

POWERFACTORY

Flexible AC Transmission Systems (FACTS)

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May 10th - May 11th 2021

Online training course

The training course gives an overview of Flexible AC Transmission Systems. Static VAR compensators (SVCs), STATCOMs and thyristor-controlled series capacitors (TCSCs) are discussed from a theoretical and practical point of view. Topologies and controls, steady-state, harmonic as well as dynamic behaviour are analysed. The participants will learn how to model and study these systems in *PowerFactory* using realistic synthetic HV power networks. Practical applications and use case scenarios are investigated.

This training aims at enabling the participant to understand modern FACTS devices, diligently analyse a power network including FACTS and identify benefits as well as limitations.

WHO SHOULD ATTEND:

The training course is intended for

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

Participants should be familiar with *PowerFactory* basics and should have some experience with *PowerFactory*'s time domain simulation functions or have attended the introductory courses: "Time Domain Simulation in *PowerFactory*" and "Load Flow and Short Circuit Calculation".

PRICE PER PARTICIPANT:

- 1,116.00€* (with valid maintenance contract)
- 1,270.00€* (without valid maintenance contract)
- 380.00€* (with valid student identification)

*Prices are exclusive of VAT

Training schedule

Central European Time (UTC +01:00)

DAY 1 - FACTS Parallel compensation

- 9:00 Parallel Compensation with FACTS: Static VAR Compensator / System (SVC / SVS), Static Synchronous Compensator (STATCOM)**
Overview of parallel compensation devices, application use cases, topologies, behaviour, controls, harmonics.
- 10:30 Coffee break**
- 11:00 Exercise: Compensation using SVC in a HV power system**
Implementation of a SVC in an AC grid, load flow analysis, dynamic simulations, harmonic load flow.
- 12:30 Lunch break**
- 13:30 Parallel Compensation with FACTS: Static Synchronous Compensator (STATCOM)**
- 15:00 Coffee break**
- 15:30 Exercise: Compensation using STATCOM**
Implementation of a STATCOM in an AC grid, load flow analysis, dynamic simulations.
- 17:00 End of the first day**

DAY 2 - FACTS Series compensation

- 9:00 Series Compensation with FACTS: Thyristor-Controlled Series Capacitor (TCSC)**
Principles of series compensation. Overview of application use cases and series compensation devices. System topologies and general behaviour of TCSC.
- 10:30 Coffee break**
- 11:00 Exercise: Compensation using TCSC**
Implementation of a TCSC in an AC grid, load flow analysis, and basic EMT simulation.
- 12:30 Lunch break**
- 13:30 TCSC control, protection and dynamic behaviour. Presentation and exercise.**
- 15:00 Coffee break**
- 15:30 Power systems oscillation damping and sub-synchronous oscillations damping using TCSC. Presentation and exercise.**
- 17:00 End of the training course**