EECS 598-001
Solar Cell Device Physics
Winter 2013
(3 credit hours)

Solar energy provides a renewable and environmentally friendly source for electricity generation. While photovoltaic cells are currently experiencing tremendous growth, there are still major barriers in improving efficiency and reducing cost in order to achieve "grid parity" where solar power becomes a cost competitive energy source. This course will focus on the physical operation of diode solar cell devices, and detailed analysis of factors that determine the ultimate power conversion efficiency. Topics of study will include internal quantum efficiency of solar cell materials, diode device structures, light management, and current and future solar cell technologies.

PRE-REQUISITES: EECS 421 or graduate standing. Previous knowledge of semiconductor physics is essential for the course.

COURSE FACULTY: Jamie Phillips (jphilli@umich.edu; 764-4157)

CLASS MEETINGS: Mondays and Wednesdays, 1008 EECS

COURSE TEXT: *The Physics of Solar Cells*, Jenny Nelson, Imperial College Press, 2003. ISBN: 978-1-86094-340-9

GRADING: Grades for the course will be assigned based on performance on homework, paper and presentation on a research topic, and exams.

Homework	**30%**
Research paper/presentation	**10%**
Midterm Exam	**25%**
Final Exam	**35%**