



*Training Course:
Cleaning Network and Line Equipment (400/220)*

*8 - 19 August 2027
Cairo (Egypt)*

Training Course: Cleaning Network and Line Equipment (400/220)

Training Course code: EN235690 From: 8 - 19 August 2027 Venue: Cairo (Egypt) - Training Course Fees: 6950 € Euro

Introduction

High-voltage transmission networks operating at **400/220 kV** are critical for reliable power delivery across large regions. Over time, contamination such as dust, salt, industrial pollutants, and moisture accumulates on insulators and line equipment, leading to reduced insulation performance, flashovers, and outages.

This **10-day specialized training program**, developed by **Global Horizon Training Center**, provides a comprehensive approach to the cleaning, inspection, and maintenance of high-voltage transmission lines and associated equipment. It emphasizes safety, modern cleaning techniques, live-line maintenance practices, and environmental considerations.

Participants will gain the technical knowledge and practical skills required to maintain transmission system reliability and prevent failures caused by contamination.

Course Objectives

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

- Understand contamination effects on high-voltage equipment
- Identify types of pollution and their impact on insulation
- Apply cleaning techniques for transmission lines and insulators
- Perform live-line hotline cleaning safely
- Use specialized cleaning tools and equipment
- Implement maintenance and inspection strategies
- Ensure compliance with safety and operational standards
- Improve system reliability and reduce outages

Target Audience

- Electrical and Transmission Engineers
- Line Maintenance and Field Technicians
- Substation and Grid Operators
- HSE and Safety Professionals
- Utility and Power Distribution Personnel

Outline

Day 1: Fundamentals of High-Voltage Transmission Systems

- Overview of 400/220 kV networks
- Transmission line components and equipment
- Insulation systems and performance
- Impact of contamination on system reliability

Day 2: Types of Contamination and Pollution Effects

- Industrial, coastal, and desert pollution
- Salt, dust, and chemical contaminants
- Flashover mechanisms
- Pollution severity classification

Day 3: Insulators and Line Equipment

- Types of insulators ceramic, glass, polymer
- Substation vs transmission line equipment
- Aging and degradation of insulation
- Inspection techniques

Day 4: Cleaning Techniques and Methods

- Manual cleaning methods
- High-pressure water cleaning
- Dry cleaning and brushing
- Chemical cleaning methods

Day 5: Live-Line Hotline Cleaning Techniques

- Principles of live-line maintenance
- Safety distances and insulation coordination
- Tools and equipment for hotline cleaning
- Risk assessment and safety procedures

Day 6: Equipment and Tools for Cleaning Operations

- High-pressure systems and water quality requirements
- Insulated tools and PPE
- Access equipment ladders, platforms, helicopters, drones
- Calibration and maintenance of tools

Day 7: Safety Procedures and Risk Management

- Electrical safety practices
- Lockout/tagout LOTO procedures
- Working at height safety
- Emergency response planning

Day 8: Inspection and Condition Monitoring

- Visual inspection techniques

- Infrared thermography
- Leakage current monitoring
- Maintenance planning based on condition

Day 9: Maintenance Strategies and Reliability Improvement

- Preventive and predictive maintenance
- Scheduling cleaning operations
- Environmental considerations
- Performance optimization

Day 10: Practical Workshop and Case Studies

- Developing a cleaning and maintenance plan
- Analyzing contamination scenarios
- Case studies of transmission failures
- Group project and presentation
- Final review and evaluation

Registration form on the Training Course: Cleaning Network and Line Equipment (400/220)

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Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

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Person Responsible for Training and Development

Full Name (Mr / Ms / Dr / Eng):
 Position:
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Payment Method

- ☐ Please find enclosed a cheque made payable to Global Horizon
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