Faculty of Engineering | Electrical and Computer Engineering
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University of Victoria

COURSE OUTLINE

ECE 250 Linear Circuits I

Term –FALL 2020 (202009)

Instructor

Dr.   Nikitas Dimopoulos
Phone: 721-8902
E-mail: nikitas@ece.uvic.ca

Office Hours

Days: MR
Time: 13:00 -13:30
Zoom link:

https://uvic.zoom.us/j/96642463241?pwd=dGFXOGR3ejhFTDQrQ0RPUGRKODZmUT09
I can be reached via email (please use "ECE250 question" as your subject)

Course Objectives

To introduce the mathematical techniques and application skills needed to analyze, design, and make laboratory measurements on linear electric circuits.

Learning Outcomes

1	Use Ohm's law and Kirchoff laws to analyze resistive circuits
2	Use network theorems (including mesh currents and node voltages) to analyze resistive circuits
3	Solve 1st and 2nd order RC and RL circuits
4	Use phasors to perform AC analysis
5	Assess series and parallel resonance and calculate AC power
6	Solve 3-phase circuits with Y- and Delta- loads
7	Demonstrate communication skills through lab reports documenting experiential work carried out in a laboratory environemnt.

Syllabus

- Circuit analysis and design techniques. Resistors, sources, Kirchhoff's voltage and current laws. Theorems: linearity, superposition, Thevenin, Norton. Node and mesh analysis. Capacitors and inductors, series and parallel connections, stored energies. Analysis of first- and second-order circuits. Forced and natural responses. Phasors, impedance and admittance. Network theorems using phasors. Series and parallel resonance. RMS quantities, complex power. Maximum power transfer. Three-phase circuits, Y- and Delta-loads.
- Introduction to first and second order differential equations.

The topics on circuits are covered in Chapters 1,2,3,4,6,7,8,9,10 and 11 in your book.

Material on differential equations, comprising notes and videos, can be found on the course's web.

A plausible timeline of the topics to be covered can be found on the course's web

Lectures

A-Section(s):   A01 / CRN 10929
,   **B**- &T- Sections, Please see below for Tutorial and Lab sections
Days: MR
Time: 11:30-12:50
Zoom link: https://uvic.zoom.us/j/98725794609?pwd=bVBZOWttQmxnQkhYNEVDYU40RGFKUT09

Tutorials

Section /CRN	Zoom Link	Time	Instructor (Family Name, Name)	Instructor's email
T01/ 10942	https://uvic.zoom.us/j/95943517979?pwd=T29aVmpOcnpCVkhDeEF0RGxEUUlUUT09	T 15:30-16:20	Musti Venkata, Shravanthi	shravanthi.musti@yahoo.com
T02/ 10943	https://uvic.zoom.us/j/96219666868?pwd=VUJzL3FvWWNLeEsyQ01SYXh1SWZzZz09	W 15:30-16:20	Sharifi, Zohreh	zohreh.sharifi12@gmail.com

Tutorials start on Tuesday, September 15, 2020.

Laboratories
Labs will be conducted virtually. Please monitor the Lab section of the course website
(https://www.ece.uvic.ca/~ece250/LabPages.html) for updated information and zoom links for your section.

Section/CRN	Time	ODD/ EVEN WEEK	Lab TA (Family Name, Name)	TA's email
B01/ 10930	R 13:30-16:20	ODD	Thangavelu, Karthiga	karthigat@uvic.ca
B02/ 10931	R 13:30-16:20	EVEN	Almasi, Shahin	shahinalmasi3@gmail.com
B03/ 10932	R 16:30-19:20	ODD	Ashtiani Haghighi, Donya	d.ashtiani.h@gmail.com
B04/ 10933	R 16:30-19:20	EVEN	Dash, Amrit	amritdash@uvic.ca
B05/ 10934	T 12:30-15:20	ODD	Almasi, Shahin	shahinalmasi3@gmail.com
B06/ 10935	T 12:30-15:20	EVEN	Farajollahi, Saeed	farjollahisaeed0@gmail.com
B07/ 10936	T 16:30-19:20	ODD	Saropourian, Behnaz	behnazsaropourian@gmail.com
B08/ 10937	T 16:30-19:20	EVEN	Saropourian, Behnaz	behnazsaropourian@gmail.com
B09/ 10938	F 11:30-14:20	ODD	Torabidavan, Bahareh	bambtorabi@gmail.com
B11/ 10940	F 14:30-17:20	ODD	Bie, Yifeng	yifengbie@uvic.ca
B12/ 10941	F 14:30-17:20	EVEN	Li, Guoliang	guoliangli@uvic.ca

Odd weeks start with week 1 on **September 28** and continue at two weeks intervals

Even weeks start with week 2 on **October 5** and continue at two weeks intervals

There are no labs the week of October 12 to 16 (Thanksgiving).

