Department of Electrical and Computer Engineering

COURSE OUTLINE

ELEC 420 Nanotechnology
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 21096, A02/CRN 21097
Days: TWF
Time: 9:30AM – 10:20AM
Location: DSB C126

Website

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

Required Text

Readings will be provided.

Reference texts

Nanoelectronics and Information Technology, Waser (Ed.), Wiley (2005).

Fundamentals of Nanoelectronics, Hanson, Pearson (2008).

Introduction to Nanoscience, Lindsay, Oxford (2010).

Topics

I Nanoscale Imaging and Fabrication
II Properties of Nanostructures

III Nanoelectronics
IV Nanophotonics
V Bionanotechnology

Assessment

Tests	15; 20% (Take home, due Feb. 17; Mar. 17)
Term Paper	40% (Due April 2)
Final Exam	25%

Submit all work directly to instructor (in-class or office by 5PM). Term papers will not be accepted after the due date.

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 properties of nanoscale materials and tools used to create/characterize them. Examine and apply this knowledge to applications based on nanostructures.

Syllabus

Nanoscale materials and devices. Techniques and tools of nanostructure fabrication and characterization. Properties of low-dimensional materials. Semiconductor nanostructures, metallic nanoparticles, carbon nanotubes, organic molecules, quantum dots. Applications including nanoelectronics and molecular devices, biotechnology, nanoscale computation, nanomechanical devices and nanophotonics.

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.