OTDR & Testing Deep Dive Workshop

Detailed Course Outline

Students will learn best practices associated with the preparation and testing of installed fiber links. Students will develop expertise using optical loss test sets (OLTS) and optical time-domain reflectometers (OTDRs), and will gain understanding of proper cleaning, inspection, and troubleshooting techniques and tools.

This course will have a maximum ratio of six students per instructor. Although the class is fully equipped, students are encouraged to bring their own test equipment to class as well.

Prerequisites: This class requires at least one of the following: completion of Fiber Optics 1-2-3 or equivalent course; FOI, FOT-OSP, FOT-ISP, FOA or equivalent certification.

Certifications and Credits: 12 BICSI ITS Continuing Education Credits
Light Brigade Certificate of Completion

Course Outline

Day One includes presentations about test equipment, settings and procedures combined with live demonstrations. Classroom activity will highlight key points using graphics, photographs, and examples designed to explain concepts and practical applications in the field. This introduction prepares students with the technical knowledge to make the most of the workshops on day two.

Day Two includes two stations where students focus on practical hands-on exercises.

Station #1

OTDR Theory and Operation: A Deep Dive

4 Hours

To effectively use an OTDR for maintenance and troubleshooting, students should have a basic understanding of how an OTDR works. Learn what the OTDR can and cannot do and apply this knowledge in the field.

In this station, students will learn how to:

- Read OTDR signatures
- Choose the correct pulsewidth to maximize resolution
- Select and use launch and receive cables or terminators
- Determine helix factor in order to properly calibrate an OTDR to match sheath length
- Perform OTDR functions such as testing close-in events, manual cursor placement, and bidirectional testing
- Use the OTDR to troubleshoot and locate breaks
- Use the OTDR for maintenance and restoration
- Perform advanced trace analysis and interpretation
- Complete an acceptance test of optical cables
- Properly prepare documentation and final test reports
- Live splice monitoring with OTDR

Station #2

Cleaning, Inspection, and Optical Loss Testing Best Practices

4 Hours

Proper cleaning and testing is an important step in ensuring a fiber optic link will perform at its best. This station provides a working knowledge on how to use the right equipment to test, inspect, clean, troubleshoot and document fiber optic components.

Work with test equipment such as the fiber identifier, visual lasers, handheld and electronic inspection systems, and various cleaning products. Learn about the various applications for this equipment as well as important best practices in the field.

In this station, students will learn how to:

- Clean and inspect optical connectors on cable assemblies and in bulkheads using various methods
- Use software to analyze connector endfaces and provide pass/fail results
  - Identify surface contamination
  - Identify surface flaws
- Test transmit and receive power
- Calculate the dynamic range of a system
- Set up tier 1 testing using fiber appropriate reference methods
- Perform dual wavelength bidirectional optical loss testing
- Create overfilled and controlled launch conditions for multimode fiber using LEDs and VCSELs
- Identify live fibers and use tone identification
- Create a system loss budget
- Properly prepare documentation and final test reports