Process Simulation: Fundamentals - Dynamic Modelling Using UniSim Design

Course Overview

Course number: PDS-4528-VILT
Course length: 3 days

Develop the skills and ‘know-how’ required for creating and running dynamic simulations using UniSim Design Dynamics.

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

Course Benefits

- Solve complete dynamic problems using UniSim Design software by first building a steady state flow sheet and then performing steps to make the transition to dynamics
- Learn how to build models in dynamics
- Learn pressure flow theory, column dynamics theory, and control theory
- Interpret pressure flow specifications, strip charts and controllers
- Discover techniques and ‘rules of thumb’ for controller tuning
- Learn advanced features of UniSim Design Dynamics like static head, valve actuator dynamics and compressor anti-surge controllers
- Automate actions within a dynamics case by utilizing the Event Scheduler

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?

- Engineers who need an introduction to the use of UniSim Design for Dynamic modeling

  This course is aimed at users with some experience of UniSim Design.

Prerequisite/Skill Requirements

Prerequisite Course (s)

- None

Required Skills and/or Experience

- None

Desirable Skills and/or Experience

- A background in chemical engineering or industrial chemistry
- Familiarity with UniSim Design or HYSYS® steady state modeling concepts

Course Topics

The following topics are covered

- Getting Started in Steady State
  - Build a simple steady state model to use as a basis for the rest of the course
- Pressure Flow Theory
  - Discussion of the theory behind UniSim Design Dynamics and the Dynamics solver
- Transitioning from Steady State to Dynamics
  - Learn techniques to transition cases, apply these to the steady state model built earlier
- Basic Control Theory
  - Revise basic control theory necessary in UniSim Design Dynamics models
- Dynamic Details
  - Introduction to UniSim Design Dynamics high fidelity options (static head, actuator dynamics, valve characteristics, nozzle positions, heat loss models)
- Expanding the Model
  - Make additions to the model whilst running in Dynamics, Look at different control schemes
- Compressor
  - Add a compressor, anti-surge loop and anti-surge controller
- TEG Dehydration Tower
  - Add a distillation column to the Dynamics model
- Event Scheduler
  - How to set up and use the Event Scheduler
- Cause & Effect Matrix
  - Introduction to the Cause & Effect matrix
- Fired Heater
  - Build a model using the Fired Heater (Furnace) unit operation
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.