



ELEC 407 – Digital Signal Processing II

Term – Summer 2017 (201701)

May 1 – July 28, 2017

Instructor

Mr. Tony Antoniou, B.Eng. M.A.Sc.

Phone: N/A

E-mail: tony@antoniou.ca

Office Hours

Days: TBA

Time:

Location:

Course Objectives

Characterization of digital signal processing (DSP) systems. Frequency-domain and stability analysis. Design methodology. Structures for recursive and nonrecursive digital filters. VLSI implementation. Solution of the approximation problem for nonrecursive digital filters through the Fourier series. Solution of the approximation problem for recursive digital filters through the transformation of Chebyshev, inverse-Chebyshev, and elliptic analog filter approximations. Design for recursive digital filters satisfying prescribed specifications. Finite word-length effects. Applications.

Learning Outcomes

Practical knowledge of course material, good understanding of concepts and techniques covered in course objectives.

Syllabus

- Chapter 1 Introduction to Digital Signal Processing
- Chapter 3 The z Transform (Secs. 3.1-3.8)
- Chapter 4 Discrete-Time Systems (Secs. 4.1-4.4, 4.6, 4.7)
- Chapter 5 The Application of the z Transform (Secs. 5.1-5.5)
- Chapter 6 The Sampling Process (Secs. 6.1-6.10)
- Chapter 8 Realization of Digital Filters (Secs. 8.1-8.2)
- Chapter 9 Design of Nonrecursive (FIR) Filters (Secs. 9.1-9.4)
- Chapter 11 Design of Recursive (IIR) Filters (Secs. 11.1-11.6)

A-Section(s): A01 / CRN **30344**

Days: Monday/Thursday

Time: 8:30-9:50 AM

Location: Clearihue, CLE A308

Required Text

Title: Digital Signal Processing: Signals, Systems, and Filters

Author: Andreas Antoniou

Publisher: McGraw-Hill

Year: 2005

References:TBA**Assessment:**

Assignments:	10	%	Due Dates:	TBA
Project	30	%		
Mid-term	20	%	Date:	TBA
Final Exam	40	%		

Note: Failure to complete all project requirements will result in a grade of N being awarded for the course.

Failure to pass the final exam will result in a failing grade for the course.

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

There will be no supplemental examination for this course.

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 Chair of the Department by email or the Chair's Secretary to set up an appointment.

Accommodation of Religious Observance: <http://web.uvic.ca/calendar2017-05/general/policies.html>

Policy on Inclusivity and Diversity: <http://web.uvic.ca/calendar2017-05/general/policies.html>

Standards of Professional Behaviour: You are advised to read the Faculty of Engineering document Standards for Professional Behaviour, which contains important information regarding conduct in courses, labs, and in the general use of facilities.

<https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf>

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the entry in the current Undergraduate Calendar for the UVic policy on academic integrity.

<http://web.uvic.ca/calendar2017-05/undergrad/info/regulations/academic-integrity.html>

Equality: This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Resource Centre for Students with a Disability located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.

Course Lecture Notes: Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.