Course Name: SONET Fundamentals

Course Overview: Synchronous optical networks (SONET) is the optical technology most commonly used to efficiently carry large amounts of voice and data across long distances. The technology is extremely flexible and can be installed in both a linear or ring configuration. With established standards and varying rates/speeds, the technology is used for multiple applications. This class discusses the technology, fundamental aspects and equipment utilized in modern SONET systems.

Combine this with our DS1 and DS3 courses to obtain a complete understanding of transport technologies!

Course Length: 1 day

Who should Attend:

- Wireless Carriers
- Wireline Carriers
- Tower Companies
- Field Engineers
- Installers
- Technicians
- Management Staff
- Telecom technician

You will Learn:

- SONET Industry Overview
- DS0/DS1/DS3 Technology Review
- SONET Technology
- SONET Equipment Functionality
- Overview Of SONET Test Equipment
- SONET Installation Techniques
- SONET Maintenance And Troubleshooting Techniques
- Future Of SONET
- Overview Of Next-Generation Optical
- Networks

Prerequisites: None, however attendees are encouraged to bring available test equipment.

Customizable Course: Yes

Course Content:

SONET Overview

- Drivers
- Market
- Comparison to Other Technologies
- SONET Standards
- Comparison to SDH

Review of the Building Blocks

- DS0
- DS1/T1
- DS3/T3

SONET Basics

- Building the SONET Signal
- Synchronous Transport Signal (STS)
- SONET Framing/Overhead
- Fiber Optics
- Optical Carriers (OC-X)
- SONET Rates/Capacity
- SONET Equipment
- Alarms
- Errors
- Concatenated SONET Signals
- Linear Configuration (Point-to-Point)
- Ring Configuration

Lab 1- Basic SONET Demo

- Utilizing SONET Test Equipment, Set-Up a Basic End-End SONET Signal

SONET Installation and Maintenance

- Proper Installation Techniques
- Testing Fiber Optics
- Types of SONET Test Equipment
- Signal Analysis
- End-End vs. Loop Testing
- In-Service vs. Out-of-Service Testing
- Testing/Isolation Methods

Next Generation Optics

- SONET in the Future
- WDM/DWDM
- Passive Optical Networking (PON)

Lab 2—Network Design

- Set Up a Mock City Scenario to Support Existing Applications