Syllabus for ECE 464, Power Electronics  
Fall Semester, 2018

Instructor: Prof. Arijit Banerjee, arijit@illinois.edu
Instructor Office Hours: Room 4042 ECE Building, Mondays 1 pm-2 pm, or by appointment
Course Secretary: Robin Smith, rsmith@illinois.edu
Course TA 1: Sergio Silva, Mondays 5:00-7:00 pm, Room 4034 ECE Building
Course TA 2: Shivang Agrawal, Tuesdays 5:00-7:00 pm, Room 4036 ECE Building
Lectures: MW 8:30-9:50 am, 2017 ECE Building
Course Website: http://courses.engr.illinois.edu/ece464
Piazza: http://piazza.com/illinois/fall2018/ece464
Prerequisite: Electronic Circuits (ECE 442/342)

Purpose: To learn fundamentals of electronics for electrical energy processing, and applications to renewable and alternative energy.

Course Structure:

Part One
Energy conversion and the future, switch circuit analysis, measures of quality, basic dc-dc converters

Part Two
Advanced dc-dc converters, rectifiers, inverters, and applications

Part Three
Real sources and loads, passive components, control of converters

Exams: Exam 1 is scheduled for Monday, October 1st, at 7:00 pm (No time limit). Exam 2 is scheduled for Monday, November 5th, at 7:00 pm (No time limit). The final exam is TBD (please check Course Explorer) and will include all material of the course. For exam 1, you are allowed one sheet of notes. For exam 2, you are allowed two sheets of notes. For final exam, you are allowed three sheets of notes. No calculators are allowed (or needed).

Written Assignments: Written assignments are due on Wednesdays as you enter class. Late work is subject to a penalty of 10% per day, except that assignments turned in after the solution is posted will not receive credit. The lowest score on one homework will be dropped from your homework grade.

Field Trip: We will visit an industrial site on November 9th, 2018. The tentative schedule for the day is:
Start from Champaign at 7:30 am (CT)
Reach Kokomo by 11:30 am (ET)
Leave Kokomo at 4:30 pm (ET)
Back to campus by 6:30 pm (CT)

Please plan ahead to ensure your schedule allows you to make this field-trip. You will have opportunity to discuss “real-world” power electronics with practicing engineers. There might also be a homework problem/question related to this field trip!

Grading:
Grading is on an absolute scale. You are compared against a performance standard, not to other students. Weightings are as follows:

Homeworks, other assignments, class participation: 20%
Test #1 25%
Test #2 25%
Final Examination 30%
The plus and minus system will be used, and grades are assigned on an absolute scale as follows:

A  88% and up  (A- 88-90%)
B  78% to 87% (B + 85-87%,  B- 78-80%)
C  67% to 77% ( C+ 75-77%,  C- 67-69%)
D  55% to 66% (D + 64-66%,  D- 55-57%)

I reserve the right to adjust these numbers downward (in student’s favor) but they are guaranteed maximums and will not be raised.