EENG 3920  Modern Communication System Design Project

Instructor:  Shuping Wang
Office:  NTDP F130
Phone:  940-369-8895
Email:  shuping@unt.edu
Fall 2021
Time:  (Th) 10:00am – 12:50pm
Meeting Place:  NTDP B288
Office Hours:  (TuTh) 4:00pm – 5:30pm

GA:  Gollapudi, Sri Srujan
Office Hours:  Th 2:00pm – 4:00pm (Room B245)
Email:  srisrujangollapudi@my.unt.edu

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 Requirements

Face Coverings

UNT encourages everyone to wear a face covering when indoors, regardless of vaccination status, to protect yourself and others from COVID infection, as recommended by current CDC guidelines. Face covering guidelines could change based on community health conditions.

Attendance

Attendance is mandatory. The project includes two portions, i.e. lectures and labs. Lecture periods will be utilized to present principles and theory of the project topics. Class participation and discussion is expected in these sessions; lab periods will be used to conduct design and implementation of electronic communication systems with electronic devices/components.

If you are experiencing any symptoms of COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Team at COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure.

Lab report

Lab report will be required to assess understanding and reinforce the materials covered in experiment sessions.
- Lab report needs to be uploaded to Canvas at the due date/time.
- Lab report turned in late will be penalized 50%. No lab report accepted after 24 hours.
- Students have one week to contest any grade once grade posted.
Co-requisite
EENG 3520 Electronics II

Required Textbook and References

Quizzes and Exams
There will be several pop-up quizzes and one exam, i.e. the final exam. 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.

Grading Elements and Weights
- Quizzes: 20%
- Labs: 50%
- Final Examination: 30%

Grade Distribution
<table>
<thead>
<tr>
<th>Points</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90.0% - 100%</td>
<td>A</td>
</tr>
<tr>
<td>80.0% - 89.9%</td>
<td>B</td>
</tr>
<tr>
<td>70.0% - 79.9%</td>
<td>C</td>
</tr>
<tr>
<td>60.0% - 69.9%</td>
<td>D</td>
</tr>
<tr>
<td>59.9% &amp; Below</td>
<td>F</td>
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</tbody>
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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.

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/).
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.

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.

Tentative Course Outline

- Fundamental Communications Concepts (8/26)
  - Lab 1 (Exp. 2): Waveforms/Spectrums in the Time/Frequency Domains (9/2)
- Amplitude Modulation (9/9)
- Amplitude Modulation (9/16)
  - Lab 2 (Exp. 10): Sideband Modulation and Detection (9/23)
- Angle Modulation (9/30)
- Angle Modulation (10/7)
  - Lab 3 (Exp. 12): Generating FM from a VCO (10/14)
- Transmitters (10/21)
  - Lab 4 (Exp. 7): Colpitts RF Oscillator Design (10/28)
  - Lab 5 (Exp. 3): Introduction to Spectrum Analysis (11/4)
- Receivers (11/11)
  - Lab 6 (Exp. 6): Radio-Frequency Amplifiers and Frequency Multipliers (11/18)
  - Lab 7: (Optical voice link) (12/2)

Final Exam (Thursday, 12/09/2021, 8:00am to 10:00am)