MAESTRO CONSULTANTS

MAINTAIN AND TEST FIRE &GAS SYSTEMS EQUIPMENT

COURSE OUTLINE 2024

Contact Us On :
Tel : +971 7 2042072 |
Email: training@maestrouae.net
Website: www.maestrouae.net

TRAINING TITLE
MAINTAIN AND TEST FIRE &GAS SYSTEMS EQUIPMENT

VENUE
UAE, DUBAI

DURATION
5 Days

DATES

14-18 October 2024

PRICE

$5,250 per attendee including training material/handouts, morning/afternoon coffee breaks, and Lunch.

TRAINING INTRODUCTION

The fire and gas system is a plant's protection system. This system will detect a threatening hazard and respond with the activation of a final control element to prevent harm to personnel or damage to equipment. The fire and gas system is dependent on various types of detectors to sense potential hazards before they get out of control. The fire and gas systems must be checked for functionality on a routine basis. Documentation is essential for training, record-keeping, and troubleshooting.

This course has been designed to cover an introduction to the fire and gas system, including associated hardware and wiring. In addition to covering the hardware, the course will explore the required software logic that must be programmed into the system to meet the needs of the plant's shutdown philosophy. The fire and gas system's preventative action protocol will also be discussed.

Upon completion of the course, participants will have a better understanding of the operations, maintenance, and testing associated with a fire and gas system. This exposure will better prepare technicians to further expand their knowledge base during on-the-job training and practical experience at the plant site.

TRAINING OBJECTIVES

After completing this course, the participants will have:

- Recognize and understand the key parts of fire and gas systems.
- Conduct routine maintenance and service tasks for these systems.
- Carry out functional and performance tests according to standards.
- Understand and follow relevant regulations and documentation requirements.
- Handle system malfunctions and emergency situations effectively.
- Know the typical loop architecture of smoke/ heat detectors.
- Describe different types of fire detectors and their principle of operation.
- Specify appropriate type of fire detector for the service.
- Describe the purpose of Optical Integrity "OI" optional.
- Troubleshoot and identify problems with fire & gas monitoring systems.
- Describe the principal of operation of Hydrocarbon Gas Detectors.
- Describe the principal of operation of Toxic Gas Detectors
- Follow safety protocols and use personal protective equipment (PPE) properly.

TRAINING AUDIENCE

- Maintenance technicians
- Facility managers
- Safety officers
- Emergency response teams

COURSE OUTLINE

Day 1

Fire and Gas Hardware

- Introduction

- Detectors
- Wiring and documentation
- Control system logic
- Display, indication systems, and final control elements

Participants will become familiar with the basic principles of fire and gas detectors, wiring, and documentation on the first day. They will learn about the control logic which determines the conditions that will trigger the fire and gas system. They will also learn about the alarm indication systems, as well as the interface to the Distributed Control System (DCS). Final control elements that generate protective actions determined by the logic of the system will also be covered.

Day 2

Fire and Gas Operation

- Testing and maintenance
- Confirmed fire and gas
- Combined Safety System (CSS)
- Shutdown philosophy
- Cause and Effect (C&E) and Process and Instrumentation Diagrams (P&IDs)

On the second day, participants will become familiar with the operation, testing, and documentation involved when checking the fire and gas system. They will learn about confirmed fire and gas, the connection between the fire and gas and Emergency Shutdown devices (ESD) systems, and combined safety systems which are all parameters of the plant's shutdown philosophy. To become more familiar with the fire and gas system in a particular plant, participants must become familiar with C&E and P&IDs.

Day 3

Different types of Detectors, operations and applications (continuation):*

- Infra-Red Oil Mist Detectors
- Ultra Violet Flame Detectors
- Infra-Red Flame Detectors
- Combined Ultra Violet / Infra-Red Flame Detectors
- Flammable Gas Detectors
- Toxic Gas Detectors
- Spill detectors
- Fusible Plugs

Day 4

Detector and Interface Modules

- Fire Detectors Modules
- Flammable Gas Detectors Module
- Toxic Gas Detector Module
- Fire & Gas control panel; Electrical Operation, Control Action,
- Interface with DCS, PLC System, and Event Logging
- Electrical connection of detectors in a loop.
- Fire Extinguishing Control Systems components and operation
- Total Flood Systems:
- Discharge Solenoids
- Mechanical Lock-Out Facility
- Discharge Pressure Switch

- Local Release Facility
- Visual Warning Lamp Clusters
- Extinguishing Discharge Audible Alarm

Day 5

Typical Fire & Gas Systems

- General Audible Alarms
- General Visual Alarms
- Gas Hazard warning Lamps
- Read and understand a fire detection and suppression system
- overview drawing
- Deluge System (brief about the purpose and controls of a sample drawing)

TRAINING CERTIFICATE

MAESTRO CONSULTANTS Certificate of Completion for delegates who attend and complete the training course.

METHODOLOGY

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training videos, and discussions of "real-life" issues in their organizations.
The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.