Course Overview

Course number: OTS-0009-AT  
Course length: 3 days (self-paced with 10 days to complete)

Need to acquire knowledge and develop fired heater operation skills?

This e-learning course provides participants the ability to build knowledge and enhance skills for the role of fired heater console operator:

- Develop fundamental operating knowledge and skills
- Develop knowledge of unit operations and management
- Operate process plant under normal conditions
- Anticipate and respond to abnormal conditions

The course is offered for self-paced exploration and learning using a generic fired heater process simulation model which includes:

- **Main firebox** - a refractory lined steel shell that allows minimum heat loss to the surroundings.
- **Convective heat transfer tubes** - provide initial heat to the crude by transfer from hot flue gases.
- **Radiant heat transfer tubes** - provide for the remaining duty to the crude by radiation from the flames and the heater walls.
- **Superheater tubes** - used for convective heat transfer to recover as much heat as possible from the flue gases.
- **Burners** - distribute heat through the heater. These burners are equipped to use either fuel gas, fuel oil, or fuel gas with fuel oil. Atomizing steam is required with the fuel oil.
- **Damper** - controls the bridgewall pressure and thus controls the amount of draft in the heater.

The student follows a structured lesson plan while interacting with the virtual process plant training simulator using an emulated console, schematics and faceplates. The course begins with an orientation presentation which provides an introduction to the process model along with an overview of the course objectives, tools and how to ask for help. This followed by four self-paced lessons.

- Lesson 1: Introduction to the process
- Lesson 2: Key process variables, Instrumentation and Control - Gain an understanding of the process response when a change is made to key operating variables
- Lesson 3: Process Disturbances. Learn to adjust the operating strategy in order to compensate for equipment failure or out of specification stream conditions
- Lesson 4: Start-up and Shutdown Operating Procedures - Practice startup and shutdown of the unit using detailed operating procedures

Each lesson starts with statement of the lesson objective. The student then progresses through a learning session, application session and review session in sequence. The application session involves a practical exercise using a simulation of the plant and operator console. This type of interactive learning has been shown to be the most effective for knowledge transfer. The evaluation session provides the student with timely relevant feedback in the form of a quiz. Immediate feedback is another key success factor for effective knowledge transfer.

Course Benefits

Working at their own pace participants acquire a better understanding of process plant operations including start-up, shutdown, and normal operations. Trainees experience abnormal situations and practice responding to upsets and emergency situations.

- Use best in class UniSim Competency Suite products
- Conveniently accessible through the web
- Use the UniSim Operations Operator Training Simulator to improve knowledge transfer effectiveness

Course Delivery Options

- Asynchronous Training (AT)

IMPORTANT – Prior to registration for the e-learning courses (VILT, VT, and AT), you must perform the User Readiness Test. Go to Virtual Training, Asynchronous Training, and Virtual Instructor-Led Training Access Requirements to perform this test.
Who Should Take This Course?
Console Operators, Process Engineers, Operations managers and supervisors in the process industry. Participants benefit from the development of process related competencies and become more effective in their job roles.

Prerequisite/Skill Requirements
Prerequisite Course(s)
- None

Required Skills and/or Experience
- Basic process plant operations knowledge or experience ideally in a refinery context
- Basic knowledge of process plant control and safety systems ideally in a refinery context
- Basic knowledge of process plant control console features ideally in a refinery context

Desirable Skills and/or Experience
- Experience of crude pre-heat and fired heater operations
- Familiarity with fired heater procedures and DCS console functions

Course Topics
Familiarization with fired heater process equipment and controls.

Key fired heater process variables and control:
- Total crude oil flow
- Pass 1 crude oil flow
- Heater outlet temperature - Fuel Gas
- Heater outlet temperature - Fuel Oil
- Draft Pressure
- Superheated steam demand flow

Process disturbance and recovery:
- Fuel gas composition changes
- Heater pass balancing
- Pilot gas trip
- Stack damper failure
- Fuel switch over procedure

You will
- Learn about the fundamentals of fired heater process plant operation though practical application using simulation technology
- Identify key process variables and controls encountered in operation of fired heater units and gain an understanding of process interactions
- Learn about fired heater unit start-up and shutdown and practice the procedures in the safety of the simulated plant
- Respond to the challenge of abnormal situations and learn how to recover from the impact of external influences.
- Receive immediate feedback using short quizzes
- Gain confidence to tackle day to day real world operations challenges

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.