

ECE471 INDUSTRIAL POWER SYSTEMS

Course Outline

Instructor: Dr. Cliff Grigg
Office: D206
Phone: Ext. 8333 (campus) 299-4525 (home)
Recommended Texts: Electrical Systems in Buildings - S. David Hughes
Industrial Power Systems - Shoaib Khan

Webpage: <http://www.rose-hulman.edu/class/ee/HTML/ECE471>

Grading: Grades will be assigned according to the following schedule:

90 - 100	A		
85 - 90	B+		
80 - 85	B	3 x100 min. tests	60 (20 each)
75 - 80	C+	Course Project	30
70 - 75	C	<u>Homework</u>	<u>10</u>
65 - 70	D+	Total	100
60 - 65	D		
Below 60	F		

Attendance: All students are expected to attend **all** lectures unless they have a valid reason for absence. Illness is not an acceptable reason for absence (or missing a test) unless accompanied by medical certification. Work missed (including tests) due to unauthorized absence may not be made-up. Tests missed due to authorized absence will be made-up by the final exam grade. All students are required to complete the course project and turn-in an acceptable final report, failure to do so will result in failing the course.

Honor Code: Both tests and the final exam must be the student's own work. Failure to comply with this requirement will result in an automatic course failure for all parties concerned, and recommendation for further disciplinary action. **NO SECOND CHANCES.** Students are encouraged to do homework together and to study together, bear in mind that outright copying of homework solutions is counter-productive to learning the material.

Tests and Exams: You will be permitted to use all personal notes written in your own handwriting (but not homework solutions or textbooks) during the tests and the final exam. However, no time will be allocated for referring to notes etc. In other words, you should prepare for tests as though they were closed-book so that you can finish on-time; reference material should only be a back-up. Laptop computers that are not networked can be used.

Course Orientation: This course is design-oriented. You will find that the exercises are mainly based on application and as such will be directed towards a workplace setting; this means that ***the quality of your presented work is extremely important.*** The criteria I will use for grading work is very simple, I will assume we are in one of the following situations:

- You are interviewing for a job and I am the recruiter, you are presenting a sample of your work for consideration.
- You are in your first job in industry and I am your supervisor, you are coming up for your first performance review that will determine your pay increase.

ECE471 Industrial Power Systems
Winter 2010 – 2011
Course Schedule

Date	Class Material	Assignment
November 30	Introduction to System Planning & Design. Review of Power Circuit Theory.	
December 2	Introduction to System Planning & Design Continued. Review of Motors.	
December 7	Branch and Feeder Design. Example Project Specifications.	
December 9	Course Project Specifications. Introduction to PTW Software.	Assignment 1 due
December 14	Visit Danisco Plant.	
December 16	Fault Calculations (single-phase & three-phase). Work on the Example Project.	Assignment 2 due
January 4	Circuit Breaker Sizing. Load Flow Analysis.	
January 6	Work on the Example Project. Work on the Course Project.	Assignment 3 due
January 11	Symmetrical Components. Unbalanced Fault Analysis.	
January 13	Test 1.	Assignment 4 due
January 18	Application of Fuses. Fault Analysis by PTW Software.	
January 20	Manual Coordination of Relays. Protection Coordination by PTW Software.	1 st Submittal for project
January 25	Work on the Example Project (Faults). Work on the Example Project (Coordination).	
January 27	Grounding & Ground Faults. Complete the Example Project.	Assignment 5 due
February 1	Distorted Waveshapes and Power Quality. Harmonics by PTW Software.	2 nd Submittal for project
February 3	Test 2.	Assignment 6 due
February 8	Possible Second Plant Visit.	
February 10	Work on Course Project. Tour HMU to see typical building facilities.	3 rd Submittal for project
February 15	Work on Course Project.	Assignment 7 due
February 17	Test 3.	Project report due during Exam Week