

For L&I Staff Use Only	
Received: L&I Tukwila, 2A March 28, 2024 <i>SKH</i>	<i>Teri Gardner 3-28-24</i> L&I Admin
L&I Apprenticeship Consultant	

Department of Labor and Industries
Apprenticeship Section
PO Box 44530
Olympia WA 98504-4530



Request for Revision of Standards

TO: Washington State Apprenticeship & Training Council
FROM: Tanner Electric Cooperative Lineman Apprenticeship Committee, #509

Please update our Standards of Apprenticeship to reflect the following changes:

- Additions shall be underlined (underlined).
- Deletions shall be struck through (~~struck through~~).
- See attached.

Form must be signed by Committee Chair and Secretary or Program's Authorized Signer

<input checked="" type="checkbox"/> Chair	Date	<input checked="" type="checkbox"/> Secretary	Date
<input type="checkbox"/> Authorized Signer	<i>27 MARCH 2024</i>		<i>3/27/2024</i>
Print Name:	<i>Nick Hines</i>	Print Name:	<i>Kye Refvem</i>
Signature:	<i>[Signature]</i>	Signature:	<i>[Signature]</i>

Approved By: Washington State Apprenticeship & Training Council
Signature of Secretary of the WSATC:
Date:

Attach additional sheets if necessary

IX. Related/Supplemental Instruction:

B. **144 (See below)** Minimum RSI hours per year defined per the following [see WAC 296-05-015(6)]:

The Northwest Line Construction Industry JATC is the Training Provider. Therefore all the RSI courses for this 7,000 hour apprenticeship are delivered within a three year period totaling 562 hours as delineated below. This set curriculum cannot be altered by Tanner Electric Cooperative Apprenticeship Committee.

Therefore, once an apprentice successfully completes all the required RSI hours and has less than the required OJT hours, the apprentice will not be required to attend RSI classes during the last six months of apprenticeship, unless otherwise directed by the Committee.

- 1. Year 1 equals 196 RSI hours**
- 2. Year 2 equals 190 RSI hours**
- 3. Year 3 equals 176 RSI hours**

C. Additional Information:

- ~~1. In case of failure on the part of any apprentice to fulfill their obligation as to related study and testing, the Apprenticeship Committee shall have the authority to suspend or revoke his/her Agreement. All parties participating under the apprenticeship Standards agree to abide by any such determination of the Apprenticeship Committee.~~
- 2-1. The Apprenticeship Committee recommends that the courses for the apprentices be limited to those who are actually apprentices to the trade in accordance with these Standards.**
- 3 2. Such related instruction will not be elassed classified as hours of work.**
- 4 3. Adequate safety training will be given in the related instruction classes so that each apprentice will be fully informed on safety practices.**

X. Administrative/Disciplinary Procedures:

A. Administrative Procedures:

3. Sponsor Procedures:

NONE

- a. During the term of apprenticeship, the apprentice shall be under the direction of the Apprenticeship Committee, and the Committee shall have the authority to protect the apprentice's welfare and also to instruct, guide, and discipline while on the job and during RSI classes.**

b. Responsibilities of Apprentices: Apprentices shall read these Standards and familiarize themselves with the contents. Apprentices are cautioned that the failure to read these Standards will not excuse them from possible disciplinary action up to and including suspension or cancellation of the apprenticeship agreement when the apprentice violates any section herein.

1) To diligently and faithfully perform the work of the trade, and to perform such other pertinent duties as may be assigned by the Apprenticeship Committee in accordance with the provisions of these Standards.

2) To develop safe working habits and conduct themselves in their work in such a manner as to assure their own safety and that of their fellow workers.

c. Monthly Work Progress Reports:

1) Each apprentice will provide a monthly work progress report which is a record of work experience and training received on the job and in related instruction. Related instruction attendance must be recorded on every report even if the total hours equal zero for any given month.

2) The monthly work progress report must be submitted by the 15th of each month delivered to the Apprenticeship Office in the box provided.

d. Related/Supplemental Instruction (related instruction)

It is the intent of this Apprenticeship Committee to ensure quality training for each apprentice. Full attendance at related instruction is therefore expected. In case of failure on the part of any apprentice to fulfill their obligations as to attendance, the Apprenticeship Committee shall have the authority to impose discipline, suspend or cancel the apprenticeship agreement.

