Power System Protection and Reliability
Protection Devices Testing, Adjusting and Operating to Increase Reliability of Power System Network

13 - 24 December 2020
Dubai, United Arab Emirates
WHY CHOOSE THIS TRAINING COURSE?

The Fundamentals of this AZTech Training Course provides a comprehensive understanding of the principles of Digital Power System Relaying and Protection Applications. This training course will help the participants in testing, operating and adjusting protective relay. Delegates will understand reliability and availability of power systems networks, proactive module to protect power system network to work in safe and efficient manner.

This training course will feature:

- Define all protection devices required for power system
- Define all standards regarding protection devices and its setting
- Applying function test for protection devices and PD analysis
- Faults types and fault study
- Protection relay according to ANSI code

WHO IS THIS TRAINING COURSE FOR?

This AZTech training course will benefit all electrical, technical & instrumentation engineers. It will help them understand more the principles of power system protection and reliability.

This training course is suitable to a wide range of professionals but will greatly benefit:

- Electrical power system engineers
- Electrical technician
- All engineers and tech work in substations, power system and electrical companies (generation, transmission, dist.)
- For managers to understand the effect of power factor correction with cost
- Anyone who requires an understanding of the principles of protective relaying such as recent graduates or those who are new to the industry. Also beneficial as an update on the latest relaying technology

WHAT ARE THE GOALS?

By the end of this training course, participants will be able to:

- Understand power protection devices
- Understand faults system and types
- Power system reliability and PD analysis
- Load types and network availability
- Learn Fundamental Principles of Power System Protection

HOW WILL THIS TRAINING COURSE BE PRESENTED?

This AZTech training course will utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes lecture with active delegate participation including discussions and workshops. Real life problems and case studies will be worked out and discussed. Through an active participation in the group work and class discussions, the delegates will be a lot of opportunity to increase their experience and knowledge of techniques available for equipment troubleshooting.
THE COURSE CONTENT

Module 1: Power Quality and Reliability

Day One: Introduction, Voltage Sags and Interruptions
- Power quality definition and basics
- Quantifying power quality
- ITI curve
- Causes of voltage sags
- Causes of interruptions
- Mitigation methods

Day Two: Transient Voltage Excursions
- Motor starting
- Switching and traveling waves
- Capacitor switching
- Lightning
- Lightning shielding and grounding
- Ferroresonance

Day Three: Reliability Indices, Effects of Fault Clearing on Power Quality
- IEEE-defined reliability indices
- Interpreting reliability indices
- Fault clearing
- Reclosing strategies
- Fuse saving philosophy
- Fuse blowing philosophy

Day Four: Insulation Coordination, Arresters, and Steady-State Voltage Regulation
- Characteristics of effective teams
- Characteristics of ineffective teams
- Managing the factors affecting team performance
- Empowering team development
- Utilizing team diversity
- Coaching to enhancing team competence

Day Five: Harmonics
- Fundamentals of harmonics
- Causes and effects of harmonics
- AC power and power factor
- Mitigating harmonic effects
- K-factor transformers
- Harmonic filters
Module 2: Power System Protection

Day Six: Introduction, Math Review, Symmetrical Components and Sequence Networks

- Protection introduction
- Phasor math
- Per-unit calculations
- Symmetrical components
- Sequence networks
- Fault modeling

Day Seven: Electromechanical and Digital Relays, Relay Schemes for Radial Systems, Time-Coordinated Overcurrent Protection

- Electromechanical relay operating principles
- Microprocessor-based relay implementation
- Instantaneous and time overcurrent relays
- Reclosers and sectionalizers
- Time-current curves
- Device coordination

Day Eight: Relay Schemes for Networked Systems and Device Protection

- Distance relays
- Distance relays with pilot protection
- Differential relays
- Differential relays for bus protection
- Differential relays for generator protection
- Differential relays for transformer protection

Day Nine: Effect of Protection on Reliability

- Reliability indices
- Fault clearing time and reclosing
- Effects of nearby faults
- Fuse saving strategy
- Fuse blowing strategy
- Intelligent protective devices

Day Five: Arc Flash Hazard and a Look to the Future

- Shock hazard versus burn/blast hazard
- IEEE 1584 and NFPA 70E
- Personal protective equipment
- Hazard labeling
- A look to the future: communication-based overcurrent protection
- A look to the future: intelligent sectionalizing

Email: info@aztechtraining.com
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<thead>
<tr>
<th>DATE</th>
<th>VENUE</th>
<th>FEES (USD)</th>
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<tbody>
<tr>
<td>13 - 24 Dec 2020</td>
<td>Dubai - UAE</td>
<td>$9,900</td>
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REGISTER NOW

*This fee is inclusive of Documentation, Lunch and Refreshments and exclusive of 5% UAE VAT

Complete & send by fax/mail to address given below. Please use BLOCK CAPITALS.

REGISTRATION DETAILS

FAMILY NAME:
FIRST NAME:
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Power System Protection and Reliability
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CERTIFICATION
AZTech Certificate of Completion for delegates who attend and complete the training course

HOTEL ACCOMMODATION
Hotel accommodation is not included in the Registration Fee. A reduced corporate rate and a limited number of rooms are available for attendees wishing to stay at the hotel venue. Please make your request for accommodation at least 3 weeks prior to the commencement of the course.

EVENT DISCLAIMER
We reserve the right to cancel or postpone a seminar or related event, change venue, substitution of the Instructor and alter the course content at our sole discretion. If this occurs, our responsibility is limited to a refund of any registration fee(s) already paid. We are not responsible for airline tickets, hotels costs, other tickets or payments, or any similar fee penalties or related or unrelated losses, costs and/or expenses registrant may incur or have incurred as a result of any trip cancellations or changes.

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