

DSL TECHNOLOGIES AND SERVICES

DSL Technologies and Services is an up-to-the-minute update on the latest technologies and services in the DSL arena. This course closely follows, and is managed by the official trainer for, the DSL Forum. This is the most up-to-date course on DSL available in the marketplace today.

Audience:

Manufacturers, designers, engineers, consultants, planners, architects and purchasers of DSL technologies and services.

Prerequisites:

A general understanding of DSL terminology and concepts.

Objectives:

At the conclusion of this course the student will be able to:

- Understand the major methods and procedures used by a broad spectrum of DSL-family technologies
- Choose the proper DSL technology or service for a given application
- Describe the state of the art in current and near-term future DSL systems
- Design a DSL-based system for multimedia support

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COURSE OUTLINE

Day 1

1. Introduction to DSL Technology

- DSL Defined
- DSL Components
 - Customer Premises Equipment (CPE)
 - ADSL Terminal Unit - Central (ATU-C)
 - ADSL Terminal Unit - Remote (ATU-R)
 - DSL Customer Wiring
 - DSL Master Splitter
 - DSL Microfilter
 - DSL Line Sharing (ILEC/CLEC Options)
 - Central Office (CO) DSL Equipment
- DSLAM Configuration
- DSL Deployed with all copper
- DSL Deployed via a Digital Loop Carrier (DLC)
- Multi-Tenant Unit (MTU) DSL

2. DSL Standards and Architecture

- Standards Groups and Forums
- ANSI T1E1.4 and T1.413
- ITU-T G.992.1 (G.dmt)
- ITU-T G.992.2 (G.lite)
- ITU-T G.992.3 (G.dmt.bis)
- ITU-T G.992.4 (G.lite.bis)
- ITU-T G.992.5 (G.adslplus)
- Spectrum Management Issues
- Line Sharing Issues
- POTS (Plain Old Telephone Support)
- Splitter vs. Splitter-less Technology
- IDSL - ISDN DSL
- HDSL - High Data Rate DSL 4-wire
- HDSL2 - High Data Rate DSL 2-wire
- ADSL - Asymmetric DSL
- RADSL- Rate Adaptive DSL
- SDSL - Symmetric DSL

- SHDSL - Single Pair High Speed DSL (ITU-T G.991.2)
- VDSL - Very High Bit Rate DSL
- Network Architecture Design
- Backbone Bandwidth Requirements

Day 2

3. DSL Spectral Compatibility

- Binder Group Cross Talk
- Line Coding for T1/E1
- Line Coding for ISDN 2B1Q
- ETSI/ANSI T1E1.4 Spectrum Management
- Modulation Technologies
- Spectrum Management Class
- ATU-C Transmitter Power Spectral Density (PSD)
- ATU-R Transmitter Power Spectral Density (PSD)
- POTS, ADSL, VDSL Interaction

4. Voice Over DSL

- VoDSL - Voice over ATM/AAL2 over DSL
- VoIP - Voice over IP
- CVoDSL - Channelized VoDSL
- Life Line Support
- Derived Line Standards DSL Forum TR-039
- Gateway Features
- Echo Cancellation Requirements

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5. Installing DSL

- Determining Which DSL Technology is Best for Your Environment
- Loop Qualification and Testing
- Test Equipment
- SNMP (Simple Network Management Protocol)
- Ordering xDSL services
- Selecting a Service Provider
- Cost of DSL Technologies
- DSL Testing
- DSLAM Location Options in the CO
- DSL Download Speed Test
- DSL Troubleshooting

6 Conclusion