jim phillips

T2G TECHNICAL TRAINING GROUP

On Site Training

26 Different On Site Training Programs

Course Listing

Have Jim at your location with any of his 26 power system classes. Jim is regarded as one of the best trainers and public speakers in the electric power industry. His broad experience is represented below by the wide range of courses that he has developed. From the NEC® to Symmetrical Components and everything in between, Jim has it covered. Call 800.874.8883 for a proposal today - his schedule books up quickly! Each class is 1 day unless otherwise noted. Mix and match for a custom program.

DESIGN OF ELECTRIC POWER SYSTEMS - I
Learn the basics of design including load calculations, voltage drop, voltage selection, conductor sizing, overcurrent protection, lighting design, grounding and more.

DESIGN OF ELECTRIC POWER SYSTEMS -II
Transformers, motor circuits, hazardous location design, power factor correction, harmonics, oversized neutrals, emergency power systems are all part of this design class.

ELECTRIC POWER CALCULATIONS – PER UNIT
Very few universities teach the per unit system anymore but it is still a fundamental concept for electric power systems. This class teaches you the basics of electric power calculations including the per unit system for system modeling.

ELECTRIC POWER CALCULATIONS – SYMMETRICAL COMPONENTS
A continuation of the first course, this class takes you to the next level including symmetrical components and unbalanced power system calculations. Learn how to more easily use positive, negative and zero sequence components and draw zero sequence diagrams.

ELECTRICAL SAFETY / NFPA 70E - 1 DAY PROGRAM
This 1 day class brings your staff up to date with OSHA and NFPA 70E requirements for performing a shock hazard and flash hazard assessment. Learn how to select proper PPE based on the hazard and risk as defined in the NFPA 70E tables. Examples of filling out energized work permits are also included.

ELECTRICAL SAFETY / NFPA 70E - 1/2 DAY PROGRAM
The class provides an arc flash awareness overview of the NFPA 70E requirements including PPE selection and energized work permits. The ½ day format allows employers to divide their staff into two groups with on group attending the morning session and the other group attending the afternoon session.

GENERATOR AND UPS APPLICATIONS - I
With electric utility deregulation and large scale blackouts emergency and standby power systems are more important than ever. This class covers the requirements of sizing, operation, protection and planning a generator installation. Included is how to analyze the effect of harmonic producing loads and motor starting on the generator operation.

GENERATOR AND UPS APPLICATIONS - II
Power systems are facing a decrease in reliability yet mission critical systems must have 100% reliability. This class will show you how to properly size a UPS system, transfer switches selection, UPS heat loss, reliability, compatibility issues and more.

GROUNDING AND POWER QUALITY
Grounding is one of the more commonly mis-understood concepts of a power system. Poor or incorrect grounding can lead to safety and power quality problems. Learn the correct methods for grounding according to the NEC and IEEE. See how to locate and correct power quality problems including ground loops.

HOW TO PERFORM AN ARC FLASH STUDY - I
This class is based on OSHA and NFPA 70E and is designed to train students to understand electrical safety including shock and arc flash hazards as well as providing appropriate hazard assessment. Learn flash boundary calculations based on NFPA 70E, limited, restricted and prohibited approach boundaries, correct personnel protective equipment and many other topics.

HOW TO PERFORM AN ARC FLASH STUDY - II
The class is based on IEEE 1584 and shows how to perform the detailed arc flash study including data collection and IEEE calculations. Jim discusses the effect of device settings and short circuit current magnitudes on arc flash as well as holes in the standards.

For more information contact:
T2G Technical Training Group® at 800-874-8883.

See sample videos of Jim's teaching style at:
www.brainfiller.com

Jim Phillips, P.E. ▪ On Site Training

Course Listing

HOW TO STREAMLINE AND AUTOMATE ELECTRIC POWER DESIGN - I

Learn how to develop design tables to more easily and quickly design electrical power systems. Day 1 covers conductor / protection tables and motor circuit sizing tables. This course is based on the NEC and power system design concepts.

