

PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

COST ESTIMATING W/LAB
CET 2012

Class Hours: 3:0

Credit Hours: 4:0

Laboratory Hours:3:0

Date Revised: Fall 2013

Catalog Course Description:

The interpretation of building plans, preparation of quantity surveys dealing with individual sections of work, computation of labor costs, pricing of material costs, overhead and profit. This class also includes an introduction to Timberline software.

Entry Level Standards:

Students entering this course should have a general familiarity with construction methods, materials, and terminology. A basic familiarity with architectural drawings will also be expected. This basic understanding may come from previous curriculum courses or from field experience. Math skills should be sufficient to allow manipulation of simple algebraic equations. Communication skills should be sufficient for the comprehension and presentation of technical data.

Prerequisites:

None

Textbook(s) and Other Course Materials:

Textbook:

Fundamentals of Construction Estimating, Pratt, Delmar, Cengage Learning.

Reference:

National Construction Estimator, Craftsman Book Company.

Walker's Building Estimator's Reference, Frank R. Walker. Frank R. Walker Company

RS means reference

Instructor Handout

I. Week/Unit/Topic Basis:

Week Topic

- | | |
|---|----------------------------------------------------------------------------------------------------------|
| 1 | Lecture: Introduction
Lab: Types of Contracts and Estimates |
| 2 | Lecture The Estimating Process and Preliminary Procedures
Lab: Construction Drawings & Specifications |
| 3 | Lecture: Measuring Quantities Generally
Lab: Excavation Quantities – Text example |
| 4 | Lecture: Measuring Sitework, Excavation and Pilings |

- Lab: House – Special Project
- 5 Lecture: Measuring Sitework, Excavation and Pilings
Lab: House – Special Project
- 6 Lecture: Measuring Concrete Work
Lab: Concrete Takeoff – Text example
- 7 Lecture: Measuring Concrete Work ; Exam I
Lab: Concrete Takeoff – Special project
- 8 Lecture: Measuring Masonry Work
Lab: Masonry Takeoff - Text example
- 9 Lecture Measuring Carpentry and Miscellaneous Items
Lab: Carpentry Forms and Miscellaneous – Text example
- 10 Lecture: Pricing Generally; Exam II
Text example
- 11 Lecture: Pricing Construction Equipment
Lab: Text example
- 12 Lecture: Pricing Excavation and Backfill
Lab: Pricing Concrete Work; Special Project
- 13 Lecture: Pricing Masonry, Carpentry and Finishes Work
Lab: Material & Carpentry Costs
- 14 Lecture: Pricing Subcontractors' Work ; Pricing General Expenses
Lab: Overhead, Profit and Miscellaneous Costs ;Final Bid Preparation
- 15 Final Exam Period

II. Engineering Technology General Outcomes (Educational objectives)

- I Apply basic engineering theories and concepts creatively to analyze and solve technical problems
- II Utilize with a high degree of knowledge and skill equipment, instruments, software, and technical reference materials currently used in industry.
- III Communicate effectively using developed writing, speaking, and graphics skills.
- IV Assimilate and practice the concepts and principles of working in a team environment.
- V Obtain employment within the discipline or matriculate to a four year program in engineering or industrial technology

III. Engineering Technology Concentration Competencies*

Students will:

- A Apply the knowledge, techniques, skills, and modern tools for the concentration of study to specifically defined engineering technology activities
- B Demonstrate the knowledge of mathematics, science, engineering and technology to engineering

technology problems using developed practical knowledge

- C Conduct and report the results of standard tests and measurements, and conduct, analyze and interpret experiment or project results
- D Function effectively as a member of a technical team
- E Identify, analyze and solve specifically defined engineering technology-based problems
- F Employ Written, oral and visual communication in a technical environment

- At the program level all 6 competencies apply to roman numerals I – V of the Engineering Technology General Outcomes (Educational objectives) listed above.

IV. Course Goals*:

The course will

- 1 Expand the student's understanding of different types of materials, construction methods, and architectural concepts as presented in architectural drawings and specifications. A, B, C
2. Enhance the student's knowledge of the "CSI" specification format in the comprehension and presentation of quantity survey and cost-estimate data. A, B
3. Build the skills to perform a quantity survey on a structure from a set of architectural plans and specifications. A,B, C,D, E
4. Promote the ability to perform a cost estimate on labor and materials. E, F
5. Foster the student's knowledge to calculate indirect costs using various methods of allocating the individual cost to the project cost. A, B, E
6. Increase student's self initiative to complete all assignments / projects on time. C, F

*Capital letters after course goals reference the competencies of the Engineering Technology concentrations listed above.

V. Expected Student Learning Outcomes*:

Students will be able to:

- a. Interpret various types of architectural drawings. 1
- b. Understand the purpose of construction specifications. 1
- c. Explain the specific characteristics indicated by "plans". 1
- d. Identify the specific characteristics indicated by "elevations". 1
- e. Recognize the specific characteristics indicated by "sections". 1

- f. Clarify the specific characteristics indicated by "details". 1
- g. Explain the specific characteristics indicated by "schedules". 1
- h. Perform the methods of material takeoff sequencing. 2
- i. Calculate material quantities. 3
- j. Identify basic categories of material prices. 4
- k. Explain the factors affecting labor wages. 4
- l. Identify the types of overhead expenses. 5
- m. Calculate equipment depreciation costs. 5
- n. Identify the means of calculating rental equipment costs. 5
- o. Present construction material and processes data in the proper "CSI" format. 1 & 2
- p. Takeoff material quantities in the proper sequence. 3
- q. Accurately calculate material quantities. 3
- r. Properly calculate labor hours and price. 4

* Numbers after Expected Student Learning Outcomes reference the course goals listed above.

VI. Evaluation:

A. Testing Procedures: 55 – 65 % of grade

Three examinations will be given covering the lecture materials. The approximate dates of are shown above. The examinations may consist of problems and essay, short answer or multiple choice questions. It is the student's responsibility to know when an exam is scheduled.

B. Laboratory Expectations: 35 – 45 % of grade

Quizzes: 5 - 10 %:

Quizzes may be given by the instructor. Most quizzes will be unscheduled and randomly given. They cover the previous session's material or the reading assignment for that day. There is no make-up or extra credit given for quizzes missed.

Homework: 10 -15 %

Homework assignments, participation in classroom and laboratory discussions will count a maximum of 10 - 15 percent of the final grade.

Semester Project 20 – 30 %:

Residential Construction Takeoff

C. Field Work: ____% of grade

None

D. Other Evaluation Methods: ____% of grade

None.

E. Grading Scale:

90-100 A
86-89 B+
80-85 B
76-79 C+
70-75 C
60-69 D
0-59 F

VII. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or

devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.

- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

C. Accommodations for disabilities:

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by sending email to disabilityservices@pstcc.edu, or visiting Goins 127, 132, 134, 135, 131. More information is available at <http://www.pstcc.edu/sswd/>.

D. Other Policies:

Use of Equipment:

Any act of misuse, vandalism, malicious or unwarranted damage or destruction, defacing, disfiguring, or unauthorized use of property/equipment belonging to Pellissippi State is subject to disciplinary sanction.