



**KENNESAW STATE**  
UNIVERSITY

## SYLLABUS

EE 3702 / 01: COMMUNICATIONS SYSTEMS  
**SPR 2025**

### Course Information

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Class meeting time: **M – W – F 12:20PM – 1:10PM**

Modality and Location: *Face to Face* course; **Atrium Building - 152**

*Syllabus is posted in D2L*

The course will be delivered weekly on Mondays, in one 50-minute lecture and discussion session. Case examples will be included, as frequently as practicable, as part of the weekly class discussions.

Students' expected reading requirements shall be included under the reference section - lecture slides.

Expected due dates for assignments and quizzes for the semester shall be updated via D2L.

### Instructor Information

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Name: Omar Rawdah

Email: Office Location:

Office phone:

Office Hours: TBC

Preferred method of communication: KSU email (from students' KSU email)

**Course Communication** – The best way to communicate with me outside of office hours is to send a message to either my email account or through D2L. Any communications sent to me by email or D2L will typically be answered within 24 hours, except for weekend communications, where my response time may be 48 hours. Please note that direct email communication will generally be answered faster than communication through D2L.

### Course Description

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**3 Class Hours 0 Laboratory Hours 3 Credit Hours**

**Prerequisite: EE 3701 and Engineering Standing**

This course investigates the principles of modern communication systems and architectures.

Amplitude modulation, frequency and phase modulation and demodulation techniques are examined. Bandwidth and power considerations, noise in communication systems, signal analysis and transmission are included as are noise and probability aspects of communication systems and practical communication systems.

# Course Materials

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*Required Textbook:* Principles of Electronic Communication Systems, 5th Edition, by Louis E. Frenzel  
ISBN10: 1259932796 | ISBN13: 9781259932793

*Recommended Textbook:* Fundamentals of Communication Systems, 2nd edition, by John G. Proakis and Masoud Salehi, ISBN-13: 9780133354850

## Technology requirements:

1. Access to a computer with reliable Internet access and media capable
2. Use of D2L (frequently)
3. Proficiency with MS Office tools or the equivalent
4. MATLAB (Communication Toolbox) / SIMULINK (Communications Block set)
5. Check campus email frequently
6. Able to submit assignments as a single PDF formatted file

## Course Learning Outcomes

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After successful completion of this course, the students will be able to:

- ✓ Identify the elements of a communication system
- ✓ Learn about signals and systems in the time domain and the frequency domain
- ✓ Understand the principles of analog modulation: amplitude modulation AM and frequency modulation FM
- ✓ Learn about noise & its effect on communications systems- SNR
- ✓ Describe ADC and sampling / DAC
- ✓ Understand digital modulation & modulation schemes
- ✓ Learn about multiplexing & access techniques
- ✓ Understand link budgets in the design of communication systems
- ✓ Design and analyze a modern communication system:
  - Wireless Communications: Private 5G Networks - FWA
  - Optical Communications: Passive Optical Networks
  - Regulatory aspects (FCC broadband/ CFR47- parts 15 & 18 / NTIA role)
  - Mobile Satellite D2C (Direct-to-Cell) Networks
  - Satellite and millimeter-wave communications

## Updates to Spr.2024 Course

- ✓ Less slides during lectures- students can review these before and/or after lectures
- ✓ More worked examples / engaging videos
- ✓ More hands-on with simulation tools
- ✓ Mini-projects enhancement
- ✓ Communications regulatory aspects