



**ELEC 360 – Control Theory and Systems I
Spring 2017**

ALL INFORMATION ON ELEC 360 CAN BE FOUND AT:
<http://www.ece.uvic.ca/~panagath/ELEC360/ELEC360.html>

Instructor:

Dr. Pan Agathoklis
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Office Hours:

Days: Wednesdays, Fridays
Time: 11:00 AM – 10:30 PM
Location: EOW 423

Course Objectives:

Introduction in the theory and practice of control engineering.
Understanding the mathematical tools used in control system analysis and design.
Design closed-loop control system and evaluating their performance.

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: 260)

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. Assess closed-loop system performance using Root-Locus analysis
5. Assess 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

Lectures:

Section(s): A01 (CRN:21165), A02 (CRN:21166)
Days: Tues., Wed. and Fri.
Time: 9:30 – 10:20 AM
Location: ELL 062

Labs:

Section(s)
B01, B02
B03, B04
B05
B07

Location: ELW A317

<u>Days</u>	<u>Time</u>
Mon.	12:30-15:30
Tues.	13:30-16:30
Fr.	14:00-17:00
Thur.	15:30-18:30

Required Text

Title: Modern Control Engineering
Author: K. Ogata
Publisher: Prentice-Hall
Year: 2010, 5th ed.

Recommended material

MATLAB, student version. See:
http://www.mathworks.com/products/education/student_version/sc

Assessment:

Assignments:	5%
Labs	15%
Mid-term	25%
Final	55%

Date: February 24, 2017
Date: TBA

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

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

<http://web.uvic.ca/calendar/FACS/UnIn/UARe/Grad.html>

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/calendar2017-01/general/policies.html>

Policy on Inclusivity and Diversity: <http://web.uvic.ca/calendar2017-01/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/calendar2017-01/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.