1) Each apprentice is required to regularly attend and satisfactorily complete the required hours of related instruction. Notification will be sent to each apprentice concerning the date/time and location of each class.

2) Each apprentice must maintain a 70% grade point average and achieve a minimum grade of 70% on all tests or exams.

e. Wage/Step Progression: An examination of each apprentice's record shall be made by the Apprenticeship Committee before each next wage/step progression. In this examination, consideration shall be given to employer reports concerning on-the-job performance, attendance, attitude and mechanical ability, and from the training provider concerning related instruction attendance and grades, to determine whether satisfactory progress is being made.

B. Disciplinary Procedures:

3. Sponsor Disciplinary Procedures:

a. Disciplinary action will be taken when an employee engages in a practice which is inconsistent with published employee rules of conduct or ordinary, reasonable,

~~common sense rules of conduct necessary to the welfare of Tanner Electric Cooperative and its employees.~~ The Apprenticeship Committee shall have the authority to discipline an apprentice who fails to comply with the apprenticeship agreement or abide by the standards of apprenticeship. Rehabilitative disciplinary action should be taken when an ~~employee's~~ apprentice's work performance is considered unsatisfactory. The objective of disciplinary action is one of control and how best to guide employees in the performance of their duties in a manner consistent with the efficient operation of Tanner Electric Cooperative and to achieve correction and avoid recurrence.

Disciplinary action imposed by the Apprenticeship Committee may include delay of wage advancement, rerating to a lesser wage progression, suspension or cancellation of the apprenticeship agreement, or other action deemed appropriate by the Apprenticeship Committee.

- b. In case of failure on the part of any apprentice to fulfill their obligation as to related instruction, including failure to maintain a 70% grade point average and achieve a minimum score or 70% on each test or exam, the Apprenticeship Committee shall have the authority to impose discipline or suspend or cancel the apprenticeship agreement. All parties participating under these apprenticeship standards agree to abide by any such determination of the Apprenticeship Committee.
- ~~b-c. Reasons for disciplinary action: (For details see Personnel Policies and Safety Manual)~~
- d. If an apprentice fails to appear before the Apprenticeship Committee after due notice, disciplinary action may be invoked without a hearing.
- e. Failure to maintain employment with Tanner Electric Cooperative will be cause to begin cancellation proceedings with due notice sent to those who have completed the initial probationary period.

For L&I Staff Use Only

Received: L&I Tukwila, 2A
March 12, 2024 *SKH*

Teri Gardner 3-28-24

L&I Apprenticeship Consultant

L&I Admin

Department of Labor and Industries
Apprenticeship Section
PO Box 44530
Olympia WA 98504-4530



Apprenticeship Related/Supplemental Instruction (RSI) Plan Review

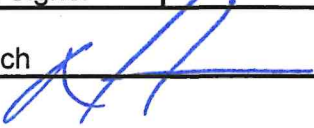
Program Name Tanner Electric Cooperative Lineman Apprenticeship Committee	
Occupation Lineman	
Term/OJT Hours 7000	Total RSI Hours 562
Training Provider Northwest Line Construction Industry JATC (NW Line JATC)	

By the signature placed below, the **program sponsor** agrees to provide the prescribed RSI for each registered apprentice and assures that:


1. The RSI content and delivery method is and remains reasonably consistent with the latest occupational practices, improvements, and technical advances.
2. The RSI is coordinated with the on-the-job work experience.
3. The RSI is provided in safe and healthful work practices in compliances with WISHA and applicable federal and state regulations.
4. The RSI Plan is maintained, updated and submitted to the Department a minimum of once every 5 years (WSATC Policy 2015-01; rev, 10-21-21).
5. The RSI will be conducted by instructors who meet the qualification of the "competent instructor" as described in WAC 296-05-003:
 - a. Has demonstrated a satisfactory employment performance in her/her occupation for a minimum of three years beyond the customary learning period for that occupation; and
 - b. Meets the State Board for Community and Technical Colleges requirements for a professional technical instructor (see WAC 131-16-080 through -094), or be a subject matter expert, which is an individual, such as a journey worker, who is recognized within the industry as having expertise in a specific occupation; and
 - c. Has training in teaching techniques and adult learning styles, which may occur before or within one year after the apprenticeship instructor has started to provide the related technical instruction.
6. If using alternative forms of instruction, such as correspondence, electronic media, or other self-study, instruction shall be clearly defined.

