



ET 2.0: Telecommunications Technical Curriculum (TTC)

Program 4: Data Knowledge

Course 2: Physical and Data Link Layer Concepts

PROGRAM OVERVIEW

The ExperTech 2.0 series is a library of CD-ROM or intranet-based products covering key communications topics. Seminar style presentations provide telecom professionals with easy access to the information they need. Topics are presented by Hill Associates instructors renowned for their technical expertise, industry experience, and outstanding presentation style.

The *Telecommunications Technical Curriculum (TTC)* has a total of five programs, each of which consists of one or more courses. TTC is a modular, yet comprehensive program designed around the needs of those who want the details but cannot attend a more traditional classroom-based, leader-led program.

Program 4, Data Knowledge is a five course series that deals with concepts and terminology related to data services. In this second course of the series, *Physical and Data Link Layer Concepts*, we provide an overview of the first two layers of the modern data networking model. You will explore concepts such as topologies, multiplexing, framing, and error detection, and define terms like DTE and DCE. You will also examine common Physical and Data Link Layer implementations like Ethernet, Data over Cable Service Interface Specification, universal serial bus, and frame relay.

Program 4, Course 2: Physical and Data Link Layer Concepts runs 110 minutes, and includes seven lessons of audio, interactive elements, review slides, section knowledge checks, and a final exam. The participant can expect to spend about twice this amount of time to complete the course.

This program has three primary objectives:

- Discuss and explain the Physical and Data Link Layers, including their roles and relationship in the modern five-layer model
- Discuss the challenges of each of these two layers
- Provide examples of the technologies found at each layer

Specific topics can be developed, or packaged together to create a unique and customizable curriculum. All of our standard titles are available for preview at our store (www.hill.com/store).

About Hill Associates

At Hill Associates, we excel at creating custom talent development programs. Our experts help identify and assess your needs, and create training and educational programs that exactly meet those needs. Though we specialize in information technology, we've strengthened companies and organizations in a wide range of industries for over 25 years. Let us help you create a world-class talent development program that moves your business forward.

PROGRAM OUTLINE

Lesson 1: Overview of the Physical Layer

- Explore the role of the Physical Layer, describing its function and defining terms such as DTE and DCE

Lesson 2: Physical Layer Concerns

- Examine the primary challenges of the Physical Layer – media and connectors, topologies, bit representation (encoding), transmission rates, distance limitations, and multiplexing

Lesson 3: Examples of Physical Layer Technologies

- Explore examples of Physical Layer implementations including Ethernet, Wi-Fi, and USB

Lesson 4: Overview of the Data Link Layer

- Explore the primary role of the Data Link Layer: delivering error-free information

Lesson 5: Data Link Layer Concerns

- Examine the primary challenges of the Data Link Layer: framing, addressing, error detection, line access control and switching

Lesson 6: Data Link Layer Switching

- Describe switching details; differentiate between circuit and packet networks, virtual circuit vs. datagram networks, and QoS / CoS

Lesson 7: Examples Data Link Layer Technologies

- Explore examples of Data Link Layer implementations including DOCSIS, Ethernet, frame relay, and ATM