ECE 4653/6653 **INTRODUCTION TO POWER ELECTRONICS** SPRING 2014

MW 1530-1645 Room Simrall 106

Textbooks: Ned Mohan, *First Course on Power Electronics*, 2009 or 2011 Edition.

References: *MATLAB, The Language of Technical Computing*, The Math Works, Version 5, 1997 (or any recent similar user reference for MATLAB).

Roy W. Goody, *PSPICE for Windows a Circuit Simulation Primer*, Prentice Hall, 1995 (or any recent similar user reference for PSPICE).

Marty Brown, *Power Supply Cookbook*, Butterworth-Heinemann, 1994.

Dean Frederick and Joe Chow, *Feedback Control Problems Using MATLAB and the Control System Toolbox*, PWS, 1995.

Software: MATLAB Student Version R2007 or later
PSPICE Student Version 9.1 or later

Grading:

Comprehension Quizzes	20%
Lab #1 (Magnetics)	10%
Lab #2 (Power Poles/PCBs)	10%
Lab #3 (Switching/EMI)	10%
Class Project	50%
TOTAL	100%

Instructor: Prof. Michael Mazzola, Office: S241, email: mazzola@ece.msstate.edu

Attendance Policy: Attendance is strongly encouraged, but not required. Course content can be accessed by video for all students on or off campus.

Comprehension Quizzes: Comprehension and mastery of concepts is one goal of higher education. In a first course that is broad based, it is likely that most students will not have fully mastered many of the concepts by the end of the semester. This is normal, because an individual's understanding of knowledge is subject to growth and maturity over time. Instead, students may find years from now they are becoming truly comfortable with their understanding of key ideas and concepts. However, it is important for the student to gain a comprehension of concepts at least at a topical level so a foundation for future intellectual growth can occur. To reflect my expectation, I will give a large number of simple quizzes throughout the semester to encourage students:

(1) To read the assignment given by email ahead of the day's lecture.
(2) To pay attention in class, take notes, and ask questions without reservation.
(3) To feel rewarded for making progress, rather than "cram and forget" learning.

There will be NO formal in-class tests during the semester. The class will meet during the scheduled final exam period for the purpose of collecting the Class Project.

Comprehensive Quiz Policy: All "CQ's" will be open book, open notes unless otherwise noted. On-campus and distance learning students will receive the quiz by email and return it to the instructor by email or in person (time limits apply). There will be no make up CQ's given for any reason (sorry); however, two CQ's during the semester will be dropped from consideration in calculating the student's final grade.

Structured Labs: In lieu of some canceled lecture periods, the class will participate individually in three structured laboratory exercises *outside* of the scheduled class period. These will be scheduled throughout the semester in lab space in the Vehicle Electronics Laboratory in the Center for Advanced Vehicular Systems (CAVS) located in the Thad Cochran Research and Technology Park across Highway 182 from campus. Some preparatory work will be required. Distance learning students will participate fully in the laboratory experience by direct communication with the instructor and the teaching assistant (i.e., email, phone, web meetings, etc.). Distance learning students will be *required* to complete their labs using facilities local to the student and identified by each student. If such facilities cannot be located, special arrangements may be made by the instructor on a case-by-case basis.

Class Project: After midterm, the class will be assigned a common project that will be tackled by each student. The details of the assignment and the criteria for evaluation will be presented at assignment. Each student's class project submission will be turned in no later than the end of the period the university has scheduled for a final examination for this course. All students are expected to individually complete (including distance learning students) the final project as assigned in order to receive full credit for the purpose of computing a grade.

Final Project Examination: Friday, May 2, 2014, 3-6 PM.

Honor Code: ***"As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."***
Upon accepting admission to Mississippi State University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor Code. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the MSU community from the requirements or the processes of the Honor Code. For additional information please visit: **http://www.msstate.edu/dept/audit/1207.html .**