

Independent Study (TEC 333)

Title: Communications Electronics (for EET356)

COURSE OBJECTIVES:

1. Motivation for studying modern communication systems.
2. Describe the electromagnetic spectrum and its propagation characteristics in a variety of media.
3. Explain the operating principles of AM, FM, and phase modulation and demodulation
4. Digital communication systems – digital information, sampling, pulse code modulation, coding
5. Describe the operation of radio, television, telephone, fiber optic, microwave, and data communication systems.

COURSE OUTLINE:

1. Transmission media
 - a. Electromagnetic spectrum
 - b. Spectrum analysis
 - c. Effect of noise on communication signals
2. Modulation/demodulation techniques
 - a. Modulation/demodulation
 - b. AM, transmitters and receivers
 - c. FM, phase locked loops
3. Digital communication systems
 - a. Digital information
 - b. Pulse modulation
 - c. Coding of communications
 - d. Error detection
4. Modern communication systems and applications
 - a. Television/video and Facsimile
 - b. Telephone system
 - c. Satellite, wireless, and global positioning system
5. Broadband systems (as time permits)
 - a. Multiplexing
 - b. Microwave devices
 - c. Fiber optics

COURSE REQUIREMENTS:

1. Complete all homework, reading assignments, Multisim© simulation experiments and submit these on the prescribed dates.
2. Complete the midterm test covering material from: homework, discussed in meetings, and from assigned readings in the text.
3. Complete assigned laboratory work and project/term paper as prescribed by the instructor.