

Anmar International Center for Training

C.R. 2055024564













Course Name: **Boiler Operation and Maintenance**

Code:

DATE:

Course Objective:

Upon the successful completion of Boiler Operation, Maintenance & Safety course, participants will be able to learn:

- 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

Program 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.

Who Should attend?

The Boiler Operation, Maintenance & Safety training course is designed for:

- 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

Kingdom of Saudi Arabia

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Al Waha district. P: +966133611134

<u>Unit number: 3 - Jubail: 35514 – 2302</u> **M:** +966 505907654

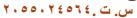
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Course Outline:

Module 1 - Combustion Process and Heat Transfer Fundamentals

KeyTopics:

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

Module2 - Boiler Types & Operational Overview

• KeyTopics:

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

Module 3 - Boiler Control Systems & Protection Mechanisms

KeyTopics:

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

Module 4 - Operation And Safety Of Steam Boilers

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- KeyTopics:
 - o Boiler & combustion systems hazards codes
 - o Principles of Boiler Operation
 - o Pre-startup procedures
 - o Start-up & Shut down Procedures
 - o Routine Operation during Boiler Service
 - o Emergency Procedures

Module 5 - Maintenance Management Of Boilers

- KeyTopics:
 - o Problems of Steam Boilers
 - o Preventive Maintenance Program
 - o Destructive Test of Steam Boilers
 - o NDT of Steam Boilers
 - o Steam Boiler Repair

Course Duration: (5) Day

Venue:

Time: Numbers of hours: Hours

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