

# Process Simulation: Advanced - Process Modelling Using UniSim Design



## Course Overview

**Course number:** PDS-4527-VILT

**Course length:** 2 days

Learn how to use and apply advanced modeling techniques to enhance existing UniSim Design models.

The course is made up of a series of hands-on workshops using examples from the natural gas processing industry, although the skills learnt can be applied to any model. Each workshop is preceded by an Instructor-guided discussion and demonstration.

## Course Benefits

- Use the Column sub-flow sheet to create custom columns, including non-standard configurations such as thermosyphon reboilers
- Obtain equipment parameters for new designs or evaluate the performance of existing equipment with the Sizing and Rating utilities
- Create different types of Reactions available in UniSim Design and attach Reaction Sets to unit operations
- Perform complex calculations on flow sheet variables using the Spreadsheet
- Improve the convergence performance of simulation and troubleshoot common problems

## Course Delivery Options

- [Virtual Instructor-Led Training](#) (VILT)
- IMPORTANT – Prior to registration for the e-learning courses (AT, RT, VILT, and VT), you must perform the User Readiness Test. Go to [Asynchronous Training](#), [Recorded Training](#), [Virtual Instructor-Led Training](#), and [Virtual Training Access Requirements](#) to perform this test.

## Who Should Take This Course?

- Process engineers who need advanced skills for more complex modeling tasks
- R&D engineers and researchers using UniSim Design for process synthesis, upgrade or modifications

This course is aimed at users with experience of UniSim Design Steady State modeling.

## Prerequisite/Skill Requirements

### Prerequisite Course (s)

- None

### Required Skills and/or Experience

- PDS-4526 or PDS-4526-VILT

### Desirable Skills and/or Experience

- A background in chemical engineering
- Should have modelling experience
- Familiarity with UniSim Design steady state modeling concepts

## Course Topics

- Getting Started
  - Build a Turbo Expander steady state model to use as a basis for the rest of the course
- Extensions
  - Learn how to register Extension Unit Ops for use within the model
- Advanced Columns
  - Modify the column sub flow sheet and use the tray sizing utility
- Templates and Sub-Flow sheets
  - Using sub-flow sheets to organize the model, ways to create templates and sub-flow sheets
- Spreadsheets and Case Studies
  - Introduction to spreadsheets and case studies
- Advanced Recycle Operations
  - Advanced topics – backwards propagation, interaction of Recycle block with Adjust operation...
- Troubleshooting
  - Learn steady state troubleshooting techniques
  - Use of Simulation Balance Tool
- Depressuring
  - Introduction to Dynamic Depressuring utility
- Compressor & Pump curves
  - Adding curves to pump & compressor unit operations in steady state
- Reactions
  - Introduction to reactions in UniSim Design
- Rating Heat Exchangers
  - Use of rating mode in the Heat Exchanger
- Automation Introduction
  - Introduction to using OLE Automation with UniSim Design. Controlling a model from Excel using VBA and creation of User Variables

### **Additional Training**

To increase your knowledge and skills, there are additional courses available from Automation College.

**For more information and registration, visit**  
[www.honeywellprocess.com/en-US/training](http://www.honeywellprocess.com/en-US/training).