EE 5309 - 004: Introduction to Pulsed Power
Fall 2014

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> You are always welcome to email me, call me, or come by my lab. I am happy to help whenever I can

Section Information: EE 5309 - 004

Time and Place of Class Meetings: Tuesday and Thursday from 12:30 – 1:50 in ELB 226

Description of Course Content:
1. High Voltage Generators – 7 hours
2. Pulse forming lines and Pulse forming networks – 7 hours
3. Inductive Store Systems – 6 hours
4. Closing and Opening Switches – 6 hours
5. Flux compression generators– 1 hours
6. Diagnostics – 6 hours
7. Applications – 6 hours

Student Learning Outcomes:
Upon completion of this course students should be able to design pulsed power circuits, design pulse forming lines and high voltage switches, use Spice circuit simulator to solve various pulsed power circuits, understand the role materials plays in pulsed power, effectively use methods of grounding and shielding for pulse power testing, design diagnostics for the measurement of pulse power signals, and understand the applications of pulsed power technology.

Required Textbooks and Other Course Materials: None are required though the following are used and are good references:

Pulsed Power Systems
H. Bluhm
ISBN: 3540261370
~$145

JC Martin on Pulsed Power
J.C. Martin
ISBN: 0306453029
~$350

Introduction to High Power Pulse Technology
S.T. Pai and Qi Zhang

ISBN: 9810217145
~$50

Pulsed Power
Gennady Mesyats
ISBN: 0306486539
~$225

Descriptions of major assignments and examinations: There will be roughly 5 short homework assignments, three midterm projects, and one final project. The majority of the projects and homework will involve designing some sort of pulsed power system component and simulating it using computer aided tools. They are meant to help you learn not make you cry so they will not be terribly difficult.

Attendance: I would like for all of you to try to attend every lecture though I understand when things come up. Let me know if you are not going to make it or talk to me before the next class to see what you missed.

Other Requirements: [If relevant, insert special requirements such as specific and course prerequisites, out-of-class meetings, etc. It is *especially* important to let students know if there are any attendance requirements that go beyond regular class meetings so that those with other responsibilities (family, work, other courses) can plan accordingly.]

Grading:

HW (~five)	25% (5% each)
Projects (~three)	45% (15% each)
Final Project	30%
Course grade	100%

100-90 = A; 89-80 = B; 79-70 = C; 69-60 = D; 59-0 = F

Expectations for Out-of-Class Study:
A general rule of thumb is this: for every credit hour earned, a student should spend 3 hours per week working outside of class. Hence, a 3-credit course might have a minimum expectation of 9 hours of reading, study, etc.

Make-up Exams: Shouldn't be an issue

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current graduate catalog.

It is the obligation of the student, in attempting to resolve any student grievance regarding grades, first to make a serious effort to resolve the matter with the instructor with whom the grievance originated. Individual instructors retain primary responsibility for assigning grades. The instructor's judgment is final unless compelling evidence shows preferential treatment or procedural irregularities. If students wish to appeal, their requests must be submitted in writing on an Academic Grievance Form available in departmental or program offices to the department chair or program director. Before considering a grievance, the department chair

or program director will refer the issue to a departmental or program committee of graduate faculty. If the committee cannot reach a decision acceptable to the parties involved, the department chair or program director will issue a decision on the grievance. If students are dissatisfied with the chair or director's decision, they may appeal the case to the academic dean. If they are dissatisfied with the academic dean's decision, they may appeal it to the Dean of Graduate Studies. Students have one year from the day grades are posted to initiate a grievance concerning a grade.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/ses/fao).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring,

major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Lab Safety Training: **Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities.** Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., through the following August) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located on the laboratory door. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no

instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Course Schedule.
When homework assignments are assigned, you will have one week to complete them. I will try to give at least 1.5 to 2 weeks for all project assignments. I am flexible and will work with the class on schedule so long as everyone is learning and not abusing this.

Library:
The Library's website address is http://www.uta.edu/library.

The following is a list of commonly used library resources:

Library Home Page .... http://www.uta.edu/library

Subject Guides .... http://libguides.uta.edu

Subject Librarians.................. http://www-test.uta.edu/library/help/subject-librarians.php

Database List .... http://www-test.uta.edu/library/databases/index.php

Course Reserves................... http://pulse.uta.edu/vwebv/enterCourseReserve.do

Library Catalog .... http://discover.uta.edu/

E-Journals http://utalink.uta.edu:9003/UTAlink/az

Library Tutorials .... http://www.uta.edu/library/help/tutorials.php

Connecting from Off- Campus http://libguides.uta.edu/offcampus

Ask A Librarian .... http://ask.uta.edu