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PTEC 500

Fundamentals of Overhead Transmission Line Design

Siemens Power Academy TD - NA • usa.siemens.com/pti-education

At a glance

The **Fundamentals of Overhead Transmission Line Design** course provides participants with a fundamental understanding of the electrical and mechanical design of AC 69-765 kV transmission lines.

In **PTEC 500** participants gain an understanding of the overhead line theory and application, including planning, design, construction, operation and maintenance. Explore:

- Overhead line design, including components, ROW, major considerations and constraints
- Typical tasks related to overhead line planning, design and construction
- Considerations in appropriate route selection, environmental licensing and impact mitigation
- NESC loading and strength design criteria
- Conductors including steady-state, transient and dynamic thermal ratings, technical-economical selection, and bundling
- Catenary conditions, variations and calculations
- Electric field characterization, sources, management and mitigation
- Corona effects, including audible noise, radio and TV interference
- Magnetic field sources, formulas, management and mitigation
- Electromagnetic compatibility between OHTL and nearby facilities
- Basic concepts of structures and foundations
- Materials and design specifications of insulators, hardware and accessories
- Voltage stresses (steady state, temporary and transient overvoltages)
- Insulation coordination methods, characteristics and requirements
- Overhead line electrical parameters, including line series impedance and line shunt admittance
- Thermal uprating and voltage upgrading, including techniques and economic feasibility analysis.

Upon completion of this course, participants will better understand how transmission lines are designed and how they fit into an integrated power system design.

Prerequisites

The structure of the course is intended for engineers needing an overview of the important aspects and applications of transmission lines.

Course structure

This is a four-and-one-half-day course. Material is presented in both morning and afternoon sessions for a total of six hours of daily instruction. Standard course hours are 9:00 a.m. to 4:00 p.m. each day, except the last day, which concludes at noon.

To view the PTEC 500 Course Schedule on the web:

https://siemens.coursewebs.com/cart/pageCourseInfo.aspx?Course_ID=PTEC_500

Instructors

All courses offered through Siemens Power Academy are developed and taught by leading industry engineers. In addition to their proven instructional ability, our engineers have advanced degrees complemented by first-hand knowledge and experience solving power system problems throughout the world.

Continuing Education Units (CEUs), Professional Development Hours (PDHs):

Licensed engineers, on a voluntary or mandated basis, attend continuing professional education for licensure renewal to ensure competency. All courses offered through Siemens Power Academy meet the requirements for CEUs and PDHs.

- Continuing Education Units (CEUs) are the nationally recognized units for recording participation in professional development and noncredit educational programs. Participants completing this course will be awarded CEUs based on the instructional hours of the course: one CEU is awarded for 10 classroom hours of instruction.
- Professional Development Hours (PDHs) – Continuing education training for the Professional Engineer (PE) – that needs to earn annual Professional Development Hours (PDHs). Through our instructor-led training, participants earn one PDH for each one hour of instruction. The participant is responsible for maintaining records of courses taken in support of licensure.

Client site and custom training

All courses are available for presentation at any client's location by special arrangement. At client sites, it is recommended that sufficient computer terminals be available to enable a fully interactive and productive class, if applicable. Client site courses can also be tailored to address specific topics of local importance.

Convenient training locations

The course is scheduled on a regular basis at Siemens offices located throughout North America, including:

- Burlington, Ontario, Canada
- Calgary, Alberta, Canada
- Houston, Texas, USA
- Littleton, Colorado, USA
- Minnetonka, Minnesota, USA
- Mountain View, California, USA
- Orlando, Florida, USA
- Schenectady, New York, USA
- Seattle, Washington, USA
- Wendell, North Carolina, USA

Contact us

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