EECE 7226 - Spring 2020
http://ece.neu.edu/~abur/7226.html

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Grading:

Exams (2) 70 % (35 % each)

Homework 5 %

Term Project 25 %

Course Description: The course presents computer modeling of linear and nonlinear power system components to be used in transient studies. Methods of digital simulation of power systems operating in the steady-state and transient conditions will be covered. Use of the Alternative Transients Program (ATP) for design and analysis of power systems will also be discussed. Students will be requested to carry out a term project and deliver a presentation about its outcome. Familiarity with basic Matlab functions is helpful.

References: There is no textbook for the course. ``EMTP Theory Book'' by Prof. H. Dommel is recommended, but not required. Research papers and notes will be given out to supplement this reference.

Recommended Background: EECE 5682 (Power System Analysis) or equivalent, linear algebra, programming in Matlab.

Student Accommodations

Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit http://www.northeastern.edu/drc/getting-started-with-the-drc/.

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Course Outline

Week	Topics
1. Jan. 06	Introduction to Transients, Short Circuits, Fault Clearing
2. Jan. 13	Resistance, Load and Capacitor Switching Transients
3. Jan. 20	Three Phase Systems: Modeling
4. Jan. 27	Three Phase Systems: Network Analysis
5. Feb. 03	Numerical Solution of Ordinary Differential Equations
6. Feb. 10	Discrete Time Models of R,L,C Elements and 1-Phase Lines
7. Feb. 17	Traveling Waves and Transmission Line Modeling
8. Feb. 24	Transmission Line Parameters, Conductor Bundling
9. Mar. 02	**SPRING BREAK**
March 12	**EXAM NO.1**
10. Mar. 09	Modal Analysis of Transmission Lines
11. Mar. 16	Distributed but Constant Parameter Line Models
12. Mar. 23	Frequency Dependent Line Models
13. Mar. 30	Modeling Nonlinear Elements
14. Apr. 06	Modeling and Simulation of Linear Control Systems
Apr. 09	**EXAM NO.2**
15. Apr. 14	Presentations of Term Projects