

## POWERFACTORY

# Introductory Course: Time Domain Simulation

Online training course via Zoom

This training gives the participants an introduction to the handling of the time domain simulation functions in *PowerFactory*. It includes the following topics:

- Definition of result variables and simulation events
- Visualisation of simulation results
- Simulation scan
- Fast Fourier Transform (FFT)
- Definition of dynamic controllers

The various hand-on exercises with detailed instructions ensure that participants will gain a sound introduction to the use of time domain simulations in *PowerFactory*.

### WHO SHOULD ATTEND:

The training course is intended for

- Utility engineers
- Power system operators
- Project developers
- Manufacturers
- Consultants
- Electrical engineers in general

This training is highly recommended as a preparatory course for users interested in attending one of the following courses:

- Power System Stability
- Electromagnetic Transient Analysis
- HVDC & FACTS

### PRICE PER PARTICIPANT:

- \$656.20 (with valid maintenance contract)
- \$740.00 (without valid maintenance contract)
- \$222.00 (with valid student identification)

\* Prices do not include GST.

## Training schedule

Central Standard Time (UTC -06:00)

### DAY 1

- 9:00 Time Domain Simulations in *PowerFactory***  
Calculation methods: balanced/unbalanced RMS simulation, EMT simulation. Handling of the time domain simulation. Visualisation of simulation results. Exporting simulation results (\*.csv, \*COMTRADE format, etc.).
- 9:45 Exercise: RMS Simulation**  
Running RMS simulations in a test network. Calculation of initial conditions, definition of result variables and simulation events. Graphical visualisation of results.
- 10:30 Coffee break**
- 11:00 Exercise: RMS Simulation (cont.)**
- 11:30 Exercise: Simulation scan**  
Execute a simulation with different simulation scan modules and configurations: fault-ride through, loss of synchronism, voltage scan, variable scan module.
- 12:30 Lunch break**
- 13:30 Exercise: EMT Simulation**  
Running EMT simulations in a test network. Calculation of initial conditions, definition of result variables and simulation events. Graphical visualisation of results.
- 14:00 Exercise: Fast Fourier Transform (FFT)**  
Getting the harmonic content. FFT configuration options.
- 14:30 Exercise: Dynamic controllers**  
How to assign dynamic controllers to a synchronous machine (AVR, speed controller). Use plots to compare the results for different parameter sets.
- 15:45 Dynamic Models in *PowerFactory***  
System modelling in *PowerFactory*: the general approach. The composite plant model and the controller models (DSL elements). Use of templates from the global library (e.g. for non-conventional generation).
- 16:30 Exercise: Add a Dynamic Model from the Global Templates Library**  
Handling. How to add a dynamic model from the global templates library and how to configure/changes its parameters
- 17:00 End of the training course**