



Mechanical Engineering

Boilers WHB and incinerator course outlines

Course Introduction

Incinerators and Boilers are an important asset used for various purposes in different industrial plants. It's one of the main applications to produce high-pressure steam for process applications and power generation. Operation and maintenance of Boiler are critical to ensure a safe and efficient plant environment. This PROMISE Boiler Operation, Maintenance & Safety training ensure participants gain a comprehensive understanding of commercial, industrial and utility boiler systems.

The principle of operation of steam boilers

This program covers the principle of operation of steam boilers, types and the main components of steam boilers. It will also focus on the study of correct operation and routine maintenance and safety. Participants will also learn how to improve boiler efficiency, energy cost saving methods and maximize safety.

TRAINING METHODOLOGY

This training seminar will utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The course is designed as a blended environment of presentation; workshops; group work; practical exercises; field application/ case studies, analysis and several industry videos showing all processes; and general discussions. Pre & Post course assessments will be used to measure the effectiveness of this training.

Target Audience

- Mechanical engineers and mechanical supervisors
- Inspection engineers and inspectors
- Mechanical technicians
- Field Operators and Technicians
- Facilities and process engineers
- Anyone involved in steam generation and water treatment

- Process Engineers who are new to the profession

Learning Objectives

- Combustion process and draft system for steam boilers
- Boilers types, components and functions
- Understand the importance of the draft system for proper operation
- Improve understanding of control and protection system
- Understand the best practice operation procedures
- Safety valve & burner management System
- Routine operation and emergency procedures
- Understand NDT and maintenance procedures

Course Outline

- **DAY 01**

Combustion Process and Heat Transfer Fundamentals

- Basics of Thermodynamics
- Heat Transfer and Combustion
- Introduction to Steam Boilers
- Latent Heat & Sensible Heat
- Steam Properties
- Purity of Steam
- Mass and Energy Balance
- Conduction, Convection, and Radiation
- Combustion Fundamentals
- Excess Air & Flue Gases Relation

- **Day 02**

Boiler Types & Operational Overview

- Classifications of Steam Boilers
- Boiler Functional Overview
- Incinerator function overview
- Main Pressure Parts Components of Steam Boilers
- Burners Types & Operational Controls
- Low NOx Burners
- Draft System of Steam Boilers
- Water Treatment System

• Day 03

Boiler ,WHB Control Systems & Protection Mechanisms

- Boiler Control and Protection
- WHB operation and control
- Safety Valves and Flame Safeguard
- Oxygen Trim
- Burner Management System
- Continuous Blowdown Control
- Drum Level Control

• Day 04

Operation And Safety Of incinerator and Steam Boilers

- Boiler & incinerator combustion systems hazards codes
- Principles of Boiler Operation
- Principles of incinerator Operation
- Pre-startup procedures for boiler, WHB, incinerator
- Start-up & Shut down Procedures
- Routine Operation during Boiler Service
- Refractory drying out curve and maintenance
- Emergency Procedures

• Day 05

Maintenance Management Of Boilers, incinerator's

- Problems of Steam Boilers, incinerator's .

- Preventive Maintenance Program
- Destructive Test of Steam Boilers
- NDT of Steam Boilers
- Steam Boiler Repair
- Overall energy saving and heat recovery
- Environmental regulations

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 26, 2025	May 30, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Aug. 25, 2025	Aug. 29, 2025	5 days	4250.00 \$	UAE - Dubai
Oct. 13, 2025	Oct. 17, 2025	5 days	4950.00 \$	Austria - Vienna