



Distribution Overcurrent Protection

February 19 – 21, 2019

Charleston, SC

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. Pike Engineering 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

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 18 Professional Development Hours (PDH). Pike Engineering is registered as a Continuing Professional Competency Sponsor with the North Carolina Board of Examiners for Engineers and Surveyors. Pike Engineering Courses have never been refused as continuing education by any State PE Board.

Instructor Bios:

Kent Hoffman, PE, is a Senior Consultant for Pike Engineering. Kent, a graduate of NC State University, brings over 40 years of experience in distribution system protection, standards, and reliability. During his career at Progress Energy, Mr. Hoffman held various technical leadership positions, including Manager of Distribution Planning & Coordination, where he was responsible for standards and practices related to distribution system protective coordination. He has served on numerous technical committees and currently assists with Pike Engineering training programs and projects.

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

Distribution Overcurrent Protection Course Outline

Distribution Protection Fundamentals

- Fault Current Calculations
 - Per Unit System
- 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 Coordination & Application

- 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

Distributed Generation Protection

Sample Problems

- System Modeling
- Fault Current Calculation
- Reading Time Current Curves
- Device to device coordination

Class Schedule:

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



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Course Location

The course will be held at the Courtyard by Marriott Historic District – Charleston, SC

Marriott Courtyard – Historic District
125 Calhoun St.
Charleston, SC 29401

Lodging

Recommended hotels:

Marriott Courtyard – Historic District
125 Calhoun St.
Charleston, SC 29401
843-805-7900

Course Registration

The course tuition is \$1495 per person. Tuition will include course materials, refreshments, and lunches all three days of class. Any company with four or more attendees will save 25%. Pike Engineering clients are eligible for discounts. Contact Jerry Josken (jjosken@pike.com) to obtain the discount codes.

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

Cancellations received after February 4, 2019 will receive a credit that can be used for tuition on a future Pike Course. The credit is good for one year and is transferable within the same company. In the unlikely case of course cancellation, Pike liability is limited to refund of the course registration fee only.

[Click here to register online.](#)

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