Distribution Automation training 2019
Relay schools, application, product, and automation communications training
The value of training

Distribution Automation Training Center (DATC)
With industry and utility experienced professionals and the latest technologies available, ABB Distribution Automation is the best option in the market to increase your knowledge and sharpen your technical skills.

Whether you come to our state-of-the-art training center located in Lake Mary, Florida, United States, or receive standard or customized courses at your facilities or any location of your choice, ABB’s superior expertise in application, installation, operation, maintenance, and testing of protection, control, automation, and communication solutions will better prepare you to face any industry and utility challenge.

After receiving training in Distribution Automation solutions, you will be able to deliver a higher value to your company and your customers by helping them to increase reliability, improve safety, and reduce downtime. For more information sends us an email: US-DASolutions@abb.com

Our training features:
- Highly qualified professionals with a wealth of experience in relay and engineering support
- Training material created to include theory and hands-on exercises
- Expertise in IEEE, IEC 61850, DNP 3.0 and Modbus communication standards

Training offered
The following types of training are offered:
- Classroom training is offered at the DATC in Lake Mary, FL.
- Onsite product training is available to customers at the customer’s location. These courses are upon request only.
- Customized workshops are designed to provide a deeper understanding of the principles of protection and control, each class is targeted to address a specific topic such as feeder, transformer, and motor protection. The classes are structured for 1-2 hour segments and can be held on-site or at one of ABB’s facilities in your area. Contact your ABB representative to schedule.
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Symmetrical components and fault analysis

The course discusses the symmetrical component representation of various power system components, and comprehensively analyzes faults.

Relay segments covered:
- Per unit system
- Introduction to symmetrical components
- System faults
- Fault calculations
- Sequence network modeling: Generator
- Sequence network modeling: Transformer
- Sequence network modeling: Overhead lines

Participants learn
- Mathematical fault analysis techniques
- Fault calculations and system stability for single-phase and multiple-phase fault scenarios
- Understand real case examples
- Rapid calculation of how your system will behave under abnormal conditions

Participant profile
Engineers and senior level technicians who wish to reacquaint themselves with vector mathematics and fault analysis computations.

Prerequisites
A general knowledge of basic electrical engineering is recommended, as well as Elementary Phaser Mathematics, Mathematical Matrix Manipulation, and Power System Basics.

What to bring
Only scientific calculator.

Additional course details
This class will be held November 5-8, 2019, from 8:30 a.m. to 5:00 p.m.

Course code
- 9CSC008656-US-EN
Power systems protection and coordination

The major contents of this course covers the fundamental aspects of power system protection and coordination. The basic philosophy and introduction to application problems are also addressed.

**Topics covered**
- Power system fundamentals
- Fault calculation
- Protection systems introduction
- Selection of protection relays
- Transformer, busbar, and arc protection
- Review of power systems
- Motor protection
- Line protection
- Generator protection
- Feeder protection
- Relay coordination

**Participant profile**
- Electrical engineers, relay engineers, and senior technicians. Involved in protection and coordination for distribution lines, transmission lines and substations.

**Prerequisites**
- Knowledge of basic electrical engineering is required. Basic relay school is highly recommended.

**Additional course details**
This course will be held on November 12-15, 2019, from 8:30 a.m. to 05:00 p.m.

**Course code**
- 9CSC008655-US-EN

**Participants learn**
- Students will learn the basis upon which the selection of protection systems is made for the different components of the power system (lines, transformers, motors, generators, and busbars) as well as the basic criteria for relay settings and coordination.
- Review of fault calculations and protective device calculations
- Coordination of overcurrent protective devices
Relion® series protection and control

This Relion three-and-a-half day course is designed for engineers and technicians to become proficient in installation, operation and configuration of Relion distribution series relays, tools, and software.

Course breakdown
- Operation and engineering for Relion 615 series ANSI relays and REX640 relays all-in-one protection and control relay.

Topics covered
- Introduction to Local Human Machine Interface (LHMI) and WebHMI
- Protection settings configuration using WebHMI and LHMI
- Relay configuration and management with PCM600 Tool
- Relion relay applications
- Relay logic design with Application Configuration Tool (ACT)
- GOOSE Engineering hands-on training
- Analog channel and control configuration (only available for REX640)

Participants learn and perform hands-on
- Relion series relay quick start up guide overview
- Relion series relay settings using the WebHMI and PCM600 tool
- PCM600 application configuration tool

Participant profile
Power system engineers, service engineers, technicians, and personal involved in operations and maintenance of protection relays.

Prerequisites
Basic knowledge of protection relays and power distribution operations.

What to bring
Your own laptop computer with PCM600 software previously installed. Please contact our support team for assistance.

Additional course details
This course will be held on
- September 24 -27, 2019 from Tuesday to Friday from 8:30 a.m. to 5:00 p.m., with Friday from 8:30 p.m. to 12:00 p.m.

Course codes
- 9CSC009545-US-EN
SSC600 Smart substation control and protection applications

This three-day course is designed for engineers and technicians to become proficient in installation, operation and configuration of the centralized protection and control solution.

Training segments include
- SSC600 Overview
- Project set up of the SCC600
- Time synchronization and measurements of the SSC600 and merging units
- Protection and Control using the SSC600
- Monitoring of the electrical system using the SSC600
- Redundant Communications using the SSC600
- Vertical Communications using the SSC600

Participants learn and perform hands-on:
- How to create a project using the SSC600
- How to configure a basic application using the SSC600 for protection and control purposes
- How to monitor the electrical system using the SSC600
- How to set up redundant and vertical communications using the SSC600

Participant profile
Electrical engineers, relay engineers, and senior technicians. Involved in protection and coordination for distribution lines, transmission lines and substations.

