The University of Texas at El Paso

Department of Electrical and Computer Engineering

EE 4395/5390 – Special Topics: Power System Analysis I

Fall 2022

Course Description

This course is an introduction of power system analysis in steady-state conditions. It covers the representation of power system components for analysis studies, transmission line parameters, steady-state operations, power flow analysis and numerical methods.

Course Information

Class Time: TR 1:30-2:50 pm, August 22 - December 1, 2022

Location: Education Building 318

Final Exam Time: 1:00 pm – 3:45 pm on Thursday, December 8th.

Instructor Information

Instructor: Yuanrui Sang, Ph.D.

Email: ysang@utep.edu

Phone: (915) 747-6632

Office: Engineering Building, Room A-334

Office Hours: 3:00-4:00 PM on Tuesdays

Course Materials

Textbook: Power System Analysis and Design, 7th Edition.
Authors: J. Duncan Glover, Mulukutla S. Sarma, Thomas Overbye, Adam Birchfield.
Publisher: Cengage Learning, Inc.

Course Outcomes

The goal of this course is to provide students with a complete overview of interconnected electric power systems and their operations. This further includes an understanding of the principles, modeling, analysis, operation, and control of electric power systems. Students completing Power System Analysis course will have:

- Ability to calculate electric power system parameters in per unit format and, then use this format to analyze power system.
- Ability to develop appropriate models for a power system, and know how to formulate and solve Power Flow problem to calculate the state of power systems.
- Ability to calculate parameters of transmission lines, given line configuration and conductor data.
- Ability to perform analysis of transmission lines in steady-state operation.

Topic Covered in this Course

1. An introduction to power systems and the PowerWorld Simulator
2. Power system fundamentals
3. Power transformers
4. Transmission line parameters
5. The steady-state operation of transmission lines
6. Power flows

Grading Policy

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
< 60	F

For EE 4395:

Homework: 35% in total. If for some reason you cannot finish the homework on the due date, the grade will be reduced proportionately to the days passed after the due date (10% off for each day passed).

Two exams: 20% each.

One course project: 15%.

Attendance: 10%.

For EE 5390:

Homework: 30% in total. If for some reason you cannot finish the homework on the due date, the grade will be reduced proportionately to the days passed after the due date (10% off for each day passed).

Two exams: 20% each.

Two course projects: 10% each.

Attendance: 10%.

Policy on Scholastic Dishonesty

Students are expected to be above reproach in all scholastic activities. Students who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the university. Scholastic dishonesty includes but is not limited to reproducing test or quiz materials from memory, copy/paste, cheating, plagiarism, collusion, the submission for credit or any work or materials that are attributable in whole or in part to another person, taking an examination for another person, and any act designed to give unfair advantage to a student or the attempt to commit such acts. Regents' Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22. See detailed procedure in the Handbook of Operating Procedures (HOP) available in the Office of the Dean of Students.

Policy on Accommodations

If you have a condition, which may affect your ability to perform successfully in this course, you are encouraged to discuss this in confidence with the instructor and/or the director of the Disabled Student Services. Written guidelines r/t accommodations from The Center for Accommodations and Support Services (CASS) must be submitted to the course manager in two weeks after the start of the course. If you have a disability and need classroom accommodations, please contact CASS at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass. *CASS' Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.*

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