



# THE CHEMICAL ENGINEERING MAJOR

**Process Equipment Fired Heater,  
Boilers, Air Cooler, Heat Exchanger,  
Pumps and Compressors**

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# Process Equipment Fired Heater, Boilers, Air Cooler, Heat Exchanger, Pumps and Compressors

## Who Should Attend?

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This course is intended for engineers, supervisory and technical staff involved in the maintenance and inspection of pumps, compressors and plant engineers in the oil, chemical and other process industries who require a wider and deeper appreciation of pumps and compressors design, including their design, performance and operation. No prior knowledge of the topic is required.

## Methodology:

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This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

## Certificate:

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**BTS** attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration.

## Contents:

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### Introduction

- ◆ Overview of the Processing Industry
- ◆ Chemistry of the Processing Industry
- ◆ Safety for the Operation and Maintenance Groups

### Furnaces

- ◆ Overview of Process Furnace
- ◆ Safe Commissioning of a Process Furnace
- ◆ Economics – Excess Air Control, Flame Pattern
- ◆ Trouble Shooting
- ◆ Maintenance Guidelines

- ◆ Safety

## Boilers and Steam Systems

- ◆ Overview of Boilers and Steam Systems

- ◆ Safe Commissioning of Boilers and Steam Systems

- ◆ Economics–Excess Air Control, Demin Water and Condensate

- ◆ Trouble Shooting

- ◆ Maintenance Guidelines

- ◆ Safety

## Steam Turbines, Pumps and Compressors

- ◆ Overview of Rotating Equipment

- ◆ Safe Commissioning of Rotating Equipment

- ◆ Economics – Steam Temperature, Preventative Maintenance

- ◆ Trouble Shooting

- ◆ Maintenance Guidelines

- ◆ Safety

## Distillation

- ◆ Overview of Distillation Equipment
- ◆ Safe Commissioning of Distillation Equipment
- ◆ Economics – Reflux Optimization, Reboiler Optimization, Tray Efficiency
- ◆ Trouble Shooting
- ◆ Maintenance Guidelines – Tray versus Packing
- ◆ Safety

#### Piping and Heat Exchangers

- ◆ Overview of Piping and Heat Exchanger Equipment
- ◆ Safe Commissioning of Piping and Heat Exchanger Equipment
- ◆ Economics – Heat Exchanger Monitoring
- ◆ Trouble Shooting
- ◆ Maintenance Guidelines
- ◆ Safety – Pressure Concerns

#### Process Control Systems

- ◆ Overview of Process Control Systems
- ◆ Safe Commissioning of Equipment utilizing Process Control Systems

- ◆ Economics – Process Optimization and Integration
- ◆ Trouble Shooting
- ◆ Maintenance Guidelines
- ◆ Safety