, and when you use the words and ideas of others, you give a citation.

N. Disability Accommodation:

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. Student Disability Resources (SDR) website provides [contact information for every Penn State campus](http://equity.psu.edu/sdr/disability-coordinator) (<http://equity.psu.edu/sdr/disability-coordinator>). For further information, please visit [Student Disability Resources website](http://equity.psu.edu/sdr/) (<http://equity.psu.edu/sdr/>).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: [See documentation guidelines](http://equity.psu.edu/sdr/guidelines) (<http://equity.psu.edu/sdr/guidelines>). If the documentation supports your request for reasonable accommodations, your campus disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early as possible. You must follow this process for every semester that you request accommodations.

O. Counseling and Psychological Services:

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Counseling and Psychological Services at University Park (CAPS)
(<http://studentaffairs.psu.edu/counseling/>): 814-863-0395

Counseling and Psychological Services at Commonwealth Campuses
(<http://senate.psu.edu/faculty/counseling-services-at-commonwealth-campuses/>)

Penn State Crisis Line (24 hours/7 days/week): 877-229-6400
Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

P. Educational Equity/Report Bias:

Consistent with University Policy AD29, students who believe they have experienced or observed a hate crime, an act of intolerance, discrimination, or harassment that occurs at Penn State are urged to report these incidents as outlined on the [University's Report Bias webpage](http://equity.psu.edu/reportbias/) (<http://equity.psu.edu/reportbias/>).