Department of Electrical and Computer Engineering

COURSE OUTLINE

ELEC 320 Electronic Devices: I
Spring 2015 (201501)

Instructor

Dr. Chris Papadopoulos
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Office Hours

Day: Tuesday Time: 2:30PM – 5:00PM
(or by appointment)
Location: EOW 429

Lectures

Sections: A01/CRN 21056, A02/CRN 21057
Days: TWF
Time: 8:30AM – 9:20AM
Location: DTB A110

Labs

B01	M	3:00PM – 5:50PM ELW A309
B02	M	3:00PM – 5:50PM ELW A309
B03	R	12:00PM – 2:50PM ELW A309
B04	R	12:00PM – 2:50PM ELW A309
B05	R	3:00PM – 5:50PM ELW A309
B06	R	3:00PM – 5:50PM ELW A309

Website

http://coursespaces.uvic.ca/ (NetLink ID required)

Required Text

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

Reference texts

Solid State Electronic Devices
Author: 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. 27; Feb. 17; Mar. 10; Mar. 24)
Labs	10%
Test	25% (Feb. 27)
Final Exam	55%

Submit all assignments directly to instructor (in-class or office by 5PM). Late assignments will be accepted 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.

The final grade obtained from the above marking scheme will be based on the following percentage-to-grade point conversion:

Passing Grades	Grade Point Value	Percentage	
A+ A A-	9 8 7	90 – 100 85 – 89 80 – 84	
B+ B B-	6 5 4	77 – 79 73 – 76 70 – 72	
C+ C	3 2	65 – 69 60 – 64	
D	1	50 – 59	
Failing Grades	**Grade Point Value**	**Percentage**	**Description**
E	0	0 – 49	Fail, conditional supplemental exam. (For undergraduate courses only)*
F	0	0 – 49	Fail, no supplemental.
N	0	0 – 49	Did not write examination, Lab or otherwise complete course requirements by the end of term or session; no supplemental exam.

**Assignment of E grade will be at the discretion of the Course Instructor.*

The rules for supplemental examinations are found on page 82 of the current 2014/15 Undergraduate Calendar.

Term in which E Grade was obtained:	Application Deadline for Supplemental Exam	Supplemental Exam Date
First term of Winter Session (Sept – Dec)	February 28 in the following term	First week of following May
Second term of Winter Session (Jan – Apr)	June 30 in the following term	First week of following September
Summer Session (May – Aug)	October 31 in the following term	First week of following January

Deferred exams will normally be written at the start of the student's next academic term; i.e., approximately 4 months following the deferral of the exam.

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 with respect to device and integrated circuit performance.

Accommodation of Religious Observance

See http://web.uvic.ca/calendar2014/GI/GUPo.html

Policy on Inclusivity and Diversity

See http://web.uvic.ca/calendar2014/GI/GUPo.html

Standards of Professional Behaviour

You are advised to read the Faculty of Engineering document Standards for Professional Behaviour at http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf which contains important information regarding conduct in courses, labs, and in the general use of facilities.

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 ECE Chair by email or the ECE Chair's secretary eceasst@uvic.ca 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 http://web.uvic.ca/calendar2014/FACS/UnIn/UARe/PoAcI.html for the UVic policy on academic integrity.