

Distillation – Column Operation, Control, and Troubleshooting Course

Venue Information

Venue: London UK

Place:

Start Date: 2025-12-08

End Date: 2025-12-12

Course Details

Net Fee: £4750.00

Duration: 1 Week

Category ID: OAGTC

Course Code: OAGTC-24

Syllabus

Course Syllabus

Introduction:

The Distillation – Column Operation, Control, and Troubleshooting training program is designed to provide participants with a comprehensive understanding of distillation processes, focusing on column operations, control strategies, and techniques for effectively troubleshooting common issues. This five-day course is tailored to meet the needs of experienced engineers and operators in the field of chemical engineering and process operations.

Objectives:

1. Gain in-depth knowledge of distillation principles and their application in industrial processes.

4. Learn troubleshooting strategies to identify and resolve common distillation column issues.
5. Acquire practical expertise in optimizing distillation operations, improving product quality, and enhancing process efficiency.
6. Foster a collaborative learning environment through interactive discussions, case studies, and hands-on exercises.

Course Outline:

Day 1: Fundamentals of Distillation

- Introduction to distillation processes and their significance in the industry.
- Overview of distillation column types, configurations, and equipment.
- Key principles and concepts of vapor-liquid equilibrium and phase behavior.
- Distillation column terminology, terminology, and process variables.
- Distillation column internals and their impact on separation efficiency.

Day 2: Column Operations and Optimization

- Key parameters for effective column operations.
- Heat and mass transfer in distillation columns.
- Tray and packing designs and their selection criteria.
- Energy optimization and heat integration techniques.
- Feed and product specifications and their influence on column performance.

Day 3: Distillation Control Strategies

- Introduction to distillation control and its importance in process optimization.
- Feedback control strategies for level, pressure, and temperature.
- Cascade control and ratio control for distillation columns.
- Advanced control techniques, including model predictive control (MPC) and neural networks.
- Case studies and examples of successful control strategies.

Day 4: Troubleshooting and Problem Solving

- Common operational issues in distillation columns and their causes.
- Techniques for diagnosing and troubleshooting column performance problems.
- Strategies for addressing flooding, weeping, entrainment, and other operational challenges.
- Maintenance and inspection practices for maintaining column performance.
- Hands-on exercises and simulations to enhance troubleshooting skills.

Day 5: Optimization and Process Improvements

- Overview of distillation column optimization techniques.
- Identification of bottlenecks and optimization opportunities.
- Strategies for improving energy efficiency and reducing operating costs.
- Enhancing product quality through column optimization.
- Future trends and innovations in distillation processes.