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PSEC 710

Overview and Comparison between Simulation Domains

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

At a glance

Comprehensive analysis including electromagnetic transients (EMT), dynamics and long term dynamics have become increasingly important in the planning and operations area of power systems. This is due to the growing number of new technologies, such as inverter based technologies connected to the power system that exhibit complex behaviors. Identifying the key differences of each simulation domain and which simulation domain is required to capture the studied scenario(s) is not always clear.

The **Overview and Comparison between Simulation Domains** course teaches participants a fundamental understanding of the different domains of study, the key differences between them and knowledge of the right simulation domain to be used for certain scenarios.

PSEC 710 participants will:

- Understand the relationships between a positive sequence stability simulation and an EMT simulation. The following topics will be reviewed:

- Key assumptions and simplifications made in each simulation domain
- Stability simulation domain ability to cover overall large scale system security
- EMT simulation focus on power electronic converter systems and the first transient
- Level of accuracy requirements for different studies
- Review different phenomena models design and level of adequacy needed
- Explore system modeling in a positive sequence two-axis approach, covering data requirements and result outputs
- Explore system modeling in an electromagnetic transient domain approach, covering data requirements and result outputs
- Compare system simulation between stability and EMT
- Review the PSS®E-PSCAD™ Data Conversion and Co-Simulations Modules
- Discuss modeling adequacy
- Participate in Modeling SSTI/SSCTI phenomena hands-on exercise.

Upon completion of this hands-on course, participants will have a better understanding of what level of modeling is required while conducting system impact studies. In addition, they will have a clear understanding of the theory behind system modeling in both stability and electromagnetic transient domains, and the ability to determine which domain is necessary for a particular system study.

Prerequisites

Participants should have a degree in electrical engineering and be familiar with stability topics.

Course structure

This is a two-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.

To view the PSEC 710 Course Schedule on the web:

https://siemens.coursewebs.com/cart/pageCourseInfo.aspx?Course_ID=PSEC_710

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

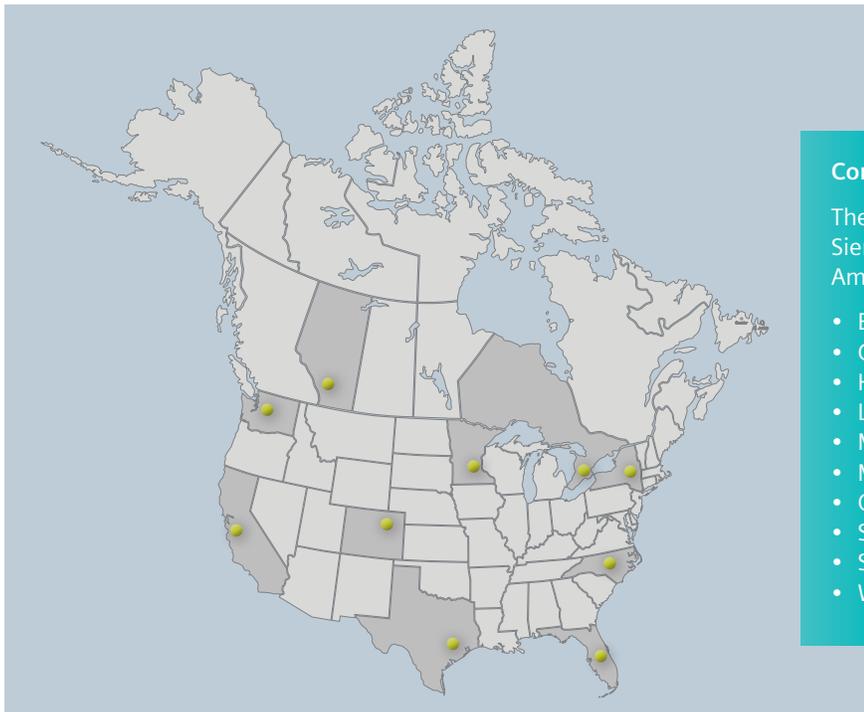
Power Academy meet the requirements for CEUs and PDHs.

- 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

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