

ENG PHYS 4X03
Introduction to Photovoltaics
Fall2017
Course Outline

INSTRUCTOR

Dr. Adrian Kitai
ABB 140
kitaia@mcmaster.ca
ext. 27862

TA: Phillip Pastolero

LECTURES:

Tues, Thurs, Fri 11:30am-12:20pm JHEA101

ASSIGNMENTS: 4-5 assignments

MIDTERM TEST: One test

PROJECTS

FINAL EXAM

COURSE OBJECTIVES

By the end of the course, a successful student will be able to:

- Understand the principles of operation of p-n junction solar cells
- Understand fundamentals of light and its interaction with semiconductors
- Understand a range of solar cell technologies in both bulk and thin film devices
- Draft novel ideas related to photovoltaics into a format suitable for IP protection
- Critically analyse the validity of novel ideas relating to photovoltaics

MATERIALS

Recommended Text:

Principles of Solar Cells, LEDs and Diodes, A. H. Kitai, Wiley.

ASSESSMENT

GRADING:

Final grade is evaluated as follows:

Assignments 10%. There will be 4-5 assignments.

Assignment take-up 10%. Each student will present the solution to one homework problem to the class using PowerPoint. 5-10 minute duration at the beginning of classes.

Midterm test 15%.

Research Presentation 15%. Selected photovoltaic topics will be researched and then presented in class using PowerPoint slides. Format to be discussed in class.

IP and IP critique 15%. You will be required to create/invent/propose a novel concept in PV of potential commercial value and will be asked to present this in the form of a patent draft. Your draft will be reviewed. The revised document will be critiqued by other students. Format to be discussed in class.

Final exam 35%

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <http://www.mcmaster.ca/academicintegrity>

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

ACADEMIC ACCOMMODATIONS

Students who require academic accommodation must contact Student accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contact by phone at 905.525.9140 ext. 28652 or e-mail at sas@mcmaster.ca. For further information, consult McMaster University's Policy for [Academic Accommodation of Students with Disabilities](#).

NOTIFICATION OF STUDENT ABSENCE AND SUBMISSION OF REQUEST FOR RELIEF FOR MISSED ACADEMIC WORK

1. The [McMaster Student Absence Form](#) is a self-reporting tool for Undergraduate Students to report absences DUE TO MINOR MEDICAL SITUATIONS that last up to 3 days and provides the ability to request accommodation for any missed academic work. Please note this tool cannot be used during any final examination period.
2. You may submit a maximum of 1 Academic Work Missed request per term. It is YOUR responsibility to follow up with your Instructor immediately (NORMALLY WITHIN TWO WORKING DAYS) regarding the nature of the accommodation. Relief for missed academic work is not guaranteed.
3. If you are absent for reasons other than medical reasons, for more than 3 days, or exceed 1 request per term you MUST visit the Associate Dean's Office (JHE/H301). You may be required to provide supporting documentation.

4. This form must be submitted during the period of absence or the following day, and is only valid for academic work missed during this period of absence.
5. It is the prerogative of the instructor of the course to determine the appropriate relief for missed term work in his/her course.
6. You should expect to have academic commitments Monday through Saturday but not on Sunday or statutory holidays. If you require an accommodation to meet a religious obligation or to celebrate an important religious holiday, you may submit the Academic Accommodation for Religious, Indigenous and Spiritual Observances (RISO) Form to the Associate Dean's Office. You can find all paperwork needed here: <http://www.eng.mcmaster.ca/current/documents.html>

NOTICE REGARDING POSSIBLE COURSE MODIFICATION
--

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.