



Protection System for 32/132 KV Substations

Course Introduction:

This course is designed to equip participants with essential knowledge and skills related to the design, implementation, and maintenance of protection systems in high-voltage substations. As substations serve as critical nodes in electrical power transmission and distribution, ensuring their reliability and safety is paramount. This five-day course will cover various protection schemes, devices, and methodologies specifically tailored for 32/132 KV substations, addressing both theoretical concepts and practical applications.

Participants will engage in detailed discussions about the principles of electrical protection, fault analysis, and the integration of modern technologies in substation protection systems. By the end of the course, attendees will have a comprehensive understanding of the protection strategies necessary to mitigate risks and enhance the operational performance of substations.

Course Objectives:

By the end of the program, participants will be able to:

- Understand the principles and importance of protection systems in substations.
- Identify and apply various protection schemes and devices used in 32/132 KV substations.
- Conduct fault analysis and implement protection coordination strategies.
- Explore modern technologies and their impact on substation protection.
- Develop maintenance and testing strategies for effective protection system management.

Who Should Attend?

This course is intended for Electrical engineers and technicians involved in substation design and operation, Protection system specialists and relay engineers, Project managers overseeing electrical infrastructure projects and Safety and compliance professionals in the energy sector.

Course Outline:

Day 1: Introduction to Substation Protection Systems

- Overview of substation functions and components
- Importance of protection systems in electrical networks
- Types of protection schemes used in substations
- Regulatory standards and guidelines for substation protection

Day 2: Protection Devices and Schemes

- Introduction to protection relays and their functions
- Current and voltage transformers in protection systems
- Overview of common protection schemes (overcurrent, differential, distance, etc.)
- Case studies on protection device applications in substations

Day 3: Fault Analysis and Protection Coordination

- Understanding fault types and their impact on substations
- Techniques for fault analysis and modeling
- Protection coordination principles and practices
- Tools and software for protection coordination studies

Day 4: Modern Technologies in Protection Systems

- Integration of digital relays and smart technologies
- Role of communication protocols in modern protection systems
- Cybersecurity considerations in substation protection
- Future trends in protection system technologies

Day 5: Maintenance and Testing of Protection Systems

- Importance of regular maintenance and testing of protection devices
- Testing methods and procedures for protection relays
- Troubleshooting common issues in protection systems
- Final assessment and discussions on course concepts and applications

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work

Course Fees:

To be advice as per course location. This rate includes participant's manual, Hands-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

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International Centre For Training & Development

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session