Course Name: Fiber Optic Concepts for Technicians

Course Overview:
Fiber Optic systems have changed drastically in the last 20 years. As the need for speed and bandwidth grows, there are more requirements for Fiber Optic networks, cable and services. TESSCO Technologies has designed this course specifically focused on the skills and knowledge required to launch our customers into the optical transport industry. This program introduces the student to Fiber concepts with emphasis on Fiber Splicing and testing. There is hands-on focused working with fiber splicing, how to properly clean connectors and measuring and interpreting test results.

Course Length: 2 day

Who should attend:
- Switch Technicians
- Field Service Technicians
- Design/Transport Engineers
- RF Engineers
- Managers/Field Supervisors
- Field Engineers
- Installers

You will learn:
- Fundamentals of Fiber Optics
- Cable and connector types
- Optical transmission, bandwidth and services
- Efficient installation and maintenance of optical cable and systems
- Cleaning, cleaving, splicing and connectorization
- Test equipment and required measurements
- Interaction and troubleshooting with carriers (telcos)

Recommended Prerequisites: None. Entry level.

Customizable Course: Yes

Course Content:

Optical Basics
- Background and Evolution
- Industry and Applications
- Glass v/s Plastic
- Light Sources-LASER & LED
- Light Wave Transmission
- Multimode v/s Single Mode

- Connector Types
- Standards, specifications and terminology
- Indoor/Outdoor
- Cable Performance
- Loss and Dispersion

Fiber Optic Systems Overview
- LAN based
- WAN based
- Fiber Optic Services

Splicing and Termination
- Cleaving
- Mechanical Splicing
- Fusion Splicing
- Splice trays
- Patch Panels
- Fiber Distribution Hubs

Testing Fiber Optics
- Types of Tests to perform
- Types of Test Equipment
- Performing Optical Power Measurements
- Understanding Loss Budgeting
- Optical Return Loss (ORL) Measurements
- OTDR and OSA testing

Fiber Optic Safety
- Dangers of Light transmission –(LASERS)
- How to safely handle and dispose of Fiber optic cables
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Fiber Optic Installation Testing
- Cable Tests
    - Reel Test, Splicing Installation test, Acceptance
- Fiber Acceptance Criteria
- Bit Error Rate Test (BERT)
- Receiver Threshold Test

Fiber Optic Maintenance
- Non-Service Affecting Maintenance
- Service-Affecting Maintenance

Fiber Optic Troubleshooting

Emergency Cable Repair
Future of Fiber Optics

*Attendees are encouraged to bring available test equipment!
*Extensive Hands-on Exercises throughout course