Signatures on next page

Form must be signed by Committee Chair and Secretary or Program's Authorized Signer

<input type="checkbox"/> Chair	Date	<input type="checkbox"/> Secretary	Date
<input checked="" type="checkbox"/> Authorized Signer	12 March 2024		
Print Name: Nick Himebauch		Print Name:	
Signature: 		Signature:	

Training Provider Signature

Approved By (Print Name): Kye Refvem	Title: NW Line JATC Third Year Apprenticeship Instructor
Signature of the Training Provider: 	
Date: 12 March 2024	

If additional training providers are needed, go to page 4.

SBCTC

Print Name:	Title:
Signature of the Program Administrator:	
Date:	
<input type="checkbox"/> SBCTC recommends approval	<input type="checkbox"/> SBCTC recommends return to sponsor

Program Name Tanner Electric Cooperative Lineman Apprenticeship Committee	Occupational Objective Lineman
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Note: The description of each element must be in sufficient detail to provide adequate information for review by the SBCTC and Review Committee. To add more elements, click on the plus sign that appears below the "Description of Element/Course" field.

Describe minimum hours of study per year in terms of (check one):

- 12-month period from date of registration.
- Defined 12-month school year.
- 2,000 hours of on-the-job training.

Element/Course: 1st Year Classroom/Online/Lab Study	Planned Hours: 96
Mode of Instruction (check all that apply)	
<input checked="" type="checkbox"/> Classroom 35 Hours <input checked="" type="checkbox"/> Lab 15 Hours <input checked="" type="checkbox"/> Online 46 hours <input type="checkbox"/> Self-Study	
Provided by: NW Line JATC	

Description of Element/Course:

Each Tanner Electric Cooperative apprentice shall receive instruction and hands-on experience in all facets of the trade so they can develop the necessary skills to become a safe, skilled craftsman. At the end of the course, the student will be prepared to progress within the framework of the apprenticeship standards. The following outline details the individual topics covered in the training:

How to Study This Course and Achieve Your Personal Goals	16 Hours
Knowing Your Apprenticeship and Your Responsibilities	
Sexual Harassment	
The Attributes of an IBEW/NECA Apprenticeship	
Your Job and the Future It Holds for You	
Safety Awareness - On the Job	
Identify Some Basic Tools of the Trade	
The Use and Care of Hand Tools	
Safety Meetings, Job Briefings (Tailboard) Discussions	
First Aid, Safety, and Health	
Avoiding the Hazards of Drug Abuse	
Good Housekeeping	
Introduction to OSHA Hazard Awareness	5 Hours
Energized and Non-Energized Parts	
Personal Protective Equipment	5 Hours
Use and Operation of Blocks	
Slings and Chokers	
Rigging Tools and Rigging Equipment	
Climbing Equipment Inspection and Care	10 Hours
Fall Protection	
Climber Cutouts	
Climbing Poles	

Pole-Top Rescue Bucket Rescue Wood Poles-Inspection and Maintenance Setting Poles, and Setting Poles Near or Around Energized Circuits Digging Holes and Trenches	
Shock, Arc, and Blast Rubber Gloves and Sleeves, Care and Use Protective Line Devices, Care and Use Working in Confined Spaces/Vault Rescue Hand Signals Powered Equipment Safety-Compressors and Portable Generators	5 Hours
Math Basics with Whole Numbers Fractions/Decimals/Percentages Mathematics for Parallel Circuits How to Solve Basic Algebraic Equations Solving Power Calculations What is Electricity?	5 Hours
What is Electricity? Electron Theory Electrical Units Sources and Effects of Electricity The Electrical Circuit and Ohm's Law	5 Hours
Ropes, Knots, Hitches, and Splices Wire Rope Ladders/Step Bolts Powered Equipment Safety-Underground & Digger Derricks Hazard Communication	10 Hours
Guy Types, Guy Strength and Sizes Guy Installation Anchors Line Conductors Crossarms and Attachments Insulators	5 Hours
The Principles of Magnetism Magnetic Induction Working with Ratios and Proportion The Electric System Wire Sizes, Types, and Characteristics Stringing Wire Sagging and Tying in Conductors Connecting an Overhead Service Insulate and Isolate Insulated Platforms and the Second Point of Contact	10 Hours
Understanding and explaining the fundamentals of DC Theory Resistance in DC Combination Circuits How Current Reacts in Combination Circuits How Voltage Functions in DC Combination Circuits	10 Hours

