



POWER ANALYTICS™  
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## **Principles of Power Systems Modeling Training**

**(Course #DB-203)**

### **About the Course:**

Power Analytics Principles of Power Systems Modeling training course is a three-day, hands-on workshop that teaches users how to build a power systems model, as well as perform studies for power flow, short circuit, protective device coordination, arc flash, and other engineering tasks. Students will use Paladin DesignBase software for power system modeling, and analysis.

Total Course Length: 24 hours (3 days)

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### **Why You Should Attend:**

1. Understand basic concepts of power system analysis and operations
  2. Understand how equipment characteristics and the installation configuration can affect the electrical software model
  3. Understand the importance of arc flash calculations
  4. Identify the important electrical characteristics to define a model
  5. Develop an understanding of electrical network coordination principles
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### **Prerequisites:**

- Basic knowledge of electrical circuits
  - Power Systems experience a plus
  - Prefer students bring individual laptop computer for class
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10805 Rancho Bernardo Road, Suite 270  
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(858) 675-9211



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## Agenda:

08:00 - 10:00 DesignBase Training  
10:00 - 10:30 Break  
10:30 - 12:00 DesignBase Training  
12:00 - 13:00 Lunch & Break  
13:00 - 15:00 DesignBase Training  
15:00 - 15:30 Case Studies  
15:30 - 16:00 Break  
16:00 - 17:00 Open Workshop



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## Day One

- Paladin DesignBase 3.0 – New Features and Functions;
- Modeling practices as outlined in IEEE-399 “Brown Book”
- Paladin DesignBase Graphique Interface :DesignBase 3.0 GUI;
- Catalog Management
- Single Line Diagram Setup
- Defining Scenarios
- Project Layout Management (\*.axd, \*.mas, \*.epr. project files)
- Multiple Page Projects
- Multiple Drawings Project
- Multiple Drawings and Pages Project
- Electrical interconnection: multiple pages, multiple drawings projects
- Hyper-linking
- Hyper-linking to the Internet and other applications
- Back Annotation
- The Symbol Property Menu
- Customizing Single Line Diagrams
- Importing Drawings from AutoCAD and other applications
- Practical Exercises (Ex.1 project completion)
- Modeling UPS
- Load Flow Analysis
- Voltage Control (Transformer Taps & Reactive Power options)

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## Day Two

- Local and Remote Voltage Control using ULTC's and SVC's
- Transformer Sizing using Load Flow Results
- Motor Starting Methods (standard, capacitor assisted, capacitor/reactor assisted)
- Motor Starting Analysis using the load flow methodology
- The Load Flow/Motor Starting Graphical Browser
- Scenario Voltage Profile analysis
- Practical Exercises
- 3 Phase Short Circuit Analysis
- Standards and Analysis Options
- L-G, L-L, L-L-G and 3P reporting
- Short Circuit Reports
- Protective Device Evaluation

## Day Three

- Power System Protection
- Type of protections
- Protective Device Coordination Analysis; protective devices, IT (instrument transformers) coordination principles
- Practical Exercises
- PDC Stand Alone and network base; managing Stand Alone PDC program
- PDC GUI based; new features and functions; managing the PDC GUI based
- Customizing and Exporting the Time Current Coordination Graph into Word documents
- Importing Motor Starting Curves from the Motor Torque and Performance Program
- Generator decrement curve
- Organizing a PDC report: layout and content
- Injection of Fault Currents and Tripping Time Evaluation
- Back annotation of PDC data on the one line diagram
- Arc Flash investigation; generic approach on Arc Flash projects

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## Course Fees and Registration:

Please Contact Jadranka Bozinovska at Power Analytics to reserve your spot!

(Accommodation information will be provided at time of registration)

10805 Rancho Bernardo Road, Suite 270

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(858) 675-9211

jbozinovska@poweranalytics.com

Principles of Power Systems Modeling Training Costs (Course #DB-203)

*Training rates* for 2013 classes are:

\$2,000 per student

### **IEEE Members:**

Through a special arrangement with IEEE, Power Analytics training courses qualify for Continuing Education Units (CEUs) and Professional Development Hours (PDHs). IEEE members qualify for a 10% discount on normal course tuition so long as they:

- Are an IEEE Member at the time of course registration
- Enroll through an offering available through this site
- \* 3 day training course will earn 3 IEEE CE Units (CEU's)

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