



PSSTME – Model Writing

Training Course

Industry Need

Design, operation and protection of generation and transmission systems, requires a thorough understanding of dynamic behavior of machines, controls and their interaction with the network and loads. System designs depend on accurate prediction of transient and dynamic stability, overvoltage, subsynchronous oscillations, shaft impact torques, etc., requiring unprecedented detail and dimensions in simulation capability. This course provides participants with an understanding of the practical and theoretical aspects of dynamic modeling using the latest power system simulation tools.

Objectives

Students will have an opportunity to write computer subroutines by using PSSTME – Power System Simulator Program to perform customized functions.

Prerequisites

Participants should have either setup or operating experience with power flow and dynamic simulation of power systems or should have completed all introductory courses in PSSTME.

Course Structure

Course duration is two and one-half days, with three hour sessions morning and afternoon. The last day concludes at noon.

Documentation

Each participant will receive a bound set of course notes that complement the lectures. The lectures closely follow the notes to minimize the need for note taking in the class.

Instructors

The course is taught by Siemens PTI engineers who are experienced instructors and also have extensive knowledge in model writing.

Course Content

While the course content is fixed, it is expected that many participants will want class presentations to emphasize problems particularly relevant to their individual systems. This will be accommodated when practical. This course includes intensive hands-on exercises.

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.

Continuing Education Units

1.5 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

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Course Outline

Day 1

- PSSTME – Program Structure
 - Dynamic simulation
 - Variables and arrays
 - Flags, functions and indexes
 - System data and how to reference it
 - Subroutines
- Block Diagrams
 - Block diagram algebra
 - Common blocks
 - Time and frequency response
 - State space representation
 - Internal block representation
 - Equations

Day 2

- FLECS and FORTRAN
 - FLECS commands and structures
 - FORTRAN commands and structures
 - Compiling and Linking
- Equipment Models (Excitation Systems, Governors and PSS)
- Structuring the Model
 - Model indexing
 - Initialization
 - Run mode
 - Mode 3
 - DOCU and DOCU check
 - DYDA
 - Special Subroutines (e.g. Exciter Saturation)
 - Limits
- Advanced Uses of Conec and Conet
 - Accessing Data
 - Bus, Load, Generator and Line Data
- Inputting Data for User Models
- Current Injection Models
- Modeling Special Protection Schemes (SPS or RAS)

Day 3

- Model Testing
 - Step in Input
 - Input of measured data
 - Run termination
- Extended Term Simulation
 - Overview
 - Z-Form
 - Block Equations, Loops and Limits

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Siemens PTI has local offices in many countries throughout the world. For further information and contact to our worldwide business locations and local experts, please visit the Siemens PTI website and complete a contact form.

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