

Course Name: Radio Fundamentals

Course Overview:

This course covers core competencies and supporting technologies for employees who maintain radio systems. Modules include an overview of radio service as a transmission media, how transmitters and receivers work and an overview of wave propagation and radio antenna systems.

Course Length: 1 day

Who should attend?

- Technical and management employees
- Tower and installation Companies
- Contracting Organizations
- Utility Companies
- Telephone Companies
- Managers and supervisors

You will learn:

- Radio Fundamentals
- Understanding radio equipment
- Propagation of radio waves in free space
- Antenna systems used in radio applications
- RF safety in the wireless world

Prerequisites: None

Customizable Course: Yes

Course Content:

Transmission

- Fiber vs. Radio
- Bandwidth, Attenuation and Noise
- Radio Regulation in the US
- Student Exercises

How Radio Works

- Why Radio
- Radio – Fiber – Copper
- Broadband & Narrowband
- Bandwidth Defined
- Attenuation & Noise
- FCC Regulation



Understanding Radio Equipment

- Radio Transmitters
- Radio Receivers
- Antenna Coupling

Radio Antennas

- How Antennas Work
- Antenna Types
- Antenna Gain & Bandwidth
- Transmission Lines
- Grounding overview

Maximum Permissible Exposure

- MPE Defined
- Exposure Limits
- Controlled vs. Uncontrolled
- The 5% Rule
- Contact Currents

Radio Wave Propagation

- Maxwell & Waves Attenuation
- Free Space Loss
- Absorption
- Reflections & Multipath
- Radio Horizons & Clearance

