

## COURSE OUTLINE

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### **ECE 365 – Applied Electronics and Electrical Machines Term-FALL 2019 (201909)**

#### **Instructor Information**

##### **Instructor (Applied Electronics)**

Dr. F. Gebali, P.Eng., Ph.D.

Phone: 250-721-6509

Email: [fayez@uvic.ca](mailto:fayez@uvic.ca)

##### **Instructor (Electrical Machines)**

Dr. T. Ilamparithi, EIT, Ph.D.

Phone: 250-721-8679

Email: [ilampari@uvic.ca](mailto:ilampari@uvic.ca)

##### **Office Hours**

Day: Tuesday

Time: Drop in or phone first

Location: EOW 433

##### **Office Hours**

Day: Thursday

Time: 2:30 to 4:30 PM

Location: EOW 407

#### **Course Website**

<http://www.ece.uvic.ca/~fayez/courses/365/>

#### **Course Objectives**

Electrical and electronics components have been an integral part of modern society for a while now. Contemporary researchers' focus on smart sensors, smart homes, smart grids, internet of things, artificial intelligence, augmented reality/ virtual reality, power walls, electric transportation systems, 3-D printing, etc. indicates that a further growth in electrical and electronics components is inevitable. Consequently, it is important for a modern engineer, be it mechanical, civil, biomedical, or software engineer, to be familiar with some of the key elements of electrical and electronics systems. ECE 365 provides an ideal opportunity for you, as an upcoming engineer, to get introduced to the foundational elements of electrical machines and electronics circuits. The primary objectives of the course are to teach the principles and analysis of electronic and electromechanical systems. You will learn the analysis techniques for predicting electric circuit performance and learn the principles and operation of electric machines.

#### **Learning Outcomes**

By enrolling in ECE 365 and actively involving yourself in the learning process, you shall be able to

1. Analyze diode circuits.
2. Analyze bipolar junction transistor (BJT) circuits.
3. Analyze metal-oxide semiconductor field-effect transistor (MOSFET) circuits.
4. Analyze & design operational amplifier (Op Amp) circuits.
5. Analyze one-phase transformers.
6. Analyze DC machines.
7. Analyze induction motors and synchronous motors.

#### **Syllabus**

##### **Applied Electronics**

Chapter 9 Diodes

Chapter 12 Bipolar Junction Transistors

Chapter 11 Field-Effect Transistors (Except Sec. 11.7: CMOS logic gates)

Chapter 13 Operational Amplifiers

##### **Electrical Machines**

Chapter 14 Magnetic Circuits and Transformers

Chapter 15 DC Machines

Chapter 16 AC Machines (Except Sec. 16.4 Single-phase motors and Sec. 16.5: Stepper & brushless dc motors)

**Lectures**

Section: A01 CRN 10963  
Days: Tue, Wed, Fri  
Time: 3:30 – 4:20 PM  
Location: Elliott Building (ELL) 168

**Laboratory**

<http://www.ece.uvic.ca/~fayez/courses/365/labs/labs.html>

**Tutorial**

Section: T01 CRN 10976  
Day: Mon  
Time: 4:00 – 4:50 PM  
Location: Elliott Building (ELL) 167

**Required Text**

A.R. Hambley “*Electrical Engineering: Principles and Applications*”, 7th Edition, Pearson, 2014.

*Note: Earlier editions are acceptable. However, homework will be assigned from 7th Edition only.*

**Assessment**

Activity	Grade
Four Labs* (2.5% each)	10 %
Four exms (20% each)	80 %
Four quizzes (2.5% each)	10 %
Total	100 %

**Note:** Failure to complete all lab 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://web.uvic.ca/calendar2019-09/undergrad/info/regulations/grading.html>

**There will be no supplemental examination for this course.**

<https://web.uvic.ca/calendar2019-09/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:**

- September 17: Withdrawal with 100% reduction of tuition fees
- October 8: Withdrawal with 50% reduction of tuition fees
- October 31: Last day for withdrawal (no fees returned)

**Accommodation of Religious Observance:**

<https://web.uvic.ca/calendar2019-09/undergrad/info/regulations/religious-observanc.html>

**Policy on Inclusivity and Diversity:**

<https://web.uvic.ca/calendar2019-09/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/calendar2019-09/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 Centre for Accessible Learning 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 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 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); Web: <https://uvicombudsperson.ca/>