

Siemens Power Academy TD

# PSS®E – Advanced Dynamic Simulation

PSSC 715

## At a glance

**PSS®E Advanced Dynamic Simulation** is a hands-on course designed for experienced engineers interested in learning advanced analysis of system stability and dynamics. Examples and exercises focus on dynamic modeling of components such as synchronous generators, excitation systems, prime movers, wind turbines, HVDC and FACTS devices, and loads.

In **PSSC 715** participants will:

- Refresh their knowledge of mathematical modeling tools (Laplace transform, transfer functions and block diagrams) and classical control techniques (transient and frequency response and numerical integration)
- Review power system dynamics
- Understand appropriate analytical software tools used for evaluating dynamic phenomena
- Understand the classifications of power system stability necessary to determine meaningful practical analysis
- Explore methods for solving stability problems
- Understand the process, setup procedures and classification of variables in dynamic simulation
- Perform data checking functions, including checking of excitation system and turbine governor model response
- Understand the basics of excitation system tuning
- Learn about dynamic modeling of power plant components, including synchronous machines, excitation systems, turbines and speed governors
- Learn how to simulate complex disturbances
- Use program automation to streamline the dynamic simulation

- Explore modeling of relays, HVDC systems, FACTS, loads and induction motors
- Study voltage collapse and dynamic voltage support and recovery
- Develop and incorporate user-written models into PSS®E
- Learn how to perform modal analysis using PSSPLT.

Upon completion of this course, participants will have the knowledge and the ability to incorporate the advanced dynamic simulation capabilities of PSS®E into the analysis of their power system.

## Prerequisites

Participants must be employees of a company that is a current lessee of PSS®E. They should have operating experience using the PSS®E power flow and dynamic simulation modules, or they should have completed both of the "PSSC 500 – Power Flow and Steady State Analysis using PSS®E" and "PSSC 550 – Dynamics Simulation using PSS®E" courses.

## 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 PSSC 715 Course Schedule on the web:**

[https://siemens.coursewebs.com/siemens/pageCourseInfo.aspx?Course\\_ID=PSSC\\_715](https://siemens.coursewebs.com/siemens/pageCourseInfo.aspx?Course_ID=PSSC_715)

### 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):

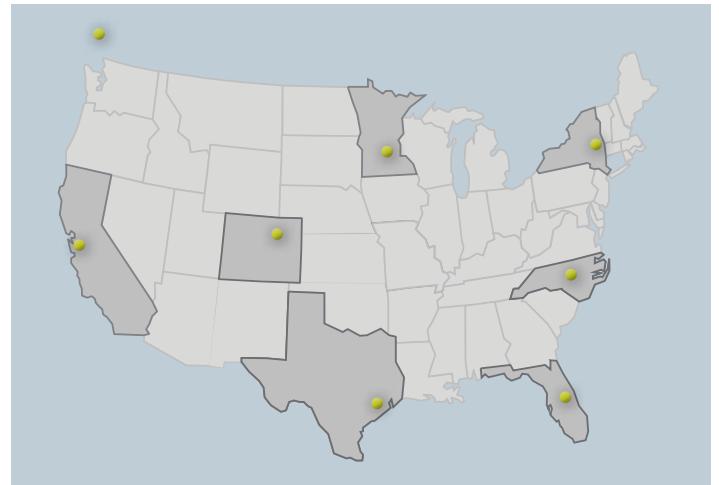
Licensed engineers, on a voluntary or mandated basis, attend continuing professional education for licensure renewal to ensure competency. All courses offered through Siemens Power Academy meet the requirements for CEUs and PDHs.

- 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.

### Convenient training locations

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

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



### 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.

### Contact us

#### Siemens Power Academy TD

Phone: 518-395-5005

Fax: 518-346-2777

Email: [power-academy.us@siemens.com](mailto:power-academy.us@siemens.com)

Web: [www.usa.siemens.com/pti-education](http://www.usa.siemens.com/pti-education)

[siemens.com/power-technologies](http://siemens.com/power-technologies)

#### Siemens AG

Power Technologies International  
Freyeslebenstrasse 1  
91058 Erlangen  
Germany

#### Siemens Industry, Inc.

Siemens Power Technologies International  
400 State Street  
P.O. Box 1058  
Schenectady, NY 12301-1058 USA

© 2014, Siemens AG and Siemens Industry, Inc.

[usa.siemens.com/pti-education](http://usa.siemens.com/pti-education)