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Northeast Wisconsin Technical College

31-413-330 022710 Line Electrician Field Training 1

Course Outcome Summary

Course Information

Description	31-413-330 LINE ELECTRICIAN FIELD TRAINING 1 ...This course introduces students to a career as a line electrician. Students will learn pole climbing techniques, operate digger derrick trucks and bucket trucks, design and construction of single phase power distribution systems. CPR and First Aid certifications are received in this course.
Total Credits	5
Total Hours	180

Course History

Last Revision Date	3/16/2017
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Employability Skills

- Communicate Effectively
- Demonstrate Community and Global Accountability
- Demonstrate Personal Accountability
- Solve Problems Effectively
- Think Critically and Creatively
- Value Individual Differences and Abilities
- Work Cooperatively and Professionally

Program Outcomes

- TSA1 - Apply electrical theory
- TSA2 - Construct overhead electrical distribution systems
- TSA3 - Disassemble overhead electrical distribution systems
- TSA4 - Construct underground electrical distribution systems
- TSA5 - Disassemble underground electrical distribution systems
- TSA6 - Construct overhead electrical transmission system

TSA7 - Disassemble overhead electrical transmission system

TSA8 - Maintain electrical systems

Course Competencies

1. Layout single-phase line

Assessment Strategies

by laying out single-phase line

Learning Objectives

- 1.a. Utilize Personal Protective Equipment (PPE)
- 1.b. Assist in staking out pole line
- 1.c. Interpret stacking sheet/map

Criteria

Your performance will be successful when:

you site a straight line when laying out single phase distribution line
you use stacking sheets to layout single phase distribution line

2. Install poles in single-phase system

Assessment Strategies

by installing poles in single/three-phase system

Learning Objectives

- 2.a. Set the pole
- 2.b. Interpret work order, plat map, stacking sheets
- 2.c. Terminate wires to the overhead system
- 2.d. Utilize Personal Protective Equipment (PPE)

Criteria

Your performance will be successful when:

you verify that all existing UD facilities have been located
you interpret work orders, plat maps, stacking sheets
you assist in staking out a pole line
you load & unload poles on a pole trailer
you set pole to proper depth
you plumb the pole
you face the pole
you backfill & tamp newly set pole

3. String single-phase overhead line

Assessment Strategies

by stringing single-phase overhead line

Learning Objectives

- 3.a. Install stringing pulleys/dolleys
- 3.b. Install rope for conductor stringing
- 3.c. Utilize Personal Protective Equipment (PPE)

Criteria

Your performance will be successful when:

you replace rope by pulling wire
you install rope for conductor stringing
you install stringing pulleys/dolleys
you wind wire on capstan

4. Sag single-phase overhead line

Assessment Strategies

by sagging single-phase overhead line

Learning Objectives

- 4.a. Demonstrate proper sagging techniques
- 4.b. Utilize Personal Protective Equipment (PPE)

Criteria

Your performance will be successful when:

you sag the wire depending on length of span, size of the wire and outdoor temperature
you sag conductors using stop watch method
you sag conductors using dynameter
you sag conductors using sagging boards

5. Tie in single-phase overhead line**Assessment Strategies**

by tying single-phase overhead

Learning Objectives

- 5.a. Demonstrate a wire tie
- 5.b. Install armour rod
- 5.c. Utilize Personal Protective Equipment (PPE)

Criteria

Your performance will be successful when:

you deadend the conductors
you make wire tie
you install armor rod
you clip in conductors with wire tie
you clip in conductors with preform tie

6. Install a single-phase transformer**Assessment Strategies**

by installing a single-phase transformer

Learning Objectives

- 6.a. Demonstrates correct procedure for installing a single phase transformer.
- 6.b. Utilize Personal Protective Equipment (PPE)

Criteria

Your performance will be successful when:

you install transformer using a gin
you install transformer using a digger derrick truck
you make all the proper connections
you frame the pole for a single-phase transformer

7. Frame poles for single-phase**Assessment Strategies**

by framing poles for single-phase

Learning Objectives

- 7.a. Utilize Personal Protective Equipment (PPE)
- 7.b. Identify overhead hardware
- 7.c. Review proper hardware installation according to construction standards

Criteria

Your performance will be successful when:

you drill bolt holes for installation
you install hardware and equipment

you install cross arms
you install ground rods and connect ground wires
you install fuse cut-out and lighting arrester

