University of Victoria Engineering

Faculty of Engineering

COURSE OUTLINE

ELEC 250 – Linear Circuits I

Term – Summer 2017 (201705)

Instructor

Dr. Tao Lu
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Office Hours

Days: Monday
Time: 13:30-15:30
Location: EOW 321

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 3Fphase circuits with YF and DeltaF loads.
7. Demonstrate communication skills through lab reports documenting experiential work carried out in a laboratory environment.
8. Demonstrate ability to work as member of a team documenting this through lab reports and interaction with the lab demonstrator.

Syllabus

1. Circuit analysis and design techniques. Resistors, sources, Kirchhoff's voltage and current laws. Theorems: linearity, superposition, Thevenin, Norton. Node and loop 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.
2. Introduction to first and secondorder differential equations.

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

A-Section(s): A01 / CRN 30308
Days: MR
Time: 11:30-12:50
Location: ELL 168

T-Section(s): T01/CRN 30317
Days: F
Time: 15:30-16:20
Location: ECS 125
Tutorial Instructor:

Required Text

Title: Electric Circuits (plus Mastering Engineering)
Author: J. W. Nilsson and S. A. Riedel
Publisher:Pearson (10th Edition)
Year:2015

Title: ELEC250 Linear Circuits I Laboratory Manual
Author: N. Dimopoulos and F. Gebali
Year:2016

References:

Course Web site: www.ece.uvic.ca/~elec250
login: elec250
password:will be distributed in class

Assessment:

Assignments:	10%	Due Dates: TBD
Labs	20%	
Mid-term	20%	Date: Thursday, July 10, 2017
Final Exam	46%	
Quizzes:	4%	
Pop quizzes	2%	

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.

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/calendar2017-05/general/policies.html

Policy on Inclusivity and Diversity: http://web.uvic.ca/calendar2017-05/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/calendar2017-05/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.