Advanced Professional Fiber Optic Installation

Install fiber optic cables, connectors, and splices, and achieve the three goals of installation.

In this intensive, five-day, hands-on installation training program, you'll learn the basic skills required to install fiber optic cables, connectors, and splices. You'll be able to achieve the three goals of installation: low power loss, low installation cost, and high reliability. In addition, you will develop advanced connector installation skills to achieve consistent low loss, low cost, and high reliability in the field.

Supervised by an experienced instructor, you'll get immediate feedback on the quality of your work in each of the 38 hands-on training activities. Inspecting each connector after installation enables you to learn proper installation methods and to avoid high power loss and high installation costs. Further, you'll learn the impact of your installation method by testing the power loss after each pair of connectors, enabling you to develop consistent procedures for two different installation methods.

You will also receive the comprehensive, up-to-date text *Successful Fiber Optic Installation*, on which the course is based. This 335-page text will become a highly valuable field reference and resource.

Certification

Testing for the widely recognized Certified Fiber Optic Technician (CFOT) certification of the Fiber Optic Association (FOA) can be arranged if extended to a 6-day program. In addition, a connector Boot Camp class including the advanced FOA CFOS/C certification can be arranged. Please call for details.

What You'll Learn

Through the combination of lectures and hands-on activities, learn to perform all required installation steps-from receiving the products to certifying that the network is properly and reliably installed-including:

- Installing cables without damage
- End preparation of both loose and tight tube cables
- Installing low loss and reliable multimode
- Inspecting connectors to determine installation quality
- Installing low loss fusion and mechanical splices
- Proper testing of insertion loss and OTDR
- Calculation of acceptance values for all tests
- Certifying and troubleshooting installed links for maximum reliability

Who Needs to Attend

Data network or SAN installers, military data specialists, network technicians, PON technicians, installation supervisors, network supervisors, security system installers, and CATV installers.

Prerequisites

There are no prerequisites for this course.

Follow-On Courses

There are no follow-ons for this course.

Course Outline

1. OVERVIEW OF NETWORKS

- Topologies

- Components
- The Fiber Network

2. THE LANGUAGE OF LIGHT

- Three Descriptions Of Behavior
- Seven Properties
  - Wavelength
  - Spectral Width
  - Index of Refraction
  - Power
  - Reflection
  - Numerical Aperture
  - Refraction
  - Dispersion

3. FIBER

- Three Structural Regions And Functions
- Three Types
- Two Performance Specifications
  - Dispersion
  - Attenuation
- Hands-On Activities
  - Determine Fiber Handling Rule For Tension
  - Determine Fiber Handling Rule For Bending
  - Determine Fiber Preparation Rule
  - Determine Fiber Insertion Rule
  - Practice Fiber Strength Check

4. CABLE

- Structure
- Types
- Installation Specifications
- Environmental Specifications
- Hands-On Activities
  - Prepare Loose Tube Cable End
  - Prepare Tight Tube Cable Ends

5. CABLE INSTALLATION RULES

- Environmental Limits
- Installation Limits
- Cable Placement
- Planning And Management Issues
- Safety Issues
- End Preparation

6. CONNECTORS

- Function
- Structures
- Specifications
- Features
- Types
- Installation Methods

7. PRINCIPLES OF CONNECTOR INSTALLATION

- Adhesive Use
- Crimping
- Polishing
- Cleaning
- Cleaving
- Hands-On Activities
  - Practice Fiber Insertion
  - Practice Connector Check
  - Install 12 Adhesive Connectors
  - The Continuity Test
  - Install 12 No Polish Connectors

8. CONNECTOR INSPECTION

- Inspection Criteria
  - Core

    - Cladding
    - Ferrule Surface
- Hands-On Activity
    - Inspect And Rate Connectors
    - Use Visual Fault Locator with No Polish Connectors

9. SPLICES

- Locations
- Type Options
- Structure
- Specifications
- Hands-On Activity
    - Fusion Splicing
    - Mechanical Splicing
    - Measure Loss

10. TESTING PRINCIPLES

- General Principles
- TIA/EIA-568 B Requirements
- Insertion Loss Testing
    - Hands-On Activities
        - Method B Test
        - Test Directional Effects
        - Test Repeatability And Range
        - Correlate Microscopic Appearance With Loss
        - Troubleshoot Testing Problems
- Optical Time Domain Reflectometry
    - Theory
    - Three Typical Traces
    - Measurement Methods
        - Length
        - Connection Loss
        - Attenuation Rate
    - Hands-On Activities
        - Identify Measurements
        - Identify Features
- Reflectance

11. OPTOELECTRONICS

- Design Concerns
- Light Sources And Detectors
- Specification Options
    - Optical Power Budget (Available)
    - Minimum Required Loss
    - Wavelength
    - Spectral Width
    - Connector Type

12. HARDWARE

- Functions
- Types

13. CERTIFICATION FOR MAXIMUM RELIABILITY

- Certification With Maximum Loss Values
    - Advantage
    - Disadvantage
- Develop Certification Strategy For Maximum Reliability
    - Acceptance Values for 850 nm Premises Riser Network
- Hands-On Activities
    - Calculate Acceptance Values For 1300 nm Premises Riser Network
    - Calculate Acceptance Values For 1310 nm OSP Network

14. NETWORK CERTIFICATION AND TROUBLESHOOTING

- Hands-On Activities
    - Calculate Acceptance Values
        - Insertion Loss
        - OTDR
    - Perform Insertion Loss Test
    - Perform OTDR Tests

    - Length
    - Connector Loss
    - Attenuation Rate
    - Uniformity of Segment
    - Determine Location of Defective Installation
  - Recognize Proper Cursor Placement
  - Interpret OTDR Traces
  - Write Certification Summary

On-Site

Course Code: 7502

Contact us for pricing
5 Day Course

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