

## COURSE SYLLABUS

### EE 5309— Introduction to Pulsed Power (3 Hrs.) Spring 2011

Description: Fundamentals of pulsed power circuits, components, and systems. Pulse forming lines, energy storage, voltage multipliers, switching, materials, grounding and shielding, measurements, and applications.

Prerequisites: EE 2307

Textbook: None are Required though the following 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

Objectives: 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.

Topics (Time is estimated):

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

Class lectures: Lectures will be made up of power point presentations and notes written on the board.

Class Schedule: NH 203, 4:00 to 5:20 PM, MW

Office Hours: Monday and Wednesday 1:00 to 3:30 PM  
537 Nedderman Hall or 131 Nedderman Hall  
This is not the only time I am available. Stop by anytime!

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Instructor: Dr. David Wetz  
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**Course Grade Determination:**

HW (~five)	15%
Projects (~three)	45%
Final Project	<u>40%</u>
Course grade	100%
100-90 = A; 89-80 = B; 79-70 = C; 69-60 = D; 59-0 = F	

**Projects:** Projects will be assigned throughout the semester with at least two weeks between assignment and due date. Final Project is due by 4:00PM the day the class final is scheduled

**Attendance Policy:**

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.

**Drop Policy:**

Refer to university drop policy.

**Grade Grievance Policy:**

Refer to catalog.

**Other Good References:**

*Gas Discharge Physics*, Raizer, Y. P. and Raizer, I. P., Springer Verlag, 1991.

*Field and Wave Electromagnetics*, Cheng, David. Addison Wesley, 1992.

*High Voltage Engineering Fundamentals*, Kuffel, E., Zaengl, W., and Kuffel, J., Newnes, 2000.

**Academic Integrity:**

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents' Rules and Regulations, Series 50101, Section 2.2)

**ADA Statement:**

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled Americans with Disabilities Act (ADA), pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

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As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability). Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

**Student Assistance:**

The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.