



*Training Course:  
Advanced Power Transmission Systems*

*24 January - 4 February 2027  
Sharm El-Sheikh (Egypt)  
Sheraton Sharm Hotel*

## Training Course: Advanced Power Transmission Systems

Training Course code: EN235129 From: 24 January - 4 February 2027 Venue: Sharm El-Sheikh (Egypt) - Sheraton Sharm Hotel Training Course Fees: 7820 € Euro

### Introduction

Power transmission systems are critical to delivering electricity reliably and efficiently over long distances. With increasing demand, grid complexity, and integration of renewable energy sources, advanced knowledge of transmission systems is essential to ensure stability, efficiency, and resilience.

This program, designed by Global Horizon Training Center, provides participants with in-depth technical expertise in the design, operation, protection, and maintenance of advanced power transmission systems over a comprehensive 10-day training.

### Course Objectives

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

- Understand advanced concepts of power transmission systems and grid operations
- Analyze transmission line parameters and system performance
- Apply protection and control strategies for transmission networks
- Manage system stability and reliability under varying conditions
- Design and evaluate high-voltage transmission systems
- Perform maintenance and troubleshooting of transmission infrastructure
- Integrate renewable energy sources into transmission networks
- Ensure compliance with international standards and grid codes

### Target Audience

This program is designed for:

- Electrical Power Engineers
- Transmission and Grid Operation Engineers
- Maintenance and Protection Engineers
- Utility and Energy Sector Professionals
- Project Engineers involved in power infrastructure
- Technical Specialists in high-voltage systems

### Outline

#### Day 1: Fundamentals of Power Transmission Systems

- Overview of power transmission networks
- AC vs. DC transmission systems
- Components of transmission systems
- Transmission line parameters and characteristics
- Introduction to grid structures

#### Day 2: Transmission Line Design and Engineering

- Conductor selection and line design
- Tower design and mechanical considerations
- Insulation coordination and clearances
- Environmental and geographical factors
- Line routing and planning

#### Day 3: High Voltage Transmission Technologies

- Extra High Voltage EHV and Ultra High Voltage UHV systems
- HVDC transmission principles and applications
- Flexible AC Transmission Systems FACTS
- Reactive power compensation
- Transmission efficiency improvement

#### Day 4: Power System Protection Principles

- Protection philosophy and schemes
- Overcurrent, distance, and differential protection
- Protection coordination and selectivity
- Relay types and configurations
- Fault detection and isolation

#### Day 5: Substations and Switchgear Systems

- Types of substations and configurations
- Circuit breakers and switchgear
- Busbar arrangements
- Protection and control integration
- Substation automation

#### Day 6: System Stability and Load Flow Analysis

- Power flow analysis and load balancing
- Voltage stability and control
- Transient and dynamic stability
- Contingency analysis
- System performance evaluation

#### Day 7: Operation and Control of Transmission Systems

- Grid operation and dispatching
- SCADA and energy management systems EMS

- Load forecasting and demand management
- Frequency control and regulation
- Emergency control strategies

#### Day 8: Maintenance and Asset Management

- Maintenance strategies for transmission assets
- Condition monitoring techniques
- Asset lifecycle management
- Fault diagnosis and troubleshooting
- Maintenance planning and scheduling

#### Day 9: Integration of Renewable Energy Sources

- Impact of renewable energy on transmission systems
- Grid integration challenges
- Smart grids and digitalization
- Energy storage systems
- Future trends in transmission networks

#### Day 10: Standards, Compliance, and Case Studies

- International standards and grid codes
- Regulatory requirements and compliance
- Safety practices in transmission systems
- System optimization and performance improvement
- Case studies and real-world applications

## Registration form on the Training Course: Advanced Power Transmission Systems

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

### Delegate Information

Full Name (Mr / Ms / Dr / Eng): .....  
Position: .....  
Telephone / Mobile: .....  
Personal E-Mail: .....  
Official E-Mail: .....

### Company Information

Company Name: .....  
Address: .....  
City / Country: .....

### Person Responsible for Training and Development

Full Name (Mr / Ms / Dr / Eng): .....  
Position: .....  
Telephone / Mobile: .....  
Personal E-Mail: .....  
Official E-Mail: .....

### Payment Method

- ☐ Please find enclosed a cheque made payable to Global Horizon
- ☐ Please invoice me
- ☐ Please invoice my company

### Easy Ways To Register

Telephone:  
+201095004484 to  
provisionally reserve your  
place.

Fax your completed  
registration  
form to: +20233379764

E-mail to us :  
info@gh4t.com  
or training@gh4t.com

Complete & return the  
booking form with cheque  
to: Global Horizon  
3 Oudai street, Aldouki,  
Giza, Giza Governorate,  
Egypt.