Stevens Institute of Technology
Electrical and Computer Engineering Department
Syllabus
EE 589, Introduction to Power Engineering

Semester:	**Course Schedule:**
Sp 2025 Jan 21 to May 07, 2024	Thursday 6:00 PM – 8:30 PM (EST) Course Canvas Address: https://sit.instructure.com/courses/69875 Prerequisite/Corequisite/Cross-Listed Courses—None Credits/Contact Hours—3/3
Instructor and Contact Information:	**Office Hours:**
Dr. Raziq Yaqub Dr.raziq@gmail.com (*I check it more frequently*) Or ryaqub@stevens.edu, dr.raziq@gmail.com +1-908-319-8422 (https://www.linkedin.com/in/dyaqub/)	Monday 10:00 AM (Eastern time) until 01:00 PM For any other times, I can set up a Zoom/phone call. Please contact me to schedule a meeting. Class Website: Access through Canvas

Overview:

Interconnected Systems, Review of Basic Concepts (including real and reactive power flow, single/three-phase circuits), Transformers and PU System, Electrical Motors and Generators, High Voltage AC Transmission, High Voltage DC Transmission, Power Distribution, Regulation and Stability in Power Systems, Short Circuit Studies, Load Flow Calculation, Fault Analysis, Transient Analysis, and Protection (Note Depending on time, we may not be able to cover all the contents)

Introduction to the Course

- Challenging and comprehensive course.
- Quiz at the end of every class, and three term exams.
- All lecture notes and assignments will be available on the Canvas course website.
- Weekly live synchronous Zoom lectures will be recorded and stored.
- The course calendar is located at the end of this syllabus. It is subject to changes.
- Homework is assigned weekly. The submission due date will be a week from the date of the assignment.
- Homework submission is through the Canvas

- Please sign/upload on Canvas the Ethical Statement provided at the end. Contact me if you have questions.

Learning Goals

To make students understand AC Power and DC Power Generation, Transmission, Distribution, and Consumption, including the system equipment, such as Transformers, Electrical Machines, and Protection Devices. Also, make the students understand Voltage Regulation and Stability, Short Circuit Studies, and Fault Analysis. Further, to make students capable of getting a successful career, getting a leadership role, and contributing to economic development.

The students will be able to explain Power Systems, including Interconnected Systems, AC Power, Single Phase and Three phase, Transformer Model, Single Phase, Three Phase, and PU System, Electrical Machines, Generators and Motors, Transmission Lines, Voltage Regulation, and Stability in Power Systems, Short Circuit Studies.

Pedagogy

- The course comprises weekly live synchronous lectures delivered via Zoom
- Lectures will be posted on the Canvas after the delivery of the lecture
- There will be Chapter Review Questions (CRQ) at the end of every lecture

Textbook

Power Systems, By Ned Mohan, ISBN No. 0-9715292-7-2

Power System Analysis and Design, by J.D. Glover, M.S. Sarma, and T. Overbye, Cengage Learning. ISBN No. 1305632133

Required Reading

Chapters in the course textbook.

Additional Reading

Power System Analysis and Design, 5th Edition, By J. Duncan Glover and Mulukutla S. Sarma, ISBN-13:978-1111425777

Electrical Power Systems, By P.S.R. Murty and Butterworth-Heinemann, ISBN No. 9780081012451

Assignments

Weekly comprehensive homework assignments

Home Assignment Rules, Mid Term/Final Exam Rules, Grading Procedure, etc., will be explained in the Zero Lecture (the first day of class) in deep detail. The zero lecture is very important to attend, as it will explain housekeeping, logistics, objectives, mutual expectations, course overview, course format, professor's introduction and professor's teaching philosophy, etc.

Grading

Letter Grade	Numerical Grade
A	90 and above
B	80 to 89
C	70 to 79
D	60 to 69
F	Below 60

Grading Procedure

Grades will be based on:	
Term tests	70%
Writing a Critique on a given Article	10%
Homework	15%
CRQ (Chapter Review Questions)	15%
Extra Credit	15%

Ethical Conduct

The following statement is printed in the Stevens Graduate Catalog and applies to all students taking Stevens courses, on and off campus.

"Cheating during in-class tests or take-home examinations or homework is, of course, illegal and immoral. A Graduate Academic Evaluation Board exists to investigate academic improprieties, conduct hearings, and determine any necessary actions. The term 'academic impropriety' is meant to include, but is not limited to, cheating on homework, during in-class or take-home examinations, and plagiarism.

Consequences of academic impropriety are severe, ranging from receiving an "F" in a course, to a warning from the Dean of the Graduate School, which becomes a part of the permanent student record, to expulsion.

Reference *The Graduate Student Handbook, Academic Year 2003-2004 Stevens Institute of Technology, page 10.*

Consistent with the above statements, all homework exercises, tests, and exams that are designated as individual assignments MUST contain the following signed statement before they can be accepted for grading.

I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination. I further pledge that I have not copied any material from a book, article, the Internet or any other source except where I have expressly cited the source.

Signature _____ Date_____

Course/Teacher Evaluation

Continuous improvement can only occur with feedback based on comprehensive and appropriate surveys. Your feedback is an important contributor to decisions to modify course content/pedagogy, which is why we strive for 100% class participation in the survey.
All course teacher evaluations are conducted online. You will receive an e-mail one week prior to the end of the course informing you that the survey site (https://www.stevens.edu/assess) is open, along with instructions for accessing the site. Log in using your myStevens (email) username and password. This is the same username and password you use for Canvas. Simply click on the course that you wish to evaluate and enter the information. All responses are strictly anonymous. We especially encourage you to clarify your position on any of the questions and give explicit feedback on your overall evaluations in the section at the end of the formal survey, which allows for written comments. We ask that you submit your survey prior to the last class.

Course Schedule

Date	**Lecture No.**	**Plan**	**Topic**
Wk-1	Lecture 0	First Class	Grasp the bigger picture of Power Systems Know the value of Interconnected Systems
Wk-2	Lectures 01 & 02		Critically review the Fundamental Concepts of Electrical Engineering applicable to high-voltage systems. Understand the AC Power Single Phase, and learn how it differs from DC Power.
Wk-3	Lectures 03 & 04		Understand the 3-Phase AC Power, and learn how it differs from Single Phase AC Power.
Wk-4	Lectures 05 & 06		Evaluate Transformer Model and calculate transformer parameters in PU System.
Wk-5		Test-1	
Wk-6		Test Review	
Wk-7	Lectures 07 & 08		Examine Single Phase and Three Phase Transformers, and learn different types and applications of transformers.
Wk-8	Lectures 09 & 10		Understand the principal and laws governing the operation of Electrical Machines (Generators)
Wk-9	Lectures 11 & 12		AC Transmission
Wk-10		Test-2	
Wk-11		Test Review	
Wk-12			Thanksgiving Recess.
Wk-13	Lectures 13 & 14		Grasp the knowledge about Distribution Systems, and their types.
Wk-14	Lectures 15	Last Class	Renewable Energies
Wk-15		Test-3 (Final)	
Depending on our speed, we may or may not be able to cover the designed course.			