Department of Electrical and Computer Engineering

COURSE OUTLINE

Elec 360: Control Theory and Systems: I

Term - SPRING 2015 (201501)

Instructor

Dr. Stephen W. Neville
Phone: n/a
E-mail: sneville@ece.uvic.ca

Office Hours

Days: Wed.
Time: 2:30 – 3:30 (or by appointment)
Location: EOW 307 or ELW A228

Note: All course emails ***MUST*** have "Elec360:" in the subject line and ***MUST*** be sent from UVic email accounts. Emails without proper subject lines or sent from off-campus email accounts will likely be dropped by UVic's email spam filters or be automatically redirected to junk email folders.

Lectures

A-Section(s): A01 / CRN 21089 and A02 / CRN 21090
Days: Tues., Wed., Fri.
Time: 1:30-2:20pm
Location: ECS 130

Labs **Location: ELW**

B-Section(s):	Days:	Time(s):
B01 (CRN 21091)	Wed.	3:30-6:20pm
B02 (CRN 21092)	Wed.	3:30-6:20pm
B03 (CRN 21093)	Wed.	3:30-6:20pm

Dates for Labs:
Section B01: Jan. 28th, Feb. 18th, Mar. 4th, and Mar. 18th
Section B02: Feb. 2nd, Feb. 25th, Mar. 11th, and Mar. 25th
Section B03: Jan. 30th, Feb. 20th, Mar. 6th, and Mar. 20th

Full details of all official course locations and times are available from UVic's Timetable web page (http://uvic.ca/timetable). In the case of any discrepancies between the above denoted times and places and the official UVic timetable web page, the official UVic web page is authoritative.

Required Text

Title: Modern Control Engineering (5th Edition)
Author: Katsuhiko Ogata
Publisher: Prentice Hall
Year: 2009

Note: All assignments will come from the North American edition of this text and expressly not from any International additions. The end-of-chapter questions may be different between North American and International editions. It is solely the students' responsibility to ensure that they are doing the correct questions from the correct North American edition.

Course Web Site: http://www.ece.uvic.ca/~sneville/Teaching/Elec360

Assessment:

Assignments:	10%	
Labs:	10%	
Mid-term	30%	Date: Feb. 20th, 2015
Final	50%	

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

Due Dates for Assignments:
All assignments will be due in one week after they are assigned. Any and all late assignments will not be marked and will receive a zero grade.

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+	9	90 – 100	
A	8	85 – 89	
A-	7	80 – 84	
B+	6	77 – 79	
B	5	73 – 76	
B-	4	70 – 72	
C+	3	65 – 69	
C	2	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. Syllabus:

Characterization of systems; linearity, time invariance and causality. General feedback theory; time and frequency domain analysis of feedback control systems; Routh-Hurwitz and Nyquist stability criteria; root locus methods; modeling of dc servo; design of simple feedback systems; introduction to state-space methods. (Prerequisite: 255 or 260)

2. Learning Outcomes:

1. Apply Laplace transforms to solve linear differential equations describing linear systems
2. Give examples of physical systems, block diagrams and state-space description
3. Analyse transient and steady state system response of linear continuous systems
4. Asses closed-loop system performance using Root-Locus analysis
5. Asses closed-loop system performance using frequency response
6. Evaluate closed-loop stability using the Nyquist method
7. Design of PID controllers, lead and lag compensators

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.

Note: All materials used in the course are copyrighted by the authors of the materials, whether course notes, exams, assignments, textbook material, etc. Any and all posting, via web sites, social media sources, etc., or reproduction of these materials is a copyright violation as and such contravenes the standards of professional behavior and will therefore be subject to appropriate measures.