

Electric Substation Short Course

March 17-19, 2009

Scheman Building | Iowa State University
Ames | Iowa



Sponsored by
Electrical and Computer Engineering Extension at Iowa State University

ELECTRIC SUBSTATION SHORT COURSE ♦ MARCH 17-19, 2009

TUESDAY, MARCH 17, 2009

- 7:30 AM** **Registration** **Scheman Room 179**
- 8:00 AM** **Introductions and Short Course Overview**
Tom Baird, Iowa State University
- 8:15 AM** **First Response to Substation Outages , by Operations Staff, MidAmerican Energy, Des Moines, IA**
MidAmerican Energy's substation operations staff will summarize their steps to determine causes of substation outages and to restore service to deenergized portions of substations.
- 10:00 AM** **Arc Flash Prevention and Protection for Electric Utilities, by Chris Brooks, S&C Electric Co., Marietta, GA**
Chris will examine NESC regulations and standards which require electric utilities to minimize and prevent arc flash injuries, and will include theory and calculations, appropriate personal protective equipment, and a template for safety coordinators for development of a safety response and hazard-avoidance program.
- 12:00 PM** **Lunch**
- 1:00 PM** **Transformer Diagnostic Evaluations and Oil and Gas Analysis, by Fredi Jakob, Weidmann Diagnostic Solutions, Sacramento, CA**
Fredi will present the basics of transformer diagnostic evaluations and oil and dissolved gas analysis to reduce operation and maintenance expense, leverage the most out of existing assets, extend equipment life, and avoid high cost of sudden failure and forced outage. His coverage will include the theoretical basis of DGA, interpretation methods and use of these tools to examine some DGA case histories. He will also review the ASTM test methods most useful for the evaluation of transformer oil.
- 4:30 PM** **Reception for Attendees and Presenters**
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WEDNESDAY, MARCH 18, 2009

- 8:00 AM** **Application of Thermography to Substation Equipment, by the Snell Group, Montpelier, VT**
An expert from the Snell Group will describe thermography equipment along with survey techniques used for detecting thermal anomalies in utility substations that indicate possible equipment failure.
- 12:00 PM** **Lunch**
- 1:00 PM** **SF6 Gas Handling and Circuit Breaker Service, by Eric Campbell, DILO Company, Inc., Odessa, FL**
Eric will discuss SF6 properties, safety in exposure to SF6 and in handling of SF6 cylinders, and proper techniques in removal and refilling of SF6 in circuit breakers.
- 4:30 PM** **Adjourn**
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THURSDAY, MARCH 19, 2009

- 8:00 AM** **Substation Battery and Charger Design and Sizing, by Dave Rehage of Hubill, Inc., Davenport, IA, representing C&D Technologies, Inc.**
Dave will review substation battery and charger design, sizing criteria, handling, and maintenance.
- 10:00 AM** **Rebuild and Restoration of Downtown Substations in Cedar Rapids, IA, Following Record-Setting Floods, by Corey Proctor, ITC Midwest, Cedar Rapids, IA**
Corey will describe efforts to restore and, in some cases, rebuild downtown substations which were completely flooded by unprecedented water levels on the Cedar River during the summer of 2008.
- 12:00 PM** **Lunch and Adjourn**

Subjects to be covered in this year's short course include: first response to substation outages, arc flash prevention and protection for electric utilities, transformer diagnostic evaluations and oil and gas analysis, application of thermography to substation equipment, SF6 properties and gas handling, substation battery design and maintenance, and substation rebuild following floods in downtown Cedar Rapids, Iowa.

PARTICULARS

Your registration fee of \$750 includes all program materials, three lunches, the Tuesday evening reception, and refreshment breaks. Members of ISU's Electric Power Research Center (EPRC) may register at the reduced rate of \$650. Use check, credit card, or purchase order to pay. The deadline for registration is March 11, 2009.

Register **online** at:

<http://www.ucs.iastate.edu/mnet/substation/register.html>, or mail a copy of the completed registration with payment to the address shown on the back of this brochure. You may also register via fax at (515) 294-6223.

For registration questions, call Continuing Education & Professional Development at (515) 294-6222.

CHANGE IN PLANS?

If you cancel your registration **before** March 11, 2009, your registration fee will be refunded less a \$50 processing fee. No refunds will be made **on or after** March 11, 2009. If you cannot attend the conference, you may send a substitute. Please call Continuing Education & Professional Development at (515) 294-6222 or email cepd-info@iastate.edu.

