EE445S Real-Time Digital Signal Processing Lab (Fall 2018)

Lecture: MWF 11:00am–12:00pm in ECJ 1.308
Instructor: Prof. Brian L. Evans bevans@ece.utexas.edu
Office Hours: MWF 10:00am-11:00am in EER 6.882
Lab Sections: M 6:30–9:30pm (Kanawati), T 6:30–9:30pm (Cho), (EER 1.810)
W 6:30–9:30pm (Kanawati) and F 1:00–4:00pm (Cho)
TA Office Hours: Mr. Yunseong Cho, TH 5:00–8:00pm
(Office TBA) Mr. Sam Kanawati, W 4:30–6:00pm & TH 3:30–5:00pm
TA E-mail: yscho@utexas.edu and omk09@utexas.edu
Course Web Page: http://users.ece.utexas.edu/~bevans/courses/realtime

This course covers discrete-time signal processing concepts and translating them into real-time software. The goal is to understand design tradeoffs in signal quality vs. implementation complexity. Applications include audio, communications, and image processing.

Topical Outline
Architectures of programmable digital signal processors; programming for real-time performance; design and implementation of digital filters, modulators, data scramblers, pulse shapers, and baseband transceivers in real time; and interfaces to communication systems.

Order of Lecture Topics

Prerequisites
EE 312 C Programming and 319K Intro to Embedded Systems with a grade of at least C- in each; BME 343 or EE 313 Signals and Systems with a grade of at least C-; credit with a grade of at least C- or registration for BME/EE 333T Engineering Communication; and credit with a grade of at least C- or registration for BME 335/EE 351K Probability.

Required Texts
3. B. L. Evans, EE 445S Real-Time DSP Lab Course Reader Available on course Web page.

Supplemental Texts

Grading
14% Homework, 21% Midterm #1, 21% Midterm #2, 5% Pre-lab quizzes, 39% Laboratory. Midterms will be held during lecture, with midterm #1 on Friday, Oct. 19th, and midterm #2 on Friday, Dec. 10th. Attendance/participation in laboratory is mandatory and graded.
Lecture attendance helps connect together all of the pieces of the class and is critical in landing internships and permanent positions. During lecture, please exclusively focus your use of laptops, smart phones and other electronics on following the lecture content. Plus and minus letter grades may be assigned. There is no final exam. Request for regrading an assignment must be made in writing within one (1) week of the graded assignment being made available to students in the class. Discussion of homework questions is encouraged. Please submit your own independent homework solutions. Late assignments will not be accepted.

Official Correspondence
The University of Texas at Austin considers e-mail as an official mode of university correspondence: https://cio.utexas.edu/policies/university-electronic-mail-student-notification-policy. You are responsible for following course-related information on the Canvas site for the course.

University Honor Code
“The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the University is expected to uphold these values through integrity, honesty, fairness, and respect toward peers and community.” [http://www.utexas.edu/about/mission-and-values](http://www.utexas.edu/about/mission-and-values).

Religious Holidays
By UT Austin policy, you must notify the instructor of any pending absence at least fourteen (14) days prior to the date of observance of a religious holy day, or on the first class day if the observance takes place during the first fourteen days of the semester. If you must miss class, lab section, exam, or assignment to observe a religious holiday, you will have an opportunity to complete the missed work within a reasonable amount of time after the absence.

College of Engineering Drop/Add Policy
The Dean must approve adding or dropping courses after the fourth class day of the semester.

Students with Disabilities
UT provides upon request appropriate academic accommodations for qualified students with disabilities. Disabilities range from visual, hearing, and movement impairments to ADHD, psychological disorders (e.g. depression and bipolar disorder), and chronic health conditions (e.g. diabetes and cancer). These also include temporary disabilities such as broken bones and recovery from surgery. Services for Students with Disabilities is available at 512-471-6259 [voice], 866-329-3986 [video], ssd@uts.cc.utexas.edu or [http://ddce.utexas.edu/disability](http://ddce.utexas.edu/disability).

Mental Health Counseling
Counselors are available Monday-Friday 8am-5pm at the UTs Counseling and Mental Health Center (CMHC) on the 5th floor of the Student Services Building (SSB) in person and by phone (512-471-3515). The 24/7 UT Crisis Line is 512-471-2255.

Safety Information
If you have concerns about the safety or behavior of students, TAs, Professors, or others, call the Behavioral Concerns Advice Line at 512-232-5050. Your call can be anonymous.

Campus Carry
“The University of Texas at Austin is committed to providing a safe environment for students, employees, university affiliates, and visitors, and to respecting the right of individuals who are licensed to carry a handgun as permitted by Texas state law.” For more information, please see [http://campuscarry.utexas.edu/students](http://campuscarry.utexas.edu/students).