

Electric Distribution Planning

1.5 days: October 24–25, 2017

Distributed Energy Resources

1.5 days: October 25–26, 2017

Asheville, NC

The Asheville fall leaf color show in the North Carolina Mountains attracts visitors from around the world. With the 5,000-foot elevation change within 50 miles of Asheville, the lush Blue Ridge Mountain range puts on one of the longest-running autumn leaf color displays in the country.



What are these courses about?

Electric Distribution Planning

The course includes a review of planning fundamental tools, including engineering economics (e.g. NPV), accessing system data, calculating system losses, etc. Two types of planning studies are emphasized; system capacity and reliability. Planning elements will include weather influence, equipment loading, and public relations. Attendees will learn to evaluate solutions and present results in a business like format.

Distributed Energy Resources – Issues and Integration

Distributed generation continues to ingress electric utilities in a variety of forms (small hydro, biomass, solar, etc.). Utilities are faced with a multitude of issues with regard to overcurrent protection, system stability and power quality. The course provides insight as to the system requirements to accommodate co-generation devices. Attendees will learn techniques to deal with reverse power flow conditions regarding distribution and substation equipment.

Who should attend?

Every Electric Utility Manager, or aspiring manager, is, or will be, involved with these topics. Utilities which rely on consulting firms for planning studies need to understand the process in order to create a specification and interpret final results.

The influx of distributed generation requires an understanding of issues associated with connections to various power sources. Policies need to be in place for utilities to effectively deal with alternate power providers.

Continuing Education Credits

Attendees will receive a certificate for 10.0 Professional Development Hours (PDH) for each class they attend. UC Synergetic Courses have never been denied as continuing education credit by any state professional engineering board.

Course Outlines

Distribution System Planning

Begins: October 24, 2017 8:30AM

Ends: October 25, 2017 noon

Fundamentals of Distribution Planning

- Load Definitions
 - Load Factor
 - Diversity of Loads
 - Coincidence of Load
 - Demand Factor
- Heating/Cooling Degree Days
- Peak Responsibility Factor
- System Losses
- System Reliability Analysis
- Engineering Economics
 - Time Value of Money
 - Net Present Value
- Setting Rates

Load Forecasting

- Projection from Historical Data
- Impact of Severe Weather

Equipment Loading Practices

- Transformer
- Circuit Breakers
- Conductor
- Asset Utilization vs. Premature Failure

Planning Process

- Identify the Problem
- Determine Goals
- Create a List of Alternatives
 - Cost to Implement
 - Time to Implement
- Evaluate/Select Best Alternative

Dispersed Energy Resources, Issues and Integration

Begins: October 25, 2017, 1:00PM

Ends: October 26, 2017 4:00PM

Intro to Distributed Generation (DG)

- Types of DG
 - Wind, Solar, Hydro, ICE, Geothermal
- DC Capacity vs. Distribution System
 - Small vs. Large Connections
- Industry Standards

Photo Voltaic & Wind

- Resource Locations
- Cost and ROI
- Government Incentives

Considerations and Issues

- Voltage Issues
 - Sustained
 - Voltage Flicker
- Reverse Power Issues
 - Overcurrent Protection
 - Coordinating Volt/VAR Devices
 - LTC/VR Cycling
 - Line Drop Compensation on VR Controls
- Harmonics
- Unintended Islanding

Specific to Photo Voltaic (PV)

- Load Profile vs. PV output
 - Axis Tracking
- Likelihood of Islanding

Instructor Bios:

Mike Marshall is Vice President of UC Synergetic. Mike is an industry expert in the areas of power system planning, engineering, design, reliability assessment, project prioritization, and large scale wind and solar generation. During his 30+ years in the electric power industry he has been actively involved with all aspects of power generation and delivery. His experience includes work on major projects for utilities in North, Central, and South America, Africa, and Europe. He has authored numerous technical papers on topics that include distribution planning, reliability, lightning protection, distribution automation, budget optimization, power quality, renewables integration and series capacitors.

David Farmer, PE is Director of Consulting Services for UC Synergetic. David earned his BSEE from West Virginia University Institute of Technology in 1983 and is a licensed professional engineer in several states. Mr. Farmer has 30 years of experience with electric utilities in power delivery planning, load forecasting, reliability analysis, engineering and operations, design, training, and project management. He has worked for both investor owned utilities and electric cooperatives, and has extensive consulting experience. He is a member of IEEE, serves on the Executive Committee of the Rural Electric Power Conference and Conference Chair for the 2015 REPC.

Chris Sticht is a Senior Consultant for UC Synergetic. Mr. Sticht is a specialist in utility system planning, load analysis, planning software, underground, solar and Smart Grid. Chris has extensive background in planning, design, operations and protection. His background includes work on transmission systems, distribution systems, substations, and commercial building electrical systems. He has managed teams of engineers, designers and electricians. His experience includes consulting, contracting, work at two power flow software companies, and several major utilities. He holds a MSEE from the University of Washington and a BSEE from Georgia Tech.

Jerry Josken is a Senior Consultant for UC Synergetic. Jerry holds a BS in Electrical Engineering Technology from the Milwaukee School of Engineering and an 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 Technical Training Programs.

Course Location

Hilton Asheville/Biltmore Park
43 Town Square Blvd.
Asheville, NC 28803

Hotel

Hilton Asheville/Biltmore Park
43 Town Square Blvd.
Asheville, NC 28803
Phone: 828-209-2700

Reservations: 1 800 HILTON or www.hilton.com

Course Registration

The course tuition is \$895/person for each course. Attend both courses for \$1,595/person, a \$195 savings. Discount codes are available for organization with 4 or more attendees or companies who are currently UC Synergetic clients. Contact Jerry Josken at 919-348-3432 for discount codes. Tuition will include course materials, refreshments, and lunches. Hotel accommodations, transportation and other incidentals will be the student's responsibility.

To register, please complete the attached registration form or [click here](#) to be forwarded to our on-line registration site.

Cancellations received after October 16, 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 event of a course cancellation, UC Synergetic liability is limited to refund of the course registration fee only.

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.



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1.5 days: October 24-25, 2017

Distributed Energy Resources
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Ashville, NC

Payment methods:

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

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:

___ \$895 ___ Distribution Planning
___ Distribution Energy Resources – Issues and Integration

___ \$1,595..... Attending both courses.

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: _____
State _____ Zip _____

City: _____

Referred by: _____

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

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