

CNST-2631: CONSTRUCTION MANAGEMENT SYSTEMS

Cuyahoga Community College

Viewing: CNST-2631 : Construction Management Systems

Board of Trustees:

2014-06-19

Academic Term:

Spring 2019

Subject Code

CNST - Construction Engineering Tech

Course Number:

2631

Title:

Construction Management Systems

Catalog Description:

Study of construction management practices including general contracting, subcontracting, project delivery, cost control, change processes and procurement. Introduction into lien implications, safety, quality and jobsite labor relations.

Credit Hour(s):

3

Lecture Hour(s):

3

Requisites

Prerequisite and Corequisite

CNST-2131 Construction Methods and Materials.

Outcomes

Course Outcome(s):

Distinguish the roles of the project owner, design professional, and prime constructor for all phases of construction.

Objective(s):

1. Give examples of where construction bid proposals can be located.
2. Describe all contract documents required for bidding purposes.
3. Differentiate between the types of agreement contracts that can be awarded to bidding contractors.

Course Outcome(s):

Analyze the responsibilities of a construction manager or a construction management team.

Essential Learning Outcome Mapping:

Written Communication: Demonstrate effective written communication for an intended audience that follows genre/disciplinary conventions that reflect clarity, organization, and editing skills.

Objective(s):

1. Analyze tasks required to complete project closeout.
 2. Interpret and outline the components of construction documentation.
 3. Interpret and analyze construction cost documentation.
 4. Describe methods of reporting and record keeping.
 5. Explain the purpose of a safety management plan.
 6. Defend on-going emphasis for jobsite safety.
 7. Analyze and contrast varying forms of agreement.
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Course Outcome(s):

Differentiate applications of open-shop, closed-shop, and merit-show approaches to executing a construction project.

Objective(s):

1. Recognize contract requirements related to subcontracting.
2. Interpret bidder selection, bidding process and bid award.

Course Outcome(s):

Determine methods for scheduling project time and cost control including project change and claim processes.

Essential Learning Outcome Mapping:

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

Objective(s):

1. Recognize what type of information is provided by varying construction schedules.
2. Recognize effects of labor productivity interruption.
3. Differentiate between a change order and construction change directive.
4. Explain the steps required to process a worksite claim.
5. Recognize the purpose of financial accounting required for cost control.
6. Explain methods used for payment requests according to contract documents.
7. Differentiate methods used for maintaining quality at the jobsite.

Methods of Evaluation:

1. Class assignments
2. Written reports
3. Class participation & discussion
4. Quizzes
5. Presentations
6. Final exam / project

Course Content Outline:

1. Construction Documents
 - a. Invitation to bid
 - b. Bid forms
 - c. Technical Specifications
 - d. Contract types
 - i. single fixed price
 - ii. unit price
 - iii. cost plus a fee
 - iv. guaranteed maximum price
 - e. Construction drawings
 - f. Submittals and procurement scheduling
 - g. Record types
 - i. reports, logs and progress schedules
 - ii. photographs, video recording and web cams
 - h. Project costs
 - i. labor costs
 - ii. material costs
 - iii. equipment purchase / lease
2. Project and jobsite management
 - a. Project team
 - i. reporting and record keeping
 - ii. planning and scheduling
 - iii. quality management
 - iv. safety management
 - b. Delivery systems

- i. traditional (owner-architect-contractor)
 - ii. design-build
 - iii. construction management
- 3. Jobsite control
 - a. Material handling
 - b. Labor productivity
 - i. weather
 - ii. material
 - iii. overtime
 - c. Labor agreements
 - i. national
 - ii. local
 - iii. union and non-union labor
 - d. Jobsite layout and security
 - e. Safety management
 - i. OSHA requirements
 - ii. accident reporting
 - iii. accident prevention
 - f. Quality management
 - i. Total Quality Management-TQM
 - ii. quality plan
 - iii. site inspection
- 4. Constructability review
 - a. Outcomes and purpose
 - b. Personnel required for review process
- 5. Subcontracting
 - a. Prime contract requirements related to subcontracting
 - b. Subcontract agreement
 - i. bid process, bidder selection and bid award
 - ii. subcontractor submittals
 - iii. subcontractor coordination and scheduling
 - iv. changes to the subcontract
 - v. payments to the subcontractor
- 6. Purchasing
 - a. Materials
 - b. Equipment lease
 - c. Expediting, tracking, and receiving
 - d. Inventory and deployment of materials, tools & equipment
 - e. Invoice processing and payment
- 7. Time and cost control
 - a. Scheduling applications
 - b. Definition of critical activities
 - c. Progress and reporting
 - d. Work scope breakdown structure
 - e. Progress measurement
 - f. Cash flow projections
- 8. Changes and claims
 - a. Construction changes
 - i. owner directed
 - ii. contractor directed
 - iii. change order process
 - b. Construction claims
 - i. delay
 - ii. productivity
 - iii. scope
 - iv. force majeure
- 9. Progress payment administration

- a. Subcontract payment type
 - i. schedule of values
 - ii. unit price
 - b. Progress payment procedures
 - c. Payment processing
 - i. waiver of lien documentation
 - ii. accounts payable interface
10. Project closeout
- a. Closeout process
 - i. punchlist
 - ii. inspection, testing, and operational acceptance
 - iii. documentation, manuals, permits
 - iv. spare parts and materials
 - v. record "as-built" drawings
 - vi. warranties and guarantees
 - vii. payment affidavits and lien release
 - b. Financial resolution
 - i. final subcontractor payment
 - ii. owner resolution
 - iii. records archiving
 - c. Jobsite office facilities removal

Resources

F. Gould N. Joyce. *Construction Project Management*. 3rd edition. Upper Saddle River, NJ: Prentice Hall, 2009.

J. Coleman. *Construction Documents Contracting*. 1st. Upper Saddle River, NJ: Prentice Hall, 2004.

W. Mincks H. Johnston. *Construction Jobsite Management*. 3rd ed. Clifton Park, NY: Delmar Learning, 2011.

B. Jackson. *Construction Management Jumpstart*. 1st. San Francisco, CA: Sybex Publishing, 2004.

Resources Other

1. Construction Documents (100%) Package Tri-C Corporate College East
 - a. Interiors
 - b. Mechanical, Electrical, and Plumbing
2. Construction Documents Package Tri-C Mechanical Equipment Replacement Projects
 - a. Metro HCS Building
 - b. Western Theater Building

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