

EUCI Presents a Course on:

Electric Power Distribution Engineering: Planning and Automation

August 4 – 7, 2008

Hyatt Regency Minneapolis
Minneapolis, MN

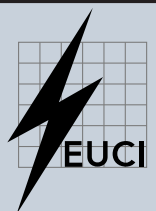
TESTIMONIALS

The Distribution Planning & Automation Course was excellently presented by 2 experts in the field. I highly recommend junior planners and senior staff working in the field to attend. This is the only course of its kind. Great job!

– M.F., Distribution Planner, Manitoba Hydro

This course presented a balance between the theoretical and practical application of distribution engineering.

– V.C., Distribution Engineer, Barbados Light & Power Co., Ltd.



A Leading Provider of
Continuing Education for
Energy Professionals

Electric Power Distribution Engineering: Planning and Automation

August 4 – 7, 2008

COURSE OBJECTIVES

The Electric Power Distribution Engineering: Planning and Automation course covers basic concepts, equipment models, performance analysis methods and tools, planning, automation, protection, reliability, and economic analysis.

The course is designed to:

- Comprehensively cover electric power distribution systems
- Provide distribution system designers, planners, and operators a basis for arriving at cost-effective solutions and strategies
- Enable an engineer or a practicing individual in a utility or an industrial environment to design, plan, and operate a system

The course material serves as a useful reference in day-to-day functions and allows self-paced, in-depth learning with the aid of practical examples. The topics covered include latest developments occurring in the industry.

WHO SHOULD ATTEND

This course is ideal for those who have a basic understanding of power systems and need practical training in the field. The course can also be taken by engineers who do not specialize in power systems.

The course is intended for the following professionals:

- Electric utility system planners, operators, and designers
- Personnel in manufacturing companies of distribution equipment
- Electric power industry consultants
- University professionals

Upon completion, participants will understand the basics, models, and methodologies to design, operate, and maintain efficient and cost-effective distribution systems.

Electric Power Distribution Engineering: Planning and Automation

August 4 – 7, 2008

Program Agenda

Day1 Monday, August 4, 2008

Registration and Continental Breakfast: 8:00 – 8:30 a.m.

Course Timing: 8:30 a.m. – 5:00 p.m.

Group Luncheon: 12:00 – 1:00 p.m.

Day 1: Distribution System Fundamentals and Models

Basic Concepts of Power and Distribution Systems Overview

- Single-phase and three-phase analysis
- Per-unit systems
- Different power, power factor, and losses definitions
- Delta/Wye transformation
- Balanced vs. unbalanced analysis
- A single feeder example: Loss and efficiency calculations and interpretation
- Components in distribution systems
- Equipment ratings and ANSI Standards
- Primary distribution schemes
- Secondary distribution schemes
- Distribution substation arrangements
- Power devices: Lines, cables, and transformer ratings

Equipment and Models

- Overhead (OH) and underground (UG) line models
- Characteristics of conductors
- Examples on OH and UG line models
- Line loading characteristics
- Different transformer connections
- Single-phase residential analysis with unbalanced loads
- Three-phase transformer analysis with unbalanced loads
- Auto-and three-winding transformer analysis
- Single- and three-phase auto-transformer analysis
- Examples of transformer analysis

Day2 Tuesday, August 5, 2008

Continental Breakfast: 8:00 – 8:30 a.m.

Course Timing: 8:30 a.m. – 5:00 p.m.

Group Luncheon: 12:00 – 1:00 p.m.

Day 2: System Planning and Design

Steady-State Performance Analysis

- System modeling using network analysis
- Single-phase, three-phase, and multiphase models
- Three-phase power flow analysis
- Practical example on 10-feeder power flow analysis
- Control devices: Capacitors, reactors, transformer tap changers
- Voltage regulation with fixed and switched capacitors
- Example of voltage regulation improvement
- Motor starting and flickering

About EUCI

EUCI is a leading provider of conferences, seminars, workshops and courses designed exclusively for the energy industry. We seek to create a forum for professional communication and exchange knowledge and ideas among energy industry professionals and others interested in the industry.

