

# Minnesota State University Moorhead

## CM 230: Estimating I: Quantity Survey

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites:

CM 220 - Commercial Building Methods and Materials AND CM 216 - Construction Graphics

Corequisites: None

MnTC Goals: None

Students will study basic principles and practices of estimating focusing on quantity survey. From a set of commercial building working drawings and specifications, students will perform quantity labor, material, and equipment takeoffs. They will learn quantity survey best practices necessary to effectively estimate the cost of a construction project. Prerequisite: CM 216 and CM 220 or concurrently enrolled.

**B. COURSE EFFECTIVE DATES:** 08/22/2011 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Through the process of Quantity Survey, students will identify and record appropriate units of measure for all takeoff items in the semester project.
2. Students will recognize the principle types of estimates, including conceptual, preliminary or budget, and detailed.
3. Students will be able to interpret and analyze construction documents, starting with the Invitation to Bid, Instruction to Bidders, Specifications, Addenda, and the Construction Plans.
4. Students will complete the Quantity Survey for a \$2M to \$5M commercial building construction project. The CSI Divisions for which Quantity Surveys are completed include: General Requirements, Meetings, Quality; Existing Conditions, Demolition; Concrete; Masonry; Metals; Woods, Plastics, Composites; Thermal & Moisture Protection; Openings; Finishes; Specialties; Equipment; Furnishings; Special Construction; Conveying Systems; Earthwork; Exterior Improvements; and Utilities
5. Students will develop and practice appropriate techniques to record and verify quantity survey quantities.
6. Students will recognize the difference between direct and indirect costs and their functional basis.
7. Students will practice the concepts associated with labor and equipment productivity.
8. Students will be required to construct their own Quantity Survey / Takeoff estimate based on the CSI format of construction operations.

### D. LEARNING OUTCOMES (General)

1. Students will develop an effective understanding of how to read and analyze construction documents as they relate to the estimating process.
2. Students will learn and practice quantity survey techniques throughout the semester.
3. Given a set of construction documents, students will perform quantity surveys for various CSI divisions and summarize totals in a format that is easily priced out.
4. Students will work as a team to prepare quantity surveys.
5. Students will apply electronic takeoff software to perform quantity surveys.

**E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted