CNST-2201: INTRODUCTION TO BUILDING INFORMATION MODELING

Cuyahoga Community College

Viewing: CNST-2201 : Introduction to Building Information Modeling

Board of Trustees:

December 2023

Academic Term:

Fall 2024

Subject Code

CNST - Construction Engineering Tech

Course Number:

2201

Title:

Introduction to Building Information Modeling

Catalog Description:

Introduction into building information modeling (BIM). 3-dimensional software will be used to generate a building model and related drawings used in a set of contract documents. BIM software also used to determine material take-off quantities for to create estimates.

Credit Hour(s):

3

Lecture Hour(s):

1

Lab Hour(s):

4

Requisites

Prerequisite and Corequisite

CNST-1290 Construction Print Reading; or departmental approval.

Outcomes

Course Outcome(s):

Identify and explain the difference between a 2-dimensional and 3-dimensional representation of a building.

Objective(s):

1. Utilize BIM software to quickly change form 2-D views to 3-D views.
2. Utilize BIM software to rotate the 3-D model in various positions for distinct viewing direction.

Course Outcome(s):

Recognize how the software data is used to generate a building model in the same manner as real construction practices.

Objective(s):

1. Utilize the building information software to change the material and construction of wall components.
2. Utilize BIM software to create walls, ceilings, roofs, doors, windows, and other structural elements.
3. Utilize BIM software to customize data for existing walls, ceilings, roofs, doors, windows, and other structural elements.

Course Outcome(s):

Distinguish how building information software categorizes building information in a standard format required for contract documents.

Objective(s):

1. Utilize BIM software to develop floor plans, exterior elevations, interior elevations, and wall sections.
2. Develop building elevation drawings.
3. Develop building sections views and detail section views.
4. Develop a partial working drawing set for a commercial building.

Course Outcome(s):

Utilize the capabilities of BIM software to output information needed for design analysis.

Objective(s):

1. Utilize BIM software to export material component information into a spreadsheet program.
2. Utilize BIM software to create material component schedules.

Methods of Evaluation:

1. Tutorial lab assignments
2. Quizzes
3. Class participation

Course Content Outline:

1. Comparison of BIM vs. Traditional CAD
   a. Autodesk Revit
   b. Autodesk AutoCAD
2. Introduction to Autodesk Revit
   a. Using basic user interface commands of Revit
3. Commercial building floor plans
   a. First floor
   b. Additional floors
4. Commercial building roof
   a. Roof design by using existing wall elements
   b. Roof plan
5. Commercial building floor systems
   a. Creation of structural floor
   b. Additional floors
6. Commercial building elevations
   a. Exterior elevations from existing model
   b. Interior elevations from existing model
7. Commercial building sections
   a. Longitudinal building section
   b. Building cross-section
   c. Wall sections
8. Commercial building schedules
   a. Door schedule
   b. Window schedule
   c. Material take off schedule
   d. Export to MS Excel
9. Commercial building construction document set
   a. Sheet set-up
   b. Sheet index
   c. Drawing set creation and printing

Resources

Stine, Danial J. (2023) *Commercial Design Using Autodesk Revit Architecture 2024*, Mission, KS SDC Publications.

Stine, Danial J. (2023) *Design Integration Using Autodesk Revit 2024*, KS: SDC Publications.

Jeff Yoders. (2011-01-07 00:00:00.0) BIM on Target. Vol. 52 No.1.

Stine, Daniel J. (2021) *Design Integration Using Autodesk Revit 2022*, Mission, KS: SDC Publications.

Resources Other
None

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