How to Calculate Power in DC Combination
Circuits Resistance in Series Circuits
Current/Voltage/Power in Series Circuits
How Voltage Functions in a DC Parallel
Circuit Resistance in a DC Parallel Circuit
How Current Reacts in a DC Parallel Circuit
How to Calculate Power in a DC Parallel
Circuit

Two-Way Radios - Proper Use Procedures
Underground Systems
Excavation and Shoring
Laying Conduit
Manholes and Handholes
Cable Types
Pulling Cables
Planning and Design for Underground
Systems Baskets, Aerial Lifts, and Platforms
Grounding and Protective Grounds
Taking A Line Out of Service
Lock-out/Tag-out-Line Applications

10 Hours

Element/Course: First Year Camp Training	Planned Hours: 100
Mode of Instruction (check all that apply) <input checked="" type="checkbox"/> Classroom 50 Hours <input checked="" type="checkbox"/> Lab 50 Hours <input type="checkbox"/> Online <input type="checkbox"/> Self-Study Provided by: NW Line JATC	
<p>Description of Element/Course:</p> <p>This course expands upon and reinforces the principles learned in the apprentice's first year of classroom/online training. The Camp provides additional instruction both in the classroom and in the pole yard on becoming a Qualified Climber, wood poles and steel tower work, and the following topics:</p> <p>Classroom</p> <ul style="list-style-type: none"> - Qualified Employee Training Requirements - Pole Top Rescue - Job Briefing - Hazardous Energy Control (Lockout/Tagout) Procedures - Enclosed Spaces - Personal Protective Equipment - Working On or Near Exposed/Energized Parts - De-energizing Lines and Equipment - Grounding for the Protection of Employees - Mechanical Equipment and Overhead Lines - Climbing Tools <ul style="list-style-type: none"> - Belt - Hooks - Fall Protection - Care 	

- Wear
- Use
- Inspection
- Line Hardware Identification
- Wood Pole Characteristics
- Ground Line Inspection
- Pole Tag Information
- Use of Hand Lines
- Conductor Ties
 - Copper
 - Aluminum
- Rigging for Dead-Ending a Conductor
- Rigging for Insulator Replacement
 - 115kv Steel Arm H-structure
- Use of a Hook Ladder
- Live-Line Tool Identification
 - Care
 - Testing
- Circuit Equipment & Apparatus Identification
- Identification of Energized & Insulated Parts
- Close Calls and What They Tell Us
- Single Point Grounding Demonstration

Rigging Class

- Breaking Strength
- Safety Factor
- Safe Working Load
- Block, Sling & Structure Loading
- Rigging Analysis Using Vector Diagramming
 - Load & angle
 - Block load
 - Rope tension
 - Fall-Line tension
- Load Weight Calculating
- Calculating Dead-End Load On Guy Wires
- Calculating Pole Compression
- Crane Hand Signals
- Sling Capacities
 - Synthetic Sling Safety
 - Inspection
 - Use
- Material & Liquids
 - Pounds/Cubic Ft.
- Wire Rope
 - Components
 - Inspection
 - Use
- Rigging and Signal Person Certificate

Lab

Practical Skills:

- Safe Climbing Technique on Wood Poles
 - 4'
 - 10'
 - 30'
 - 50'
- Achieving Good Working Position on Wood Poles
- Safe Climbing Technique on Steel Towers
 - 50'
- Conducting a Good Job Briefing
- Single Point Grounding
- Pole-Top Rescue
- Before Climbing Inspection of Wood Poles
- Pole Setting & Replacement (By Hand)
- Pole Framing - On the Ground & Aloft
- Conductor Stringing
- Conductor Sagging
- Conductor Tying-In
- Conductor Dead-Ending
- Use of Hand Lines, Grips, Slings, Blocks, Hoists,
- Use of Pole Gins, Tag Ropes, Drills & Ladders
- Rope Inspection
- Rigging with Ropes
- Knot Tying
- Splicing
 - Short splice
 - Eye splice

Element/Course: Second Year Classroom/Online/Lab Study	Planned Hours: 96
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Mode of Instruction (check all that apply)

 Classroom **31 Hours**
 Lab **20 Hours**
 Online **45 Hours**
 Self-Study

Provided by: NW Line JATC

Description of element/course:

Description of Element/Course:

Building on the 1st year curriculum, this course of study prepares the apprentice to begin the energized portion of training utilizing the following topics:

- This is a National Program 16 Hours
- The IBEW Constitution, Parliamentary Procedure
 - How it works
- Understanding Local Union Bylaws
- Harassment
- Professional Personal Conduct
- Absenteeism
- Working Outdoors
- Emergency Response
- Introduction to 1910.269
 - Electric Power Generation
 - Transmission and Distribution
- Applications of DC Theory Review 10 Hours

<ul style="list-style-type: none"> - Comparing Direct Current to Alternating Current - Fundamentals of Alternating Current - Introduction to 3-Phase Systems - Understanding how the DC generator works - Understanding the design and function of AC Generators - Introduction to and general use of Test Instruments 	
<ul style="list-style-type: none"> - Introduction to Transformers <li style="padding-left: 20px;">- Transformer construction <li style="padding-left: 20px;">- Transformer characteristics <li style="padding-left: 20px;">- Specific hazards when working with transformers <li style="padding-left: 20px;">- Transformer operation <li style="padding-left: 20px;">- Polarity/Connections <li style="padding-left: 20px;">- Transformer installation <li style="padding-left: 20px;">- Transformer protection <li style="padding-left: 20px;">- Single-phase connections <li style="padding-left: 20px;">- Completely Self-Protected transformers <li style="padding-left: 20px;">- Conducting transformer load checks <li style="padding-left: 20px;">- Vectors <li style="padding-left: 20px;">- Working with prefixes and powers of 10 <li style="padding-left: 20px;">- Customary and Metric systems of measurement <li style="padding-left: 20px;">- The Circle <ul style="list-style-type: none"> - Area and Volume <li style="padding-left: 20px;">- Measuring and drawing angles <li style="padding-left: 20px;">- Right Triangles 	18 Hours
<ul style="list-style-type: none"> - Introduction to Blueprints and Specifications <li style="padding-left: 20px;">- Blueprint fundamentals <li style="padding-left: 20px;">- Blueprint lines - Symbols, Conventions, and Abbreviations - Electrical Drawings and Diagrams - Civil drawings - Reading Maps, Plans, and Profiles - Staking Sheets and Stakes - Introduction to Measuring and Leveling Devices 	10 Hours
<ul style="list-style-type: none"> - Introduction to Inductance - Voltage Drop - Metering - Overvoltage Protection - Fault indicators - Tower Footings and Erection - Joining High-Line Conductors - Sagging High-Line Conductors - Vibration Dampers - Hold Down Weights - Armor Rods - Phasing and Tying-In Circuits 	14 Hours
<ul style="list-style-type: none"> - Electrical Equipment Overload Capabilities - Phase Sequence - Back-feed - Underground troubleshooting - Introduction to Cable Fault Locating <ul style="list-style-type: none"> - Locating faults and restoring service - Cable Splicing 	10 Hours

<ul style="list-style-type: none"> - Safety - Material - Tools - Cable preparation - Terminations - Elbows (separable connectors) - Ground Cables - Pulling Cables - Insulation Testing - Introduction to Medium Voltage Power Cables - Cable Manufacturers Kits 	10 Hours
<ul style="list-style-type: none"> - Test Instruments <ul style="list-style-type: none"> - How to use a megohmmeter - Confined spaces - Mobile Cranes <ul style="list-style-type: none"> - Boom capacities - Load charts - Practical Applications for Rigging and Vectors - Lifting and Digging Operations 	8 Hours
<ul style="list-style-type: none"> - Traffic Signal Industry Overview - Hardware and Equipment - Signal Cabinets - Phasing and Traffic Flow - Introduction to the Manual on Uniform Traffic Control Devices - Flagging <ul style="list-style-type: none"> - Signs - Barricades - Transformer Simulator 	8 Hours

Element/Course: Second Year Camp Training	Planned Hours: 94
Mode of Instruction (check all that apply) <input checked="" type="checkbox"/> Classroom 44 Hours <input checked="" type="checkbox"/> Lab 50 Hours <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: NW Line JATC	
Description of element/course: Description of Element/Course: Building on the 2nd year classroom training, this course is designed to provide powerline distribution live line maintenance (hot sticking) and pole yard skills, including the following subjects: Classroom <ul style="list-style-type: none"> - Federal OSHA Regulation 29 CFR 1910.269 <ul style="list-style-type: none"> - Role of the Safety Watcher - Live-Line Tool (Hot-Stick) Identification - Single Point Grounding Class and Demonstration for Transmission & Distribution - Basic Rigging - Structure Loading - Slings - Blocks & Hoists - Voltage Regulator Demo/Operation Procedure 	

