Course Fee: US$650

Learn the fundamentals of condensation mechanisms and how they apply to condenser design! Apply guidelines to develop *Xchanger Suite* cases for accurate assessment of performance. This course provides a foundation for understanding the basis for thermal design of typical industrial heat exchangers.

Key Topics

- Film condensation of pure components
- Relationship between pressure drop and saturation temperature
- Condensing flow regimes: Vertical units/Horizontal units, tube side and shell side
- Specifying pure component condensers in *Xist*
- Noncondensables and mixture condensation
- Specifying mixture condensers and inerts in *Xist*
- Vapor phase coefficient
- Desuperheating and subcooling
- Bulk-equilibrium vs. two-layer subcooling model
- Venting inerts
- Drainage
- Baffle design in condensers
- Condensation with enhanced heat transfer surfaces
- Vacuum condenser design challenges

Suggested Participants

Engineers who design and evaluate condenser equipment

HTRI Software

This course will make use of the following HTRI software: *Xchanger Suite*® component *Xist*®. All training materials are based on the current software version.

Course Credits: 6 hours (PDH/CEU)

Outline

I. Pure Component Condensation
- Filmwise condensation
- Pressure drop vs. saturation temperature
- Condensing flow regimes

II. Noncondensables and Mixture Condensation
- Vapor-phase coefficient
- Diffusion function

III. Desuperheating and Subcooling
- Dry-wall vs. wet-wall desuperheating
- Bulk equilibrium vs. two-layer subcooling model

IV. Design Considerations
- Is it clean? Is it vented? Is it drained?
- Baffle design
- Enhanced surfaces
- Vacuum condenser design challenges