This course is the second of a series of four courses developed and offered by GridEd to address several evolving forces that will alter the fundamental operating characteristics of the electric grid, transforming it from a one-way central supply structure to one that has bidirectional power flows resulting from distributed energy resources (DER). Self generating consumers or those with electric storage devices will alter the design requirements for the electric distribution system. This course focuses on electric power distribution systems and covers background and analysis of many modern distribution problems, including:

- Integration of distributed generation
- Advanced distribution automation
- Volt-var control

This course has particular emphasis on impacts on reliability, voltage profiles, and efficiency. The course includes several problem sessions where the class will work through real-world problems. As part of this course, students will receive the Electric Power Distribution Handbook, 2nd Edition (T. A. Short, CRC Press, 2014).

Who Should Attend

This course is intended for distribution engineers or engineers needing to learn about distribution systems with a background in electrical engineering. Students should have some familiarity with distribution systems and equipment.

Registration Information

- Date: August 20 & 21, 2014
- Course Length: 2-Days
- PDH* Available: 16-Hours
- Registration Fee: $1,200 per person
- 20% discount for organizations sending three or more attendees
- 20% discount for individuals who take all four GridEd short courses
- Location: Con Edison: The Learning Center
  4382 Vernon Blvd.
  Long Island City, NY 11101
- Registration: [http://grided.epri.com](http://grided.epri.com)
- Students should bring a laptop computer with Internet connection capability.

For More Information

- Tom Short, tshort@epri.com or 650.855.2268
- Steven Coley, scoley@epri.com or 865.218.8179

*Professional Development Hours*
**Meet the Instructor**

**Tom Short** is a Technical Executive at the Electric Power Research Institute (EPRI). His responsibilities include leading research in the areas of distribution capacitor application, distribution efficiency and volt-var control, power quality, fault location, distribution reliability, application of distributed generation, and resiliency of overhead lines during storms. Short has led instruction of utility personnel in the areas of arc flash, lightning protection, distribution system design, and application of distributed generation. Short authored the book *Electric Power Distribution Handbook, 2nd Edition.*

Prior to joining EPRI, Short performed utility studies in the areas of distribution lightning protection, power quality monitoring, transient simulations of lightning and switching impacts, ferroresonance, and reliability at Power Technologies, Inc. Short taught utility courses on distribution systems, lightning protection, relay application, power quality, and application of distributed generation.

Short received his Bachelor’s and Master’s degrees in electrical engineering from Montana State University.

**Course Outline**

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Brief Introduction to Distribution Systems</td>
<td>• Faults</td>
</tr>
<tr>
<td>• Changes in Distribution Systems</td>
<td>• Overcurrent Coordination</td>
</tr>
<tr>
<td>• Basics of Overhead and Underground Lines</td>
<td>• Problem Session: DG Impacts on Coordination</td>
</tr>
<tr>
<td>• Problem Session: DG Impacts on Voltage Drop</td>
<td>• Reliability</td>
</tr>
<tr>
<td>• Transformer Connections</td>
<td>• Resiliency</td>
</tr>
<tr>
<td>• Problem Session: DG Impacts with Different Transformer Connections</td>
<td>• Problem Session: Design an Automated System</td>
</tr>
<tr>
<td>• Voltage Regulation</td>
<td>• Power Quality</td>
</tr>
<tr>
<td>• Capacitors and Reactive Power Control</td>
<td>• Problem Session: Problem Feeder</td>
</tr>
<tr>
<td>• Problem Session: Volt-var Control</td>
<td></td>
</tr>
</tbody>
</table>