Lab Orientation Sessions
As ECE250 will be conducted online during this term, there will be no face-to-face Lab Orientation sessions. However, all students are required to complete a number of preparatory tasks and attest to their lab TA that they have completed these tasks. The deadline of completion is September 25, 2020. Details can be found at the course website in the Lab section (Orientation Lab procedures) (https://www.ece.uvic.ca/~ece250/LabPages.html)

Required Textbook   **Optional Textbook**

Title: Electric Circuits (plus Mastering Engineering)
Author: J.W. Nilsson, S.A. Riedel
Publisher: Pearson (11th Edition)
Year: 2018
MasteringEngineering CourseID dimopoulos90115

Title: ELEC250 Linear Circuits I Laboratory Manual
Author: N. Dimopoulos, F. Gebali
Edition 4, May 2018

Calculators:
For the exams, you'll need a **non-programmable**, **non-graphing** calculator that supports **complex number** arithmetic.

Online Course Delivery:
As this course will be conducted online during this term, students will need to complete assignments/labs online. The students will require access to a computer which has the following software installed:
(a) Web browser
(b) TinkerCAD (to be used during the lab) https://www.tinkercad.com

References:
Course Web site: https://www.ece.uvic.ca/~ece250/
Login: **please use your netlink credentials to access the website**

Brightspaces: Available through your **mypage** portal at UVic's website.

Assessment:

Assignments:	7%	Due Dates: Due Dates: TBA (on course's web site)
Labs	21%	
Mid-term	20%	Date: Thursday, October 22, 2020.
Final Exam	42%	
Quizzes	10%	Quizzes will be held on most Fridays asynchronously between 12:00 noon and midnight. Please monitor the course website.
In-class participation	5%	Bonus marks

Assignment and Quizzes will be done through MasterimngEngineering

<u>Important: All deadlines and schedules for this course will reference Pacific Daylight Time until November 1, 2020, and then Pacific Standard Time.</u>

Note:
- o Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.
- o To pass the course, the aggregate grade of the midterm and the final must be a passing grade, OR the grade of the final exam must be a passing grade.
- o The Assignment, Quiz, and In-Class participation marks will be calculated based on the best marks of $n - 2$ assignments($n - 4$ for In-Class participation) for each activity. n represents the number assignments for each activity.

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://www.uvic.ca/calendar/archives/202009/undergrad/index.php#/policy/S1AAgoGuV?bc=true&bcCurrent=14%20-%20Grading&bcGroup=Undergraduate%20Academic%20Regulations&bcItemType=policies

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:
- September 22, 2020: Withdrawal with 100% reduction of tuition fees
- October 13, 2020: Withdrawal with 50% reduction of tuition fees
- October 31, 2020: Last day for withdrawal (no fees returned)

Accommodation of Religious Observance:
https://www.uvic.ca/calendar/archives/202009/undergrad/index.php#/policy/r1q0gofdN?bc=true&bcCurrent=10%20-%20Accommodation%20of%20Religious%20Observance&bcGroup=Undergraduate%20Academic%20Regulations&bcItemType=policies

Policy on Inclusivity and Diversity:
Engineering: https://www.uvic.ca/engineering/about/equity/index.php
Academic Calendar:
https://www.uvic.ca/calendar/archives/202009/undergrad/index.php#/policy/HkQ0pzdAN?bc=true&bcCurrent=%20General%20University%20Policies&bcGroup=General%20University%20Policies&bcItemType=policies

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

Academic Integrity
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://www.uvic.ca/calendar/archives/202009/undergrad/index.php#/policy/Sk_0xsM_V?bc=true&bcCurrent=08%20-%20Policy%20on%20Academic%20Integrity&bcGroup=Undergraduate%20Academic%20Regulations&bcItemType=policies

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, Website: https://uvicombudsperson.ca/