Course Name: FTTx (Fiber-to-the-subscriber) Network Design & Implementation

Course Overview:
There are many different standards and architectures that enable fiber deployments to end users. This course will explore these different ways of deploying fiber to the premise, and learn the advantages and disadvantages of various network structures. At the end of the course, students will design the network and specify the active and passive components for a PON-based network and a Point-to-Point network.

Course Length: 1 Day

Who should attend?
- Field Service Technicians
- Field Engineers
- Managers/ Field Supervisors
- Design Engineers
- Managers or Supervisors

Prerequisites: None

Customizable Course: Yes

Course Content:

Drivers Behind FTTx

- Factors affecting bandwidth demand
- Basic economics regarding FTTx deployments
- Who's doing FTTx

Technology Choices

- Review standards
  - ITU/FSAN (the PON alphabet)
  - IEEE 802.3ah
- Introduction to PON
  - The physical architecture
  - Equipment overview (G-PON & GE-PON)
  - Optical budget
  - Triple play network characteristics
  - Costs
- Introduction to Point-to-Point (Active Ethernet)
  - The physical architecture
  - Equipment overview
  - Optical budget
  - Triple play network characteristics
  - Costs
- Video
  - RF vs. IP
  - Technology introduction and cost comparison
- VOIP Options

Designing a Network

- Introduction to network components
  - Cables (trunk, drop, aerial, and underground)
  - Fiber Distribution Hub
  - Splitters
  - Splice Closures
  - Splicing Equipment
  - Test Equipment
- Network choices
  - Fiber count determination
  - Splicing vs. pre-connectorized cables
  - Handholes vs. pedestals
- Advanced choices
  - FDH placement (PON networks)
  - Splitter placement
  - Cabinet placement (Point-to-Point networks)
- Practical exercises
- Given various scenarios, choose the following components:
  - Electronics
  - Network path
  - Passive components
  - Assemble a bill of materials for a FTTH network
  - Splice and test using FTTx specific tools