Course Name: HDSLx Installation and Maintenance

Course Overview:
HDSLx technologies require proper installation and maintenance to ensure service. This course begins with T1 fundamentals and covers in depth HDSL, HDSL2, and HDSL4 technology, equipment, and troubleshooting. HDSLx Installation and Maintenance includes extensive hands-on exercises with transport equipment as well as service verification with modern test equipment. Test equipment is provided but students are encouraged to bring and learn on the actual equipment they will be using in the field.

Course Length: 2 days

Who should attend?

- Field Service Technicians
- Field Engineers
- Managers/ Field Supervisors
- Design Engineers
- Electricians
- Managers or Supervisors

You will learn:

- Types of HDSL
- T1 fundamentals and testing
- HDSL technology concepts
- Equipment
- Installation practices
- Troubleshooting and maintenance procedures
- Testing with T1 test equipment
- Access HDSL equipment with terminal connection

Prerequisites: None

Customizable Course: Yes

Course Content:

Technology Overview
- xDSL comparisons and history
- T1 fundamentals
  - Multiplexing
  - Framing
  - Coding
  - Timing
  - Signal levels
- HDSL Overview
  - DC Power
  - Terminal access
  - Distance
  - Frequencies
- Network layout and examples

HDSL
- Modulation
- Line coding
- Pairs and balance
- Distance
- Grounding

HDSL2
- Modulation
- Line coding
- Pairs and balance
- Distance
- Grounding

HDSL4
- Modulation
- Line coding
- Pairs and balance
- Distance
- Grounding

Equipment
- HxTU-C
- HxTU-R
- Repeaters
- Doublers

Testing
- Resistance measurements
- Balance in resistance and loss
- DC power
- T1 testing
- Channel testing
- Terminal access

Service Considerations
- Fractionalization
- Balance
- Grounding
- NIU/HTU-R and HTU-C compatibility
- Advanced data services
  - High speed internet
  - Cellular backhaul
  - Voice systems
  - SCADA