

Training Title

**DISTILLATION & UNIT CONTROL OPERATION**

Training Duration

5 Days

Training Dates & Venue

PE011	Distillation & Unit Control Operation	5	07 – 11 July 2025	\$5,500	Dubai, UAE
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In any of the 4 or 5-star hotels in Dubai. The exact venue will be informed of soon.

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**

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 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 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 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 the multiple-choice type will be made available on a daily basis to examine the effectiveness of delivering the course.

All presentations are made in excellent colorful power point. Very useful Course Materials will be given.

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

**WHO SHOULD ATTEND**

- 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.

**COURSE 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

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- 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

**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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