University of Victoria
Faculty of Engineering | Electrical and Computer Engineering
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COURSE OUTLINE

ECE 320 Electronic Devices: I
Spring 2021 (202101)

Instructor

Dr. Chris Papadopoulos
Phone: 250-721-8619
E-mail: papadop@ece.uvic.ca

Office Hours

Day: Tuesday Time: 2:30PM – 5:00PM
(or by appointment)
Location: Zoom

Lectures

Sections: A01/CRN 20883
Days: TWF
Time: 8:30AM – 9:20AM
Location: Brightspace

Labs

B01	T	1:30PM – 4:20PM Brightspace
B02	T	1:30PM – 4:20PM Brightspace
B03	M	1:30PM – 4:20PM Brightspace
B05	R	3:30PM – 6:20PM Brightspace
B07	T	4:30PM – 7:20PM Brightspace

Website

https://bright.uvic.ca/ (NetLink ID required)

Required Texts

Modular Series on Solid State Devices, Vols. I-IV
Authors: Pierret, Neudeck
Publisher: Addison-Wesley
Edition: Second

Reference texts

Solid State Electronic Devices
Authors: Streetman, Banerjee

An Introduction to Semiconductor Devices
Author: Neamen

Solid-State Electronic Devices: An Introduction
Author: Papadopoulos

Topics

I	Review of Electrical Properties of Materials
II	Junctions and Diodes
III	Bipolar Transistors
IV	Field Effect Transistors

Assessment

Assignments	10% (Due Jan. 26; Feb. 23; Mar. 16; Mar. 30)
Labs	15%
Test	25% (Mar. 5)
Final Exam	50%

Submit all assignments via Brightspace by 5 PM. Late assignments will be accepted via email to instructor up to 3 days after the due date with a penalty of 10% per day.

Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.

All times local (Victoria, BC).

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/202101/undergrad/index.php#/policy/S1AAgoGuV?bc=true&bcCurrent=14%20-%20Grading&bcGroup=Undergraduate%20Academic%20Regulations&bcItemType=policies

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://www.uvic.ca/calendar/archives/202101/undergrad/index.php#/policy/SJ2Rxoz_N?bc=true&bcCurrent=13%20-%20Examinations&bcGroup=Undergraduate%20Academic%20Regulations&bcItemType=policies

Course Withdrawal Deadlines

- January 19, 2021: Withdrawal with 100% reduction of tuition fees (date currently under review)
- February 9, 2021: Withdrawal with 50% reduction of tuition fees (date currently under review)
- February 28, 2021: Last day for withdrawal (no fees returned)

Course Objectives and Learning Outcomes

Understand and apply principles of operation and design of modern electronic devices: (i) Equations describing device operation; (ii) Appropriate device models; (iii) Factors that determine device performance.

Syllabus

Operation and design of modern electronic devices and integrated circuit technology. Electronic properties of silicon. Charge transport and carrier dynamics. Metal-semiconductor and pn junctions. Diodes. Bipolar and field-effect transistors, including metal-oxide-semiconductor (MOS) structures. Small-signal models and equivalent circuits. Ideal and non-ideal device behaviour. Design considerations vs. performance.

Accommodation of Religious Observance

https://www.uvic.ca/calendar/archives/202101/undergrad/index.php#/policy/r1q0gofdN?bc=true&bcCurrent=10%20-%20Accommodation%20of%20Religious%20Observance&bcItemType=policies

Policy on Inclusivity and Diversity

Engineering: http://www.uvic.ca/engineering/about/equity/index.php
Academic Calendar:
https://www.uvic.ca/calendar/archives/202101/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:
http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf

Students who have issues with the conduct of the course should discuss them with the instructor. If this does not resolve the issue, students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

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/202101/undergrad/index.php#/policy/Sk_0xsM_V?bc=true&bcCurrent=08%20-%20Policy%20on%20Academic%20Integrity&bcItemType=policies

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; Web: https://uvicombudsperson.ca/

Sexualized Violence Prevention and Response at UVic:

UVic takes sexualized violence seriously and 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: Sexualized violence resource office in EQHR; Sedgewick C119; 250.721.8021; svpcoordinator@uvic.ca; www.uvic.ca/svp

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 (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, which could in some cases constitute a breach of academic integrity as defined in the UVic Calendar.