CNST-2990: CONSTRUCTION ESTIMATING & COST ANALYSIS

Cuyahoga Community College

Viewing: CNST-2990 : Construction Estimating & Cost Analysis

Board of Trustees:
January 2023

Academic Term:
Fall 2023

Subject Code
CNST - Construction Engineering Tech

Course Number:
2990

Title:
Construction Estimating & Cost Analysis

Catalog Description:
Capstone course in Construction Engineering Technology program. Includes construction cost estimates, cost forecasting, and cost reports for a construction project using computer software.

Credit Hour(s):
3

Lecture Hour(s):
2

Lab Hour(s):
2

Requisites

Prerequisite and Corequisite
CNST-2131 Construction Methods and Materials or concurrent enrollment.

Outcomes

Course Outcome(s):
Develop a construction cost estimate using quantity survey techniques from plans and project specifications.

Objective(s):
1. Identify standard units used to measure quantities of building materials.
2. Identify all building material component disciplines required for a building project.
3. Estimate costs for building materials, labor, and construction equipment.
4. Use computer software to develop data documentation that indicates material, labor supply, and construction equipment costs.

Course Outcome(s):
Transform construction cost estimates into a format used for cost reporting, forecasting, and control of a construction project.

Objective(s):
1. Use computer software to develop a final project report for the estimated cost of a particular building.
2. Recognize the difference between indirect and direct construction costs.
3. Recognize the overhead costs within a project.
4. Recognize sources for material costs.
5. Recognize sources that provide data for labor costs.
6. Recognize sources that provide data for construction equipment costs.

Methods of Evaluation:

a. Written assignments
b. Lab projects
c. Participation and discussion
d. Quizzes
e. Presentations
f. Final exam/project

Course Content Outline:

a. Construction cost estimate format
    i. Work breakdown structure
    ii. Detail quantity survey tabulations
    iii. Summary tabulations
b. Estimate material and component disciplines
    i. Excavation
    ii. Concrete
    iii. Masonry
    iv. Metals
    v. Wood
    vi. Thermal and moisture protection
    vii. Doors and windows
    viii. Finishes
    ix. Electrical
    x. Plumbing
    xi. Mechanical
    xii. Special components
c. Construction labor
    i. closed shop labor
    ii. open shop labor
    iii. pricing labor
d. Indirect construction costs
    i. Construction equipment
        1. contractor owned equipment
        2. rental / lease equipment
    ii. Overhead costs
        1. home office personnel
        2. jobsite office personnel
        3. insurance, bonds, permits
        4. jobsite transportation
        5. small tools and consumables
        6. security
        7. maintenance
        8. weather protection
        9. jobsite computers and telecommunications
e. Cost analysis
    i. Cost coding
    ii. Control budget
        1. detail level
        2. summary level
    iii. Current cost data
        1. materials
        2. labor
        3. equipment
        4. indirect costs
    iv. Analysis
        1. variance identification
        2. forecast at completion

f. Final capstone project
    i. Estimating software package
    ii. Plans and specification
    iii. Estimate format
    iv. Forecast report

Resources

D'Agostino & Feigenbaum. *Estimating in Building Construction*. 9th ed. Upper Saddle River, NJ: Prentice Hall, 2018.

Fatzinger. *Basic Estimating for Construction.* 2nd. Upper Saddle River, NJ: Prentice Hall, 2005.

S. Peterson. *Construction Estimating using Excel*. 3rd ed. Upper Saddle River, NJ: Prentice Hall, 2018.

Peterson, Steven. *Estimating in Building Construction*. 9th. Pearson, 2019.

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