Shell-and-Tube Heat Exchanger Technology

Shell-and-tube heat exchangers are some of the most widely used industrial heat exchangers. This course describes the characteristics of shell-and-tube heat exchangers compared to other exchanger types and the role of shell-and-tube exchangers within process industries. We also explore the advantages and disadvantages of shell-and-tube heat exchangers to assist with exchanger selection and compare several approaches to modeling the thermal and hydraulic performance of shell-and-tube heat exchangers. Additionally, this course offers an overview of the terminology and standards associated with shell-and-tube exchanger design and construction.

Suggested Participants

This is an introductory course for engineers – novice to expert – interested in shell-and-tube heat exchanger construction and performance.

Outline

I. Introduction
   - Tubular Alternatives to Shell-and-Tube Heat Exchangers
   - Plate-type Alternatives to Shell-and-Tube Heat Exchangers

II. Shell-and-Tube Heat Exchanger Construction
   - Tube Bundles and Heat Exchanger Tubes
   - Tubesheets
   - Tube to Tubesheet Joints
   - Baffles and Support Plates
   - Impingement Protection and Shells
   - Front Heads
   - Rear Heads

III. Shell-and-Tube Exchanger Codes, Standards, and Specifications
   - TEMA Standard
   - API660 Standard

IV. Modeling Shell-and-Tube Heat Exchanger Performance
   - Predicting Heat Transfer Coefficients
   - Overall Solutions

Course duration: Approximately 5 hours

Access: You can access the course for up to 30 days, starting on the date of registration. The course is self-paced. If you need to exit the course before completion, you will be able to save your progress and return to the course anytime within the 30-day access period.

Course credits: 5 hours (PDH/CEU)

Recommended browser: Google Chrome

Course fee: US$600 (member) or US$850 (non-member)