Instructor: Oluwayomi Adamo - B 208
Phone: 940-891-6874, oluwayomi.adamo@unt.edu
Class Hours: Mon. & Wed. 12:30 PM – 1:50 PM
Office Hours: Tues. & Thurs. 4:00 PM - 5:00 PM
Course Venue: B227
Course Website: www.ee.unt.edu/public/adamo/EENG3810_F09
Teaching Assistant: TBD
Office Hours: TBD
Prerequisite: EENG 2620, EENG 3510 and MATH 3680

Course (Catalog) Description
Introduction to the concepts of transmission of information via communication channels. Amplitude and angle modulation for the transmission of continuous-time signals. Analog-to-digital conversion and pulse code modulation. Transmission of digital data. Introduction to random signals and noise and their effects on communication. Optimum detection systems in the presence of noise.

Textbook(s) and/or other required material
Required
Reference

Course Objective & Learning Outcome
The main objective of the course is to facilitate the student in gaining a solid foundation in Communications System so that after completing the course students will able to:

- Demonstrate knowledge of transmission of information via communication channels
- Demonstrate an understanding of the characteristics of basic signals, their representations, frequency domain analysis, and impact on communication systems
- Demonstrate knowledge of amplitude and angular modulation of continuous-time signals; analog-to digital conversions; pulse code modulation; and transmission of digital data
- Know effects of random signals and noise on communication
- Demonstrate knowledge of optimum detection systems in the presence of noise
- Carryout hands-on exercises with computer-aided tools such as MATLAB for design and performance evaluation of modern communication systems.

General Policy
- Class attendance is mandatory. You will need to sign attendance sheet every class
- It is strongly encouraged to get to know each other in the class. Discussions on course materials are allowed!
- Everyone must turn in her/his own individual work. Simply copying other’s homework will be treated as a violation of academic honesty
- It is the responsibility of students with certified disabilities to provide the instructor with appropriate documentation from the Dean of Students Office (see http://www.unt.edu/oda)
- Please visit http://www.unt.edu/csrr/ for your rights and responsibilities
Grading Policy

- 3 Tests – 60% (Test 1 – Sept. 30, Test 2 – Nov. 2, Test 3 – Dec. 2022)
- Assignments – 20%
- Labs – 5%
- Quizzes – 5%
- Project – 10%

Topics (Tentative)

1. Introduction: Overview of a communication system, channel, and performance issues;
2. Review of signal classification, characteristics and operations on signals; correlation, orthogonality;
3. Analysis and transmission of signals: Fourier series, Fourier transform; signal transmission through a linear system; distortion; energy and power spectral density
4. Amplitude modulation and Demodulation: AM, DSB-SC, SSB, VSB-principles
5. Angle modulation/frequency modulation: FM, PM- principles
6. Sampling and pulse code modulation: sampling theorem, quantization, PCM
7. Principles of digital data transmission
8. Overview of probability, random variables and random processes; noise
9. Performance Analysis of Modulated and digital Communications Systems
10. Spread Spectrum Communications