South Central College

CTLS 2830  Construction Estimating and Inspection

Course Outcome Summary

Course Information

Description
This course covers the study and performance of procedures necessary in estimating quantities and costs and construction inspection of heavy construction. Emphasis is placed on construction inspection through measurement of quantities, documentation, record keeping, and contract document interpretation. The equipment and materials utilized are also presented. (Prerequisite: CTLS 1110)

Total Credits 4
Total Hours 80

Types of Instruction

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Pre/Corequisites

CTLS 1110

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Describe the estimating process and procedures

   Learning Objectives
   Describe the estimating process
   Summarize how bids are opened
   Evaluate scheduling
   Obtain and review bid documents

2. Explain the takeoff procedure

   Learning Objectives
   Differentiate items to measure
   List takeoff rules
3. **Measure heavy construction quantities**
   Learning Objectives
   Calculate sitework and excavation quantities
   Calculate concrete and asphalt quantities
   Calculate utility quantities
   Calculate demolition

4. **Price items in heavy construction**
   Learning Objectives
   Price excavation and backfill
   Price concrete and asphalt work
   Price utility installation
   Summarize the use of RSMeans for Heavy Construction

5. **Describe the duties and responsibilities of an inspector**
   Learning Objectives
   Identify construction records
   Summarize the duties of an inspector
   Evaluate the ethics requirements of inspectors
   Examine the responsibilities of the representatives involved in construction

6. **Utilize plan reading for inspection**
   Learning Objectives
   Examine construction plans
   Read contours
   Describe plan and profile sheets
   Examine highway plans and cross sections

7. **Describe construction staking**
   Learning Objectives
   Calculate stationing, curves, and super elevations for staking
   Calculate cut, fill, and slope stakes
   Perform staking

8. **Describe construction equipment utilized during heavy construction**
   Learning Objectives
   Describe the use of graders, dozers, excavators, compactors, and dirt pans
   Summarize the operation of slip-form curb and paver machines
   Summarize the operation of profilers and reclaiming machines

9. **Describe rock excavation**
   Learning Objectives
   Describe methods to cut slopes in rocky soil
   Describe methods of ripping and excavating rock
   Describe methods of compacting fill with rock
   Summarize safety precautions used during rock excavation

10. **Summarize compaction**
    Learning Objectives
    Summarize compaction testing
    Examine compaction equipment
    Describe proof rolling
    Describe methods of repairing unsuitable compaction

11. **Describe asphalt paving**
12. Describe pipe and manhole construction

   Learning Objectives
   Summarize the construction requirements for pressure and gravity pipe construction
   Determine pipe requirements from specifications
   Summarize pressure and vacuum testing of pipes and manholes
   Describe repairs of pipes and manholes
   Examine trench safety requirements

13. Summarize erosion control requirements on construction sites

   Learning Objectives
   Review construction plans BMP’s
   Describe erosion control practices
   Summarize a construction plans SWPPP
   Describe timing for erosion control

SCC Accessibility Statement

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Additional information and forms can be found at: www.southcentral.edu/disability

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