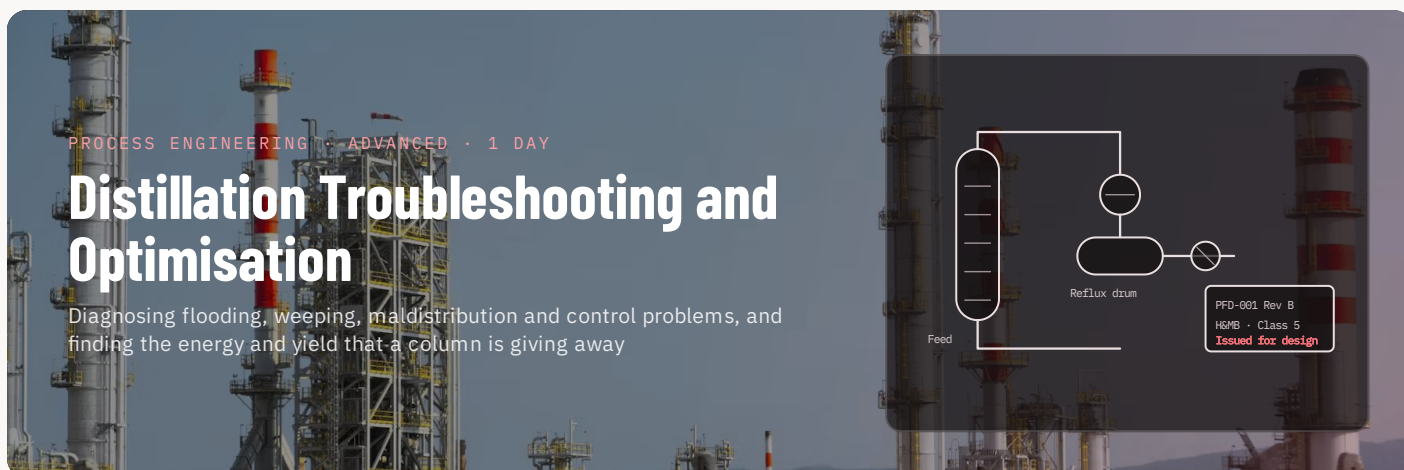




DURATION
1 day

LEVEL
Advanced

FORMAT
On-site classroom · virtual instructor-led

LANGUAGE
English

MAX. PARTICIPANTS
16

8

troubleshooting cases from real columns

1

column rating on plant data

3

optimisation levers with economics

◆ Overview

Columns rarely fail; they underperform, and the reasons are usually visible in pressure-drop, temperature-profile and reflux trends long before anyone opens the manway. Built around the Kister troubleshooting approach and FRI-based hydraulic guidance, the course teaches how to read a column from plant data, rate the internals against the current load, identify the operating limit, and then decide which of reflux, pressure, feed condition or product specification is worth changing.

◆ Learning outcomes

- Interpret pressure drop, temperature profile and gamma-scan results to identify flooding, weeping, foaming and maldistribution
- Rate trays and packing hydraulically against the current load and set the real capacity limit
- Reconcile plant data with a simulation and estimate tray efficiency or HETP
- Diagnose control problems: pressure, temperature-control tray selection, reflux and reboiler interactions
- Quantify optimisation levers: reflux-to-minimum ratio, pressure minimisation, feed preheat and product give-away
- Prepare a turnaround inspection list and revamp options with a supporting case

◆ Who should attend

Process and operations engineers responsible for distillation units; APC and control engineers supporting column control; unit supervisors

◆ Course outline

MORNING

Column fundamentals refresher: stages, reflux, minimum reflux, pinch · tray and packing hydraulics: flooding, weeping, entrainment, pressure drop · reading a column from plant trends and gamma scans · common malfunctions and their signatures (Kister) · rating exercise on plant data

AFTERNOON

Data reconciliation and efficiency estimation · column control: pressure, temperature-tray selection, reflux and boil-up interaction · optimisation levers and economics: reflux, pressure, feed preheat, give-away · energy savings and constraint pushing · inspection and revamp options · troubleshooting cases workshop

◆ Standards referenced

Kister, *Distillation Troubleshooting and Distillation Operation*

FRI design practices GPSA Engineering Data Book

Perry's Chemical Engineers' Handbook API RP 554

◆ Tools & exercises

Exercises worked in the client's simulator with plant historian data; column monitoring examples from ProcessVision

◆ What's included

- ✓ Course manual and slide pack
- ✓ Software access for the course
- ✓ Post-course Q&A with the instructor
- ✓ Exercise and case-study pack
- ✓ Competency quiz and certificate
- ✓ Templates used in the exercises

PREREQUISITES

Chemical engineering degree and experience with a distillation unit; TR-F01 helpful

CERTIFICATION

Certificate of completion

INSTRUCTORS

Practising engineers — TÜV HAZOP Leader, CCPSC and IEC 61511 Functional Safety certified — with 200+ years of cumulative plant experience.

Book this course or build a custom curriculum

On-site at your plant or virtual · in-house groups · competency assessment included

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