

COURSE OUTLINE

ECE 300 – Linear Circuits: II

Term – SPRING 2020 (202001)

Instructor

Dr. Jens Bornemann

Phone: 250-721-8666

E-mail: jbornema(at)ece(dot)uvic(dot)ca

Office Hours

Days: Mondays, Thursdays

Time: 14:30 – 15:30

Location: EOW 309

Course Objectives

To introduce students to more advanced concepts pertaining to network analysis in the time and frequency domain, including the treatment of active circuits.

Learning Outcomes

At the end of the course, students will be able to ...

1. demonstrate functionality of circuits containing operational amplifiers
2. evaluate the frequency response of linear circuits and make straight line Bode gain and phase plots
3. design circuits which have specified transfer functions and meet other specified constraints
4. analyze circuits containing coupled inductors and ideal transformers
5. use Laplace transforms to find the response of linear circuits to time varying inputs
6. assess the stability of linear circuits
7. evaluate two port parameters of linear circuits and find the response of two ports to external Input

Syllabus

	Appr. No of Classes
Introduction	1
Basic Circuit Laws (review)	2
Operational Amplifiers	2
Transfer Functions	1
Bode Plots	4
Serial and Parallel Resonance	1
Filters	2
Coupled inductors and transformers	1
Laplace Transforms for Circuits	4
Two-Port Networks	4
Sub Total	22
Midterm Test	1
Review	<u>1</u>
Total	24

Lectures

A-Section(s): A01 / CRN 20859
 Days: Mondays & Thursdays
 Time: 10:00-11:20
 Location: ECS 125

Labs

Location: ELW B324
 B-Sections : Days : Times :
 B01 Mon 13:30-16:20
 B03 Mon 13:30-16:20
 B05 Tue 13:30-16:20
 B07 Tue 13:30-16:20
 B09 Wed 13:00-15:50
 B13 Tue 16:30-19:20
 B15 Tue 16:30-19:20

Labs start the week of 27 Jan 2020 and run every other week, except during reading break (c.f. schedule below). Names and emails of lab TAs are posted on the course website.

Required Textbook

Title: Electric Circuits
 Author: J.W. Nilsson and S.A. Riedel
 Publisher: Pearson
 Year: 2019 (11th ed.) or 2015 (10th ed.)

Optional Textbook

Title: Fundamentals of Electric Circuits
 Author: C.K. Alexander and M.N.O. Sadiku
 Publisher: McGraw Hill
 Year: 2007, 2009, 2013 or 2017 (6th ed.)

References: **Couse Website:** **TBA**

Assessment:

Assignments:	10 %	Due Dates:	TBA
Labs	15 %		
Mid-term	25 %	Date:	27 Feb 2020
Final Exam	50 %		

Note:

1. Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.
2. The aggregate grade of the mid-term test and the final exam must be a passing grade ($\geq 37.5/75$) to pass 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>

Assignment of an E grade and supplemental examination for this course will be at the discretion of the Course Instructor. The rules for supplemental examinations can be found in the current Undergraduate Calendar.

<https://web.uvic.ca/calendar2020-01/undergrad/info/regulations/exams.html#>

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>

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, 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.

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](http://www.uvic.ca/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/>

SPRING 2020 TERM
Alternating Lab Weeks Schedule

	M	T	W	R	F	
	30-Dec	31-Dec	01-Jan	02-Jan	03-Jan	
	06-Jan First day of classes	07-Jan	08-Jan	09-Jan	10-Jan	
	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	
	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	1
WEEK 1	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan	2
	FIRST WEEK OF LABS					
WEEK 2	03-Feb	04-Feb	05-Feb	06-Feb	07-Feb	3
WEEK 1	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	4
Reading Break Feb 17 - 21	17-Feb HOLIDAY	18-Feb	19-Feb NO LABS	20-Feb THIS WEEK	21-Feb	5
WEEK 2	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	6
WEEK 1	02-Mar	03-Mar	04-Mar	05-Mar	06-Mar	7
WEEK 2	09-Mar	10-Mar	11-Mar	12-Mar	13-Mar	8
WEEK 1	16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	9
WEEK 2	23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	10
	30-Mar	31-Mar	01-Apr	02-Apr	03-Apr	
					Last day of classes	

Note: Week 1 = odd weeks, Week 2 = even weeks