Hands-On

DSL - Digital Subscriber Line Installation, Maintenance & Troubleshooting

including: CAT5 & CAT6 Preparation, Installation & Testing

BICSI CECs

This course has been approved for CEC credits by BICSI. Please read below for a breakdown of the credits that we offer for this course. For more information regarding BICSI please visit our website.

RCDD: 14	NTS: 14	OSP: 14	Inst: 14	Tech: 14	Cert. Trainer: 14

Course Description

This 2-day Hands-On course provides in-depth instruction for Installing, Maintaining and Troubleshooting DSL services. Attendees will learn the inner workings as to how the DSL works and the loop parameters required providing uninterruptible service.

This will include residential, commercial and industrial environments. This is a Hands-On course that uses state of the art testing equipment. Meters will be used to check loop parameters and will train your technicians Line pre-qualification, line performance, DSL customer-end equipment installation and troubleshooting is the primary focus of this course.

You can't afford to operate on a "plug and pray" basis in today's competitive market. Our SMEs have the field experience to find the answers to real live scenarios, providing students with a Real-World Experience

Students Will Learn

- DSL Applications
- Cable Channels Over the Copper Pair, Internet Access,
- Video on Demand, Video Conferencing, Voice Over IP, more...
- All Types of xDSL
- ADSL , ADSL2, ADSL2+, ISDL, HSDL, RADSL, SDSL, VDSL, VDSL2+, CDSL, UDSL
- DSL System Components & Configurations for Residential & Business Modems, Splitters, Filters, more
- Hands-on Exercises using Sunrise, Acterna, DynaTel, Sidekick, and any additional meters to synchronize with DSLAM, and interpret results...
- Turn up Results Margin Capacity, Upstream, Downstream, Maximum Bit rates, more.
- DSL Loop Parameters & Cable Acceptance Distances, Speeds, Cable Pair-Testing and Qualifications.
- CAT5 / CAT6 Cable Preparation, Install & Testing Latest Standards, Tools, and Techniques used for cable installations, plus Speeds, Cable Testing and Qualifications.
- Hands-On Testing & Troubleshooting DSL Circuits, Test Equipment, and more...
- Troubleshooting Identify Customers Related Problems, Defective Lines and Equipment.
- And More

Target Audience

OSP Technicians, CO Technicians, ILEC Installation, Repair and Maintenance Technicians, CLEC/ASI ADSL Installation Technicians, CLEC/ASI Network Technicians, DSL Technical Support Technicians, DSL Group Managers Sales & Marketing Support Managers and anyone requiring Hands-On skills for supporting, installation and/or maintenance of DSL services.

Prerequisites

Basic electrical / telephony concepts. This information can be obtained in our
-TeleCom I or II
-Basic Telephony & TeleCom Electronics

Course Outline

Module I: Understanding xDSL

- Terms and Acronyms
- History of xDSL
- Types of xDSL
  - ADSL
  - ADSL2/ADSL+
  - SDSL
  - HDSL
  - VDSL
  - VDSL2+
  - IDSL
  - RADSL
  - CSDL
  - UDSL
- xDSL and Applications
  - Cable Channels Over the Copper Pair
  - Internet Access
  - Video on Demand
  - Video Conferencing
  - Voice Over IP

Module II: Components of a DSL System

- Modems
- Splitters
- Filters
- ATU-C/ATU-R
- DSLAMs

Module III: Digital Transmission

- Explanation of bits and bytes
- CAP/DMT line code
- Converting digital to analog

Error detection schemes
Frames and Superframes
System parameters
Design applications
Examples of download/upload systems
Loop parameters
  Capacity
  Margin
Interpreting LINK TRUN-UP RESULTS
  Bits Graphic
  Explanation of all DSL connection results

Module IV: Loop Qualification & Testing

Distance versus bit rate
  Gauge/quality of cable
Bridge taps
Load coils/Smart coils
Power influence
Explanation of test equipment used in ADSL
  Sunrise/Dynatel/Harris/Sidekick/Any type brought to class
Complete a 10 step troubleshooting procedure
  Field tested and proven successful
Testing and explanation of physical faults
  Shorts/grounds/crosses/splits/opens (high joints)
Interferers
  T1/AM radio/other high frequency interference issues
Insertion loss
TDR traces and testing

Module V: CAT5 & CAT6 Cable Preparation, Installation and Troubleshooting

- Codes and Standards
- Pulling Cables
- Supporting Cables
- Cable Obstacles

- Cable Documentation
- Pathways
- Special Tools
- Pair Twist Limits
- Bend Radius
- Connector Types
- Cable Management
- Cable Performance Specifications
- Quality Workmanship
- Cable Terminating
- Termination Tools
- Termination
- Testing

Module VI: Case Studies & Troubleshooting Tips

Discussion of issues associated with customers
Aerial and buried drops
Twisting/bonding and grounding
Protectors
Inside wire
Cat 3/Cat 5/Cat 6
Basic troubleshooting tips at the PC
Correct cords
Network Interface Card Installation (NIC)

Delivery Method

Instructor led with numerous Hands-On labs and exercises.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

2 Days