



HSE322

Hazardous Areas Equipment for Engineers & Technicians

Course Introduction:

This course provides you with an understanding of the hazards involved in using oil & gas equipment in potentially hazardous/explosive atmospheres. It is based on the international IEC79 series of standards that are now replacing the older national standards. Installation utilizing Explosion-Protected (Ex) equipment can be expensive to design, install and operate. The wider approaches described in these standards can significantly reduce costs whilst maintaining plant process.

The associated terminology and its correct use are explained throughout the course. It covers area classification, selection of explosion protected electrical apparatus as well as describing how protection is achieved and maintained in line with these international requirements. Standards require that engineering staff and their management are trained effectively and safely in hazardous areas and this course is designed to help fulfil that need.

Course Objectives:

Upon successful completion of this course, the delegates will be able to:

- ✓ Identify hazardous areas and classification in oil and gas industry
- ✓ Enumerate the types and selection of process and control equipment used for process and protection that includes electrical, mechanical and instrumentation equipment
- ✓ Select, inspect and maintain hazardous areas equipment
- ✓ List all the personal process protective equipment assigned for hazardous areas
- ✓ Determine protection against radiation
- ✓ Recognize API, NFPA standards and applied standard, COP and guidelines
- ✓ Audit and require inspection for hazardous areas
- ✓ Implement emergency preparedness for hazardous areas
- ✓ Practice required training

Who Should Attend?

This course is intended for oil and gas facility managers, safety engineers, safety inspectors, maintenance engineers and managers, operation managers, risk managers, drilling companies and operators, product manufacturers and designers, safety training organizations, pipeline engineers, process engineers and managers and corrosion engineers.

Course Outline:

Day 1:

Pre-Test

OIL & GAS PROCESSES HAZARDOUS:

- Introduction
- Oil & Gas facilities and Equipment
- Severity and Location of the Hazard
- Special Considerations
- Classification of process areas
- Oil facilities
- Explosion proof equipment (EX) and The Universal Gas Law
- Effective Ignition Source
- Case study – related video
- Day 1 recap

Day 2:

GAS PROOF EQUIPMENT

- Introduction
- Hydrocarbons gases hazardous
- H₂S gas hazardous
- NFPA requirement
- Selection of gas proof equipment
- Tests and Certification
- Day 2 recap and related video

Day 3:

SELECTION, INSPECTION, AND MAINTENANCE OF GAS PROOF EQUIPMENT

- Introduction
- Severity and Location of the Hazard
- Process Requirements and Conditions
- Use of Respiratory Protective Equipment (Electrical or Non-Electrical)
- Use of Self-contained Breathing Apparatus
- Care and Maintenance of Respiratory Protective Equipment
- Special Problems
- Case Study
- Day 3 recap and related video

Day 4:

ONSHORE AND OFFSHORE INSTALLATIONS

- Offshore requirement
- Gas tight equipment
- Measuring of gases and millimeters usage
- Detectors and Calibration Procedures
- Application of Process Shutdown systems
- Design and complying with NFPA requirements
- Color Codes
- PTW system
- Gas certificate
- Case Study & Related video
- Day 4 Recap

Day 5:

AREA CLASSIFICATION AND GAS CONCENTRATION CALCULATION, AND GAS CONTOUR MAPS

- Specific Considerations
- Types of gases and diffusion rates
- Selection of Radiography Site
- Specific Process Procedures for Radiography
- Radiation-Protection Process
- Fire, Explosion, and Corrosion
- Health Requirements
- Audit and Inspection

ATEX Product Directive

ATEX Use Directive (DSEAR in the UK)

Conformity Assessment

The conformity assessment modules of the ATEX Product Directive

The IECEx International Certification Scheme

Summary of the course

Post Test

Course Certificate:

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

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
- Discussion
- Presentation

Course Fees:

This rate includes participant's manual, Hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

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