

# APPRENTICE LINEWORKER PROGRAM





The MJMEUC Apprentice Lineworker Program is a comprehensive apprentice training program providing municipalities with the tools needed to cultivate and develop electric lineworkers from within their own communities.

## Summary

The Missouri Joint Municipal Electric Utility Commission (MJMEUC) Apprentice Lineworker Program is a comprehensive, four-year training program providing both entry-level and experienced utility employees the skills needed to obtain federally recognized Journeyman credentials. The Program includes:

- On-site training and testing at utility
- Administration of Missouri Department of Labor Apprentice paperwork
- On-The-Job training hours record-keeping

### Cost

\$1,400 per year per student (2009)

All materials, books, on-site instruction, and testing are included in the cost of the program.

## Background

One of the most significant problems that many Missouri public power systems currently encounter is the ability to employ a well-trained and experienced electric line crew. Many municipal electric utilities in Missouri, particularly those located in small towns and other rural areas, often find it hard to hire and retain qualified electric lineworkers.

In an effort to assist member utilities with this ongoing challenge, The Missouri Public Utility Alliance, through MJMEUC, provides an Apprentice Lineworker Program which combines a respected curriculum, classroom testing, correspondence instruction, and on-site assistance from MPUA staff. The desired end result is a four-year program that, combined with on-the-job experience at the utility itself, graduates Journey Electric Lineworkers of great value to the city and their community.

### On-Site Instruction & Testing

Mike Conyers, MPUA Director of Lineworker Safety & Training, travels to the member utilities participating in the Program, rotating half of the cities one month and the other half the following month. During the month the cities are not being visited, the testing information is mailed to the Apprentice Coordinator at the municipal for distribution to the apprentices.

### Goals & Objectives

The MJMEUC Apprentice Lineworker Program is a four-year program designed to provide entry-level (apprentice) electric employees with

the knowledge they need to perform their jobs safely and efficiently. The program also offers a chance for seasoned veterans in public power systems to obtain their professional credentials.

### Specific Goals

To prepare apprentice-level students for employment as journey lineworkers.

- To formally train experienced utility workers allowing them to obtain federally recognized journey status and credentials.
- To provide training on-site, thereby reducing the cost and liability of utility employees traveling out of the community for training.
- To develop a partnership with our member municipalities in addressing specific training needs.

## Curriculum

The curriculum includes in-depth modules on topics ranging from line tools to substation inspection and overhead maintenance of conductors. Modules include detailed instruction, diagrams and examples.

The curriculum used by MPUA is also used by Kansas Municipal Utilities (KMU), by the Iowa Association of Municipal Utilities (IAMU), and Municipal Electric Systems of Oklahoma (MESO).

The result is a comprehensive training program which combines classroom and correspondence academics with practical hands-on training and has been recognized by the U.S. Department of Labor, Office of Apprenticeship and Training.

## Additional Curriculum

### Advanced Journeyman Lineman Program

The Advanced Journeyman Lineman Program is for the Lineman who has 10 years or more experience in transmission and distribution, but lacks the certification from the U.S. Dept. of Labor. This one-year program is a correspondence course comprised of the thirteen most important sections from the four-year Apprentice Lineworker Program. Individuals taking this program also turn in a monthly on-the-job training sheet. Upon completion of the Program, the individual receives a certificate of completion from MPUA as well as the U.S. Dept. of Labor.

### Underground Electrical System Specialist

This four-year program was developed at the request of one of our Associate Members. As a Powerline Construction Contractor, they were looking for a comprehensive training program for both their overhead and underground employees. As a result of that need, we developed a four-year Underground Program with information from our four-year Apprentice Program and the Underground Distribution handbook from Alexander Publications. Upon completion of the Program, the individual receives a certificate of completion from MPUA as well as the U.S. Dept. of Labor.



## Overhead Year One

- Electric Power Introduction
- Electric Power Transmission & Distribution
- General Math
- Electrical Line Tools
- Hand Tools
- Hoists
- Vehicle Operation
- Bucket Trucks
- Tailgate Meetings
- Two Way Radios
- Safe Housekeeping Practices
- Tree Trimming Basics
- Fire Safety
- Ladders and Scaffolding
- Lifting/Moving Materials by Hand



## Overhead Year Three

- Capacitors
- Electric T&D Switching & Hold Card Practices
- Switches - Theory, Installation & Maintenance
- Substation Theory
- Portable Substations
- Substation Inspections
- Circuit Breakers
- Instrument Transformer Theory
- Voltage Regulators - Theory & Line Installation
  - Load Tap Changers
  - Relay Theory
  - Conductors - Underground Installation,
  - Conductors - Joining & Terminating

## Overhead Year Two

- Electrical Circuits
- Electric Services Theory
- Overhead & Underground Installations
- Excavation & Trench Safety
- Hydraulic Equipment - Backhoe
- Digger Derrick & Trencher
- Oil Handling
- Poles Installation
- Arresters
- Print Reading - Construction
- Print Reading - Electrical
- Print Reading - Mechanical
- Street Lighting
- Rubber Gloves & Other Protective Gear
- Advanced Metering

