Training Title

BOILER & STEAM SYSTEM MANAGEMENT: PERFORMANCE, EFFICIENCY, TROUBLESHOOTING & HEAT RECOVERY

Training Duration

5 days

Training Venue and Dates

PE213	**Boiler & Steam System Management: Performance, Efficiency, Troubleshooting & Heat Recovery**	**5**	**14 -18 March, 2021**	**$4,500**	**Dubai, UAE**

In any of the 5 star hotels. The exact venue will be informed once finalized.

Training Fees

- **US$4,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch.**

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

COURSE OVERVIEW

TRAINING OBJECTIVES

- This course will guide the participates to develop key concepts and techniques to design, operate and troubleshoot a boiler, with an introduction to types of boilers and their advantages. These key concepts can be utilized to make design and operating decisions.
- Training and development is an investment in future success - give yourself and your employees the keys to success.
- Give the employees the principles of
  - How to operate boiler efficiently & safely. This cannot be achieved without first an understanding of combustion principles.

- Energy conservations

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WHO SHOULD ATTEND?

- People who are making day to day decisions regarding operation, design, maintenance, and economics of process industry plants.
- An engineer or chemist who must troubleshoot and solve problems in a plant.
- Technical Engineers, Operating Engineers, Process Support Personnel, Chemist, and Managers
- Technical Process engineers doing process design and optimization projects and studies that need who need advanced skills for more complex modeling tasks.
- Plant Operation Support Engineers checking plant performance under different operating conditions, and who are involved in design of new facilities or revamps of existing facilities.

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.
Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

DAILY OUTLINE

Day One

Heater and Boiler Design & Operating Parameters

1- FURNACE &BOILER EFFICIENCY

◊ Flammability Limits

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- ◊ Heats of Combustion
- ◊ Furnaces
- ◊ Excess Oxygen / Excess Air
- ◊ Draft
- ◊ Heat Availability Curves
- ◊ Flue Gas Curves
- ◊ Furnace & Boiler Efficiency

2-FURNACE & BOILER DESIGN VARIABLES

- ◊ Metal Temperature
- ◊ Deposits and Tube Metal Temperature
- ◊ Furnace Side Pressure Drop (Draft)
- ◊ Process Side Pressure Drop
- ◊ Furnace and boiler Operation
- ◊ Startup
- ◊ Optimum Excess Air Levels
- ◊ Monitoring Devices and Technique

Day Two

Boiler-water treatment

A. impurities in water & potential problems

- ◊ Sources of water
- ◊ Quality of water
- ◊ Boiler water quality limit

B. boiler water treatment

- ◊ Deaeration
- ◊ Chemical treatment

C. Calculating boiler blowdown

- ◊ Priming & foaming
- ◊ Fouling
- ◊ Continuous blowdown

Day Three

A. Steam system element

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◊ Steam generator
◊ Distribution system
◊ Steam users
◊ Boiler feed water
◊ Condensate recovery

B. Burners & combustion

◊ Types of fuels
◊ Fuel effect on boiler design
◊ Burner types
◊ Flame adjustment.
◊ Stack damper adjustment.

B. Boiler controls

◊ Process control
◊ Fuel firing control
◊ Safety control

Day Four

Guidelines for boiler inspection

A. on line inspection

◊ Visual observations
◊ Tube temperature monitoring
◊ Charge characteristics
◊ Operating data

B. off line inspection

◊ Visual observations
◊ Thickness measurements & records
◊ Tube growth measurement
◊ Chlorination &carburization assessment.
◊ Hammer test.
◊ Hardness measurements

Day Five

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A. Material of constructions

B. Troubleshooting

NOTE:
Pre & Post Tests will be conducted
Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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