Prerequisites
Basic knowledge of protection relays and the electrical network using IEC61850. Relion series relays-protection and control training is highly recommended.

Additional course details
This course will be held on October 15-18, 2019, from 8:30 a.m. to 5:00 p.m.

Course code
- 9CSC009544-US-EN
Electromechanical relays & Flexitest™ switches

This course is designed for participants to become proficient in application, installation, operation, maintenance, and testing of ABB EM relays and FT switches.

Training segments include
- Current non-directional and current directional
- Distance
- Current differential
- Auxiliary and annunciator
- Under/over voltage
- Power directional
- Under/over frequency
- FT switches

Participants learn and perform hands-on
- Applications: learn to apply relays for various combinations of fault protection
- Settings: set up relay functions for your specific application
- Maintenance: maintain relays to perform for a lifetime
- Calibration: calibrate relays to precision accuracy
- Acceptance Testing: test relays to verify acceptance criteria and characteristics
- Relay construction: learn cylinder unit, induction disc element, transformer, compensator, polar unit and auxiliary relay components
- Troubleshooting techniques: use relay tools to reduce operating costs and minimize downtime

Participant profile
Relay engineers, technicians, and operators.

Prerequisites
Knowledge of/experience with protective relaying and use of electrical equipment.

What to bring
Laptop is recommended.

Additional course details
This class will be held on Sept. 19-20, 2019, from 8:00 a.m. to 5:00 p.m.

Course code
- 9CSC008652-US-EN
Registration information

To register in any of the courses, the participant should follow these steps:
• Sign up on https://mylearning-americas.abb.com
• Go to the catalog tab
• In the search field type in the course code or topic
• Click on Add to cart button
• On the left top corner, click on the basket to proceed with the payment.
• Confirm that the right course is selected and hit continue
• Include the credit card information to be used to pay for the course and follow the process until receive the order confirmation

For support while registering, send an email to US-DASolutions@abb.com, or call +1 954 242 2383.

Please make reservations at least four weeks before the start of the course, as ABB is only able to accept a limited number of participants on each course. ABB accepts bookings in the order they arrive. To find course dates, please refer to the course descriptions or course schedule. If you have any questions please email US-DASolutions@abb.com.

Confirmation, facilities and accommodations
A confirmation will be returned upon receipt of your application with specific details about the hours, and location. ABB has negotiated the best rates available in each area during the training program, please contact us for hotel information.

Instructors and staff
Training is conducted by our professional instructors who are specialized in delivering the latest information and knowledge about the subject at hand.

On-site and customized customer training
On-site and customized customer training sessions are offered upon request. ABB’s representatives will gladly arrange courses at any agreed location. Our training staff will be happy to assist in the planning and organization of your on-site or customized training requirements. Arrangements may also be made by contacting the Marketing and Sales Department.

Course descriptions
Course descriptions concern standard courses only. For tailor-made courses please call +1 954 242 2383. ABB reserves the right to make changes to standard courses without notice.

Course certificate
Each participant will receive a course certificate upon the completion of the course.

Cancellation and notice
If the course is cancelled or postponed, you will be informed at least one week prior to the course start. ABB reserves the right to postpone or cancel courses. If you need to cancel, please send an email to US-DASolutions@abb.com as soon as possible, but no later than two weeks prior to course start. The course fee will not be reimbursed to anyone canceling with less than two weeks notice from the scheduled course date.
# Course schedule

## 2019

<table>
<thead>
<tr>
<th>Course number</th>
<th>Course name</th>
<th>Price (USD)</th>
<th>Location</th>
<th>Date</th>
<th>Registration</th>
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<tr>
<td>9CSC008652-US-EN</td>
<td>Electromechanical relays and FT Flexitest switches</td>
<td>$1,500</td>
<td>Lake Mary, FL</td>
<td>Sept. 19-20, 2019</td>
<td><a href="#">Register here</a></td>
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<td>9CSC009545-US-EN</td>
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<td>$0*</td>
<td>Lake Mary, FL</td>
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<td>9CSC009544-US-EN</td>
<td>SSC600 Smart substation control and protection applications</td>
<td>$0*</td>
<td>Lake Mary, FL</td>
<td>October 15-18, 2019</td>
<td><a href="#">Register here</a></td>
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<td>November 12-15, 2019</td>
<td><a href="#">Register here</a></td>
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*Course is free of cost. However, student must pay a USD150 reservation fee. This fee will be reimbursed after the student completes the training. ABB will keep the fee if the student does not show up.

Please contact the hosting ABB facility for more information:

**Distribution Automation Training Center**  
Phone: +1 954 242 2383  
Email: US-DASolutions@abb.com

**Disclaimers**

- **Relay school classes** – Need a minimum of 6 participants to confirm this class – Confirmation of this course will be completed once requirement is met.
- **Relion product training classes** – Minimum of 6 participants to confirm class – Confirmation of this course will be completed once requirement is met. Special offer per course is limited and does not include any other additional discounts.
- **General** – ABB has the right to cancel the class if above requirements are not met. ABB is not responsible for travel expenses of any of the participants if class is cancelled.
- ABB will confirm all classes at least 2 weeks prior of the date of the course.
- Training courses are also available upon request. Location will be determined by the customer or ABB based on the number of participants and the availability of the presenter.
Register in ABB MyLearning to access Distribution Automation courses.

- S1519E – Relion® 605 series ANSI
- S1526E – Relion® 615 Series ANSI
- S1536E – Relion® 620 Series ANSI
- REX640 – Protection and control relay
Visit us online to view the 2019 ABB Distribution Automation webinar calendar or to access recorded webinar archives from previous webinar events.
Notes
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