

CNST-1290: CONSTRUCTION PRINT READING

Cuyahoga Community College

Viewing: CNST-1290 : Construction Print Reading

Board of Trustees:

10/26/2023

Academic Term:

Fall 2024

Subject Code

CNST - Construction Engineering Tech

Course Number:

1290

Title:

Construction Print Reading

Catalog Description:

Overview of construction drawings for the major construction disciplines to understand presentation methods, interpretation, sequence of preparation, bid submittal processes, revision control, and code requirements. Commercial building, structural, civil, and highway drawings utilized. Introduction to Maintenance of Traffic drawings and stormwater management related drawings.

Credit Hour(s):

2

Lecture Hour(s):

1

Lab Hour(s):

2

Requisites

Prerequisite and Corequisite

None

Outcomes

Course Outcome(s):

Identify and explain specific parts of a construction drawing.

Essential Learning Outcome Mapping:

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):

1. Describe what is required on working drawings for construction and civil engineering.
2. Locate and describe the meaning, and need, for specifications in a project manual.
3. Determine unit quantity of required materials for a construction project, based upon dimensioned working drawings.
4. Differentiate between types of working drawings for construction.
5. Identify and explain specific components of a working drawing for construction.
6. Visualize and describe the intended structure which is depicted by a working drawing for construction.

Course Outcome(s):

Apply knowledge of presentation methods, interpretation, sequence of preparation, bid submittal process, revision control, and code requirements for construction drawings.

Essential Learning Outcome Mapping:

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):

1. Outline steps and methods for construction of commercial structures.
2. Identify and explain the need for drawing revisions.
3. Summarize the process steps of drawing preparation for a contract document package.
4. Recognize how a project manual relates to a set of working drawings.
5. Describe the format of specifications in a project manual.

Methods of Evaluation:

1. Quizzes
2. Written laboratory assignments
3. Exams
4. Class discussion and participation
5. Laboratory projects

Course Content Outline:

1. Engineering/construction drawing fundamentals
 - a. Computer-Aided Drafting (CAD) and Design (CADD)
 - b. Line types used in drawing
 - c. Abbreviations, symbols, and notes
 - d. Working drawing set
 - i. Title block information
 - ii. Drawing scales
 1. Architectural
 2. Civil
 3. Metric
 - iii. Types of working drawings
2. Civil engineering drawing fundamentals
 - a. Site and plot plans
 - b. Civil engineering drawing basics
 - i. Location, direction, and distance
 - ii. Legal descriptions
 - iii. Excavating and grading
3. Construction documentation
 - a. Bid submittal
 - b. Contract documents
 - c. Drawing submittal
 - d. Specifications
 - e. Building and municipality codes
 - f. Drawing revisions
 - g. Project build manual
4. Length, Area, Volume and Unit Conversions
 - a. Calculating Area and Volume
 - i. Grid/Cube Approach
 - ii. Computation using Standard Shapes
 - iii. Converting between units
5. Foundation construction
 - a. Site Preparation and Access
 - b. Foundation types
 - c. Concrete
 - i. Structural specification
 - ii. Steel reinforcement
 - d. Masonry
 - i. Brick and stone
 - ii. Structural specification

6. Commercial construction
 - a. Structural concrete
 - i. Pre-cast concrete
 - ii. Pre- and post-tension
 - iii. Steel reinforcement
 - b. Structural steel
 - i. Steel framing
 - ii. Roofing
 - c. Roof structures
 - i. Beams and supports
 - ii. Joists and ledgers
 - iii. Decking
 - iv. Built-up roofing
7. Site improvements
 - a. Approach apron
 - b. Curb and gutter
 - c. Asphalt surfacing
 - d. Retaining walls
 - e. Ground swales, drains and culverts
 - f. Utilities
8. Highway and Heavy Construction Drawings
 - a. Standard Drawings
 - b. Maintenance of Traffic
 - c. Stormwater Management
9. Material quantity takeoff
 - a. Print interpretation
 - b. Specify proper units for material quantity measure
 - c. Calculate material quantity with proper units

Resources

Ching, Francis and Adams, Cassandra. (2020) *Building Construction Illustrated*, New York: Wiley and Sons.

Proctor, Thomas E. *Printreading for Residential and Light Commercial Construction - With 32 Prints*. 6th. American Technical Publishers, 2016.

Resources Other

- OHDOT CADD Engineering Standards Manual (2021) <https://www.transportation.ohio.gov/working/engineering/cadd-mapping/cadd-standards-manual-ohdot/> (<https://www.transportation.ohio.gov/working/engineering/cadd-mapping/cadd-standards-manual-ohdot/>)
- National Association of Home Builders YouTube Channel (2022) <https://www.youtube.com/c/NAHBTV> (<https://www.youtube.com/c/NAHBTV/>)
- Ohio Utility Protection Service Resources page (2021) <https://www.oups.org/promotional-catalog/>

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