

Steam Boiler – Operation and Maintenance Course

Training Date : 21 - 25 January, 2024

Training Venue: Dubai, U.A.E.

Training Time: 8.30 am – 2.30 pm

Training Fee: USD4,500 per participant

COURSE OVERVIEW

This program is a tremendous learning experience and is essential for each and everyone who are involved in the selection, operation, inspection and maintenance of steam boilers or steam systems. The course is provides the practical knowledge for safe operation and trouble-shooting, maintenance and repairs, inspection and also cover the knowledge related to steam boilers Legislation, Codes and Standards.

TRAINING OUTCOMES?

At the end of the course, the delegates will be able to:

- ⊕ Identify the related laws, codes and standards for steam boiler design, installation, fabrication, operation, inspection, repair and maintenance.
- ⊕ Describe key parameters affecting boiler performance and efficiency.
- ⊕ Describe the principles of thermodynamics of steam boiler and steam systems.
- ⊕ Identify the major hazards that's related to operation and maintaining the boiler and steam systems.
- ⊕ Operate the steam boilers and steam systems with the safe conditions.
- ⊕ Describe basic controls used in boiler operation.
- ⊕ Describe the boiler commissioning, operations, trouble-shooting, inspections, repairs and maintenance processes.
- ⊕ Describe the uses of steam in process plant and power generation sector.
- ⊕ Identify the boiler operation rules in safety from industrial combustion phenomena to feed water quality.

WHO SHOULD ATTEND?

- ⊕ New engineers, team leaders/coordinators, operations engineers, maintenance team leaders, engineers, operations team leaders, inspection, senior operations and maintenance personnel.
- ⊕ Experienced professionals who want to review or broaden their understanding of steam boiler systems.

COURSE PROGRAM

1.1 Applicable Codes & Standards for Steam Boilers and Steam Systems

- Selection of a Steam Boiler
- Power Boiler Life Analysis
- Typical Industrial Boiler Specification Factors
- Steam Boiler Conceptual Design Process

1.2 Thermodynamics of Steam:-

- Latent Heat
- Sensible Heat
- Properties of Steam
- Temperature-Enthalpy Diagram
- Introduction to Vapour and Steam
- Steam Plant
- Performance and Efficiency
- Factors Affecting Efficiency
- Application of Various Types of Steam

1.3 An Introduction to Steam Boilers

- The Efficient Use of Steam
- Boiler Explosions
- Steam Boiler Definitions
- Steam Boiler Classifications
- Basic Steam process
- Heat Transfer in Steam Boiler Systems
- Steam Boiler Circulation Process
- Types of Steam Boilers

COURSE PROGRAM... Cont'd

2.1 Steam Boiler Operations and Troubleshooting

- Fundamental Operational Responsibilities
- Boiler Operation Logs
- General Checks Around the Boiler
- Start-up Guidelines
- Process Flow Diagram of a Natural Circulation Boiler
- Steam Boiler Trip and Protection
- Carry Over Processes
- Steam Temperature Controls
- Blowdowns
- Sampling Analysis
- Trouble-shooting Process
- Basic Steam Boiler Controls
- Steam Header Controls
- Steam Boiler Storages
- Commissioning Activities
- Steam Traps

2.2 Steam Boiler Essential Fittings and Mountings

- Objective of Installations
- Types of Fittings and Mountings

2.3 Combustion Systems

- An Instruction to Combustion
- Heat Balance
- Theoretical Air Requirements
- Excess Air Requirements
- Types of Combustion
- Excess Air Controls
- Flue Gas Analysis
- General Considerations Regarding Safety
- Atomization Process

SELECTED CUSTOMERS



3.1 Boiler Water Treatment Systems

- Water Purification
- Overview of Typical Water Use
- Clarification Process
- Filtration Process
- Softening (Ion Exchange) Process
- Demineralised Process
- Reverse Osmosis Process
- Boiler Water Treatment
- Objectives of Boiler Water Treatment
- Boiler Water Quality Standards
- Setting Boiler Water Quality Standards
- Boiler Water Treatments
- Problems Encountered in Boilers
- Causes of Problems in Steam Boilers

3.2 Steam Turbine Fundamentals

- Introduction to Steam Turbine
- Typical Steam Turbine Applications
- Steam Turbine Configurations
- Type of Steam Turbines
- Start-up and Shutdown Guidelines
- Turbine Deposits Problems
- Turbine Erosion and Corrosion
- Selecting a Turbine

3.3 Materials Science and Engineering (Ferrous Metals)

- Classification of materials
- Imperfection in solids
- Impurities in Solids
- Mechanical properties of metals
- Materials Testing
- Engineering Stress-strain
- Material deformations
- Ductility
- Correlation Between Hardness and Tensile Strength
- Mechanism of Strengthening in Metals
- Effect of Alloying Elements
- Metal Failures
- Heat Treatments Process
- Iron-carbon equilibrium Diagram
- Failure Analysis
- Boiler Material Specifications