## Overhead Year Four

- Conductors—Overhead Joining & Terminating
- Transmission & Deliver Underground
- Conductors - Overhead Installation
- Conductors - Maintenance
- Transformers - Theory
- Transformers - Connection Theory
- Transformers - Connections
- Single Phase Pole Mount Installation
- Bank Installation
- Pole Mount Maintenance
- Single Phase, Three Phase Pad Mount Installation
- Pad Mount Maintenance
- Fusing Wye & Fusing Delta
- Grounding

## Underground Year One

- ◆ Electrical Power Introduction
- ◆ Transmission & Delivery System
- ◆ Whole & Negative Numbers
- ◆ Ratios & Percentages
- ◆ Decimals & Fractions
- ◆ Electrical Line Tools
- ◆ Hand Tools
- ◆ Hoists
- ◆ Vehicle Operation
- ◆ Bucket Trucks
- ◆ Tailgate Meetings
- ◆ Two Way Radios
- ◆ Safe Housekeeping Practices
- ◆ Tree Trimming Basics
- ◆ Fire Safety
- ◆ Lifting - Moving Materials by Hand
- ◆ Print Reading - Construction



## Underground Year Three

- ◆ Electric T&D Switching & Hold Card Practices
- ◆ Switches - Theory, Installation & Maintenance
- ◆ Substation Theory
- ◆ Portable Substations
- ◆ Substation Inspections
- ◆ Conductors - Underground Installation
- ◆ Conductors - Underground Joining & Terminating
- ◆ Conductors - Locating Underground
- ◆ Conductors - Underground Maintenance
- ◆ Single Phase Pad Mount Installation
- ◆ Three Phase Pad Mount Installation
- ◆ Pad Mount Maintenance
- ◆ Fusing Wye & Fusing Delta
- ◆ Grounding

## Underground Year Two

- ◆ Print Reading - Electrical & Mechanical
- ◆ Excavation & Trench Safety
- ◆ Hydraulic Equipment - Backhoe, Digger Derrick, Trencher
- ◆ Oil Handling
- ◆ Electrical Circuits
- ◆ Electrical Services Theory
- ◆ Arresters
- ◆ Advanced metering
- ◆ Street Lighting
- ◆ Rubber Gloves & Other Protective Gear
- ◆ Electrical Services Underground Installation
- ◆ Transmission & Delivery Underground
- ◆ Overhead Joining & Terminating



## Underground Year Four

- ◆ Underground Systems
- ◆ Distribution & Transmission Systems
- ◆ Construction Drawings
- ◆ Materials
- ◆ Handling Cables
- ◆ Installing Cable
- ◆ Prepare & Install Underground Apparatus
- ◆ Splice & Terminate Cables
- ◆ Underground Secondary Service
- ◆ Bonding & Grounding
- ◆ Fusing
- ◆ System Maintenance
- ◆ Troubleshooting
- ◆ Job Site Safety



## Advanced Journeyman Lineman

- ◆ Whole & Negative Numbers
- ◆ Ratios & Percentages
- ◆ Decimals
- ◆ Fractions
- ◆ Electrical Line Tools
- ◆ Hand Tools
- ◆ Excavation & Trench Safety
- ◆ Hydraulic Equipment-Backhoe
- ◆ Print Reading-Electrical
- ◆ Print Reading-Mechanical
- ◆ Street Lighting
- ◆ Rubber Gloves & Other Protective Gear
- ◆ Capacitors
- ◆ Electric T&D Switching & Hold Card Practices
- ◆ Conductors-Underground Installation
- ◆ Conductors-Underground Joining & Terminating
- ◆ Conductors-Locating Underground
- ◆ Conductors-Underground Maintenance
- ◆ Transformers-Theory
- ◆ Transformers Connection Theory
- ◆ Transformer Bank Installation
- ◆ Transformer Pole-Mount Maintenance
- ◆ Single Phase Pad Mount Installation
- ◆ Three Phase Pad Mount Installation
- ◆ Transformer Pad Mount Maintenance
- ◆ Grounding



## Instructor



Training is provided by Mike Conyers, Director of Lineworker Safety & Training. Mike has a long career of utility experience, including seventeen years of service as a Lineman for the City of Columbia, Missouri Water & Light Department.

Among Mike's multiple credentials is certification in both Pole Top and Bucket Rescue from the nationally recognized MMUA Safety Program.

Mike is a judge for the annual American Public Power Association (APPA) Lineworker's Rodeo and serves as Chairman of the APPA Safety Committee. He is a graduate of the Northwest Iowa Community College Powerline Installation Program.

For additional information or to enroll in the MJMEUC Apprentice Lineworker Program, please contact:

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