SPECIAL NEEDS

If you need accommodations for a disability or a dietary restriction, call Continuing Education & Professional Development at (515) 294-6222 or email cepd-info@iastate.edu.

Please note: smoking is not allowed on the Iowa State University campus (including the Scheman Building and surrounding property) pursuant to the Iowa Smokefree Air Act of July 1, 2008. For more information call 1-888-944-2247 or visit www.IowaSmokefreeAir.gov.

Continuing Education Credit

Upon completion of the course, attendees will be eligible for 1.9 Continuing Education Units issued by Iowa State University.

LODGING

Please make your own lodging arrangements.

AmericInn and Suites	(800) 634-3444
Best Western-University Park	(515) 296-2500
Comfort Inn	(800) 228-5150
Days Inn	(800) 422-5250
Holiday Inn	(515) 268-8808
Country Inn and Suites	(800) 456-4000
Gateway Hotel & Conference Center	(800) 367-2637
GrandStay Residential Suites	(800) 388-7829
Hampton Inn	(800) 426-7866
Heartland Inn	(800) 334-3277
Holiday Inn Express	(515) 232-2300
Iowa State University Memorial Union	(515) 292-1111
Microtel Inn	(877) 422-5250
Quality Inn at Starlite Village	(800) 903-0009
Super 8 Motel	(800) 800-8000

DIRECTIONS/PARKING

Centrally located, Ames is easily accessed by U.S. Highways 30 and 69, as well as I-35. The Scheman Building is located in the Iowa State Center on the Iowa State University campus. From I-35 take U.S. Highway 30 west to University Boulevard (formerly Elwood Drive) and north past Jack Trice Stadium. The Scheman Building is located between Hilton Coliseum and Stephens Auditorium. Ample free parking is available adjacent to the Scheman Building.

TAX DEDUCTION

The expense of continuing education, when taken to maintain and improve professional skills is tax deductible. Contact your accountant for details.

EMERGENCY MESSAGES

During conference hours, messages may be left at (515) 294-6222. Messages will be posted near the conference meeting area.

FOR FURTHER INFORMATION

For questions about program content, contact Tom Baird (515) 294-7678 or tbaird@iastate.edu.

OTHER RELATED SHORT COURSES IN 2009

Check the Web Site (<http://www.ucs.iastate.edu/mnet/ecs/home.html>) for the latest information

February 16-19 • Midwestern Protective Relay Short Course, Ames, Iowa

Electric Substation Short Course

March 17-19, 2009

09-2043

Registration Information:* Mr. Ms. Mrs. Dr.

First Name	Middle Name (Initial)	Last Name
Company/Affiliation	Dept.	Day Phone
Email		Fax Number
Mailing Address 1		Night Phone
Mailing Address 2		
City	State	Zip Code

Registration Fee:

Your registration fee includes all program materials, three lunches, the Tuesday evening reception, and refreshment breaks.

- Regular Registration Fee \$750
- Electric Power Research Center (EPRC) Reg Fee \$650

I have special dietary needs and/or need accommodations for a disability as follows:

Cancellation Policy: Cancel by March 11 for refund less \$50 processing fee. No refunds on or after March 11.

Method of Payment:

- Check (Make payable to Iowa State University)
- Credit Card Visa MasterCard Discover
- Card Number _____ Exp. Date ____/____
- Cardholder Name _____ Signature _____
- Purchase Order (Please indicate billing address below, if different from above)
- PO Number _____
- Send Invoice to: Name _____
- Billing Address _____
- Telephone / Fax _____/_____

It's easy to Register!

Online—

www.ucs.iastate.edu/mnet/ecs/home.html

Mail—

Continuing Education &
Professional Development
Iowa State University
102 Scheman Building
Ames, IA 50011

Fax—

(515) 294-6223

Questions?

Email cepd-info@iastate.edu
or
Call (515) 294-6222

* Iowa State University requests this information to preregister you in a conference. No one outside the university, with the exception of participants in this conference, is routinely provided this information. If you fail to provide the required information, we cannot promise accurate registration. (Reference: Iowa Code, Chapter 22.11; Iowa Fair Information Practices Act)

Office Use Only

(Only one registration per form - Duplicate for additional registrations)