ELECTRIC POWER DISTRIBUTION SYSTEMS COURSE 2019 and 2020

(4 days or 4.5 days)

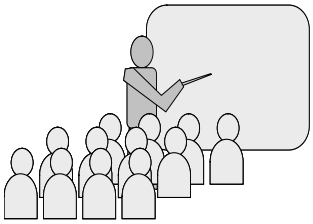
DESCRIPTION

This course focuses on the designs, performance criteria, equipment characteristics, and operational practices associated with electric power distribution systems. Students will learn about proven designs and concepts, while also receiving training on the latest trends and emerging power distribution technologies. The topics covered include distribution system layouts, substation configurations, feeder configurations, distribution transformers, grounding, voltage regulation, capacitor applications, system overcurrent protection, lightning surge protection, power quality, reliability, automation, distribution planning and distributed generation interconnection issues. The course also covers relevant standards pertinent to system design including ANSI C84.1, IEEE 519, IEEE 1410, IEEE 1366, IEEE 1547 and many others. The course is taught interactively and student feedback during instruction is encouraged.

COURSE OUTLINE

The course is composed of four days of instruction (Monday through Thursday) with class starting at 8:00 AM and finishing at 4:30 PM with a one hour break for lunch and small breaks in the middle of each session. An extra half day allowing more detail is also available if desired. The typical schedule is as follows.

- Day 1
  - Distribution System Overview, Substations and Layouts
  - Feeder and Equipment Characteristics, Neutral Grounding Designs
  - Voltage Regulation



- Day 2
  - VAR Control and Capacitor Applications
  - Power Quality
  - Distribution Reliability

- Day 3
  - Distribution System Overcurrent Protection
  - DG interface and protection
  - Lightning and Switching Surge Protection

- Day 4 (Note: Instruction can be extended into a 5th day if desired)
  - Lightning and Switching Surge Protection Continued
  - Distribution Automation, Smart Grid and Planning
  - Emerging Technologies (microgrids, high penetration DER grids, DC grids, off-grid applications)

To encourage student interaction, in-class assignments, quizzes and other interactive tools are utilized to enhance the instructional experience. Each topic is taught from the perspective of both the theory and practical application based on proven industry experience.

PREREQUISITES AND TARGET AUDIENCE

This course is directed at utility electrical engineers and planners involved in power distribution system design and operations. A background in three phase power, basic power system terminology and sequence components is recommended but not required. The course is also suitable for industrial engineers and plant managers aiming to learn more about utility distribution system practices and trends.

PRICING

Courses are presented at client sites typically to class sizes between 5 and 50 persons, although larger classes are occasionally requested. Prices in 2019 and 2020 are as follows:

Standard 4-day or 4.5 day Course: Pricing for a 4-day or 4.5 day standard *Electric Power Distribution Course* at Client Office Locations within the U.S. for class sizes up to 10 students is generally about $19,950. An additional fee of $620 is included for *each* additional student beyond 10. Prices shown here assume that the client provides a suitable classroom facility with projector at client expense. Prices include instructor T&L cost and one copy of the course handouts for each student participant. Please contact Nova Energy Specialists for a specific price quotation.

Customized Courses: For customized courses with content significantly different than the standard course or with longer or shorter duration, please contact Nova Energy Specialists for specific price quotations for those options.

INSTRUCTOR

The course instructor is Phil Barker. Mr. Barker has worked in the electric power industry for over 30 years. He has developed and taught extensive training courses at numerous utilities and has trained over 1500 utility professionals in topics related to power distribution, lightning protection, power quality, and distributed generation. Over his career he has performed some of the industry's leading analytical and field studies related to power quality, lightning protection and distributed generation (see a detailed biography at www.novaenergyspecialists.com for more information). He worked as a consulting engineer at *Power Technologies, Incorporated (PTI)* for 14 years, developed and led a branch engineering office for *EPRI PEAC Corporation* in Schenectady, NY from 2000 to 2003, and in 2003 he founded *Nova Energy Specialists, LLC* a firm involved heavily in DG integration and interconnection studies for utilities. He has contributed to several IEEE working groups and standards related to DG, lightning, power quality and power systems (e.g. IEEE 1547, IEEE C62.22, IEEE 1410, etc.) In 2010, he received the IEEE Award for Excellence in Power Distribution Engineering. Mr. Barker has published over 30 papers. He received his Bachelors and Masters Degree in Electrical Engineering from Clarkson University in 1985 and 86 respectively.

SOME OF NOVA'S OTHER COURSES

Nova also offers several other courses. Please contact us for more information on the following:

- Distributed Generation Interconnection to Power Systems (1, 2 and 3 day courses available)
- Lightning Protection of Power Systems (1 and 2 day courses available)
- Power Quality and Reliability (1 day)
- Application of Emerging Energy Technologies to Power Systems (1 and 2 day courses available)

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