



Using Python to Integrate PSSTME Workflow

Training Course

Industry Need

The PSSTME Power Systems Simulation Program is an engineering tool for simulating the behavior of electrical power systems. In addition to an excellent GUI to use its features, it completely supports driving it from batch scripts using IPLAN, IDEV, and Python. IPLAN and IDEV are PSSTME specific batch scripts. Python is a feature rich open-source programming language. This course is directed at the PSSTME user who would like to automate PSSTME usage, access its data and results with Python scripts to increase his/her productivity and efficiency.

Objectives

This course will teach participants to develop and apply Python programs and to enhance their capabilities and efficiency when conducting PSSTME load flow, short circuit, and dynamics studies; accessing PSSTME data/results to either create customized text reports or export them to excel spreadsheets.

Prerequisites

Participants should be knowledgeable in the basic operations of PSSTME programming and be proficient in one or more programming languages. Familiarity with personal computers and text editors is essential for hands-on work. Previous knowledge of Python is helpful but not required.

Course Structure

The course duration is three days, presented in three-hour morning and afternoon sessions. Participants will be introduced to the basic Python language and sample applications in load flow, short circuit and dynamic simulation studies using PSSTME. Classes include tutoring sessions, followed by hands-on examples designed to teach practical use of Python within PSSTME, with participants typically working together in pairs.

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 during the class. 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 knowledge of the PSSTME program and Python applications.

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.

Continuing Education Units

1.8 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.

Siemens PTI – Power Academy TD

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Course Outline

Day 1

- Python language overview
- Control flow tools
- Variables and data structures
- Functions and modules
- Input/output processing
- Interface with PSSTME
- Looping through buses and branches
- Load flow applications and control

Day 2

- Short circuit applications and control
- Dynamic simulation and plotting simulation results
- Retrieve PSSTME results and export to Microsoft[®] Excel
- Retrieve PSSTME data and export to Microsoft[®] Excel
- Build custom reports from PSSTME data/results

Day 3

- Run IPLAN programs from Python
- Run IDV files from Python
- Extract Saved case data using CASPY
- N-1-1 contingency analysis – example
- Build simple GUI application using wxPython to drive PSSTME

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