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Basic Professional Fiber Optic Installation

QUICK SUMMARY

Length: 32 hours; or 40 hours with Fiber Optic Association CFOT certification

Hands-on Activities: 40 activities, 70-75 %

Text/Field Reference: [Professional Fiber Optic Installation-v10](#), 494 pages, (© 2017)

Additional Texts: [PowerPoint Slides For Professional Fiber Optic Installation, v9](#) and [Certification And Troubleshooting Fiber Optic Networks](#)

History: continuous evolution since 1995

Developer and Presenter: [Eric R. Pearson, CFOS/T/C/S/I](#)

Benefits: reduced power loss, reduced installation cost, increased network reliability, certification, confidence

Who Should Attend: installers, installation supervisors, installation planners, network technicians, network designers

Additional Information: [contact us](#)

BENEFITS

By attending [Basic Fiber Optic Installation](#), a four-day, hands on installation training program, you are able to install fiber optic cables, connectors, splices and achieve the three goals of installation.

These three goals, minimum power loss, maximum reliability, and minimum cost, require knowledge of the specific procedures and compliance with the unique rules of fiber optic communication products. You learn this knowledge and these rules from the lectures and hands on activities of this comprehensive and well-developed program.

DESCRIPTION

Through the combination of lectures and hands on activities, you learn how to perform all the steps required from the time you receive the products to the time at which you certify the network as being properly and reliably installed. These steps include:

- Installation of cables without damage
- End preparation of both loose and tight tube cables
- Installation of low loss, reliable multimode and singlemode connectors
- Inspection of connectors to determine installation quality



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Installation of low loss fusion and mechanical splices
Proper testing of insertion loss, OTDR and reflectance
Calculation of acceptance values for all tests, and
Certification and troubleshooting of installed links for maximum reliability.

During connector installation training, you install 2 connectors each by both polish and no-polish methods under the supervision of a **highly experienced instructor**. You inspect and evaluate each connector after installation, to provide an indication of the power loss you can expect.

EXTENSIVE HANDS-ON ACTIVITIES

Basic Fiber Optic Installation includes 40 hands-on training activities for all of these necessary steps. **These activities are indicated in red.** These hands-on activities consume approximately 80% of the program.

Mr. Eric R. Pearson developed and delivers this program. Mr. Pearson, CFOS, is a 39-year veteran of fiber optic communications, a former Director of the FOA, a BICSI Master Instructor, a Certified Professional Consultant, a FOA Master Instructor, and a widely recognized expert in fiber optics and in installation procedures.

Whether you are a data network or SAN installer, military data specialist, network technician, PON technician, installation supervisor, network supervisor, security system installer, or CATV installer, this program will return many times your investment! This program is based on the comprehensive, 494-page, up-to-date text, Professional Fiber Optic Installation, v10 (© 2017). This text is a valuable and useful field reference and resource.

Be successful like the more than 7900 people who have taken installation-training programs from Pearson Technologies!

DAY 1

1. OVERVIEW OF NETWORKS
 - Topologies
 - Link And Components
2. THE LANGUAGE OF LIGHT
 - Three Descriptions Of Behavior
 - Seven Properties
 - Wavelength
 - Spectral Width
 - Index of Refraction



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- 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 End
 - The Continuity Test
- 5. CABLE INSTALLATION RULES
 - Environmental Limits
 - Installation Limits
 - Cable Placement
 - Planning And Management Issues
 - Safety Issues
 - End Preparation
 - Review Questions [for FOA certification programs]

DAY 2

- 6. CONNECTORS
 - Function
 - Structures



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Specifications
Features
Types
Installation Methods

7. PRINCIPLES OF CONNECTOR INSTALLATION

Adhesive Use
Crimping
Polishing
Cleaning
Cleaving

Hands On Activities

Install 2 polish type connectors [SC is standard. FC and ST™-compatible are options]

Install 2 Unicam® Connectors; [SC is standard. LC, SC, and ST™-compatible are options]

Optional replacement for connector installation: install 4 pigtail connectors

DAY 3

The Continuity Test

8. CONNECTOR INSPECTION

Inspection Criteria
Core
Cladding
Ferrule Surface

Hands On Activity

Inspect And Rate Connectors

Use Visual Fault Finder With No Polish Connectors

9. SPLICES

Locations
Type Options
Structure
Specifications

Hands On Activity

Fusion Splicing- midspan

Fusion Splicing- ribbon[optional]

Mechanical Splicing- midspan

Measure Loss- midspan fusion splice

Measure Loss- midspan mechanical splice

Review Questions [for FOA certification programs]



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DAY 4

10. TESTING PRINCIPLES

General Principles

TIA/EIA-568 B Requirements

Insertion Loss Testing

Hands On Activities

Method B Test

EF Method B Test

Test Directional Effects

Test Repeatability And Range

Correlate Microscopic Appearance With Loss

Correlate VFL Results 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

DAY 5

12. NETWORK CERTIFICATION FOR MAXIMUM RELIABILITY

Certification With Maximum Loss Values

Advantage

Disadvantage

Develop Certification Strategy For Maximum Reliability



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Acceptance Values for 850 nm Premises Riser Network

Hands On Activities

Calculate Acceptance Values For 1300 nm Premises Network

Calculate Acceptance Values For 1310 nm OSP Network

13. 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

Review Questions [for FOA certification programs]



26 November 2017