

EMT Analysis

Objective:

The objective of the course is to provide users of PowerFactory with the relevant knowledge to effectively utilise the EMT function.

Users will be taught how to perform time domain simulations of electromagnetic phenomena.

Pre-requisites:

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

No of participants: Minimum: 6; Maximum: 12

Schedule and Cost:

Please visit <https://www.digsilent.co.za/training-courses/> for the latest scheduled course dates and costs. PowerFactory license, for the duration of the training course, is included. Please note the booking clauses on the registration form.

Duration: 3 days

CPD Points: 3

Topics to be covered:

Handling of Time Domain Simulations in PF

- Initialisation, Event Definition, Result Visualisation, Plots
- Fast Fourier Transform

Transformer Energization Transients

- Non-linear magnetizing inductance.
- Saturation curves.
- Residual flux
- Harmonic content of inrush currents

Capacitor Switching

- Closing Operations:
 - Inrush currents
 - Back-to-Back Connections
 - Mitigation of inrush currents
- Capacitor bank opening
 - Transient recovery voltage at circuit breakers

Switching Transients

- Overhead line modelling:
 - Frequency dependent parameters
 - Lumped vs. distributed parameter model
- Surge arresters:
 - Protection characteristic
 - Energy stress
- Line energization
- Stochastic analysis of switching overvoltages

Lightning Transients

- Modelling guidelines
- Impulse sources
- Direct lightning strokes.
- Insulator Flashover. Back flashovers.