

PSSTME Advanced Power Flow

Training Course for PSSTME Users

Industry Need

Siemens PTI's PSSTME, a power system simulation program for transmission planning is an engineering tool for simulating the behavior of electric power systems with a rich repertoire of features which reflects its 30+ year evolution.

Utility engineers who conduct studies with PSSTME must understand the fundamental concepts of power system behavior as well as knowing how to execute the many complicated routines within the program. This course is directed at the experienced PSSTME user who would like to increase his/her analytical skills in steady state applications.

Objectives

This course provides experienced PSSTME users with instruction in the use of PSSTME at an advanced level. The course is structured to include lecture sessions and hands-on exercises for selected topics.

Prerequisites

Participants must be employees of a company which is a current lessee of PSSTME. They should either have setup and operating experience with power flow of power systems or should have completed the Introductory to PSSTME Power Flow and Steady-State Analysis Course.

Course Structure

The course duration is four and one-half days, presented in three-hour morning and afternoon sessions. The last day concludes at noon. The classroom will include computer facilities.

Documentation

Each participant will receive a bound set of course notes that complement the lecture. Program manuals will be available for reference during the course but are not retained by the course participants.

Instructors

The course will be taught by Siemens PTI engineers with extensive experience in performing studies with the PSSTME program. A number of instructors contribute to the course, with each presenting the topics most appropriate based on background and experience.

Location

The course is conducted on a regular basis at Siemens PTI offices in Schenectady, NY and at other major cities throughout the United States. It is also available for presentation at a 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. Client site courses can also be tailored to address specific topics of local importance.

Continuing Education Units

2.7 Continuing Education Units (CEU's) will be awarded for successful completion of this short course. The CEU is the nationally recognized unit for recording participation in noncredit educational programs. One CEU is equal to ten classroom hours.

PTI – Power Academy TD

Power Transmission & Distribution
www.siemens.com/power-technologies

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Course Outline

Day 1

What's New in PSS^{TME}

- Overview of new program features

Load Flow and Short Circuit Interface

- Tree View
- Spreadsheet View
- Diagrams
- Reports
- Toolbars
- Review of Activities
- Documentation

Day 2

Transformer Modeling

- Two-Winding and Three-Winding Transformers
- Load Flow Representation
- Short Circuit Representation

Fault Analysis Applications

- Detailed and Automated Fault Calculations
- ANSI and IEC Calculation Procedures
- Evaluation Circuit Breaker Duty

Modeling of FACTS Devices

- SVC
- STATCOM
- UPFC
- Conventional HVDC
- Voltage Source Converter DC

Day 3

Voltage Analysis

- Solving Difficult Cases
- Non-Divergent Load Flow
- Voltage Collapse
- PV and QV Analyses
- Extraneous Solutions

Introduction to Optimal Power Flow

- Conventional Versus Optimal Power Flow
- Controls and Constraints
- Sample Applications

Day 4

Contingency Analysis

- Basic Contingency Setup
- DC and AC Contingency Analyses
- Single and Multiple Cases Reporting
- Contingency Ranking
- Network Islanding and Redispatch
- Multi-Level Contingency Analysis
- Corrective Action
- Probabilistic Analysis

Day 5

Program Automation

- Response Files
- Application Program Interface
- Introduction to Python
- Customizing Toolbars

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