SPRING 2026 : ELEC 3400: COMMUNICATION SYSTEMS
TTh 11:00am – 12:15pm Broun 125

Instructor: Prof. J.K. Tugnait 313 Broun, 4-1846, tugnajk@auburn.edu
Office Hours: By appointment – please email.

Prerequisite: ELEC 3800.

Prerequisites by topic:

1. Signal and systems analysis
2. Random signals and systems

Course Goals:

1. To understand baseband digital information transmission over bandlimited channels.
2. To understand basic digital modulation schemes and their transmission and reception over bandlimited channels.
3. To be able to analyze effects of noise on digital communications systems.
4. To understand basic analog modulation schemes.

Required Textbook: None

Recommended Textbook: S. Haykin and M. Moher, *Communication Systems*, 5th Ed., John Wiley, 2009.

Reference 1: B.P. Lathi and Z. Ding, *Modern Digital & Analog Communication Systems*, 4th Ed., Oxford Univ. Press, 2009.

Reference 2: J.D. Gibson, *Principles of Digital & Analog Communications*, 2nd Ed., Macmillan, 1993.

Grading Basis:

Homework :	10 %	
Test I :	30 %	(**Feb. 19, 2026**)
Test II :	30 %	(**April 9, 2026**)
Final :	30 %	(**May 1, 2026**, Fri., 10:30am – 12:30pm)

Accommodation Policy: If you have documented accommodation needs, please contact *Auburn University Office of Accessibility (OA)* (334-844-2096 or accessibility@auburn.edu) first. Once your request is approved by OA, you must follow-up with me to communicate about specific accommodation needs. If you are approved for exam accommodations, please consult with me at least two weeks before the scheduled exam date to confirm the testing arrangements which will be implemented/proctored through OA.

Attendance Policy: Class attendance and participation is required. Unexcused absences from more than 3 class sessions will receive an F in the course. For an absence to be excused, the student must present an official excuse obtained from the Engineering Student Services Office no later than 1 week after the absence. Fill out this form with supporting documentation `https://app.smartsheet.com/b/form/6b7dc6f07b69409686413f602e7af350`. For more information, see the student policies online at `https://www.auburn.edu/student_info/student_policies/`.

Homework: will be assigned periodically. Solutions to the homework problems will be discussed in class. **Late homework will not be accepted.** The lowest homework grade will be dropped from your average.

TEXT COVERAGE (in listed order)

- Chapter 2 & 5 Background ELEC 2120 and ELEC 3800 material −− READING ASSIGNMENT
- Chapter 7 Secs. 7.1-7.6, 7.8, 7.9: Sampling and PCM

- Chapter 8 Baseband digital transmission
- Chapter 9 Digital band-pass transmission techniques (parts)
- Chapters 3 & 4 Amplitude and angle modulation

ELEC 3400. COMMUNICATION SYSTEMS (3). Lec. 3. Pr., ELEC 3800. Pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, noise in communication systems.