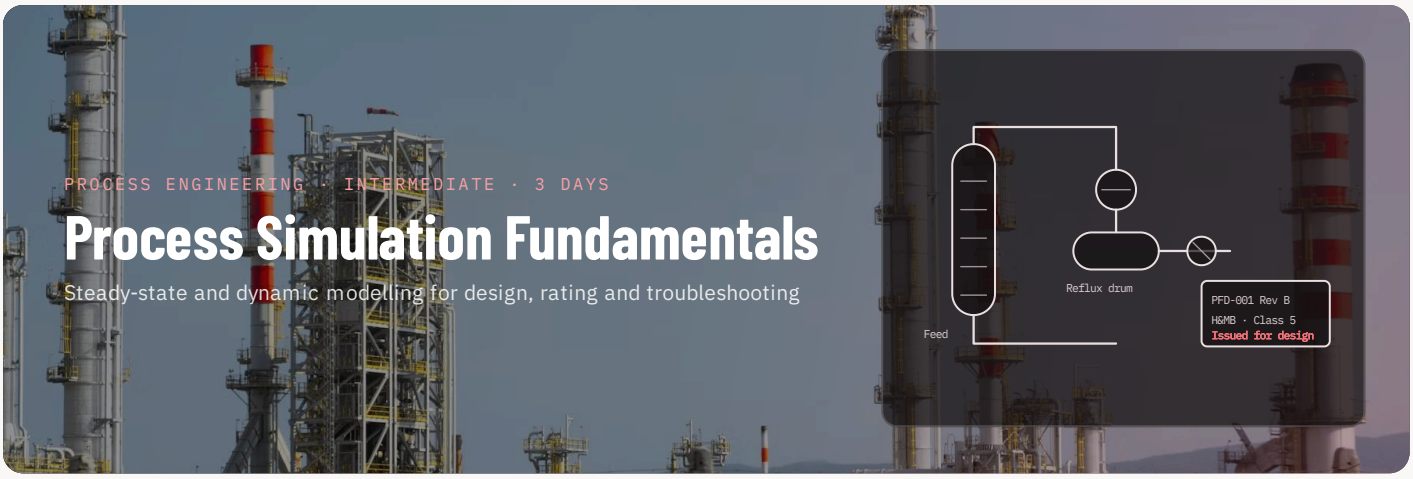

PROCESS ENGINEERING · INTERMEDIATE · 3 DAYS

Process Simulation Fundamentals

Steady-state and dynamic modelling for design, rating and troubleshooting

DURATION	LEVEL	FORMAT	LANGUAGE	MAX. PARTICIPANTS
3 days	Intermediate	On-site classroom · virtual instructor-led	English	16

50 % hands-on modelling

4 unit-operation case studies

1 dynamic scenario

Overview

A simulation is only useful when its assumptions are understood. The course builds thermodynamic judgement first — property packages, binary interaction, convergence — then applies it to columns, exchangers, compressors and flow networks, and finishes with dynamic modelling for relief loads, start-up and control studies.

Learning outcomes

- Select property packages and validate them against plant data
- Build and converge flowsheets with recycles and specifications
- Rate columns, exchangers and compressors against real operating cases
- Use models for relief-load estimation and operability checks
- Set up a dynamic model and run a transient scenario
- Document the model basis for hand-over and reuse

Who should attend

Process engineers building or reviewing simulation models for design, revamp, relief and operability studies

Course outline

DAY 1

Thermodynamics for engineers · equations of state and activity models · component and pseudo-component definition · flowsheet building and convergence

DAY 2

Distillation design and rating · heat exchanger rating and fouling · compressors and hydraulics · case studies and sensitivity · data reconciliation

DAY 3

Dynamic simulation basics · controller and valve modelling · relief and depressuring cases · start-up scenario · model documentation and QA

Standards referenced

GPSA Engineering Data Book · API 521 · DIPPR / NIST data · TEMA / API 660

Tools & exercises

Exercises on the client's simulator of choice; digital-twin basis for 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; basic simulator exposure

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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