Virginia | Maryland | Delaware
Electric Cooperative
TRAINING CENTER

Fiber Technician Apprenticeship Program

In collaboration with The Rural Fiber Association, Fiber Broadband Association and S&N Communications, the Virginia, Maryland & Delaware Association of Electric Cooperatives is excited to offer instruction for fiber techinicans actively working and seeking to develop their skills and obtain industry certification.

VMDABC The Rural Fiber Association
Fiber Broadband ASSOCIATION
S&N COMMUNICATIONS

CREDENTIALING: FBA OpTIC Path Certification

The Fiber Broadband Association OpTIC certification was developed by the major stakeholders who created and grew the fiber industry. They saw a need for a qualified workforce to enable the unprecedented broadband funding and implementation to be successful. To help create a well-trained workforce to properly install and maintaing the networks, a highly trusted and respected certification program was developed. The FBA OpTIC Path program has garnered nationwide and industry-wide acceptance. Several factors make this certification able to be trusted by network operators and employers.

- Specific relevance to needed skills
- Cross relevance between classroom knowledge and hands-on application
- Repetition and stacking of skills
- Career-long learning and growth

RELEVANCE

Class content is carefully geared to specific skills needed to operate and maintain a fiber-optic plant, regardless of manufacturer(s) or topology. Along with the FBA OpTIC Path certification, participants are provided first-aid, OSHA-10 and power-space safety topics, as well as skills to be successful in the network operating environment. The course is vendor-neutral in terms of materials, tooling and topologies. Skills learned will apply and be relevant in all fiber-optic environments. Classes are designed to culminate in FBA OpTIC certification, but technicians will receive immediate benefit from each class, which can be applied to their daily work.

SCHEDULE AND PACING

First quarter 2023
Potential pilot class fall quarter 2022

The full course to achieve OpTIC Path certification is 120 contact hours. Majority of time is hands-on, a substantial amount which can be achieved through on-jobsite training. In order to gear the course to working technicians, the course has been paced across multiple sessions, rather than a single start-to-finish offering. Several advantages are included.

- Flexibility for technicians and their schedules
- Immediate relevance of content learned as it is applied in technicians' daily work
- Strengthened mix of knowledge and hands-on
- Jobsite interaction between experienced and entry level technicians
- Allows technicians to bring questions back to class as they have implemented learned knowledge
- Reinforces the career-long intent of this learning model

This class represents the beginning of a long-term investment in technician training and craftsmanship. Completion of the OpTIC Path certification is a priority, but the goal is to continue offering in-service topics and best practices for career-long opportunities for growth.

FLEXIBILITY

Instruction is designed around the needs of technicians already working daily on a network. The same content and certification is available in a pre-service format, as well, offered separately. Classes have been designed to maximize on-the-job training delivery, combined with periodic delivery of classroom instruction.

Curriculum

SAFETY SKILLS

- Personal safety equipment and training
- Introductory training mandatory by apprenticeship partner
- Fiber handling
- Personal protection equipment
- Cable-stripping tool
- Fiber and shard handling
- Eye protection
- MSDS review
- Construction and building codes
- Flame retardancy of various materials

CABLE PREPARATION

- Trunk cables – shielded vs. all-dielectric
- Loose tube and ADSS
- Micro cables
- Central tube ribbon
- Central tube partially bonded ribbon
- Loose tube ribbon
- Loose tube partially bonded ribbon
- Drop cables (dielectric and grounded, tonable vs. non-tonable)
- Flat drop
- Round drop
- Pushable
- Indoor cables

FIBER-OPTIC TERMINAL, PEDESTAL, CLOSURE PREP

- Identify terminal and closures for different applications
- Demonstration the following skills in the following closure types – randomly chosen manufacturer products
- Mid-span closure, butt splice closure, wall-mount enclosure, rack mounted enclosure, terminal, pedestals
- Tube routing and preparation
- Window cutting
- Bare fiber routing
- Flat ribbon routing
- Partially bonded ribbon routing
- Sealing
- Central member security
- Final assembly
- Grounding
- Labeling and documentation
- Accessory selection for a given closure type and application
- Closure and terminal troubleshooting and testing
- High fiber count cable splicing (>432)

CUSTOMER INSTALLATION

- Drop to the home
- Recognize common drops to the home
- Understand differences in fiber types typically used to and in the home
- Equipment in the home
- Install outdoor ONTs, outdoor NIDs, indoor ONTs
- Familiarization with MDU install methods
- Fiber in the home
- Install fiber around and in the home
- Powering in the home
- Battery backup wiring
- Outdoor and indoor versions
- Wireless
- Common wireless troubleshooting?

TECHNICAL SKILLS/INTRODUCTION TO FIBER

- Articulate why FTTH is a preferred medium vs. metal cables and wireless
  - Bandwith
  - Attenuation
  - OpEx
  - Reliability
- Identify what types of fibers are typically used in different FTTH types
  - Truck and distribution
  - Home and MDU
- Articulate how to tell the difference between fiber and cable types in the field
- Discuss how fiber geometry affects splice loss
- Articulate why different cable types are used in different environments
- Articulate differences between network architectures

INTRODUCTION TO SPLICING

- Splicer and cleaver setup
- Cleaning
- Operation
- Maintenance
- Troubleshooting
- Labeling and documentation

FIBER TESTING

- Complete optical budget for sample backhaul and PON systems
- Identify expected optical power available at a given location
- Understand how to use all below
- OTDR, proper setup and use, including software packages
- Identify lengths
- Light source / Power Meter
- Fiber Identifier
- Visual Fault Locator
- What goes wrong?
- Identify common installation issues
- Identify OTDR traces associated with various problems
- Troubleshooting exercises
- Breaks
- Microbends
- Macrobends
- Ghosts
- Gainers
- Additional OTDR exercises
- Setup using launch box
- Pulse width exercises
- Testing through splitters
- Testing at OLTs and ONTs
- Schedule review with test eq vendors

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