

## COURSE OUTLINE

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### ECE380 – Electronic Circuits II

Term – FALL 2020 (202009)

#### Instructor

Dr. Mihai SIMA  
Phone: (250) 721-8680  
E-mail: [msima@ece.uvic.ca](mailto:msima@ece.uvic.ca)

#### Office Hours

Days: Tuesday  
Time: 12:30pm – 3:30pm  
[Location/Platform/link](#): **Online / Zoom**

#### Course Objectives

- Make students understand what the design challenge is
- Show students where to look for information and how to read it
- Present analog design techniques and how to use them in the real world
- Expose students to Lab equipment and analog measurements
- Present a literature digest for the analog design domain

#### Learning Outcomes

- Generate the small-signal circuits of multiple-stage transistor-based amplifiers
- Analyze differential amplifiers with active biasing and loads
- Evaluate the frequency response of transistor-based amplifiers
- Apply the feedback theory to transistor-based amplifiers and assess its beneficial effects
- Evaluate the response of transistor-based amplifiers with negative feedback
- Evaluate the effects induced by the components' finite tolerances and temperature sensitivity
- Solve circuits with operational amplifiers
- Implement, evaluate, and troubleshoot electronic circuits in a Lab setup
- Use software tools to simulate electronic circuits

#### Syllabus

- Material review (bipolar & field-effect transistors, single-stage amplifiers)
- Large signal amplifiers; Distortion
- Frequency response of transistor amplifiers
- Current sources
- Differential amplifiers
- Negative feedback
- Ideal and non-ideal operational amplifier
- Operational amplifiers and applications
- Oscillators and timers

#### Lectures

A-Section(s): A01 / CRN 11015  
Days: Monday and Thursday  
Time: 8:30am – 9:50am  
[Location/Platform/link](#): **Online / Zoom**

#### Instructor

Mihai SIMA  
([msima@ece.uvic.ca](mailto:msima@ece.uvic.ca))

## Tutorials

A-Section(s): A01 / CRN 11015

Days: TBA

Time: TBA

Location/Platform/link: Online / Zoom

## Tutor

Ashley LUFT

(aluft@uvic.ca)

## Laboratories

B01 – CRN 11016 Monday, 1:00pm – 3:50pm

B02 – CRN 11017 Monday, 4:00pm – 6:50pm

B03 – CRN 11018 Wednesday, 1:30pm – 4:20pm

B04 – CRN 11019 Wednesday, 4:30pm – 7:20pm

B05 – CRN 11020 Friday, 1:00pm – 3:50pm

Location/Platform/link: Online / Zoom

## Lab TAs:

Anusha VENKATARAMAN (anushav@uvic.ca)

Erfan KHORRAM (erfankhorram88@gmail.com)

Sanaul HAQUE (sanaulhaque@uvic.ca)

Vahid SHIRAN (vahid.shiran1994@gmail.com)

Shahram MORADI (shahrammoradi@uvic.ca)

## Required Text

Title: ECE380 Course Notes and Lab Manual

Author: Mihai SIMA

Edition: 2019

## Optional Textbooks

Title: Analysis and Design of Analog Integrated Circuits

Authors: P. Gray, P. Hurst, S. Lewis, R. Meyer

Publisher: Wiley

Edition: 4th or 5th

Title: Microelectronic Circuits

Author: A. Sedra and K. Smith

Publisher: Oxford University Press

Edition: 7th

**References:** Course notes for ECE/ELEC 250 and ECE/ELEC 330

## 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: **LT Spice which can be downloaded from <https://www.analog.com/en/design-center/design-tools-and-calculators/ltspice-simulator.html>**

Assignments	10%	Due Dates: TBD
Quiz	5%	Date: Monday, Sept 28, 2020
Labs	20%	
Mid-term	20%	Date: Monday, Oct 26, 2020
Final Exam	45%	Date: TBD

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

**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 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](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](http://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](mailto:svpcoordinator@uvic.ca)

**Web:** [www.uvic.ca/svp](http://www.uvic.ca/svp)

**Office of the Ombudsperson:**

The [Office of the Ombudsperson](https://uvicombudsperson.ca/) 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](mailto:ombuddy@uvic.ca), Website: <https://uvicombudsperson.ca/>