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NORTHEAST
WI Technical College

10-451-100 061776 Introduction to Electrical Tower Worker

Course Outcome Summary

COURSE INFORMATION

Alternate Title: Intro to Elec Tower Worker

Description:

10-451-100 INTRODUCTION TO ELECTRICAL TOWER WORKER ...introduces basic principles of electricity, safety standards, and basic line worker tools. Students will also learn about electrical distribution systems and components, line installation, and maintenance applications.

Instructional Level: 10

Total Credits: 3

Total Hours: 162

COURSE HISTORY

Status: Active

Active Date: 5/23/2021

Last Revision Date: 11/30/2021

Revised By: Kristina Wendricks (15002977)

Last Approval Date: 1/3/2022

Approved By: Kristina Wendricks (15002977)

COURSE COMPETENCIES

1. Conduct sweep testing with Anritsu.

Status: Active

Assessment Strategies

1.1. Skill Demonstration

Criteria

Learners will be successful when they are able to:

1.1. Perform Distance To Fault (DTF) sweeps

1.2. Set marker to fault in coax line

1.3. Perform return loss sweeps

1.4. Set markers to peak

Learning Objectives

1.a. Calibrate an Anritsu sweep gear

1.b. Set up testing with an Anritsu

2. Conduct repairs to telecom towers while working at heights.

Status: Active

Assessment Strategies

2.1. Skill Demonstration

Criteria

Learners will be successful when they are able to:

2.1. Find slips, trips, and falls hazards
2.2. Assess site for wildlife hazards
2.3. Find signs of stolen or damaged property
2.4. Inspect tower foundation
2.5. Use shims to inspect tower flanges
2.6. Document tower damages
2.7. Tighten hardware to specific torque ratings

Learning Objectives

2.a. Identify potential hazards on site and tower
2.b. Perform tower inspection
2.c. Report any known issues to appropriate parties

3. Perform telecom equipment installs to customer specifications and standards.

Status: Active

Assessment Strategies

3.1. Skill Demonstration

Criteria

Learners will be successful when they are able to:

3.1. Mount antenna
3.2. Mount radio
3.3. Route power, fiber, and RF jumpers
3.4. Support power, fiber, and RF jumpers

Learning Objectives

3.a. Install Antennas
3.b. Install Radios
3.c. Route power, fiber, and RF jumpers
3.d. Support within standards power, fiber, and RF jumpers
3.e. Document Antenna compliance

4. Conduct proper telecom components weather proofing and seals.

Status: Active

Assessment Strategies

4.1. Skill Demonstration

Criteria

Learners will be successful when they are able to:

4.1. Use the correct tape to weatherproof
4.2. Make a clean shingle pattern down the coax
4.3. Seal all appropriate grommets on outdoor equipment
4.4. Make a “cone” shape with magic tape/ Butyl

Learning Objectives
4.a. Weatherproof Coax line
4.b. Weatherproof seals on outdoor equipment

5. Test for Passive Intermodulation (PIM) interference.

Status: Active

Assessment Strategies
5.1. Skill Demonstration

Criteria

Learners will be successful when they are able to:
5.1. Calibrate PIM gear
5.2. Perform a PIM
5.3. Save a measurement on the PIM device
5.4. Determine the cause of interference

Learning Objectives
5.a. Setup PIM gear
5.b. Calibrate PIM gear
5.c. PIM test coax line to load

6. Identify types of structures common to the wireless industry and different types of equipment.

Status: Active

Assessment Strategies
6.1. Skill Demonstration

Criteria

Learners will be successful when they are able to:
6.1. Identify each type of telecom structure
6.2. Recognize the difference between antenna types
6.3. Identify the different amounts of radiation each antenna type gives off

Learning Objectives
6.a. Identify telecom structures
6.b. Identify antenna, radio, TMA, and cable types

7. Complete equipment install with all compliant documentation.

Status: Active

Assessment Strategies
7.1. Skill Demonstration

Criteria

Learners will be successful when they are able to:

7.1. Level side tilt of antenna documentation

7.2. Level the mechanical down tilts of antenna documentation

7.3. Line of Site L.O.S documentation

7.4. Perform Tape drop equipment from the ground to install height

Learning Objectives

7.a. Tilt antenna sideways to achieve plumb.

7.b. Tilt antenna downward or upward to achieve mechanical down tilt.

7.c. Label equipment.

7.d. Perform tape drops.

8. Achieve Azimuth of an antenna using an RF alignment tool.

Status: Active

Assessment Strategies

8.1. Skill Demonstration

Criteria

Learners will be successful when they are able to:

8.1. Document azimuth

8.2. Attach azimuth to antenna

8.3. Turn antenna until the correct RF path is achieved

8.4. Transfer saved data from RF aligner to computer excel file

Learning Objectives

8.a. Setup Azimuth tool

8.b. Achieve azimuth of an antenna