ECE 260: Continuous-Time Signals and Systems

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Course Outline URL:
https://heat.csc.uvic.ca/coview/course/2024051/ECE260?unp=t

Agenda

1. video conferencing
2. course overview
3. various course details
   - general teaching strategy
   - course web site and Brightspace site
   - video lectures
   - lecture sessions
   - office hours
   - tutorial sessions
   - required textbook and lecture slides
   - computer and software requirements
   - assignments and exams
   - course outline and other handouts
4. advice for succeeding in course
5. questions

Joining Zoom Meetings With Single Sign-On (SSO)

- users are required to join Zoom meetings using Zoom Single Sign-On (SSO) with their UVic Netlink credentials (i.e., Netlink username and password)
- use of SSO allows identity of person to be verified using their UVic Netlink credentials
- allowing person to enter meeting anonymously would pose significant security risk (e.g., Zoom-bombing attacks)
- ***if you are placed in waiting room*** instead of being directly admitted into meeting, you ***did not use SSO*** correctly
- users placed in waiting room ***will not be admitted*** to meeting
- therefore, ***anyone who does not use SSO will be blocked from joining meeting***

Video Conferencing Etiquette

- ***always use real (first and last) name*** for your screen name (or you may be removed from meeting)
- always ***use headset*** in order to minimize feedback when microphone is not muted
- always ***mute microphone*** when not speaking
- in larger meetings, always ***disable video camera*** when it is not strictly needed to avoid network bandwidth problems
- unless instructed otherwise, if you have question for meeting host, ***raise your virtual hand*** (accessible via “Participants” on Zoom), rather than interrupting host

Course Overview

- course studies mathematics of:
  - signals (i.e., functions and sequences); and
  - systems (i.e., aircraft, car, cell phones, MRI machines, and all other useful things that engineers build)
- course provides formal mathematical framework for design and analysis of complex systems
- main topics of course:
  1. complex analysis (mostly review)
  2. continuous-time signals and systems
  3. continuous-time linear time-invariant (LTI) systems
  4. continuous-time Fourier series (CTFS) with applications
  5. continuous-time Fourier transform (CTFT) with applications
  6. partial fraction expansions (PFEs)
  7. bilateral and unilateral Laplace transforms (LT) with applications
- CTFS, CTFT, and LT all essential mathematical tools for analyzing signals and designing and analyzing systems

General Teaching Strategy

- course employs ***flipped classroom*** approach to teaching
- students introduced to course materials through ***prerecorded video lectures*** prepared by instructor (which are required viewing)
- then, students given opportunity to engage with course materials in ***interactive lecture sessions*** held by instructor during lecture time slots

Course Web Site and Brightspace Site

- course employs both course web site and Brightspace site
- course web site:
  - https://www.ece.uvic.ca/~mdadams/courses/ece260
- primary information source for course is course web site, which has all handouts and links to other important information/resources for course
- some areas of course web site are password protected
- Brightspace site:
  - https://bright.uvic.ca/d2l/home/350691
- Brightspace site only intended to be used for:
  - posting important course announcements and other information, such as:
    - assignment submission deadlines, exam dates, and username and password required to access password-protected areas of course web site
  - submitting and grading of assignments
  - providing students with means to review their course grades
- students should enable Brightspace notifications (via email) so that course announcements received in timely fashion

Video Lectures

- all core instructional content available as ***prerecorded videos*** via instructor's YouTube channel:
  - https://www.youtube.com/iamcanadian1867
- video lectures are required viewing for course
- video lecture information package available that contains:
  - copy of version of slides used in video lectures [PDF]
  - copy of all worked-through examples (including annotations) used in video lectures [PDF]
  - fully-cataloged list of slides covered in lectures, where each slide in list has ***link to corresponding time offset*** in YouTube video where slide is covered [PDF] [HTML]
- schedule for viewing video lectures provided [PDF]
- ***critically important to follow this viewing schedule***
- for more information on video lectures, see "Video Lectures" section of course web site

Lecture Sessions [1]

- lecture time slots will be used by instructor to hold interactive lecture sessions to assist students in learning course materials more effectively
- sessions held ***face-to-face*** with ***provision for online attendance*** (assuming instructor has computer setup necessary to accommodate online attendance)
- some potential uses of lecture sessions include (but are not limited to):
  - providing brief summary of course materials covered
  - discussing more difficult aspects of course materials and addressing common misunderstandings
  - working through additional examples
  - answering student questions about course materials
  - giving demonstrations to illustrate practical applications of theory covered in course
- students ***not required to attend*** lecture sessions ***unless explicitly indicated*** by instructor
- students ***strongly encouraged*** to participate in at least some of lecture sessions, as this will likely lead to improved understanding of course materials

Lecture Sessions [2]

- normally, lecture sessions ***will not be recorded*** by instructor
- some reasons for not recording lecture sessions include:
  - main objective of lecture sessions is to provide opportunity for ***interactive engagement***, and recording lecture sessions would run completely contrary to this objective
  - recording any interactions with students raises many ***privacy concerns***, which are best avoided whenever possible
  - some students ***may feel uncomfortable*** to participate if being recorded
  - students may take photos/screenshots of materials presented, which reduces need to record these materials for future reference
  - all core instructional content for course already available in video format
- additional information on lecture sessions available from "Lecture Sessions" section of course web site