Lab

Skills Practiced:

- Safe Climbing Technique (Using Safety Strap)
- Job Briefing
- Using Live Line Tools and Rubber Gloves
 - Rubber Gloving Technique For 4kv
- Installing Rubber Line Hoses & Hoods
- Installing Mechanical Jumpers
 - using hot sticks & gloves
- Working with Hot Four-Parted Blocks
 - using hot sticks & gloves
- Hot Conductor Tie
 - application and removal
- Copper and Aluminum Dead-End Insulator Replacement
 - using hot sticks and gloves
- Arm Replacement
 - using hot sticks, wire tongs, and lever lifts
- Arm Replacement – 3-Phase Auxiliary Arm
- Installing Automatic Conductor Splices
 - using hot sticks
- Installing Automatic Dead-Ends
 - using hot sticks
- Installing Bolted Type Conductor Dead-End Device (Dead End Shoes)
 - using hot sticks
- Spreading and Placing Conductors onto Hot-Arms to Prepare for Conductor Replacement
- Conductor Replacement
 - using hot sticks and gloves
- Proper Use of a Nylon Strap Hoist and Link Stick
- Safe Hot Pole Replacement

Transformer Class

- Power Generation
- Transformer Nameplate Information
 - Voltage rating
 - Winding diagrams
 - Terminal designations
- Explanation of KVA & Polarity
- Transformer Grounding
- Harmonic Voltages
- Ferroresonance
- Primary System Configurations
 - Wye
 - Delta
- Primary Connections Wye and Delta
 - Open/Closed
- Secondary Coil Connection
 - Series & Parallel
- Secondary Connections
 - Wye
 - Delta
 - Open Delta
- Primary and Secondary Vectors (Phase Diagramming)

- Angular Displacement
- Transformer Grounding
 - Case
 - Floating Wye
 - Etc.
- Common Transformer Connections
- Uncommon Transformer Connections
- Transformer Bank Installation
- Transformer Bank Paralleling,
 - Maintaining service to the customer during paralleling
 - Rotation Changes

Element/Course: **Third Year Classroom/Online/Lab Study**

Planned Hours: **96**

Mode of Instruction (check all that apply)

Classroom **23 Hours** Lab **13 Hours** Online **60 Hours** Self-Study

Provided by: NW Line JATC

Description of Element/Course:

The third year of classroom instruction helps the apprentice self-evaluate their progress to identify areas where improvement is needed and focuses on the technical side of the industry, including the following topics:

- Harassment
- Almost a Journeyman, Pride in your industry 16 Hours
- Introduction to the COMET Program
- Productivity
- Labor Management Relations/LMCC's
- The economics of unemployment
- Keys to Success - Motivation and Leadership
- The National Electrical Benefit Fund
- After apprenticeship
- Foremanship
- Soon to be an Instructor
- Your Career
 - Journeyman's responsibilities
- Distribution circuits 20 Hours
- Review of Alternating Current
 - Theory terms and definitions
- Inductance
- Capacitors
- Distribution Capacitors
- Transformers
 - Single-Phase connections
 - Single-Phase voltages
 - Three-Phase connections
 - Three-Phase voltages
- Troubleshooting Three-Phase banks
- Personal Protective Grounding 10 Hours
 - Body currents
 - Grounding history
 - Equipotential zone grounding

