

Distribution Overcurrent and Arc Flash Protection

August 15 - 17, 2017

Denver, CO

What is this course about?

This course focuses on the application of protective devices for electric distribution systems including device coordination, reach, location, and selection, with the goal of maximizing system reliability. The training will utilize practical examples to reinforce the classroom concepts. UCS training is vendor-neutral and focused on the technical engineering protection issues, not any specific manufacturer's equipment or device. The course includes the following:

- Review of modern distribution system overcurrent protection and sectionalizing practices
- Overview of fault calculations, impedance, and the per-unit system
- The impact of system design, equipment selection, and protection practices

The Arc Flash Protection segment lays the groundwork for setting up effective arc flash safety practices and identifies gaps that might exist in programs already in place.

It is recommended for attendees to bring an engineering calculator to class. Smart phones with scientific calculator function would also serve this purpose.

Who should attend?

Distribution engineering and technical personnel of any experience level who desire to gain a better understanding of distribution system protection or need a review of protection and sectionalizing practices. Anyone seeking an overview of contemporary protection practices and a review of calculations used to compute fault currents and reliability impacts will find this course helpful.

Continuing Education Credits

Upon completion, attendees will receive a certificate for 17 Professional Development Hours (PDH). Professional engineers seeking continuing education credits should verify acceptance of this course with their state board.

Instructor Bios:

Jerry Josken is a Senior Consultant for UC Synergetic. Jerry holds a BS in Electrical Engineering Technology from the Milwaukee School of Engineer and a MBA from North Central College. During his 30+ year career with Eaton's Cooper Power Systems Jerry has served as Test Engineer, Design Engineer, Distribution Protection Engineer and Field Application Engineer. Past leadership positions include Chair of IEEE Rural Electric Power Conference (2012) and GLEMS Distribution Equipment /Controls (2013-2014). Presently, Jerry coordinates UCS Training Programs.

Gary Roberts is a Professional Engineer with over 40 years of experience in the electric utility industry, 25 of which with Texas Utilities. Most recently, Gary has been with UC Synergetic for the past 11 year serving in various capacities which has included some international engagements. Gary is a graduate of the University of Texas at Arlington with a BSEE and a graduate of Southern Methodist University with an MBA. Gary is married, has two grown daughters and is active in his church and community.

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Course Outline

Distribution Protection Fundamentals

- Phase/Ground Faults
- Temporary /Permanent Faults
- Time-Current Characteristic Curve

Overcurrent Protective Devices

- Load and Interrupting Ratings
- Fuses
 - Minimum Melt/Total Clear
 - Expulsion/Current Limiting Fuses
- Reclosers
 - Dual Timing Characteristics
 - Design Options
 - Control Types & Settings
- Relay-Controlled Circuit Breakers
 - Types of Breakers
 - Electromechanical Relays
 - Microprocessor-based Relays
- Sectionalizers
 - Applications
 - Role in Protection Scheme

Protection Philosophy

- Overhead vs. Underground

Device Application & Coordination

- Fuse/Fuse
- Substation Breaker/ Fuse
- Recloser/Fuse
- Sectionalizer/Recloser

Underground Distribution Protection

- Switchgear and protective equipment

Distribution System Reliability

- Reliability Indices
- Identifying Sectionalizing Points
- Effect of sectionalizing on reliability

Arc Flash Protection

- Terms and Definitions
- Cal/cm² vs. Burn wound classification
- Exposure to Utility Personnel
- Arc Flash Analysis Process
- Reducing Arc Flash Energy

Class Schedule:

- 2.5 days in duration
 - Tuesday & Wednesday 8:30AM to 4:00PM (lunch & snacks provided)
 - Thursday 8:30AM to noon

Course Location

The course will be held at the Holiday Inn Denver Lakewood

Holiday Inn Denver Lakewood
7390 West Hampden at Wadsworth
Lakewood, CO 80227
Phone: 303-980-9200

Lodging

Recommended hotels:

Holiday Inn Denver Lakewood
7390 West Hampden at Wadsworth
Lakewood, CO 80227
Phone: 303-980-9200

Course Registration

The course tuition is \$1495 per person. Tuition will include course materials, refreshments, and lunches all Tuesday and Wednesday. Any company with four or more attendees will save 25%. UC Synergetic clients are eligible for discounts. Contact Jerry Josken (jjosken@ucseng.com) to obtain the discount codes.

Hotel accommodations, transportation and other incidentals will be the student's responsibility.

Cancellations received after August 7, 2017 will receive a credit that can be used for tuition on a future UC Synergetic Course. The credit is good for one year and is transferable within the same company. In the unlikely case of course cancellation, UC Synergetic liability is limited to refund of the course registration fee only.

[Click here to register online](#) or complete the attached registration form.

For additional information about this course, other UCS course offerings, or on-site pricing, please contact Jerry Josken at (919) 348-3432 or via e-mail at: jjosken@ucseng.com.



Registration Form

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Payment methods:

By check, payable to **UC Synergetic, Inc.** Please attach check to the registration and mail to the address below.

--or--

By credit card. *An electronic invoice will be sent to you via email**. This is a secure payment method through PayPal. It does not require a PayPal account.*

Circle one: Enclosed is a check for / Please charge my credit card for the following:

_____ persons at \$1495.00 per person, a total of \$_____

**Please Complete the Information Below:
(attach additional sheets for multiple registrations)**

Name _____ Title _____

E-mail**

**Please provide email address if you would like confirmation of your registration or would like to pay online through PayPal.

Company: _____

Telephone: _____

Fax: _____

Address: _____

City: _____ State _____ Zip _____

For payment by check, PO, or other questions regarding payment, please contact:

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