University of Victoria Engineering

Faculty of Engineering

COURSE OUTLINE

ELEC547-Electronic Devices: II

Term – SPRING 2016 (201601)

Instructor

Dr. H.L. Kwok
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Office Hours

Days: Wednesdays
Time: 15:30-17:00
Location: EOW 425

Course Objectives

This course deals with the principle of operation and design issues related to modern electronic devices. The advancement of electronics has been primarily due to the invention of new devices and it is desirable for practicing engineers to have an updated perspective and understanding on state-of-the-art electronic devices and the future trends.

Learning Outcomes

LO-1: Study the operation of advanced bipolar and field-effect transistors
SLO-1.1: Examine the state-of-the-art of advanced transistors, their performance and operation in the context of Very-Large Scale Integration Circuits
LO-2: Study the operation of novel photonic and opto-electronic devices
LO-3: Study the operation of non-conventional semiconductor devices and their future trends
LO-4: Study the principles, construction and design of semiconductor lasers and related applications
LO-5: Study the operation of state-of-the-art display devices; thin-film devices; imaging devices; energy conversion devices; transducers; and micro-machines and their interfacing

Syllabus

Topics:

- Study of the operation of bipolar and field-effect devices in VLSI deign
- Study of photonic and optoelectronic devices
- Study of organic semiconductor devices and their upcoming trends
- Study of principles, construction and design of lasers and related light sources
- Study of display devices, thin-film devices, imaging devices, transducers and micro-machines
- Study of interfacing, sensor arrays and related system-level design

A-Section(s): A01 / CRN 21189)
Days: Tuesday; Wednesday; Friday
Time: 13:30-14:20
Location: ELL 162

Required Text

Title: Electronic Materials
Author: H. Kwok
Publisher: Trans. Tech Publ.
Year: 2010

Optional Text

Title: Physics of Semiconductor Devices
Author: M.Shur
Publisher: Prentice-Hall
Year: 1990

References:

Assessment:

Assignments:	10%	Due Dates: 2 weeks after distribution
Mid-term (x2)	50%	Date: Feb.12 (Fri) and Mar.11 (Friday)
Report	10%	Due date: 1 week before end of term (no late submission will be accepted)
Final Exam	30%	

Note:

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 Graduate Calendar.

http://web.uvic.ca/calendar/GRAD/FARe/Grad.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 Secretary to set up an appointment.

Accommodation of Religious Observance
http://web.uvic.ca/calendar/GI/GUPo.html

Policy on Inclusivity and Diversity
http://web.uvic.ca/calendar/GI/GUPo.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.

http://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 Graduate Calendar for the UVic policy on academic integrity.

http://web.uvic.ca/calendar/FACS/UnIn/UARe/PoAcI.html

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.