INRODUCTION

The development of DIgSILENT (DIgital SImuLator for Electrical NeTwork) software began in 1976, and utilized the talent of many experienced power system engineers and software developers directly involved with the planning, operation and maintenance of power systems. Since the inception of DIgSILENT, the program has grown to incorporate a vast array of analysis features that are required to plan, operate and maintain any aspect of the power system.

PowerFactory software was first released in 1997 providing the required product stability to guarantee efficiency in your daily application. Until today, more than 10,000 licenses are in operation in over 120 countries. Some of the key references are National Grid (UK), ESKOM (South Africa), PDO (Oman), SEC (Saudi Electricity), etc.

There are many commercial packages available that can address most power system analysis problems. However, these packages differ considerably in their integration, result validity and computational efficiency. DIgSILENT PowerFactory is the leading product with respect to integrated modelling capabilities and solution algorithms. It provides all required models and techniques of modern power systems.

The main objective of this course is to introduce to the participants the different features of DIgSILENT power system analysis and simulation software.

COURSE OBJECTIVES

This course is designed to achieve following objectives:

- Acquainting participants with tools and skills to enable them to use DIgSILENT power system analysis software.
- Providing the participants with skills to perform load flow analysis of power system using DIgSILENT software.
- Providing the participants with skills to perform fault analysis of power system using DIgSILENT software.
- Enabling participants to understand the basic components of a protection system and model the protection system using DIgSILENT software.
- Providing the participants with the necessary tools and skills to carry out relay co-ordination analysis for variety of protection schemes using DIgSILENT software.

WHO SHOULD ATTEND?

The short course is targeted at new electrical engineers, senior electrical engineers, and practicing electrical engineers who are involved in the area of electrical power engineering planning, operation, protection, or its relevant disciplines.

However, the course should also be of interest to other electrical engineers who wish to develop their knowledge on using DIgSILENT power system analysis and simulation Software.

COURSE MODULES AND TOPICS

Session 1: Introduction to PowerFactory

Basic PowerFactory Concepts, The PowerFactory Project Environment, Projects, Network Model, Libraries, Study Cases, Types and Elements, General Handling of Data Input and Output, Graphical Editor, Working with the Database.

This is session includes exercises on Setting-up the Model of a small Power System, Creating a New Project, Import of Project Files (*.dz or *.pfd), Entering Grid Topology and Data.

Session 2: Load Flow Analysis

Introduction to Load-Flow Analysis with PowerFactory, Execution of Load-Flow Calculations, Documentation of Results and Input Data, Visualisation of Data and Results in the Single Line Diagram.

This is session includes exercises on Load-Flow Applications, Models of the most important Network Elements, and Navigating Inside the Project and Finding Data.

Session 3: Short Circuit Analysis

Calculation of Short Circuit Currents, Maximum and Minimum Fault Currents, Overview of Different Methods of Calculation, Types of Faults, and Modeling Power System Networks using PowerFactory.

This is session includes exercises on Short-Circuit Analysis and Multiple Faults Analysis using PowerFactory Software.

Session 4: Protection Functions

Protection Functions, DMT and IDMT, Fuses, Thermal Limit Curves of Transformers and Cables, Motor Starting Curves, Distance Protection, Mho Curves, Polygonal Curves, and Differential Protection System. This is session includes exercises on Creating VTs and CTs, Creating Protection Devices, Overcurrent Protection, Creating Time-Overcurrent Diagrams, Coordination with Time-Overcurrent Diagrams, Defining Fuse Characteristics, Creating R-X Plots, Creating Time-Distance Diagrams, Setting-Up a Differential Protection System, Differential Protection for a Busbar.

COMPUTER APPLICATIONS

DIgSILENT Power Factory software will be used during the course. This software is the leading high-end tool for applications in generation, transmission, distribution and industrial systems. It integrates smoothly into any GIS, DMS or EMS supporting open system standards and enables the user to carry out balanced and unbalanced power flow. It has many features including fault analysis, harmonics, frequency scans, stability, EMT simulations, protection simulation and co-ordination, reliability, Maintenance Schedules, static and dynamic voltage stability, power dispatch, state estimation, optimal capacitor placement, cable sizing, built-in automation interface, interfaces for GIS and SCADA integration, and PSS/E compatibility.

COURSE INSTRUCTOR

Graduated with First Class Honours B.Eng. degree in Electrical and Electronic Engineering from University of Manchester, UK in 1994. He received his MBA degree from Edinburgh Business School, UK, in 1998, and his M.Sc. in Electrical Power Engineering from UMIST, UK in 1999. He completed his Ph.D. degree in Electrical Engineering from University of Manchester, UK in 2001. He worked for 12 years in oil and gas industry in major companies including Petroleum Development Oman and Shell UK as Senior Project Manager. He joined Sultan Qaboos University in August 2002 as faculty member in the College Engineering. He was appointed as the Assistant Dean for Industrial Training and Alumni in the College of Engineering in 2006. From 2010 to 2011 he was the Dean of Oman Maritime College. In 2011 he became a full time licensed consultant and trainer. He has extensive experience in delivering training courses to senior managers and experienced engineers in public and privates sectors' organisations in the areas of Project Management, Power System Operation and Control, Power System Protection, and Power System Economics.
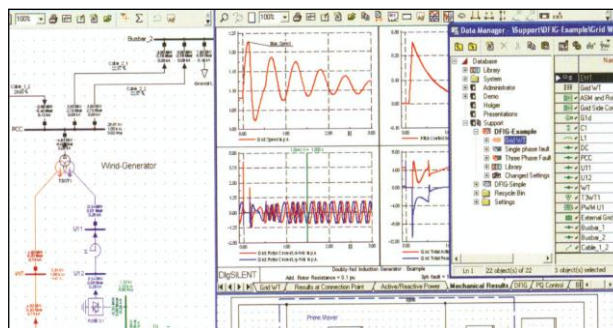
DIgSILENT Modelling of Power Systems

Presents a Short Course on

POWER SYSTEM MODELLING USING POWERFACTORY SOFTWARE

COURSE DURATION AND VENUE

Date   : As agreed.
Time   : 8:30 AM – 1:00 PM
Venue   : As agreed.

REGISTRATION

For the cost of attending the course request an offer.
For further information and registration, contact :

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