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COURSE INFORMATION

Alternate Title: Telecomm Designs-Office Princ.

Description:

10-451-207 TELECOMMUNICATIONS DESIGN - OFFICE PRINCIPLES ...focuses on taking the data from field collection and creating the product that a utility crew would use to place the communications facility. Learners will develop plan sets consistent with industry standards. (Pre-Requisite: 10-607-112, AutoCAD for Civil Engineering. Co-Requisite: 10-607-114, Civil 3D-Intro)

Instructional Level: 10

Total Credits: 3

Total Hours: 90

COURSE HISTORY

Status: Active

Active Date: 5/23/2021

Last Revision Date: 8/29/2023

Revised By: Kristina Wendricks (15002977)

Last Approval Date: 8/29/2023

Approved By: Kristina Wendricks (15002977)

COURSE COMPETENCIES

1. Explain office design principles for telecommunications.

Status: Active

Assessment Strategies

1.1. Objective exam/quiz

Criteria

Learners will be successful when they are able to:

- 1.1. Describe different GIS software option pros, cons, and costs
- 1.2. Describe different design software pros, cons, and costs
- 1.3. Describe computer requirements for design software
- 1.4. Describe differences between desktops and laptops and how they effectively run design software

Learning Objectives

- 1.a. Describe software that will be used
- 1.b. Describe hardware and equipment that will be used and how to properly care for them

2. Setup project in AutoCAD, collect available data and import into project.

Status: Active

Assessment Strategies

2.1. Project

Criteria

Learners will be successful when they are able to:

- 2.1. Identify different coordinate systems
- 2.2. Apply proper coordinate system for project
- 2.3. Research, review and import previous project data if available
- 2.4. Research, review and import available digital utility documentation when available
- 2.5. Research, review and import available digital planimetric information
- 2.6. Research, review and import available aerial imagery / photography

Learning Objectives

- 2.a. Setup project in AutoCAD
- 2.b. Collect existing data from available sources

3. Define project goals, objectives, and route determination.

Status: Active

Assessment Strategies

3.1. Projects

Criteria

Learners will be successful when they are able to:

- 3.1. Gather available digital utility documentation when available Google Earth Street View
- 3.2. Utilize "Street View" mapping to verify route is acceptable and free from major obstructions
- 3.3. Assess ground conditions by reviewing soil maps
- 3.4. Coordinate connection sites, nodes, and design requirements with project team
- 3.5. Coordinate with municipalities, counties, and permitting authorities to review viable routes

Learning Objectives

- 3.a. Identify connection points and logical route for project

4. Carry out grid setup, setup title block, and trace major objects from imagery.

Status: Active

Assessment Strategies

4.1. Project

Criteria

- 4.1. Create grid for project overview drawing
- 4.2. Create grid for detailed scaled drawings
- 4.3. Create title block with project information and details
- 4.4. Determine accuracy of aerial photography
- 4.5. Carry out tracing of major objects that are not critical for dimensioning or accuracy

Learning Objectives

- 4.a. Define project area and grid out for project extents
- 4.b. Carry out tracing of major objects from aerial imagery

5. Conduct Utility Pole modeling and wind, sag, and load calculations.

Status: Active

Assessment Strategies

5.1. Project

Criteria

Learners will be successful when they are able to:

- 5.1. Organize documentation at office
- 5.2. Conduct a meeting with field crew to review project and data collection information
- 5.3. Carry out sag calculations utilizing software
- 5.4. Carry out utility pole loading to ensure structural integrity of pole utilizing software
- 5.5. Carry out make ready adjustments on utility poles

Learning Objectives

- 5.a. Organize and review utility pole information
- 5.b. Carry out wind, sag, and load calculations

6. Carry out route planning, design, and drafting.

Status: Active

Assessment Strategies

6.1. Project

Criteria

Learners will be successful when they are able to:

- 6.1. Verify survey data and coordinates of field data
- 6.2. Process data and import into AutoCAD
- 6.3. Conduct drafting cleanup of utility and survey data
- 6.4. Design new installation path for aerial installation
- 6.5. Design new installation path for underground installation
- 6.6. Design new structure locations
- 6.7. Carry out annotations of structure and new installation path
- 6.8. Carry out dimensioning of new installation
- 6.9. Carry out stationing on prints

Learning Objectives

- 6.a. Integrate survey data and information from field crew
- 6.b. Carry out design and drafting of new fiber installation

7. Carry out creation of project plansets.

Status: Active

Assessment Strategies

7.1. Project

Criteria

Learners will be successful when they are able to:

- 7.1. Assemble detailed prints for plansets
- 7.2. Assemble overview print for plansets
- 7.3. Design project logical drawing showing cabling details

Learning Objectives

- 7.a. Carry out planset paper space setup for each detailed print
- 7.b. Carry out logical drawing for project

8. Carry out permitting for project.

Status: Active

Assessment Strategies

8.1. Project

Criteria

Learners will be successful when they are able to:

- 8.1. Assemble relevant drawing for permit submission
- 8.2. Determine requirements for permit submission
- 8.3. Execute permit applications and forms and determine costs for permits

Learning Objectives

- 8.a. Carry out permitting for municipalities
- 8.b. Carry out permitting for counties
- 8.c. Carry out permitting for state
- 8.d. Carry out permitting for railroad
- 8.e. Carry out permitting for DNR

9. Assemble and organize documentation for project installation.

Status: Active

Assessment Strategies

9.1. Project

Criteria

Learners will be successful when they are able to:

- 9.1. Assemble, distribute and review project drawings with installation crew
- 9.2. Assemble, distribute and review permit requirements with installation crew

Learning Objectives

- 9.a. Assemble drawings for installation crew
- 9.b. Assemble permits for installation crew