

€ TRAINING

Boiler System Management





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Introduction:

This training program provides comprehensive instruction on the operation, maintenance, and troubleshooting of boiler systems in industrial settings. It equips participants with the knowledge and skills necessary to ensure the efficient, safe, and reliable operation of boiler systems in their respective industries.

Program Objectives:

At the end of this program, participants will be able to:

- Analyze the safe and reliable operation of boiler and steam distribution systems.
- Discuss ways of improving boiler performance and efficiency of steam generation system.
- Compare and contrast optimal improvement techniques for a given industrial application.
- Estimate the degree of degradation of boiler system due to corrosion and fouling.
- Identify the problems in operations and find the most economical solution.

Targeted Audience:

- Technical personnel from the petrochemical and process industries, as well as power generation sectors.
- Operation and technical service engineers responsible for system control and maintenance.
- Boiler plant engineers and technicians engaged in optimizing steam systems.
- Plant engineers and technicians specializing in steam systems maintenance and repair.
- Product engineers, corrosion-erosion technologists, and maintenance coordinators involved in boiler operations and maintenance.

Program Outlines:

Unit 1:

Industrial Boilers:

- Understanding the role of boilers and steam generation systems in industrial applications.
- Identifying the main components of industrial boilers for efficient operation.
- Exploring the function and significance of boiler auxiliaries in the overall system.
- Examining the importance of boiler efficiency and energy conservation measures.
- Assessing the environmental impact and emissions management associated with boiler operations.

Unit 2:

Boiler Design and Construction:

- Analyzing the thermal and mechanical aspects involved in boiler design and construction.
- Exploring burner design principles and the air-fuel mixing process for optimal combustion.
- Understanding the importance of material selection and fabrication techniques in boiler construction.
- Evaluating the impact of design parameters on boiler performance and reliability.
- Implementing best practices for ensuring safety and compliance in boiler design and construction.

Unit 3:

Boiler Treatment:

- Overview of feed water preparation methods and chemical treatment standards for boiler operation.
- Understanding the key components and functions of a boiler master control system.
- Implementing water treatment strategies to prevent corrosion, scaling, and fouling in boilers.
- Monitoring and controlling boiler water chemistry to ensure optimal performance and longevity.
- Addressing challenges related to water quality, treatment efficiency, and environmental regulations.

Unit 4:

Boiler Safety and Recovery System:

- Advanced boiler instrumentation techniques for real-time monitoring and control.
- Implementing comprehensive boiler safety systems to mitigate operational risks.
- Optimizing steam trap operation and condensate recovery systems for energy efficiency.

- Understanding the principles of boiler safety relief valves and pressure regulation.
- Developing contingency plans and emergency response protocols for boiler malfunction and shutdown scenarios.

Unit 5:

Maintenance:

- Conducting thorough inspections of critical boiler components and systems.
- Implementing preventive maintenance measures to minimize downtime and extend equipment lifespan.
- Troubleshooting common boiler issues and diagnosing performance inefficiencies.
- Developing maintenance schedules and procedures based on operational requirements and industry standards.
- Training personnel on safe operating practices, maintenance protocols, and emergency procedures for boiler maintenance.