

# ABA Engineering Academy – Radio Engineering Class

*updated 11/1/13*

- Basic Electronics...
  - a. Electron flow
  - b. Ohms Law
  - c. Resistors, Capacitors, Inductors
  - d. DC versus AC basics
  - e. Frequency and Wavelength
  - f. Power basics
  - g. Reactance
  - h. Vacuum Tube theory
  - i. Transistor theory
  - j. Logic Gates
  - k. Binary, hexadecimal numbers
  - l. Basics of IT in Broadcasting
  
- Audio Fundamentals
  - a. Basics of sound
  - b. Microphones, types and patterns
  - c. Microphone placement
  - d. Audio flow in studio
  - e. Console design and operation
  - f. Automation systems
  - g. Basics of Satellite operations
  - h. Processors
  - i. Stereo generation
  - j. Audio levels and meters
  - k. Digital audio basics
  
- AM Transmission
  - a. Basics of sine waves
  - b. RF frequency spectrum
  - c. Basics of AM modulation
  - d. AM transmitters
  - e. AM antennas
  - f. Basics of AM ground systems
  - g. Discussion of wavelengths
  - h. Basics of matching networks
  - i. Directional AM theory
  - j. Formulas used in AM

- FM Transmission
  - a. Basics of FM modulation
  - b. FM transmitters
  - c. Transmission lines
  - d. FM antenna theory
  - e. Discussion of FM system gain measurements
  - f. Discussion of standing waves
  - g. Overview of HD Radio
  
- Station Operation
  - a. FCC Rules and Regulations
  - b. EAS Operations
  - c. Safety Issues
  - d. Engineering Management
  - e. Basic maintenance items and schedules
  - f. Review of basic formulas used in Broadcasting