Office Hours

- office hours will be held by instructor in order to provide extra help with course materials as well as discuss other course-related matters with students
- office-hour sessions will be offered ***online only***
- time slot for office hours will be determined by Brightspace survey and posted on course web site
- questions about course materials will be answered in main room so that all students can benefit from questions asked
- private/confidential matters will be discussed one-on-one with student in breakout room
- student may attend simply to listen to questions from other students or comments from instructor
- office hours cancelled during reading break (and on holidays)
- more information on office hours available from "Office Hours" section of course web site

Tutorial Sessions

- tutorial time slots will be used by tutorial TAs to hold sessions in order to help students with course materials
- tutorial sessions to be held ***face-to-face***
- TA may additionally allow for online attendance ***if this is feasible***
- student may attend session for tutorial section different from one in which they registered as long as this does not prevent those registered in section from having seat in classroom
- tutorials start in ***second week*** of classes

Required Textbook and Lecture Slides

- textbook:
  - M. D. Adams, *Signals and Systems*, Edition 5.0, Dec. 2022, ISBN 978-1-990707-00-1 (PDF).
- lecture slides:
  - M. D. Adams, *Lecture Slides for Signals and Systems*, Edition 5.0, Dec. 2022, ISBN 978-1-990707-02-5 (PDF).
- textbook web site:
  - https://www.ece.uvic.ca/~mdadams/sigsysbook
- available under Creative Commons (i.e., open-access) license
- can be obtained in PDF format from textbook web site (***do not download from Google Play or Google Books*** since Google removes all hyperlinks from documents)
- video lectures mentioned in Section G.2 (titled “2020-05 ECE 260 Video Lectures”) of textbook same as ones used for course

Computer and Software Requirements

- need computer to use for viewing video lectures, accessing MATLAB software, and participating in online meetings
- Zoom video conferencing software used for all online meetings in course
- MATLAB software necessary for most assignments in course
- students are ***required to install MATLAB software*** on their computer or ensure that they have access to MATLAB through some other means
- UVic has site license for MATLAB software so that students can obtain this software free of charge
- for information on how to obtain MATLAB software, refer to:
  - `http://matlab.uvic.ca`
- might also be possible to access MATLAB via remote login to undergraduate lab machines

Assignments

- all assignments must be submitted ***using Brightspace site***
- submissions must be in ***PDF format*** (not JPEG, Word, or other formats)
- ***nominal*** submission deadlines for assignments posted ***on Brightspace site***; if any changes necessary, will be announced to class
- late assignments will ***receive grade of zero***
- assignments will also be graded via Brightspace
- most assignments have some MATLAB exercises and ***MATLAB considered fair game for exams*** in course
- some assignments split into two parts (i.e., Parts A and B)
- splitting of assignments, mainly intended to:
  - reduce size of PDF documents being scanned for submission
  - allow TAs to return graded assignments more quickly
- for split assignments, submission deadlines for Parts A and B will often only be couple of days apart
- ***do not wait until after submission deadline for Part A to start work on Part B***, as there will not be sufficient time to complete Part B

Exams

- exams held ***face-to-face*** during ***lecture time slot***
- since exams held face-to-face, Brightspace will not be used in writing of exams
- ***nominal*** exam dates posted on course web site or Brightspace site; if any changes necessary, will be announced as much in advance as possible

Course Outline and Other Handouts

- some information on course web site includes:
  1. course outline [web] [PDF] [annotated PDF]
  2. online meetings handout [PDF]
  3. video-lecture information package [Zip]
     - lecture examples [PDF]
     - video-lecture catalog [HTML] [PDF]
  4. video-lecture schedule handout [PDF]
  5. assignments handout [PDF] [annotated PDF]
  6. supporting affordable learning resources handout [PDF]
  7. course-materials bug-bounty program (CMBBP) handout [PDF]
  8. course-materials errata handout [text]
  9. optional textbook handout [PDF] [annotated PDF]

Other Remarks

- use office hours and/or lecture sessions ***(not email)*** for questions about course materials (cannot guarantee response to questions asked via email)
- most handouts versioned (i.e., include date on each page) so that newer versions can be distinguished from older ones
- if you downloaded any handouts (including course outline) before day of first lecture, check to ensure that those handouts have not changed since time downloaded

Advice for Succeeding in Course

- avoid falling behind, since easy to reach point where catching up is impossible
- work ahead to whatever extent is possible so that unexpected problems less likely to result in falling behind
- watch video lectures with pace that does not fall behind provided schedule
- avoid binge watching videos as this prevents effective learning
- when having difficulties with course materials, seek help as soon as possible
- do not leave assignments until last minute or copy solutions from other students or old solution sets, as this will bypass learning

Questions

Course Web Site URL:
https://www.ece.uvic.ca/~mdadams/courses/ece260

These course-introduction slides are available from the course web site under the “Miscellany” section.