



*Training Course:  
TETRA Radio Systems*

*14 - 25 September 2025*

*Cairo (Egypt)*

*Holiday Inn & Suites Cairo Maadi, an IHG Hotel*

## Training Course: TETRA Radio Systems

Training Course code: EN236157 From: 14 - 25 September 2025 Venue: Cairo (Egypt) - Holiday Inn & Suites Cairo Maadi, an IHG Hotel Training Course Fees: 6600 € Euro

### Introduction

TETRA Terrestrial Trunked Radio is a globally adopted digital radio communication standard used extensively in critical communications—such as public safety, transport, oil & gas, utilities, and defense sectors. This 12-day in-depth training program—developed by Global Horizon Training Center—provides engineers, technicians, and radio network managers with the technical expertise to design, configure, operate, maintain, and troubleshoot TETRA radio systems in mission-critical environments.

### Objectives

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

- Understand the principles and architecture of TETRA systems.
- Configure and manage TETRA base stations, terminals, and core systems.
- Apply best practices for signal planning, coverage optimization, and capacity management.
- Perform maintenance, diagnostics, and fault isolation.
- Implement encryption, user access control, and security protocols.
- Support end-user operations and dispatch functionalities.

### Organizational Impact

- Improved availability and performance of critical communications
- Enhanced capacity for internal maintenance and support
- Reduced dependence on external vendors for TETRA management
- Increased resilience and uptime of communications during emergencies
- Greater user satisfaction through reliable voice and data services

## Target Audience

- Telecommunications Engineers
- Radio Network Planners and Operators
- System Administrators and RF Technicians
- Oil & Gas, Transportation, and Utility Communication Teams
- Public Safety and Security Communication Specialists

## Training Program Outline

### Day 1: Introduction to TETRA Systems

- Overview of digital trunked radio
- History and role of TETRA
- Key features and benefits
- Industry applications and standards ETSI

### Day 2: TETRA Architecture and Network Elements

- TETRA system structure: MS, BTS, SwMI, control room
- Logical channels and call handling
- Air interface and protocol stack
- Interfaces and interoperability

### Day 3: TETRA Radio Access and Air Interface

- TDMA structure and time slots
- Control vs. traffic channels
- Call setup process and handover
- TETRA DMO Direct Mode and TMO Trunked Mode

#### Day 4: TETRA Terminals and User Equipment

- Types of terminals: handheld, vehicle-mounted, dispatch
- Terminal configuration and programming
- Authentication and encryption basics
- Group call vs. individual call handling

#### Day 5: Base Stations and SwMI Operations

- BTS design and configuration
- Base station parameters and frequency planning
- Switching and management infrastructure SwMI
- Synchronization and network timing

#### Day 6: TETRA Network Planning and Coverage

- RF planning principles for TETRA
- Coverage, capacity, and frequency reuse
- Site selection and antenna design
- Propagation tools and simulations

#### Day 7: TETRA Voice and Data Services

- Group calls, broadcast calls, and emergency calls
- SDS Short Data Service and Packet Data
- Status messaging and location-based services
- End-to-end latency and QoS considerations

#### Day 8: Security, Encryption, and Authentication

- Air interface encryption TEA1, TEA2, TEA3, TEA4
- Authentication process and key management
- Terminal security and user profile protection

- Best practices in secure communication

#### Day 9: Network Monitoring and Diagnostics

- Performance monitoring tools
- System alarms, logs, and analytics
- Radio testing RSSI, BER, SINAD
- Troubleshooting scenarios and diagnostic steps

#### Day 10: Maintenance and Firmware Management

- Preventive maintenance and site inspections
- Firmware updates and patching terminals
- Battery and accessory maintenance
- Fault isolation and RMA processes

#### Day 11: Dispatch Console and Control Room Operations

- Dispatcher features and workstation setup
- Command & control integration
- Real-time monitoring and group control
- Incident communication management

#### Day 12: Case Studies, Trends, and System Upgrades

- TETRA use in oil & gas, transport, utilities, and emergency services
- Integration with LTE and broadband solutions
- Upgrading TETRA infrastructure
- Future of critical communications and hybrid solutions

## Registration form on the Training Course: TETRA Radio 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:  
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info@gh4t.com  
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