Join the thousands of others who have attended our events since 1987 and see why they keep coming back.

Electric Power Distribution Engineering: Planning and Automation

August 4 – 7, 2008

Program Agenda

Day2 Tuesday, August 5, 2008 (Continued)

System Planning

- Review of methods
- Urban, suburban, and rural load characteristics
- Load and demand models
- Examples of demand and load models
- Load evaluation and demand forecasting
- Design criteria and standards (voltage, equipment)
- Design of substations, primary, and secondary systems
- Design evaluation
- Asset management
- Practical example on a simple substation and plant design

Day3 Wednesday, August 6, 2008

Continental Breakfast: 8:00 – 8:30 a.m.

Course Timing: 8:30 a.m. – 5:00 p.m.

Group Luncheon: 12:00 – 1:00 p.m.

Day 3: Distribution System Protection and Automation

System Protection

- Three-phase source models
- Fault characteristics
- Short-circuit analysis
- Practical example of fault analysis philosophy and architecture
- Protective devices: Fuses, reclosers, sectionalizers, circuit breakers,
- Relays, surge arrestors
- Time-current curves for protective devices
- Protective device ratings and selection
- Feeder and transformer protection
- Grounding
- Computer-aided protection
- Practical examples on fuse/fuse coordination, recloser/fuse
- Coordination

Distribution Automation

- Automation functions
- Advanced metering infrastructure
- Demand Side Management (DSM)
- Case studies of economic & technical feasibility
- Trouble call analysis
- Outage management
- Substation, feeder, and customer restoration
- DA trends and technologies
- DSCADA and DMS architecture
- Geographic Information Systems (GIS) applications
- Practical case study on restoration

Electric Power Distribution Engineering: Planning and Automation

August 4 – 7, 2008

Program Agenda

Day 4 Thursday, August 7, 2008

Continental Breakfast: 8:00 – 8:30 a.m.

Course Timing: 8:30 a.m. – 5:00 p.m.

Group Luncheon: 12:00 – 1:00 p.m.

Day 4: Economics and Reliability

Economic Analysis

- Background
- Basic methods: Net present worth, rate of return methods
- Selection of devices: Lines and transformers
- Tariffs and pricing
- Cost-benefit analysis
- Example on transformer selection
- Performance-based regulation and manifestation

System Reliability

- Overview of distribution reliability
- Reliability indices
- Component models
- FMEA and Monte Carlo methods
- Practical example on a two-feeder system
- Reliability optimization
- Maintenance techniques
- Regulatory issues



August 4 – 7, 2008

INSTRUCTORS

S. S. Venkata is a **Fellow** of the **IEEE**. He has offered training courses on distribution systems, power quality, and reliability and safety to more than 20 utilities, industries, and federal agencies. He has also provided technical and consulting services to many electrical and process industries. Venkata has published and/or presented over 300 publications in refereed journals and conference proceedings, and is a co-author of the book Introduction to Electric

Energy Systems. He is a registered professional engineer in the state of Washington and West Virginia. Before joining KEMA, he has held administrative and academic positions at Clarkson University, Iowa State University, University of Washington, West Virginia University, and University of Massachusetts. He has been very active in the IEEE for the past 40 years. He has been serving as a member of the Power Engineering Society (PES) Executive Committee and Governing Board for over three years, as the Vice President of Publications. In 1996, he received the Outstanding Power Engineering Educator Award from the IEEE Power Engineering Society. He also received the Third Millennium Award from the IEEE in 2000.

James D. Bouford, PE, has nearly 40 years of experience in the electric utility industry. He spent over 30 years with Central Maine Power Co., with 1 year at their wholly owned consultant subsidiary, and for nearly 9 years, he worked for National Grid USA, with the last 5 years there as a Vice President of Engineering Services. Since retiring from National Grid, he has joined the consulting firm, TRC Engineering, where he is their Manager, Power Systems Studies.

