Department of Electrical and Computer Engineering

COURSE OUTLINE

ELEC 310 – Digital Signal Processing

Term - SPRING 2015 (201501)

Instructor

Dr. Alexandra Branzan Albu
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Office Hours

Days: Tue, Wed
Time: 11:30 am – 12:30 pm
Location: ECS 324

Lectures

A-Section(s): A01 / CRN 21054, A02/CRN 21055
Days: TWF
Time: 10:30-11:20
Location: ECS 125

Required Text

Title: Digital Signal Processing
Author: Oppenheim and Schafer
Publisher: Prentice Hall
Year: 2009

References: to be posted on CourseSpaces.

Assessment:

Assignments:	20%
Labs	%
Mid-terms	40%
Final	40%

Dates (tentative): January 30, February 27

Due Dates for Assignments: to be posted on CourseSpaces

The final grade obtained from the above marking scheme will be based on the following percentage-to-grade point conversion:

Passing Grades	Grade Point Value	Percentage for Instructor Use Only	
A+ A A-	9 8 7	90 – 100 85 – 89 80 – 84	
B+ B B-	6 5 4	77 – 79 73 – 76 70 – 72	
C+ C	3 2	65 – 69 60 – 64	
D	1	50 – 59	
Failing Grades	**Grade Point Value**	**Percentage for Instructor Use Only**	**Description**
E	0	0 - 49	Fail, *Conditional supplemental exam. (For undergraduate courses only)
F	0	0 – 49	Fail, no supplemental.
N	0	0 – 49	Did not write examination, Lab or otherwise complete course requirements by the end of term or session; no supplemental exam.

**Assignment of E grade will be at the discretion of the Course Instructor.*

The rules for supplemental examinations are found on page 80 of the current 2014/15 Undergraduate Calendar.

Term in which E Grade Was Obtained	Application Deadline for Supplemental Exam	Supplemental Exam Date
First term of Winter Session (Sept – Dec)	February 28 in the following term	First week of following May
Second term of Winter Session (Jan – Apr)	June 30 in the following term	First week of following September
Summer Session (May – Aug)	October 31 in the following term	First week of following January

Deferred exams will normally be written at the start of the student's next academic term; i.e., approximately 4 months following the deferral of the exam.

Course Description

1. Course Objective: To provide the student with basic knowledge about digital signal processing and the mathematic methods used within this field

2. Learning Outcomes
   a. Categorize digital systems based on their properties (such as linearity, time invariance, causality, memory, invertibility, and BIBO stability)
   b. Identify basic properties of convolution and compute the convolution of discrete signals
   c. Explain the significance of convolution in the context of discrete LTI systems
   d. Use the properties of the Fourier and Z transforms in problem solving.
   e. Evaluate forward/inverse Fourier and Z transforms of discrete signals
   f. Demonstrate competency in working with both time- and frequency-domain representations of discrete signals and systems
   g. Design a discrete time filtering algorithm based on given requirements
   h. Use Matlab effectively for the analysis of digital signals and for the design of basic digital systems
   i. Explain the significance of the sampling theorem and use it in the context of discrete processing of continuous time signals

3. Syllabus
   a. Introduction
   b. Complex Analysis
   c. Discrete-Time Signals and Systems (Section 2.1-2.5)
   d. The Fourier Series and Fourier Transform (Section 2.6-2.9)
   e. The Z Transform (Section 3.0-3.3)
   f. Applications of the Z Transform (Section 3.4-3.7)
   g. Sampling of Continuous-Time Signals (Section 4.0-4.5)
   h. Filter Design Concepts (Section 6.0-6.5)
   i. The Discrete Fourier Transform (Section 8.0-8.9,9.0-9.2)

Note to Students:

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the ECE Chair by email or the ECE Chair's Secretary eceasst@uvic.ca to set up an appointment.

Accommodation of Religious Observance
See http://web.uvic.ca/calendar2014/GI/GUPo.html

Policy on Inclusivity and Diversity
See http://web.uvic.ca/calendar2014/GI/GUPo.html

Standards of Professional Behaviour

You are advised to read the Faculty of Engineering document Standards for Professional Behaviour at http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf which contains important information regarding conduct in courses, labs, and in the general use of facilities.

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult http://web.uvic.ca/calendar2014/FACS/UnIn/UARe/PoAcI.html for the UVic policy on academic integrity.