1.0 Description

The Binary Distillation Operations course prepares students to apply a cause-and-effect analysis to distillation operations for troubleshooting purposes. The course utilizes a generic operator training simulator (OTS) to provide learners the opportunity to improve their distillation operations and troubleshooting skills.

Our experienced instructors use a blended learning approach to ensure learners have the prerequisite knowledge and skills to successfully complete the exercises. The course is 70% hands-on, using the simulator to start-up and shutdown the unit. Troubleshooting scenarios require the learner to identify the potential cause, determine the appropriate corrective action(s) and return the system to normal operating parameters or safely perform a shutdown.

Pre-and Post-course assessments allow each learner to see their learning progress from attending the course. Client training managers receive a detailed report of learner progress.

2.0 Training Outcomes

Desired Knowledge

Upon completion of the Distillation Operations course, the learner will understand the operating cause-and-effect relationships of distillation operations. The learner will experience and become familiar with the effects and changes to:

- Feed/product/reflux flows
- Column differential pressure
- Feed temperature
- Product specification

Desired Skills

The learners will enhance their distillation operating ability by improving the following skills:

- Selective attention
- Problem sensitivity
- Time-sharing
- Deductive reasoning
- Resistance to premature judgement
- Visualization
- Speed of closure
- Response orientation

3.0 Lesson Objectives

Given:	A dynamic distillation process simulator and technical documentation
You will:	Apply troubleshooting techniques to resolve distillation process upsets
How Well:	Complete the exercises and knowledge assessment with 85% accuracy Following written procedures and safety policies Successfully completing exercises and scenarios

Enabling Objectives

1. Explain the principles of operation for a distillation process
2. Identify and describe the purpose of the distillation process components
3. Relate distillation process variables to operational safety
4. Define distillation process operating terms
5. Explain the purpose and function of distillation process control system process variables
6. Explain the purpose and importance of product specification
7. Demonstrate safe and effective distillation process operations
8. Apply troubleshooting skills to resolve distillation process upsets

4.0 Outline

I. Introduction
   a. Pre-Assessment

II. Review
   a. Distillation Operating Components
   b. Review Operating Terms
   c. Review Process Variables and Operational Safety

III. Simulator Orientation
   a. Starting an exercise
   b. Controlling from the schematic displays
   c. Using trend displays
   d. Responding to alarms

IV. Distillation Operations Process and Control
   a. Process inlet flows
   b. Process outlet flows
   c. Design operating values; flow, level, pressure, temperature
   d. Process Variables

V. Exercises
   a. Startup
   b. Shutdown
   c. Abnormal Situations

VI. Post Assessment