

**Training Title**

**TROUBLESHOOTING, PROBLEM SOLVING & OPERATIONS OF REACTORS, DISTILLATION COLUMN, STRIPPER, FRACTIONATOR & FIRED HEATERS**

**Training Duration**

**5 days**

**Training Venue and Dates**

PE112	Troubleshooting, Problem Solving & Operations of Reactors, Distillation Column, Stripper, Fractionator & Fired Heaters	5	06 – 10 January 2025	\$5,500	Dubai, UAE
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In any of the 4 or 5-star hotels. The exact venue will be informed once finalized.

**Training Fees**

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch.

**Training Certificate**

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

**TRAINING DESCRIPTION**

**Reactors**

- **Operations:** Facilitate chemical reactions under controlled conditions (batch or continuous).
- **Troubleshooting:** Look for poor yields, temperature fluctuations, or catalyst issues.

**Distillation Columns**

- **Operations:** Separate mixtures based on boiling points using trays/packing.
- **Troubleshooting:** Address flooding, foaming, or pressure drops; monitor reflux ratios.

**Strippers**

- **Operations:** Remove volatile components, often using steam or heat.
- **Troubleshooting:** Focus on recovery rates and temperature imbalances; check steam flow.

**Fractionators**

- **Operations:** Separate complex mixtures into fractions in multi-stage processes.
- **Troubleshooting:** Manage separation efficiency and energy use; monitor flow rates.

**Fired Heaters**

- **Operations:** Provide heat through combustion; aim for efficient heat transfer.

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- **Troubleshooting:** Watch for flame instability and emissions; maintain fuel and air ratios.

## TRAINING OBJECTIVES

Upon successful completion of the course participants will be able to:

- **Understanding System Components:** Familiarize with the essential components and configurations of each unit operation.
- **Identifying Common Issues:** Recognize typical problems, such as pressure drops, temperature fluctuations, and efficiency losses in reactors and separation units.
- **Troubleshooting Techniques:** Apply systematic approaches for diagnosing and resolving operational issues, utilizing tools like root cause analysis and process simulation.
- **Optimizing Performance:** Implement strategies to enhance efficiency, including control system tuning, heat integration, and mass transfer improvements.
- **Safety and Compliance:** Ensure adherence to safety protocols and regulatory standards during operation and troubleshooting.
- **Collaboration and Communication:** Foster teamwork among engineers, operators, and maintenance staff to facilitate effective problem resolution and operational excellence.

## WHO SHOULD ATTEND?

- Chemical Engineers
- Process Engineers
- Operations Managers
- Maintenance Technicians
- Safety Officers
- Plant Operators
- Technical Support Staff
- Research and Development Teams

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## 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 motivating everybody to 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.

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

## **DAILY OUTLINE**

### **Day 1: Introduction to Chemical Processes**

- Overview of Key Chemical Processes
- Types and Functions of Reactors
- Basic Principles of Distillation
- Safety Protocols and Compliance

### **Day 2: Reactor Operations and Troubleshooting**

- Reactor Design and Functionality
- Common Issues in Reactor Operations
- Troubleshooting Techniques for Reactors
- Case Studies and Practical Exercises

### **Day 3: Distillation Columns and Strippers**

- Design and Operation of Distillation Columns
- Key Performance Indicators for Distillation
- Common Problems and Troubleshooting Strategies
- Introduction to Strippers and Their Functions

### **Day 4: Fractionators and Fired Heaters**

- Overview of Fractionator Operations
- Operating Principles and Key Parameters
- Troubleshooting Fired Heaters
- Efficiency Optimization Techniques

### **Day 5: Integrated Troubleshooting and Optimization**

- Systematic Approach to Troubleshooting Across Units
- Case Studies: Multi-Unit Troubleshooting
- Performance Optimization Strategies
- Review, Q&A Session, and Course Evaluation

## **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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