

Antenna & Radio Transmission Systems

RF Site Safety

Course Length

One Day

Prerequisites

NONE, *This course can be customized to meet specific customer requirements.*

Course Objectives

The course is introductory material designed to introduce technical and non-technical students to radio and antenna systems. The class also devotes about one-half day to RF site safety. Instruction covers how radio equipment and antenna systems work together and as complete networks. The RF safety portion is designed to train employees on the hazards and precautions required by OSHA and the FCC when working near radio transmitters.

COURSE OUTLINE

Introduction to Antennas

- Radio System Overview
- Antenna Network Components
- Propagation & Radio Waves
- Why antennas work
 - Gain
 - Beamwidth
 - Directivity - Bandwidth
- Connectivity
 - Connectors
 - Transmission lines
 - Grounding
- Matching Networks
 - Impedance matching
 - Reflections
 - Testing
- Antenna Test Equipment
 - Antenna sweeping equipment
 - Spectrum analyzers
 - Power Meters
- Results Interpretation
 - Return Loss
 - Insertion Loss
 - Distance-to-Fault

RF Site Safety and the Law

- OSHA 29CFR 1910 & 1926
- ANSI, FCC, OSHA Standards
- Training and Record keeping

Types of Radiation

- Ionizing & Non-ionizing radiation
- Near field vs. Far field
- Wavelength

Maximum Permissible Exposure

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

Hazard Assessment

- Site Assessment
- Site Inspection & Security
- Multi-user Sites
- Posting Requirements
- Lock out – Tag out

Personal Protective Equipment - PPE

- General Requirements
- RF Monitors
- Eye and Hearing Protection
- RF Suits

For more information or a custom quote