University of Victoria
Faculty of Engineering | Electrical and Computer Engineering
Engineering Office Wing Room 448 PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada
T 250-721-6036 | ecesec@uvic.ca |

COURSE OUTLINE

ECE 360 CONTROL THEORY AND SYSTEMS I

Term – SPRING 2020 (202001)

Instructor

Dr. Michael McGuire
Phone: (250) 721-8684
E-mail: mmcguire@uvic.ca

Office Hours

Days: Tuesday, Wednesday, and Friday
Time: 9:30AM-10:20AM
Location: ECS 124

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.

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 stability, 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
8. Demonstrate ability to work in a group through participation in lab experiments
9. Demonstrate communications skills through lab reports

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.

A-Section(s):	A01 / CRN 20899	B01	Monday	16:00-18:50	henglaiwei@uvic.ca
Days:	TWF	B02	Monday	16:00-18:50	sanjeevkumarpal.sk@gmail.com
Time:	9:30-10:20AM	B03	Thursday	15:30-18:20	ccchan3000@hotmail.com
Location:	ECS124	B04	Thursday	15:30-18:20	dmitrii.m.govor@gmail.com
		B06	Wednesday	12:30-15:20	sainath14@uvic.ca

Odd numbered labs B01, B03 start in the week of January 27th and run every second week of classes.
Even numbered labs B02, B04, B06 start in the week of February 3rd and run every second week of classes.

Required Textbook

Title:	Modern Control Engineering (5th Ed.)	Title:
Author:	K. Ogata	Author:
Publisher:	Prentice-Hall	Publisher:
Year:	2010	Year:

Assessment:

Assignments:	5 %	Due Dates: TBD
Labs	15 %	
Mid-term	25 %	Date: February 14, 2020
Final Exam	55 %	

Note: Failure to complete all laboratory 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.

https://web.uvic.ca/calendar2020-01/undergrad/info/regulations/grading.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 Assistant to set up an appointment.

Course Withdrawal Deadlines:

- January 19: Withdrawal with 100% reduction of tuition fees
- February 9: Withdrawal with 50% reduction of tuition fees
- February 29: Last day for withdrawal (no fees returned)

Accommodation of Religious Observance:
https://web.uvic.ca/calendar2020-01/undergrad/info/regulations/religious-observanc.html

Policy on Inclusivity and Diversity:
https://web.uvic.ca/calendar2020-01/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
(Please note that this document has an old link for the APEGBC code of conduct which does not work, the proper link is https://www.egbc.ca/Complaints-Discipline/Ethics,-Law,-and-Conduct)

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. https://web.uvic.ca/calendar2020-01/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 an appropriate accommodation. Alternatively, you may want to contact the Centre for Accessible Learning located in the Campus Services Building. https://www.uvic.ca/services/cal/. The University of Victoria is committed to promoting, providing, and protecting a positive, 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.

Sexualized Violence Prevention and Response at Uvic:

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting www.uvic.ca/svp. If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR; Sedgewick C119
Phone: 250.721.8021
Email: svpcoordinator@uvic.ca
Web: www.uvic.ca/svp

Office of the Ombudsperson:

The Office of the Ombudsperson is an independent and impartial resource to assist with the fair resolution of student issues. A confidential consultation can help you understand your rights and responsibilities. The Ombudsperson can also clarify information, help navigate procedures, assist with problem-solving, facilitate communication, provide feedback on an appeal, investigate and make recommendations. Phone: 250-721-8357; Email: ombuddy@uvic.ca; Web: https://uvicombudsperson.ca/