His wide range of experience includes:

- Managing a 700 person, multi-location engineering/design department dealing with such diverse areas as short and long term system expansion plans, substation engineering and design, distribution engineering, standards development, system protection engineering, control design, and distribution automation.
- Lead industry R&D efforts as Chair of the EPRI Distribution Task Force and the EPRI Distribution Custom Power Task Force.
- Recipient of two EPRI Innovator Awards
- One of the principal authors of IEEE Standard 1366 – 2003 dealing with distribution system reliability reporting.
- Chaired the IEEE Task Force on Reliable Distribution Design, and is vice-Chair of the Task Force on Stray Voltage.
- Testified before State regulatory bodies on such topics as rate design, cost of service analysis, system reliability, system loss remediation, and merger integration impacts.
- Authored technical papers on such diverse topics as asset management, optimizing reliability, reducing system losses, optimizing distribution operations, and unique methods for analyzing data.

PROCEEDINGS

The proceedings of the course will be published and one copy will be distributed to each registrant at the course.

COURSE LOCATION

EUCI has reserved a room block at the Hyatt Regency Minneapolis, 1300 Nicollet Mall, Minneapolis, MN 55403, for the nights of August 3-6, 2008. The rate is \$189 single or double occupancy, plus applicable tax. Call 612-370-1234 for reservations and mention the EUCI Course to get the group rate. Make your reservations prior to July 15, 2008. There are a limited number of rooms available at the course rate. Please make your reservations early.

Experience the premier luxury of Hyatt Regency Minneapolis. The only Four-Diamond convention center hotel in downtown Minneapolis - as well as the closest - our extensive business facilities, renowned dining, and exciting new health club offer all you need for a memorable stay. Relax in the largest guestrooms of any hotel in downtown Minneapolis, with enchanting views of the city and sights. Sample some of the finest cuisine in town. Our prime location on Nicollet Mall lets you easily explore an incredible array of Twin Cities' attractions, from shopping to sports and anything in between.

REMEMBER, EVERY 4TH REGISTRANT IS FREE!

REGISTRATION INFORMATION

For instant registration, call (201) 871-0474 or fax Registration Form to (201) 767-1928

Register 3, Send 4th Free!!

Any organization wishing to send multiple attendees to these conferences may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

All cancellations received on or before July 4, 2008 will be subject to a \$195 processing fee. Written cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI conference or publication. This credit will be good for six months. In case of conference cancellation, Electric Utility Consultants' liability is limited to refund of the conference registration fee only. For more information regarding administrative policies such as complaint and refunds, please contact our offices at (201) 871-0474

MAIL DIRECTLY TO:

The Power Marketing Association (PMA)
P. O. Box 2303
Falls Church, VA 22042

FAX TO:

(201) 767-1928

PHONE:

(201) 871-0474

PLEASE REGISTER THE FOLLOWING

- Electric Power Distribution Engineering: Planning and Automation, August 4-7, 2008: **\$2195**, After July 25, 2008, \$2395

ENERGIZE WEEKLY

When you sign up to "Energize Weekly" you will receive a new conference presentation each week via email on a relevant industry topic. The presentations are selected from a massive library of over 1000 current presentations that EUCI has gathered during its 21 years organizing conferences.

How did you hear about this event? (Direct email, Colleague, Speaker(s), etc.)

- Sign me up for "Energize Weekly"

Name _____ Title _____

Name Preferred for Badge _____ E-Mail _____

Company _____ Telephone _____

Address _____ City _____ State _____ Zip _____

PAYMENT METHOD Please make checks payable to "PMA"

Please charge my credit card: Visa MC AMEX Security Code _____

Visa and MC cards have a 3 digit code on the signature panel on the back of the card, following the account number. American Express cards have a 4 digit code on the front of the card, above the card number.

Name on Card _____ Signature _____

Account Number _____ Exp. Date _____

Billing Address _____ Billing Zip Code _____

Or enclosed is a check for \$ _____ to cover _____ persons.

- Check here if you have any dietary or accessibility needs. We will contact you for more details.