

**Faculty Course Assessment Report**  
**North Dakota State University**  
**Department of Construction Management and Engineering**  
CM&E 380, Construction Estimating: Quantities & Costs, 4 credits  
Fall 2010 – Jeffrey Pfungsten

**Catalog Description:**

This course provides an introduction to the methods and techniques of conceptual and detailed construction estimating, including: quantity takeoffs; costs related to labor, materials, equipment, overhead and profit; and bidding strategies.

**Grade Distribution:**

A	B	C	D	F	W	Total
20	35	7	1		1	64

**Modifications Made to Course:**

More emphasis was placed on the use of software for the estimate.

**Course Outcomes Assessment ACCE: (matrix content)**

Perform various types of construction estimates and understand their accuracy relative to the stages of the project.

Develop a quantity takeoff for a construction estimate using fundamental techniques, and determine appropriate labor, equipment and material costs for items identified in the quantity takeoff using standard estimating guides and database.

Compare and accept subcontractor bids.

Produce complete and accurate cost estimates and submit a complete bid package for a typical construction project.

Prepare an estimate using computer software.

**Course Outcomes Assessment (ABET):**

Perform various types of construction estimates and understand their accuracy relative to the stages of the project.

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**Communications Component:**

The students worked on a real project completing quantity take-offs and applying labor material and equipment costs to create an estimate. The students were required to submit their estimates and all supporting documentation in a professional format that would allow anyone, whether they worked on the project or not, to understand how they came up with the numbers and to find the supporting information with ease.

Appearance	15 pts
Table of Contents/Appendix	15 pts
Ease of Finding Information	25 pts
General Condition (Div. 01) Take-off/Estimate	20 pts
Take-Off Summary & Supporting Documentation	50 pts
Estimate Summary (by division and overall totals)	40 pts
Bid Documents (included in binder)	15 pts
TOTAL	180 pts

The Final Peer Evaluation counts for the remaining 20 points of the group project.

**Ethics Component:**

The first presentation involved presentation and discussion of the “American Society of Professional Estimators Code of Ethics.” Approximately 30 minutes of the 110 minutes of the class was spent on the topic. The ethics that were addressed during that first presentation were also reiterated during numerous presentations and discussions throughout the semester.

**Contemporary Issues Component:**

The contemporary issues that were discussed involved the economy and the use of software when creating the estimates and bids.

The topic of the economy came up frequently during the course of the semester. Discussions that were covered encompassed:

- The effect that the economy has had on employment in the industry and the quality of manpower.
- The economy and the effect on overhead and profits.

The topic of using software for the estimate covered:

- The marketability of the student by knowing various software programs to do their job as an estimator.
- The effect of a lack of software knowledge and how it may hinder them in finding a job during tough economical times.

**Student Feedback:**

**Advisory Board or Industry Feedback:**

Review was not conducted.

**Reflection:**

There were negative situations created due to a lack of reference materials, such as RS Means manuals, due to other classes taking and keeping them for their own use. The Timberline software did have a Means database, but it was incomplete. The Timberline program was also an issue because it did not include the tutorial for the students to reference if they ran into issues.

The in-class work sessions have proven to be valuable for the students. It gives them a time when all members of the group are available to work on the project and accomplish more than working outside of class. They were also able to get answers to their questions more easily.

**Proposed Actions for Course Improvement:**

Make RS Means Construction Cost Data a required book for the course to ensure that all students have access to it.

Develop a more effective means of making students, that do not necessarily want to, to participate in the group projects. This may be by utilizing more frequent peer evaluations or by requiring that all group members that worked on a phase of the project sign the submitted work.