<ul style="list-style-type: none"> - Selection of grounding equipment - Installation of grounds - Step and Touch potential <ul style="list-style-type: none"> - Induced voltage - Multiple grounds - Truck grounding, - Underground Distribution Grounding - Grounding in Substations, - Grounding During Construction Activities 	10 Hours
<ul style="list-style-type: none"> - Testing Ground (Earth) Resistance - Lightning Protection - Applying Rubber Protective Devices 	10 Hours
<ul style="list-style-type: none"> - Introduction to Live-Line Tools <ul style="list-style-type: none"> - Identification - Care and maintenance - Using hot sticks - Live-Line Work Practices <ul style="list-style-type: none"> - Insulator and crossarm changes (including 138kv) - Tower insulator changes - Special Practices <ul style="list-style-type: none"> - Helicopter work, etc. 	10 Hours
<ul style="list-style-type: none"> - Federal Regulations - Primary Metering - Single-Phase Revenue Metering - Introduction to Substations - Safety Procedures - Function and Types of Substations - Substation Foundations <ul style="list-style-type: none"> - Installing grout, - Underground Power Cables in a Substation - Substation Grounding/Grounding Grids - Steel Superstructure Assembly - Spill Prevention - Spill Containment and Countermeasure Plans - Installing Substation Insulators - Installing Substation Control Cables and Monitoring Devices - Print reading - Making Connections - First Aid 	10 Hours
<ul style="list-style-type: none"> - Primary Fusing/Fuse Principles - Reclosers and Sectionalizers - Substation Equipment Identification - Oil Circuit Breakers <ul style="list-style-type: none"> - Oil care and filtering - Batteries - Air Switches - Substation Control Equipment - Fault Current in a Substation - Testing for Line Faults - Voltage Regulation <ul style="list-style-type: none"> - Step regulators - Tap changing capacitors 	10 Hours

<ul style="list-style-type: none"> - Capacitor switching. - Power Factor - Power Harmonics - Fiber Optic Cable <ul style="list-style-type: none"> - Types - Codes and standards - Aerial construction - Underground construction - Alternative Energy Sources <ul style="list-style-type: none"> - Wind - Photovoltaics - Extra High Voltage Lines 	10 Hours
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Element/Course: Third Year Camp Training	Planned Hours: 50
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Mode of Instruction (check all that apply)

Classroom **10 Hours** Lab **40 Hours** Online Self-Study

Provided by: NW Line JATC

Description of Element/Course:

Third year Camp training includes additional pole yard skills, including transmission live-line maintenance (hot sticking) as well as the following topics:

Classroom

- Federal OSHA Regulation 29 CFR 1910.269
 - Role of a Safety Watcher
 - Wear and Care of Rubber Gloves and Blankets
 - Grounding Transmission Structures
 - Transmission Live Line Tool Identification
- Capacitors and their effect on power quality
 - Practical demo & lecture
- Rigging class
 - Synthetic rope
 - Wire rope
 - Hardware
 - Knots
 - Splices
 - Breaking strength
 - Safety factor
 - Safe working load
- Worksite bonding and grounding
- Voltage regulator demonstration
- Operation of single-phase step-regulator
- Single phase circuit review
 - What makes it work
- Transformer Connections Review

Lab

Skills Practiced:

- Safe Climbing Technique on Wood & Steel (Using Safety Strap)
- Job Briefing
- Proper Use of Handlines, Hoists & Blocks
- Unpinning Insulator from 115kv Steel Arm H-Structure (10')
- Proper Grounding of Transmission H & Wishbone Structures
- De-Energized Insulator Replacement Wish-Bone Structure
- Energized Suspension Insulator Replacement on 115kv Wish-Bone
- Energized Steel I-Beam Arm Replacement on 115kv H-Structure
- 230kv De-Energized Suspension Insulator Replacement
- 230kv Energized Suspension Insulator Replacement

Element/Course:	EICA Crane Training Third Year Camp	Planned Hours:	30
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Mode of Instruction (check all that apply)

 Classroom **24 Hours**
 Lab **6 Hours**
 Online
 Self-Study

Provided by: NW Line JATC

Description of Element/Course:

This course expands on the knowledge obtained in the Saturday School Crane homework assignments, preparing the student to sit for the final exam portion of the Electrical Industry Certification Association's Crane Certification, developed specifically for the electrical industry.

Classroom

- Preparation for the Written Exam
 - Inspection and Maintenance Safety Checks
 - Evaluation of worksite conditions
 - Setup, assembly and shut down
- Managing Crane/Digger Derrick Access and Egress
- Maintain Employment Requirements

Lab

Skills Practiced:

- Demonstrate the Stationary Control of a Crane and Digger Derrick
- Successfully Complete the Practical Exam Portion of the Crane Certification

Additional Training Providers (if necessary)

[Click or tap here to enter text.](#)

Print Name Training Provider

[Click or tap here to enter text.](#)

Title of Training Provider

[Click or tap here to enter text.](#)

Print Name Training Provider

[Click or tap here to enter text.](#)

Title of Training Provider

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Title of Training Provider

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Print Name Training Provider

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Title of Training Provider

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