EENG 3810: Communication Systems

Spring 2026

Instructor Information

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Classroom: B227, Discovery Park

Class timings: 11:30 AM to 12:50 PM, Tuesdays and Thursdays

Class Start date and End date: Jan 12, 2026-May 8, 2026

Course Description, Structure, and Objectives

This course introduces the concepts of transmission of information via communication channels. Topics include signal and systems (Fourier analysis), amplitude and angle modulation for the transmission of continuous-time signals, analog-to-digital conversion and pulse code modulation, and the basic principles for the analysis and design of digital communication systems.

Course Structure

This course is offered on campus and face-to-face.

Course Prerequisites or Other Restrictions

EENG 2620 Signals and Systems; EENG 3510 Electronics I; and MATH 1780 Probability Models or MATH 3680 Applied Statistics. Basic MATLAB skills (recommended).

Course Objectives

By the end of this course, students will be able to:

1. Understand the fundamentals of analog and digital communication systems
2. Learn techniques for amplitude modulation and demodulation of analog signals
3. Learn techniques for generating and demodulating narrow-band and wide-band frequency and phase modulated signals
4. Understand the issues pertaining to the transmission of digital signals over bandwidth-limited communication channels
5. Basic techniques for generating and demodulating pulse code modulated signals

Recommended Materials

B.P. Lathi and Z. Ding, Modern Digital and Analog Communication Systems, Fifth Edition, ISBN13: 9780190686840; ISBN10: 0190686847, Oxford University Press, 2019.

ADA Policy

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website (http://www.unt.edu/oda). You may also contact ODA by phone at (940) 565-4323.

Consider announcing in your class or putting in your syllabus how students can connect with the Office of Disability Access to begin the registering process (https://studentaffairs.unt.edu/office-disability-access).

Language for a syllabus on communication practices

Communication Expectations: Students are advised to send an email (see above) and to set up a time for a telephone or zoom conversation outside the office hours.

Supporting Your Success and Creating an Inclusive Learning Environment

Communicate your commitment to the importance/value of an inclusive learning environment. What barriers to student success would you like to prevent by working collectively to develop community norms within the course? For example, diversity language you can find models such as the following Diversity Statement (PDF) (https://studentaffairs.unt.edu/sites/default/files/counseling-and-testing-services/documents/diversity-statement.pdf)

Language for a syllabus about inclusion

I value the many perspectives students bring to our campus. Please work with me to create a classroom culture of open communication, mutual respect, and inclusion. All discussions should be respectful and civil. Although disagreements and debates are encouraged, personal attacks are unacceptable. Together, we can ensure a safe and welcoming classroom for all. If you ever feel like this is not the case, please stop by my office and let me know. We are all learning together.

Assessing Your Work

Grading

- Homework Assignments: 40%
- Mid-term Exams (2): each 20%
- Final Exam: 20%

Course Evaluation

Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course.

Course Requirements/Schedule

Week	Topics	Reading
1	Introduction, Signals, and Signal Space	Ch. 1, Ch. 2
2	Signal Space	Ch. 2 and 3
3	Fourier analysis	Ch. 2 and 3
4	Fourier analysis	Ch. 3
5	**Midterm I**	
6	Amplitude modulation	Ch. 4
7	Amplitude modulation	Ch. 4
8	Amplitude modulation	Ch. 4
9	**Midterm II**	
10	Frequency Modulation (FM) and Phase Modulation (PM)	Ch. 5
11	FM and PM	Ch. 5
12	FM and PM	Ch. 5
13	Sampling, PCM, Digital Communications	Ch. 6
14	Sampling, PCM, Digital Communications	Ch. 6
15	Additional Lectures	
16	**Final Exam**	

Note in the syllabus that students will be notified by Eagle Alert if there is a campus closing that will impact a class and describe that the calendar is subject to change, citing the Emergency Notifications and Procedures Policy (PDF) (https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_supplement.pdf). Also describe the standards for academic integrity in the course, citing the Academic Integrity Policy (PDF) (https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_supplement.pdf).

In addition to standards for success in courses, there are UNT policies and procedures that you may list or link to in your syllabus. You can access these policies in Navigate (Navigate.unt.edu), in Canvas under the Help menu, in EIS, and on the Student Support Services & Policies page. To encourage students to read and absorb these important processes, you can use a syllabus quiz to check for understanding. A 10-question quiz about current institutional policies and resources is available in Canvas Commons. To access and upload the quiz to your course, follow the Syllabus Quiz Access directions.

Language for a syllabus about policies

Every student in my class can improve by doing their own work and trying their hardest with access to appropriate resources. Students who use other people's work without citations will be violating UNT's Academic Integrity Policy. Please read and follow this important set of guidelines for your academic success (https://policy.unt.edu/policy/06-003). If you have questions about this, or any UNT policy, please email me or come discuss this with me during my office hours.

Attendance and Participation

Attendance is required.

Class Participation

Class participation is strongly encouraged. If you didn't get a chance to ask questions in the classroom, please follow up offline after the class.

Syllabus Change Policy

Any changes to the syllabus will be discussed in the class and majority opinion will be considered to modify due dates, etc.

Language for a syllabus on attendance

Research has shown that students who attend class are more likely to be successful. You should attend every class unless you have a university excused absence such as active military service, a religious holy day, or an official university function as stated in the Student Attendance and Authorized Absences Policy (PDF) (https://policy.unt.edu/sites/default/files/06.039_StudAttnandAuthAbsence.Pub2_.19.pdf). If you cannot attend a class due to an emergency, please let me know. Your safety and well-being are important to me.