HOW TO STREAMLINE AND AUTOMATE ELECTRIC POWER DESIGN - II

Day 2 covers developing transformer tables, grounding, interfacing with the utility. Jim has developed design worksheets to aid in quick calculations and fewer errors. This class also has a demonstration of commercially available software to automate the design process.

MEDIUM VOLTAGE POWER SYSTEMS - I

The backbone of many electric power systems is the medium voltage distribution system. Typically operating at voltages ranging from 2,400 to 34,500 Volts, voltage stress, corona, surges and protection of equipment all create unique challenges in design, equipment selection, operation and engineering. Day 1 covers topics such as medium voltage cable, partial discharge, surge protection and substation transformers.

MEDIUM VOLTAGE POWER SYSTEMS - II

Day 2 focuses on protection of medium voltage power systems. The course includes the application of reclosers, medium voltage fuses, and relays for the protection of distribution feeders, rotating machinery and transformer thru fault protection.

NATIONAL ELECTRICAL CODE® - 2 DAYS

This 2 Day class covers the major articles found in the NEC. Learn not only what the articles say, but also why and how to correctly use the articles in the design and installation of electric power systems.

POWER DISTRIBUTION EQUIPMENT - I

You will gain insight into the operation, selection and application of motors and variable frequency drives. You will also learn about transformer design, application and protection as well as transformer vault requirements.

POWER DISTRIBUTION EQUIPMENT - II

The class includes the application and selection of circuit breakers, panelboards, switchboards, fuses, and relays. In addition, low & medium voltage switchgear and an introduction to short circuit and coordination studies is included.

MOTOR DESIGN, APPLICATION AND ANALYSIS - I

Learn how to design motor circuits as well as the fundamentals of motor design, variable frequency drive operation, analysis and motor starting techniques

MOTOR DESIGN, APPLICATION AND ANALYSIS - II

Modeling and analysis of motors and motor operation is the focus of this class. See how to model starting conditions, harmonics from drives, and the effect of source strength on voltage flicker and harmonics created by motor applications.

POWER FACTOR AND HARMONIC ANALYSIS

How do you manage harmonics? Learn how to analyze harmonics, perform resonance calculations, understand IEEE 519, perform THD calculations and design harmonic filters. In addition, learn what to do about neutral harmonics which often require oversized neutrals and K rated transformers. Understand the interaction between harmonics and power factor correction capacitors.

POWER SYSTEM ENGINEERING COURSE – 4 DAYS

This course has become the industry standard that defines the “Crash Course” in electrical power systems. People from all over the world have attended this course at Jim’s public sessions. The class is a combination of his five most popular courses rolled into a 4 day program. The five courses include: Design of Electric Power Systems I and II, Short Circuit Analysis, Protective Device Coordination Analysis and Harmonic Analysis.

PROTECTIVE DEVICE COORDINATION ANALYSIS

This course is designed to show you how to use time current curves and perform coordination studies with breakers, relays and fuses. The program provides an explanation of how to maximize reliability by developing a properly coordinated power distribution system.

PROTECTIVE RELAYING - I

It has been said that protective relay coordination is more of an art than science. This class introduces you to overcurrent relays, relay coordination, current transformer burden and saturation. Many relay examples are included.

PROTECTIVE RELAYING - II

A continuation of the basic class, this class shows how other relays operate and are set such as differential, synch check and reverse power relays. Various relay schemes for equipment protection are also covered.

SHORT CIRCUIT ANALYSIS

Learn how to perform short circuit calculations and equipment adequacy evaluations. Understand the importance of X/R ratios, symmetrical vs. asymmetrical faults and how series ratings work. Many calculation examples are used to illustrate how to perform an analysis. The methods are based on the IEEE Buff and Red books. This class can be paired with the Protective Device Coordination Class for 2 days of training.

CUSTOM CLASSES

Custom classes are also available. Pick and choose from any of the classes and Jim will put them together for a program designed to suit your specific needs.

TO RECEIVE A PROPOSAL

To receive a proposal to have Jim train at your location, contact Brenda at: 800.874.8883 or e-mail her at:

brenda@brainfiller.com

www.brainfiller.com