

THE PENNSYLVANIA STATE UNIVERSITY
Department of Civil and Environmental Engineering

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

Thomas J. Skibinski, PE
406A Sackett Building
814-865-9435
tjs36@psu.edu

Office Hours: To be determined weekly, by appointment and special posted hours prior to exams.

OBJECTIVES

CE 332 introduces the engineering management process. Although CE 332 is primarily a qualitative course, quantitative skills (e.g. engineering economics, quality calculations, cost estimating, bid development) 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 ANGEL. The intention is not so that you can miss class, but so 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.
- B. Grade Components. The grading policy is:
- | | |
|---|-----|
| Quizzes and Homework: | 20% |
| Semester Projects (2): | 40% |
| Examinations (2 and an optional final): | 40% |
- C. Quizzes. Quizzes will be given periodically at the beginning of 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. 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. There may be opportunities during the semester to attend various functions or "extra credit" assignments for which quiz grades will be assigned. There will be "attendance" quizzes given, especially at the end of the semester, after the second exam.
- D. Homework. The homework problems will be graded on a 10-point basis. The grade reflects the general effort and accuracy of the response. Due dates will be established at the time the assignment is given. Homework will be accepted at the beginning of class. Late homework may be accepted for no deduction or it may not be accepted at all. Instructor's prerogative.
- E. Semester Projects. The requirements for the projects will be distributed during the semester. They will be a team effort involving a detailed written report. Every team member must participate. Each team member will be required to grade all team members at the end of the semester.
- F. Academic Integrity. All work must represent your own individual effort. Some homework assignments and the semester projects will be group efforts, how the work is distributed is up to the team. It will be permissible to use reference material; however, proper credit must be given. University Policy 49-20 states: "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 student's dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts." Refer to: <http://tlt.its.psu.edu/suggestions/cyberplag/cyberplagstudent.html>

G. Student Evaluation/Course Grade Determination. The following grading system will be used:

$93.0 < A \leq 100$	$80.0 \leq B^- < 83.0$	$F < 60.0$
$90.0 \leq A^- \leq 93.0$	$77.0 \leq C^+ < 80.0$	
$87.0 \leq B^+ < 90.0$	$70.0 \leq C < 77.0$	All exams are normalized to the high score
$83.0 \leq B < 87.0$	$60.0 \leq D < 70.0$	

H. Class Discussion Topics. It is anticipated that the lectures will include the following topics. It is the Instructor's prerogative to modify this list.

Part 1: Introduction

Course Introduction
The Project Delivery Process
Summary of the Design Process

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 2: Evaluation and Development Phase

Engineering Economics
Project Financing
The Delivery Process
Project Delivery Systems

Part 6: Procuring Construction Services

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

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 7: Developing the Bid

The Estimating Process
Bid Components
Direct and Indirect Job Costs
Risk

Part 4: Schematic Design

Developing a Work Plan
Conceptual Cost Estimates
Preliminary Cost Estimates

Part 8: Other Topics

Environmental Considerations
"Green" Construction and LEED
Engineering Ethics

I. **Note to Students with Disabilities:** Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services, ODS, located in Room 116 Boucke Building at 814-863-1807 (V/TTY). For further information regarding ODS, please visit their web site at www.equity.psu.edu/ods/. Instructors should be notified as early in the semester as possible regarding the need for reasonable academic adjustments.