Introduction to Broadcast Transmitter Technology

This course combines remote on-line and on-campus learning for the engineer coming from an IT / computer background who has the daunting task of Transmitter / RF maintenance. Without a solid foundation of RF – which is vastly different from IT – there can be struggles and shortcomings that can cost your station time and money. GatesAir has designed this course with you in mind, summing up the info that you need to know *now*.

With this top-level course, without all the math and calculations of previous RF101 classes, you will achieve an overall understanding to safely work on the transmitter system, learn the need-to-know topics that are unique to the RF environment, and gain a solid overview of test equipment needed for proof of performance.

This fascinating program covers three prerequisite pods of foundational concepts, approximately 1 hour each prior to the class:

1. **Pod 1 Webinar-** The Groundwork: Units of measurement, Ohm's Law, the power formula, Broadcast RF basics, frequency/wavelength/time/propagation relationship, amplitude/phase modulation, power versus distance
2. **Pod 2 Webinar-** Basic RF and AC: Classes of amplification, impedances, frequency references, electrical protocol/safety, AC power, RF Harmonics
3. **Pod 3 Webinar**- Putting it to use: Gains/losses, decibels and how they are used, field spotters guide for hardware, introduction to test equipment

Four days of in-person lessons and lab exercises using GatesAir products that build on what you learned in the previous webinars, we will introduce you to a core variety of real-world applications and critical techniques vital to today's broadcast engineer:

- **Day 1:** Types of Filters (uses and losses), transmission lines, configurations, impedance matching and why
- **Day 2:** Hybrid combining and splitting, directional couplers and their setup, sweeping the Directional Coupler, RF filter types and uses, power efficiency, viewing harmonics on the Spectrum Analyzer

- **Day 3:** Antennas, Voltage Standing Wave Ratio/return loss and reflected power, coverage, signal and modulation quality measurement; RTAC (digital signal correction), Smith Chart overview
- **Day 4:** Power measurement, peak to average power ratio, Network analyzer and spectrum analyzer measurements, understanding proof-of-performance documentation

SBE

This package of webinars and in-class attendance is eligible for 2 – 3.5 SBE credits. After attendance, submit your application to the SBE for review.

We look forward to helping prepare you for the exciting world of broadcast transmission technology!

Register

Visit the GatesAir Training website at http://www.gatesair.com/services/training to register, or call 217-228-8200.