COURSE DESCRIPTION
The objective of this course is to introduce advanced concepts in signal and system analysis. Topics such introduction to signals and systems, their properties and types, frequency domain analysis of signals, and time and frequency descriptions of systems will be discussed. It is expected that, by the end of the course, the students will understand the mathematics behind analyzing any signal or system. MATLAB software will be used as a teaching tool.

COURSE OUTCOMES
1. Understand the mathematical descriptions of continuous-time (CT) and discrete-time (DT) signals.
2. Understand the characteristics and properties of real systems.
3. Analyze signals and systems in both the time and frequency domain.
4. Gain experience with CT and DT Fourier series.
5. Apply the properties of the Fourier transform, Laplace transform and z-transform to real systems.

ABET PROGRAM OUTCOMES
- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

TEXTBOOK
PRE-REQUISITES: ENGR 2405; ENGR 2415; and MATH 2730 or MATH 3410

TOPICS TO BE COVERED

1. Introduction to Signals and Systems
2. Linear Time Invariant Systems
3. Fourier Series
4. Continuous Time Fourier Transform
5. Discrete Time Fourier Transform
6. Time and Frequency Representation of Signals and Systems
7. Laplace Transform
8. Z-Transform

SCHEDULE AND GRADING

Attendance/Class Participation: 5%
Homework: 15%
Quiz: 10%
Mid-Term 1: 15%
Mid-Term 2: 20%
Final: 25%
Programming Assignments: 10%

Notes:

ATTENDANCE POLICY

Class attendance is regarded as an obligation as well as a privilege. All students are therefore expected to attend each class meeting. A student who misses class is still responsible to find out what was discussed and to learn the material that was covered and obtain the homework that was assigned on the missed day. The instructor is not responsible for re-teaching material missed by a student who did not attend class. Therefore, each student is accountable for and will be evaluated on all material covered in this course, regardless of attendance.

Attendance/Participation grades will be based on attendance, contribution to in-class discussions, and assessment of any in-class work. Disruptive behavior and unexcused absences deemed excessive will result in a lower attendance/participation grade.

HOMEWORK

Homework will be assigned based on material from the lectures and textbook. These assignments are meant for you to become familiar with the course material and this practice will aid you in mastering the concepts on the exams.
PROGRAMMING ASSIGNMENTS

Programming assignments will be assigned throughout the semester, integrated with the homework assignment. The programming assignments need to be completed using the MATLAB software.

LATE SUBMISSION POLICY

The same late submission policies apply to both homework and programming assignments. If you miss the submission deadline, you will be penalized 25% of the grade for every day you are late. For example, if the deadline is on Friday 11.59 PM and you submit on Saturday, you will lose 25% points, if you submit on Sunday you lose 50% points, and so on.

QUIZZES

Quizzes will be posted on Canvas throughout the semester every Friday. The objective of the quizzes to test students on theoretical concepts discussed in the class as well as minor problem solving. Quizzes cannot be submitted late and cannot be re-opened.

MID-TERM EXAMS

There will be two midterm exams given in this course. The tentative date for the first mid-term is 09/26. The tentative date for the second mid-term is 10/29. The confirmed date and pattern of the exams will be posted on Canvas and announced in class at least one week prior to the date of the exams.

FINAL EXAM

The final exam will be given on December 10, Tuesday at 10.30 AM-12.30 PM. The confirmed pattern of this exam will be posted on Canvas and announced in class at least two weeks prior to the date of the exams.

GRADING POLICY

Grades will be posted on Canvas throughout the semester to provide an ongoing assessment of student progress, though final assessment will be measured using the weighted average above.

Also, once a grade is assigned on Canvas, students have two weeks to dispute the grade. The proper channel for grade disputes is to first go to the original grader (such as the TA or IA) in an attempt to resolve the issue. If, however, a resolution cannot be reached between the student and the grader, the student shall then go to the instructor who will have the final say on the grade.

STUDENT RESPONSIBILITY
Students are responsible for submitting the correct assignments (i.e., uploading the proper files) for each applicable assignment submission on Canvas. When an incorrect assignment is submitted to Canvas, students wanting to resubmit with the correct file(s) after the due date has passed will have their assignment assessed a 30% reduction penalty. Proof must be given (i.e., timestamp for the file on the CSE machines) that the assignment was completed on time. If you have any questions or concerns about your submission, please work with your instructor or TA/IA for this course to ensure the correct file(s) is/are submitted.

ADA STATEMENT

The University of North Texas 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 you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You 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 Office of Disability Accommodation website at http://disability.unt.edu. You may also contact them by phone at (940) 565-4323.

ACCEPTABLE STUDENT BEHAVIOR

Student behavior that interferes with an instructor’s ability to conduct a class or other students’ opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student’s conduct violated the Code of Student Conduct. The university’s expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at http://deanofstudents.unt.edu.

ACADEMIC DISHONESTY

This course follows the Department of Computer Science and Engineering Cheating Policy. Specifically, students caught cheating or plagiarizing will receive a “0” for that particular assignment or exam for the first offense. Additionally, the incident may be reported to the Dean of Students, who may impose a further penalty. A second instance of cheating in this class will result in a grade of F in the class, and referral to the Department Chairperson and Dean of Engineering, whereby a dismissal hearing may be initiated by the Dean of Engineering.

Individual assignments, including laboratory exercises and programming assignments, in this course must be the sole work of the individual student. You should not work with other students on shared program solutions or use solutions found on the Internet. Specifically, you should never copy someone else’s solution or code, and never let a classmate examine your code. If you are having trouble with an assignment, please consult with your instructor or TA/IA assigned to this
course. Failure to adhere to these strict standards may be cause for disciplinary action even leading to expulsion from the University.

Students are responsible for being familiar with the university standard for academic integrity. In the case that the above description or any in-class discussion of appropriate and inappropriate collaboration do not answer all of your questions, please meet with your instructor and look at the university Student Rights and Responsibilities web page.

SYLLABUS REVISIONS

This syllabus may be modified as the course progresses should the instructor deem it necessary. Notice of changes to the syllabus shall be made through Canvas and/or class announcement.