Premises/LAN Installation and Maintenance

Course Description
This two-day class features 8 hours of classroom and 8 hours of hands-on skills labs to provide practical understanding and skills required to properly design, install and maintain premise-based local area networks (LANs). Students will use the latest fiber optic technology and equipment to learn how to splice, connectorize, test, and troubleshoot premised based optical fiber networks in order to increase efficiency, reliability and on-the-job safety as well as reduce cost and downtime.

Course Level
Introductory to intermediate. Beginners to experienced fiber technicians find the class and extensive hands-on skills training beneficial.

Certification
FOA Certified Fiber Optic Technician (CFOT)
FOA Advanced Fiber Optic Technician (AFOT)
Complete the two-day Premises/LAN Installation and Maintenance course and pass the Fiber Optic Association's Certified Fiber Optic Technician (CFOT) or Advanced Fiber Optic Technician (AFOT) exam.

Course Options
Two days – Classroom lecture and hands-on exercises.
Introduction to Fiber Optics
- Development Timeline
- Advantages of Optical Fiber Media

Fiber Optic Transmission Theory
- Structure of Optical Waveguides
- Types of Optical Fibers
- Basic Fiber Parameters
- Operating Wavelengths

Optical Fiber Manufacturing
Fiber Optic Cable Technology
- Cable Design Objectives
- OSP Cables and Loose Buffer Protection
- ISP Cables and Tight Buffer Protection

Fiber Optic Cable Installation Methods
- Comparison to Metallic Cable
- Basic Installation Parameters
- Underground, Aerial and Direct Buried Installations

Termination and Splicing of Optical Fiber
- Connector Types
- Installation Methods
- Field Installable versus Factory Termination
- Splicing Methods

Field Testing and Troubleshooting

- Types of Field Tests
- Visual Continuity and Connector Inspection
- Insertion Loss Test Measurements
- Optical Time Domain Refectometer Testing

Standards and Codes

System Design Parameters

- Insertion Loss Values
- System Dynamic Range
- Restoration Margin

TRAINING LABS AND CERTIFICATION TESTING

Safety Meeting

Station #1 – Fiber Optic Cable Preparation

- Loose Tube Cable Preparation
- Tight Buffer Cable Preparation
- Fan-Out Kit Installation
- Pulling Grip Set Up

Station #2 – Fusion Splicing

- Fiber Cleaning and Preparation
- Fiber Optic Cleaving Process
- Core Alignment Splicers
- V-groove Alignment Splicers
- Splicing 250-µm to 900-µm Fiber
- Equipment Maintenance and Cleaning

Station #3 – Fiber Connectorization

- Fiber Cleaning and Preparation
- Anaerobic (Epoxy) Field Connector Installation
- Cleave and Crimp Field Connector Installation250-µm Fiber Fan Termination900-µm Tight Buffer Termination2-mm and 3-mm Cordage Termination

Station #4 – Field Testing and Troubleshooting

- Cleaning Connectors
- Evaluation of Connector End Face
- Continuity Test with Visual Fault Locator
- Bidirectional Insertion Loss Methods
- Mode Filter of Multimode Systems
- Bidirectional OTDR Traces
- OTDR Event Analysis
- Compute Link Loss Budget and Test Acceptance