



POWERFACTORY

Course Content

Digsilent Buyisa (Pty) Ltd

POWER SYSTEM SOLUTIONS
MADE IN GERMANY

Time Domain Simulation

1 Day Course

Objective:

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.

Pre-requisites:

- **MUST have attended the PowerFactory Basic course.**
- A good working knowledge of the basic techniques used in PowerFactory.

No of participants:

- In-house at Customer premises: Minimum: 6; Maximum: 12.
- At Digsilent Buyisa Training Centre: Minimum: 6; Maximum 16.
- Online: Minimum 6; Maximum x16.

ECSCA CPD Accredited and Points:

- The course is currently in process of being accredited with the Engineering Council of South Africa (ECSCA).
- 1 CPD point for completion.

Who Should Attend:

The course is intended for;

- Utility engineers
- Power system operators
- Project Developers
- Manufacturers
- Consultants and electrical engineers



POWERFACTORY

PRICE PER PARTICIPANT:

- For course pricing, kindly visit our website at: <https://digsilent.co.za/training-courses/>
 - For in house prices @ customer premises: contact Digsilent for a quote via email info@digsilent.co.za or Telephonically (+27) 087 351 6159.
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- ❖ Prices are exclusive of VAT
 - ❖ Please note that cost excludes your Company's internal administrative costs.
 - ❖ All prices may change without prior notice - please contact Digsilent Buyisa for the latest prices before booking.
 - ❖ **DISCOUNT** is offered if a company sends more than one delegate per course.
 - ❖ Trainings held at Digsilent Buyisa Training Centre includes light breakfast snack, lunch and refreshments.

Training schedule

DAY 1

- 08:30 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.).
- 09:45 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 Tea/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.
- 15:15 Tea/Coffee break**
- 15:30 Dynamic Models in PowerFactory**



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 training course**