

**Course Fee: US\$450**

If you work with plate-and-frame geometries, *Xphe*<sup>®</sup> is the software for you. In this workshop you will discover how to use HTRI's graphical tool for rating plate-and-frame heat exchanger designs and for conducting comparative studies of plate-and-frame versus shell-and-tube design solutions for specific applications. You will learn how *Xphe* handles single-phase and two-phase heat transfer and pressure drop for common corrugated plate patterns in a variety of configurations, from single-pass, single-plate arrangements to multipass, mixed plate designs. You will also leave with a better understanding of the analytical methods used in *Xphe*. Note that crossflow plate-and-block type arrangements are not accommodated in *Xphe* and are therefore not covered in this workshop.

**Key Topics**

- Overview of *Xphe* capabilities and applications (single-/multiple-plate types and passes, non-Newtonian fluid specification, port maldistribution, and more...)
- Process specifications for rating, simulation, and design
- Guidelines for specifying fluid properties
- Geometry input
- Introduction to HTRI analysis methods

**Suggested Participants**

Process and thermal design engineers that evaluate plate-and-frame heat exchanger performance

**HTRI Software**

This course will make use of the following HTRI software: *Xchanger Suite*<sup>®</sup> components *Xist*<sup>®</sup> and *Xphe*<sup>®</sup>. All training materials are based on the current software version.

**Course Credits:** 6 hours (PDH/CEU)

**Outline**

- I. Introduction to Plate-and-Frame Technology
  - Characteristics and applications
  - Pros and cons vs. shell-and-tube heat exchangers
  - Geometry configurations
- II. Process Specifications
  - Common uses
  - Interface overview
  - Case modes and process specification
- III. Fluid Properties
  - Specification options
  - Non-Newtonian fluids
- IV. Geometry Input
  - Key geometry input features in *Xphe*
- V. Methods
  - Single-phase
  - Boiling
  - Condensing