

GLOBAL EXPERTS INSTITUTE FOR TRAINING.  
ISO 9001-2008 TRAINING PROVISION CERTIFIED

## **ESD Technician Emergency Shutdown & Crisis Response**

### **Schedule Dates:**

Start Date	End Date	Place
21-Dec-2025	25-Dec-2025	Double Tree by Hilton London Kensington

### **Program Introduction:**

In high-risk industrial environments such as oil & gas, petrochemical, and energy sectors, Emergency Shutdown (ESD) systems are critical to ensuring personnel safety, asset protection, and environmental security. This course provides participants with in-depth knowledge and hands-on insights into the design, function, and maintenance of ESD systems. It also integrates crisis response principles to prepare ESD technicians to act effectively during system failures, hazardous incidents, and high-stress situations where rapid, accurate intervention is vital.

### **Program Objectives:**

- ✓ Understand the fundamentals of Emergency Shutdown systems and their role in plant safety.
- ✓ Learn the structure and logic of ESD systems, including sensors, actuators, and control units.
- ✓ Identify potential failures and diagnostic techniques in ESD systems.
- ✓ Enhance rapid response capabilities during system-triggered shutdowns.
- ✓ Integrate crisis management protocols during emergency events.
- ✓ Improve coordination with control rooms and safety teams during critical incidents.
- ✓ Conduct regular testing, inspection, and maintenance of ESD systems.
- ✓ Apply international standards (IEC, ISA, API) for ESD safety practices.

### Who should attend?

- ESD Technicians and Engineers
- Instrumentation and Control Technicians
- Maintenance and Reliability Personnel
- HSE (Health, Safety & Environment) Officers
- Emergency Response Coordinators
- Operations and Production Supervisors
- Safety System Designers and Integrators
- Crisis and Risk Management Professionals

### Program Outlines

#### *Day One*

- Introduction to ESD Systems and Their Importance
- ESD System Architecture and Design Basics
- Safety Instrumented Systems (SIS) vs. ESD
- Key Components: Sensors, Logic Solvers, Actuators
- Emergency Shutdown Logic and Signal Flow

#### *Day Two*

- IEC 61508 & IEC 61511 Functional Safety Standards
- Typical ESD Scenarios in Oil & Gas Facilities
- Sequence of Events During Emergency Shutdown
- Role of PLCs and DCS in ESD Systems
- Manual vs. Automated Shutdown Triggers

### **Day Three**

- ESD System Testing and Validation Procedures
- Preventive Maintenance and Calibration Techniques
- ESD System Troubleshooting and Fault Diagnostics
- Alarm Management and HMI Interfaces
- Human Factors in Emergency Situations

### **Day Four**

- Communication Protocols During Crisis Events
- Integration with Fire & Gas Detection Systems
- Power Supply & Backup Systems for ESD
- Lockout-Tagout (LOTO) and ESD Safety
- Post-Shutdown Incident Investigation

### **Day Five**




- Coordination with Emergency Response Teams
- Crisis Response Planning and Drills
- Root Cause Analysis of Shutdown Events
- Documentation, Reporting & Compliance Requirements
- Case Studies: Real-Life ESD Events and Lessons Learned

### Training Methodology:

- Slide presentations
- Interactive discussion
- Simulations and Gamification
- Online Video material

### Cost Quotation in Kuwaiti Dinars

#### **The total cost includes:**

-  Instructor(s) expenses
-  Training materials
-  Certification

**Total Cost: 1800 KD per Participant**  
( One Thousand Eight Hundred Kuwaiti Dinar )