



**ELEC 360 – Control Theory and Systems I  
Fall 2016**

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  
Time: 10:30 AM – 12:30 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:11243), A02 (CRN:11244)  
Days: Tues., Wed. and Fri.  
Time: 9:30 – 10:20 AM  
Location: ECS 116

**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, 5<sup>th</sup> ed.

## Recommended material:

MATLAB, student version. See:

[http://www.mathworks.com/products/education/student\\_version/sc](http://www.mathworks.com/products/education/student_version/sc)

## Assessment:

Assignments:	5%	
Labs	15%	
Mid-term	25%	Date: Oct. 25, 2016
Final	55%	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/calendar2016-09/general/policies.html>

## Policy on Inclusivity and Diversity

<http://web.uvic.ca/calendar2016-09/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/calendar2016-09/undergrad/info/regulations/academic-integrity.html>

## 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.