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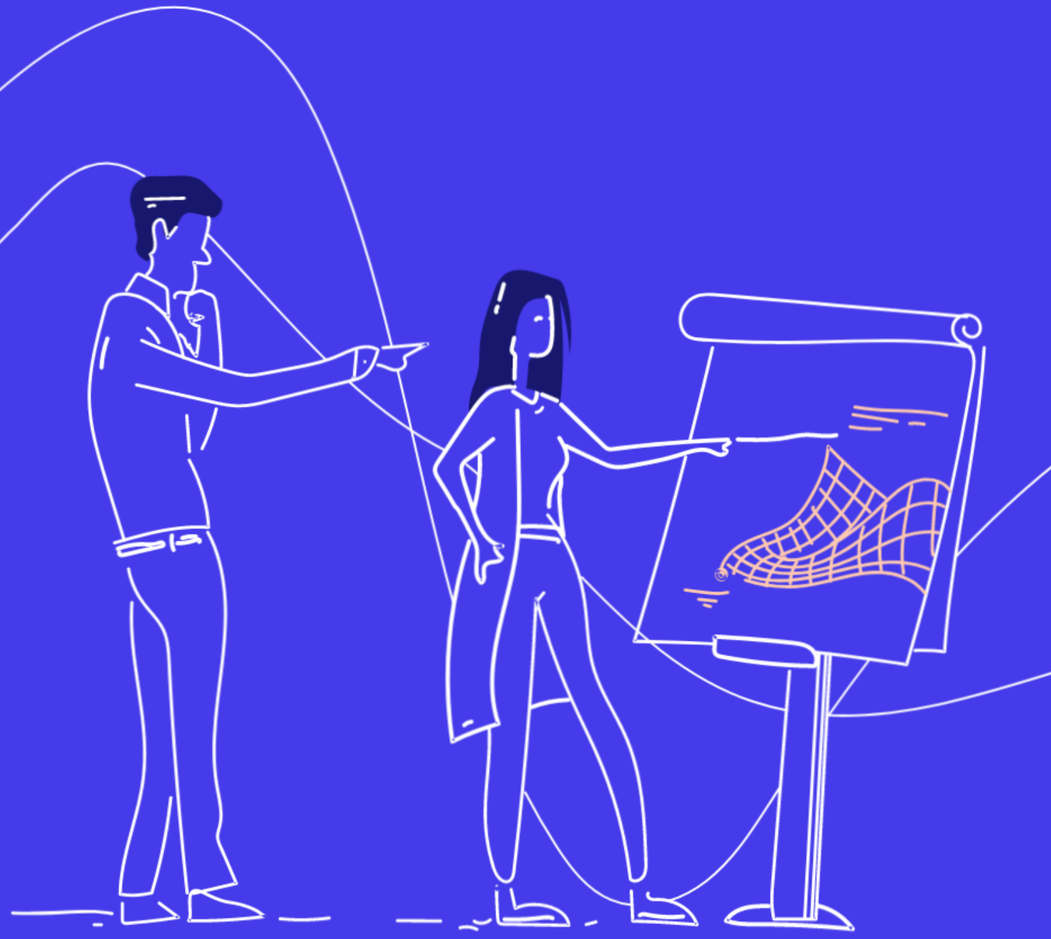
Modeling Electrical Power Systems with Simscape



SciEngineer's training courses are designed to help organizations and individuals close skills gaps, keep up-to-date with the industry-accepted best practices and achieve the greatest value from MathWorks® and COMSOL® Products.

Modeling Electrical Power Systems with Simscape

This one-day course discusses how to model electrical power systems in the Simulink environment using the Simscape Electrical Specialized Power Systems library. This course focuses on creating three-phase systems with passive elements and with electrical machines, analyzing and controlling electrical power systems, modeling power electronic components and speeding up simulation of electrical models.

Prerequisites

MATLAB Fundamentals, Simulink Fundamentals, and Modeling Physical Systems with Simscape

TOPICS

Day 1

- Introduction to Three-Phase Systems
- Three-Phase Systems with Electrical Machines
- Controlling Electrical Machines
- Power Electronics

Introduction to Three-Phase Systems

OBJECTIVE: Become familiar with the Simscape Electrical environment by modeling a simple three-phase electrical system.

- Creating three-phase models
- Measuring physical quantities
- Viewing and setting initial states
- Modeling transformers
- Simulating nonlinear electrical models

Three-Phase Systems with Electrical Machines

OBJECTIVE: Create models with three-phase electrical machines.

- Modeling electrical machines
- Actuating and measuring machine quantities
- Initializing machines
- Selecting solver methods

Controlling Electrical Machines

OBJECTIVE: Analyze and control the effects of loads and disturbances on electrical machine models.

- Modeling breakers and faults
- Controlling electrical machines
- Improving model readability
- Parameterizing models

Power Electronics

OBJECTIVE: Model electrical power conversion and transmission systems.

- Inverters and rectifiers
- Transmission losses
- Connection to Simscape
- Inverter control
- Model testing and integration

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Expand your knowledge