



Fiber Optics Course Outline

Introductions

- Discussion of course content
- Review of course objectives

The History of Fiber Optics

- Fiber applications
- Benefits of fiber
- Deployment of hybrid fiber/conventional cable networks

Theory and Principles of Fiber Transmission

- Properties of light
- Fiber transmission light sources
- The electromagnetic spectrum
- Transmission frequencies
- Understanding refraction and reflection

Construction and Fiber Classifications

- Fiber optic cable construction
- Classification of fiber types and uses
 - Multimode Step Index (MMSI)
 - Multimode Graded Index (MMGI)
 - Singlemode Step Index (SMSI)
- **Fiber core sizes and characteristics**
 - Numerical aperture
 - Selecting correct fiber for the job
 - The importance of propagation
 - The effects of dispersion on a fiber loop and dispersion types

What Affects Fiber Performance

- What is attenuation in a fiber installation
- Measuring attenuation
- Establishing preventive maintenance plans

Design of Fiber Loops and Systems

- Identify basic components of a fiber optic loop
- Power Budget Calculations
- Power Budget Calculation exercises