

**COURSE OUTLINE**  
**ARCM-220**  
**Construction Cost Estimating**  
**3 Semester Hours**

**HOWARD COMMUNITY COLLEGE**

**Description**

This course introduces the role of cost estimating into the construction process with an emphasis on the basic components of a construction estimate. Competitive versus negotiated process will be introduced as well as an analysis of general conditions and roles of the subcontractors and vendors. Content will include preparing takeoffs for site work, concrete, masonry, and structural steel components and applying labor, material, and equipment unit prices. Other topics covered include coordinating construction documents, risk analysis, and an introduction to computer estimating programs. Prerequisite: ARCM-102; Pre- or Co-requisite: ARCM-200. (2 hours lecture, 2 hours lab)

**Overall Course Objectives**

Upon completion of this course, the student will be able to:

1. Demonstrate an understanding of the estimating process.
2. Define the responsibilities of the estimator in the construction organization.
3. Prepare quantity takeoffs for basic construction components.
4. Apply various unit price components to finalize an item estimate.
5. Explain the components of the general conditions.
6. Review scopes of work for specific work packages.
7. Recognize the differences between hard bid and negotiated estimates.
8. Identify estimating responsibilities such as coordination and constructability.
9. Discuss risk issues and market factors that can affect the estimate.
10. Review computerized estimating alternatives.

**Major Topics**

- I. Introduction
  - A. Estimating Process
  - B. Types of Estimates
  - C. Preconstruction Services
  - D. Risk Analysis and Contingencies
  
- II. Quantity Surveys
  - A. Basic Concepts
  - B. Site
  - C. Concrete
  - D. Masonry
  - E. Steel
  - F. Estimating Software

- III. Unit Costs
  - A. Materials, Labor, Equipment
  - B. Overhead and Mark Up
  - C. Market Conditions
  - D. Pricing Database
  
- IV. General Conditions
  - A. Schedule
  - B. Key Elements
  - C. Manpower Analysis
  - D. Temporary Facilities
  
- V. Hard Bid Estimating
  - A. Solicitation Process
  - B. Prebid Meeting
  - C. Subcontractor Process
  - D. Bid Day Management
  
- VI. Negotiated Preconstruction Services
  - A. Conceptual Estimates
  - B. Design Development Estimates
  - C. Construction Document Estimates
  - D. Scopes of Work
  - E. Plan Review
  - F. Coordination and Constructability

### **Course Requirements**

Grading/exams: Grading procedures will be determined by the individual faculty member with emphasis on: homework, exams, and group projects.

### **Other Course Information**

This course is required in the Architectural and Construction Management Program.