

# **DISTILLATION & UNIT CONTROL OPERATION**

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**TRAINING TITLE**  
**DISTILLATION & UNIT CONTROL OPERATION**

**VENUE**  
**Dubai, UAE**

**DURATION**  
**5 Days**

**DATES**  
**28 March - 01 April 2021**

**PRICE**  
**US\$4,000 per attendee including training material/handouts, morning/afternoon coffee breaks and Lunch buffet.**

**TRAINING INTRODUCTION**

Distillation is still the most widely used means of separating chemical species in the petroleum and chemical industries and is the first unit operation in an oil refinery. This course covers the key areas of assessing the operation of the internals through to their eventual installation but with the emphasis placed on design, operation, troubleshooting, and control. Various aspects relating to the initial design of column internals are covered, including simulation packages and VLE. Current internals are reviewed including critical design aspects of trays, packing and auxiliary equipment. Distillation column control is an essential ingredient in cost-effective operations, safety, and environmental management.

**TRAINING OBJECTIVES**

All the essentials elements in the design, analysis, and troubleshooting of distillation processes will be covered in this course. It will provide the attendees with the tools to utilize distillation theory and apply it directly to real and practical problems. All necessary concepts for a full understanding of distillation problems will be addressed starting with thermodynamics and VLE, continuing with process design and issues and ending with hardware consideration.

The course will also address distillation column operations and troubleshooting, and will provide the attendees with guidelines for the selection of hardware. Emphasis in the latter part of the course will be on distillation control and modeling using flowsheet process simulators like HYSYS.

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## **TRAINING AUDIENCE**

Professionals dealing with all aspects of the Distillation Unit. All engineers involved in the operation and design of Distillation facilities. Any technical personnel wishing to gain an insight into the practical aspects of distillation. Those who are experienced in other fields and seek a review of the fundamentals of Distillation.

## **TRAINING OUTLINE**

### **Day 1:**

- Distillation Principles
  - Phase Equilibria
  - Stage Concepts
- Column Types and Internals
  - Continuous/Batch Operation
  - Tray and Packing Columns
- Critical Design Aspects
  - Capacity and efficiency Improvement
  - Models for Predicting Efficiencies
  - Variables Affecting Separation

### **Day 2:**

- Troubleshooting
  - Operating Regions
  - Operational Difficulties
  - Process Startup/Shutdown

### **Day 3:**

- Special Applications of Distillation

- Crude and Vacuum Distillation
- Extractive/Reactive distillation
- Environmental Separations

#### **Day 4:**

- Distillation Control & Instrumentation
  - Developing Dynamic Models
  - Cause-and-Effect Relationships
  - Control Configurations
  - Instrumentation

#### **Day 5:**

- Case Studies
  - Simulation and Control of Multi -component Fractionators
  - Troubleshooting Problems

### **TRAINING CERTIFICATE**

**MAESTRO CONSULTANTS** Certificate of Completion for delegates who attend and complete the training course

### **METHODOLOGY**

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training videos and discussions of “real life” issues in their organizations. The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.