8. Perform proper pole climbing

Assessment Strategies

by properly climbing poles

Learning Objectives

- 8.a. Utilize Personal Protective Equipment (PPE)
- 8.b. Climb wood poles

Criteria

Your performance will be successful when:

you use a safety strap
you belt in and belt off of wood poles
you double belt wood poles
you ascend and descend free hand
you ascend and descend belted in
you coordinate hand and foot movement
you lengthen and shorten safety strap properly to perform work
you move around the pole free hand
you move around the pole belted in
you climb over cross arms and obstruction
you hang a handline while on the pole
you perform work with two hands

9. Perform proper truck operation

Assessment Strategies

by performing proper truck operation

Learning Objectives

- 9.a. Utilize Personal Protective Equipment (PPE)
- 9.b. Demonstrate signals for boom operations
- 9.c. Operate digger derrick truck
- 9.d. Operate bucket truck

Criteria

Your performance will be successful when:

you perform DOT inspection of vehicle
you start engine
you position truck for work, check soil, road, and shoulder
you properly guard the work site
you engage PTO
you operate lower controls
you perform inspection of digger derrick/bucket truck prior to use
you raise and cradle the boom
you raise outriggers
you disengage PTO
you attach trailer, detach trailer and park trailer
you back vehicle and trailer
you use hand signals
you locate and operate pedestal override controls

10. Demonstrate vehicle maneuvering

Assessment Strategies

by demonstrating vehicle maneuvering

Learning Objectives

- 10.a. Utilize Personal Protective Equipment (PPE)

- 10.b. Accept responsibility when driving school vehicles
- 10.c. Demonstrate proper back up procedures
- 10.d. Recognize all hand signals

Criteria

Your performance will be successful when:

- you will drive school vehicle in a safe and respectful manor
- you inspect vehicle before use
- you will backup vehicle using a spotter
- you will demonstrate all hand signals before vehicle use

11. Use hand and power tools

Assessment Strategies

by using hand and power tools

Learning Objectives

- 11.a. Utilize Personal Protective Equipment (PPE)
- 11.b. Display proper use of hand tools
- 11.c. Display proper use of power tools

Criteria

Your performance will be successful when:

- you select correct tools.
- you inspect tools.
- you adjust tools before and during each use.
- you clean and inspect tools.
- you store tools in correct location.

12. Tie knots and splice ropes

Assessment Strategies

by tying knots and splicing rope

Learning Objectives

- 12.a. Utilize Personal Protective Equipment (PPE)
- 12.b. Demonstrate how to tie knots
- 12.c. Demonstrate hoe to splice rope

Criteria

Your performance will be successful when:

- you tie a bowline
- you tie a double bowline
- you tie a bowline on a bight
- you tie a running bowline
- you tie a triple (rescue) bowline
- you tie a square knot
- you tie a figure eight knot
- you tie a sheepshank
- you tie a overhand knot
- you tie two half-hitches
- you tie a round turn and two half-hitches
- you tie a snubber
- you tie a catspaw
- you tie a timber hitch
- you make a back splice
- you make a short splice
- you make eye splice

13. Demonstrate rigging techniques

Assessment Strategies

by demonstrating proper rigging techniques

Learning Objectives

- 13.a. Utilize Personal Protective Equipment (PPE)
- 13.b. Demonstrate proper rigging techniques

Criteria

Your performance will be successful when:

- you demonstrate proper use of slings
- you make-up blocks
- you inspect blocks
- you properly handle blocks and rigging equipment

14. Set anchors

Assessment Strategies

by installing anchors

Learning Objectives

- 14.a. Utilize Personal Protective Equipment (PPE)
- 14.b. Demonstrate proper procedures for setting anchors

Criteria

Your performance will be successful when:

- you will prepare an anchor to be installed
- you will set the truck up to install an anchor
- you will install anchor in the ground

15. Make up down guys

Assessment Strategies

by making up a down guy

Learning Objectives

- 15.a. Utilize Personal Protective Equipment (PPE)
- 15.b. Demonstrate proper placement of down guys on a pole
- 15.c. Demonstrate how to fasten down guy to anchor

Criteria

Your performance will be successful when:

- you will make a down guy using correct material
- you will attach a down guy to a pole
- you will attach a down guy to an anchor
- you will install a guy guard to the down guy

16. Participate in Heartsaver CPR.

Assessment Strategies

by participating in Heartsaver CPR.

Learning Objectives

- 16.a. Administer first aid
- 16.b. Administer CPR
- 16.c. Utilize a AED

Criteria

Your performance will be successful when:

- you perform first aid
- you perform CPR
- you utilize a AED