

# DS1/DS3 Fundamentals and Test Applications

| Course Number | Delivery Method                 | Course Length | Language of Instruction |
|---------------|---------------------------------|---------------|-------------------------|
| TT-DS1/DS3    | Instructor-Led at Customer Site | 2 Days        | English                 |
| TT-DS1/DS3-OE | Instructor-Led at JDSU Site     | 2 Days        | English                 |

## Synopsis

DS1 and DS3 technical theory and basic test applications are covered in detail, providing a solid foundation of knowledge that will benefit both experienced participants and those unfamiliar with the technology. Demonstrations of test applications reinforce theory and introduce several test instruments to perform practical installation and troubleshooting procedures.

## Prerequisites

Introduction to Telecommunications (TT-TELCOM).

## Who Should Attend

Technicians, engineers, and technical support personnel who are directly or indirectly responsible for installing and maintaining DS1 and DS3 networks, and network operation center staff who monitor DS1 and DS3 networks.

## Course Goals

Upon completion of this course, participants will be able to:

- Describe the four steps involved in preparing information for transmission over a DS1 network
- Describe three timing methods used in DS1 network equipment
- Describe three methods used to guarantee ones density requirements on a DS1 network
- Describe the two-stage multiplexing process for channelized DS3 signals
- Describe the advantages of C-bit framing over M13 framing

## Course Outline

### DS1 Basics

- Orientation and course goals
- DS1 background
- DS1 networks
- DS1 network elements
- How DS1s are carried
- Outline of four steps to a DS1

### DS1 Details

- Building a DS1
  - Pulse code modulation
  - Time division multiplexing
  - Framing and overhead
  - Line coding
- DS1 timing
- Putting it all together

### DS1 Test Applications

- DS1 test access points
- Test set status LEDs
- In-service monitoring of live DS1 circuits
- Out-of-service testing of DS1 circuits
- DS1 alarms
- Alarm indication signal

### DS3 Fundamentals

- DS3 network overview
- DS3 framing structure
- DS3 timing
- DS3 line coding
- Error types/alarms
- Test patterns

### DS3 Testing Applications

- Network access points
- Out-of-service testing
- In-service monitoring

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Virtual Classroom session breakouts are approximate.

TT-DS1/DS3-v1.4

