ECE 5755: Digital Signal Processing Laboratory

Spring 2017

Logistics

Co-requisite: ECE 4750/6750 or equivalent.

Instructor: Daniel Weller
Assistant Professor, ECE
Office: Rice 309
Phone: (434) 924-4271
Email: dweller@virginia.edu [Include "ECE 5755" in the title/subject]

Assistant(s): Haoyi Liang, hl2uc@virginia.edu

Lecture: Date/time: Tuesdays, 5:00 PM – 7:45 PM
Room: Thornton Hall E225

Textbook: A. V. Oppenheim and R. W. Schafer. *Discrete-Time Signal Processing, 3/E*. Prentice-Hall, 2010. [not required, but useful reference; may be purchased from UVA bookstore or online]

Course Description

The lab complements the ECE 4750/6750 Digital Signal Processing (DSP) course by providing experience designing and understanding real digital signal processing systems. This class involves a series of weekly labs (some multi-week) that connect DSP concepts learned in the class with practical experiments using LabVIEW software in conjunction with NI hardware. Each lab culminates in a detailed write-up. These lab reports are the major assignments in this course.

Learning Goals and Objectives

This course is aimed at 3rd/4th year undergraduates interested in understanding how to analyze and design real-world digital signal processing systems. By the end of this course, students should be able to:

1. Design and implement a DSP system using tools like LabVIEW
2. Analyze and describe the functionality of a real world DSP system

Evaluation

Lab Reports (100%): Each individual is required to write up a complete report for each weekly or multi-week lab assignment (multi-week assignments count double). These reports must introduce the lab objectives, provide necessary background, describe in detail the methods and experimental procedures, depict and thoroughly discuss experimental results and observations, and conclude with a summary of the completed objectives. Your report must answer all questions mentioned in the lab assignment. If working in a team, these reports must list your individual contributions as part of the team. Each report will be due one week after the lab is finished, at 11:55 PM that evening, and must be submitted via

Collab in PDF format. **Attendance of each lab during the scheduled time is highly recommended**; due to high use of the room, students should not rely on after-hours access to complete their assignments. Review the grading rubric carefully.

Course Policies and Grading

Cheating: This course is governed by the UVA honor code policy. If you are unfamiliar with this policy or have questions, please contact me. In particular, you are expected to do your own work and not to provide assistance to others on individual activities. Plagiarism or copying code or solutions, even with attribution, is considered cheating. Course materials should not be shared or distributed outside this class.

Attendance: Students are expected to attend all labs and read through the lab assignments in advance. If you are unable to attend a lab, it is your responsibility to notify your lab partner(s) and make alternative arrangements with your partner(s) and Prof. Weller. Inability to attend the lab does not excuse you from completing the lab report on time.

Late Policy: Unless prior arrangements are made with Prof. Weller, late assignments will lose 10% value if turned in a day after the deadline, and 20% value if turned in two days late. No late assignment will be graded after two days have passed unless prior arrangements are made with the instructor.

Disabilities: Students who need to make arrangements for disabilities should work with the Student Disability Access Center or other appropriate office and provide me with documentation detailing the accommodations requested. All reasonable efforts will be made to ensure these needs are met.

Grading: Grades will be assigned according to this scale: 93=A / 90=A- / 87=B+ / 83=B / 80=B- / 77=C+ / 73=C / 70=C- / 67=D+ / 63=D / 60=D- / below=F. I may adjust these thresholds downward to reflect the actual difficulty of the class, but I will not set these thresholds above what are listed here.

Assessment Forms (grad students only): If you intend to submit a skill assessment form for this course, you must provide a hard copy of the desired skill assessment to Professor Weller before the last class. **No skill assessments will be completed after the semester concludes**. These are graduation requirements for some graduate degrees, so consider in advance which course you want to use for each skill assessment.