



RADAR

LENGTH: 30 hours delivered over day, evening or weekend hours

DESCRIPTION:

This course is designed for those working in either Avionics or Telecommunications. It covers the Federal Communication Commission's rules and regulations as well as the theory of RADAR. The course provides the knowledge base for legally operating and maintaining fixed land based as well as mobile air, sea and land based RADAR transmitters.

PREREQUISITES:

There are no prerequisites for this course.

ELIGIBLE CERTIFICATIONS:

Upon completion of this course students should be able to pass element eight of the Federal Communication Commission examination.

- Networking

OUTLINE:

Upon completion of the course the students should understand:

- Draw a block diagram of a basic RADAR transceiver
- Describe the basic components used in a RADAR system
- Identify the common electronics components used in the RADAR system
- Name the components utilized in RADAR antennas, drives and positioning units
- Describe the usage of ATR and TR tubes
- Compare the different types of RADAR displays
- Explain the uses for various oscillators and timing circuits in a RADAR system
- Perform calculations to solve wavelength and frequency problems
- Discuss the differences between coaxial cables RG-6; RG-58 and RG-59
- Discuss the usage of Fiber Optics cabling as well as telephone wiring such as twisted pair and CAT-5
- Explain reason for using wave guides, rather than cables, for RADAR transmission hardware
- Describe the use of cavity type traps in wave guides
- List possible causes of problems in wave guides
- Explain the mechanical dangers when working around RADAR movable antenna systems
- Explain the radiation dangers when working around RADAR systems
- List the special purposes of various types of amplifiers used in RADAR transceivers
- Describe some of the differences between audio amplifiers; video amplifiers, RF and IF amplifiers and amplifiers used at RADAR transceiver frequencies
- Explain bandwidth and estimate the minimum bandwidth needed for the amplifiers
- Explain safety precautions required when working around high powered amplifiers
- Draw a diagram of an operational amplifier
- Measure the gain of various op-amps
- Demonstrate proper use of signal generators, oscilloscopes and power meters used with amplifiers
- Describe how radio frequency electromagnetic waves are propagated
- Draw a block diagram of a RADAR transceiver