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COURSE PROGRAM... Cont'd

4.1 Welding Process and Non-Destructive Test

- Fundamental of Welding Process
- Types of Welding Joints
- Basic Principles Welding Process
- Pre-heat and Post Weld Heat Treatments
- Heat Affected Zone
- Welding Positions
- Understanding of Welding Procedures
- Fundamental of Non-Destructive Test
- Non-Destructive Test (NDT) Methods
- An Overview of the Risk Based Inspection (RBI) for Steam Boiler Integrity Management

4.2 Steam Boilers Maintenance and Repair

- Steam Boiler Maintenance
- Maintenance Objectives
- Safety Checklist for Inspection
- Steam Boiler Inspection
- Maintenance Programs
- Maintenance Checks
- Steam Boiler Repairs
- Overview of Boiler Repairs
- Repairs and Alterations
- Repair Procedures and Methods
- Case Study

4.3 Boiler Failures

- Types of failures
- Causes of failures
- Prevention from failures

About the Course Instructor

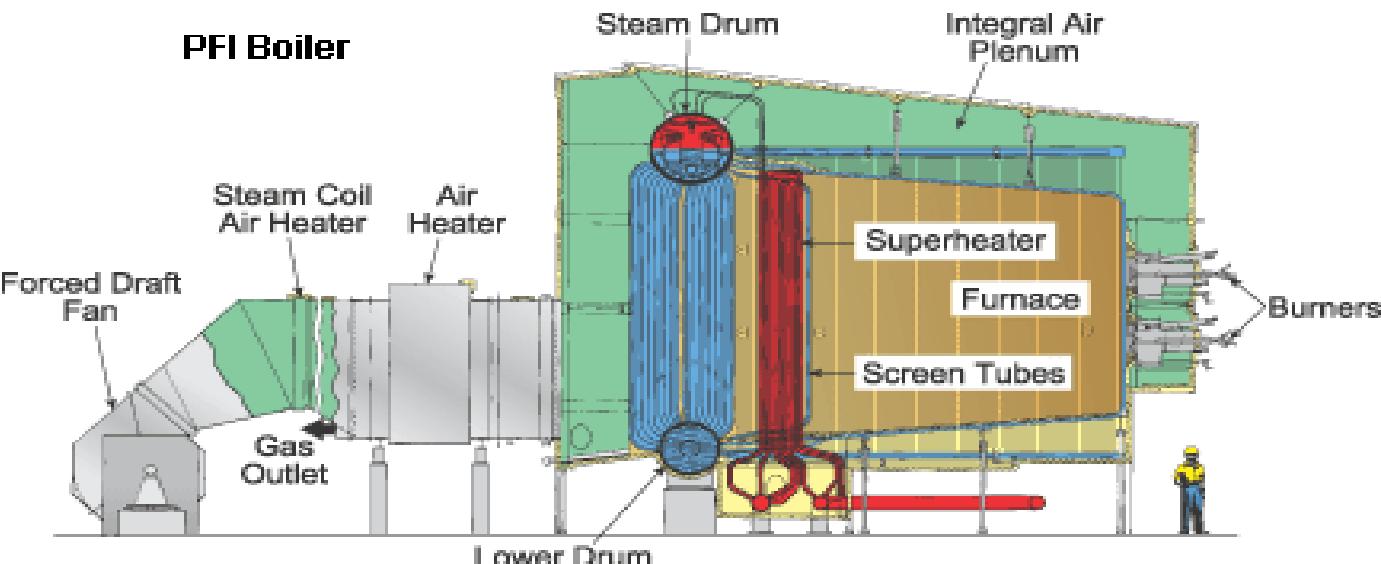
Ir. Mohammed Yaacob; Graduated with Bachelor (Honors) in Mechanical Engineering from the University of Malaya and is both a Registered Professional Engineer (Mechanical) with Board of Engineer, Malaysia since 2000, a Corporate Member, The Institution of Engineers, Malaysia and a Member of the American Society of Mechanical Engineers (ASME). He is a certified First Grade Engineer (Steam Boiler and Internal Combustion Engine) by the Department of Occupational Safety and Health (DOSH).

He had working experiences with several companies such as Equator Engineering Sdn Bhd, Tenaga Nasional Berhad, Petronas Gas Berhad (Gas Processing Plant 5/6 and Centralised Utilities Facility), Qatar Petroleum (Corporate Training Department) and currently he is the Managing Director for Bayubali Engineering Sdn Bhd.

Throughout his carrier he has an extensive field experience in steam boiler operation, troubleshooting, inspection, maintenance and repair.

He is the co-author for An Introduction to Steam Machinery book published by University of Malaya Publisher.

PFI Boiler



Registration Form

Please Send Your Registration To:

Tel:	006.019.979.0465	Fax:	006.09.617.8443	E-mail	info@cfpets.com
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Course Details

Course Name:	Steam Boiler – Operation and Maintenance
Venue:	Dubai, U.A.E.

Course Date:	21 – 25 Jan., 2024
Fee:	USD4,500.00

Company Information

Organization	
Address	

HR / Training Manager

Name :	
Tel no.:	
Fax no.:	
E-mail :	

Invoice to be sent to

Participant Information

Participant # 1

Participant # 2

Participant # 3

Full Name :			
Job Title :			
Department :			
Telephone No. :			
Mobile No. :			
Fax No. :			
E-mail Address :			

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CfPE TECHNOLOGY SOLUTIONS

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