Best Technology Solutions (BTS)

TEMA & HTRI Heat Exchanger Design & Inspection and Cost Saving Management

Training Program

Why Choose This Course?

The course provides in depth practical understanding of major proven heat exchanger technologies and "state of art" fouling mitigation technologies. Pro's and Con's of several heat exchanger types are presented explained with life operational examples. This course provides a good mix of theory and common practices using highly interactive case studies where attendees are encouraged to use in-house heat exchanger type selection software and rigorous design/rating world-class software from HTRI.

Heat exchangers are the workhorses in a refinery and as long the heat exchanger perform its duty, nobody pay's attention; but in real life it's different. Process changes, stringent emission regulations might evolve in excessive fouling, high pressure drops and tube vibration which lead to intensive replacements. An initial saving with a special type might generate high cost in future due to wrong selection.

This course will feature:

- Selection of Heat Exchanger Type
- Advanced Heat Exchanger Technologies
- Fouling Mitigation Technologies
- HTRI rating & design common practices
- Highly Interactive Case Studies

What are the goals?

By the end of this course, participants will be able to perform or become:

- Proper Heat Exchanger Selection
- Heat Exchanger sizing
- Active Communicator during Meetings with Vendors
- Better observer during final inspection of heat exchangers
- Clear understanding of HTRI results

The Course Content

DAY 1- SHELL & TUBULARS

- Historical & Market Aspects
- Basic Heat Transfer
- Mean Temperature Difference & Thermal Efficiency
- Fundamentals of Stream Analysis
- TEMA Nomenclature & Selection
- Shell, Bundle, Baffle and Tube type Selection

DAY 2- SHELL & TUBULARS ADVANCED TECHNOLOGIES

- Fouling Mitigation Technologies
- High Pressure Breech Lock Closure type
- Texas Tower, Helitower, Helixchanger, Helifin, Helitrans
- Tube Insert Technologies
- Low-fin, High-flux, Corrugated and Twisted Tube applications and examples

DAY 3- VIBRATION ANALYSIS AND HTRI / TEMA CASE STUDIES

- Tube Vibration and FIV Prevention Technologies
- Case Study Selection of TEMA type
- HTRI Case study

DAY 4- AIR COOLED & COMPACT HEAT EXCHANGERS

- Air Cooled & Economizer Type
- Double Pipe, Hairpin
- Plate & Frame, Spiral Plate & Spiral Coil
- Welded Plate (Printed Circuit, Packinox, Brazed Aluminum)
- Submerged & Waterbath Type
- Open Rack Vaporizer, Case Studies on Selection

DAY 5- HTRI THERMAL ASPECTS CONDENSERS & REBOILERS

- Practical Aspects of Condenser Design (Reflux, Vent, Shellside versus Tubeside)
- Practical Aspects of Reboiler Design (Thermosyphon, Kettle, Falling Film)