

## EENG 3920 Modern Communication System Design Project

**Instructor:** Shuping Wang  
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**Fall 2023**  
**Time:** (Th) 10:00 am – 12:50 pm  
**Meeting Place:** NTDP B288  
**Office Hours:** (TuTh) 4:00 pm – 5:30 pm

**TA: Yun Kong**  
**Email:** [YunKong@my.unt.edu](mailto:YunKong@my.unt.edu)  
**Office Hours:** Thursdays 9 am – 10 am in Room B239

### Course Description

Students are required to design electronic communication systems with electronic devices such as transistors, capacitors, inductors, and resistors. Topics include LC circuits and oscillators, AM modulation, SSB communications, and FM modulation.

### Course Information

#### Co-requisite

EENG 3520 Electronics II

#### Required Textbook and References

- J. S. Beasley, J. D. Hymer, and G. M. Miller, Laboratory Manual to Accompany Electronic Communications. Pearson, 2014, ISBN 978-0-13-301066-4 (**Required**).
- J. S. Beasley, J. D. Hymer, and G. M. Miller, Electronic Communications a Systems Approach, Pearson, 2014, ISBN 978-0-13-298863-6 (**Recommended**).

#### Attendance

Because we only meet once a week, every class meeting is essential to your success. To encourage your attendance, punctuality, and learning, I will provide pop-up quizzes of the previous week's material at the beginning of class. The pop-up quizzes will be administered **sharply at 10:00 am** and will last for about 5 minutes. Plan to arrive on time because you must be present when class begins to take the quiz. You can earn up to **5 bonus points** toward your overall grade over the semester by attending the lectures/labs.

#### Lab report

Lab reports will be required to assess understanding and reinforce the materials covered in the experiment sessions.

- Lab report needs to be uploaded to Canvas at the due date/time.
- Lab reports turned in late will be penalized 50%. No lab report is accepted after 24 hours.
- Students have one week to contest any grade once the grade is posted.

#### Tests and Exams

There will be 4 Tests and **one** exam, i.e., the Final Exam. The exam will be based on class lectures and discussions, handouts, and class/lab exercises. Students are responsible for all text material, regardless of whether we review the text material in class or not.

### **Missed Tests**

There are **no** make-up Tests. If you cannot take the test for any reason, the weight of the test will be put onto the rest of the Tests. Make-up exam accommodations for the Final Exam will only be made if you have a documented university-excused absence (refer to UNT Policy 06.039).

### **Grading Elements and Weights**

Pop-up quiz (Attendance bonus)	5%
Tests:	30%
Labs:	40%
Final Examination:	30%

### **Grade Distribution**

Points	Letter Grade
90.0% - 100%	A
80.0% - 89.9%	B
70.0% - 79.9%	C
60.0% - 69.9%	D
59.9% & Below	F

## **UNT Policies**

### **ODA Policy**

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time; however, ODA notices of 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 accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the [ODA website \(https://disability.unt.edu/\)](https://disability.unt.edu/).

### **Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)**

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

### **Student Evaluation of Instruction**

SPOT is a requirement for all organized classes at UNT. The survey will be made available at the end of the semester.

## Academic Integrity Policy

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

## Tentative Course Outline

- Fundamental Communications Concepts (8/24)  
Lab 1 (Exp. 2): Waveforms/Spectrums in the Time/Frequency Domains (8/31)
- Amplitude Modulation (9/7)  
Lab 2 (Exp. 3): Introduction to Spectrum Analysis (9/14)  
**Test 1** before the lab
- Angle Modulation (9/21)  
Lab 3 (Exp. 5): Frequency Modulation: Spectrum Analysis (9/28)  
**Test 2** before the lab
- AM and FM Circuits (10/5, 10/12)
- Transmitters (10/19)  
**Test 3** before the lecture  
Lab 4 (Exp. 6): Radio-Frequency Amplifiers and Frequency Multipliers (10/26)  
Lab 5 (Exp. 7): Colpitts RF Oscillator Design (11/2)
- Recivers (11/9)  
Lab 6 (Exp. 10): Sideband Modulation and Detection (11/16)  
**Test 4** before the lab
- **Thanksgiving Break – No Classes** (11/20 – 11/26)
- Optical Fiber Communications (11/30)
- Review (12/7)  
**Final Exam 12/14/2023, Thursday, 8:00 am – 10:00 am**