

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

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