

## TEMA & HTRI Heat Exchanger Design & Cost Saving Management Heat Exchanger Cost Saving by Selection & Design

| Date                          |              | (\$) | Fees |                              |
|-------------------------------|--------------|------|------|------------------------------|
| 04 February -08 February 2024 | Kuala Lumpur | 3500 |      | <a href="#">Register Now</a> |

### Why Choose this Training 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 CAPEX intensive replacements. An initial saving with a special type might generate high cost in future due to wrong selection.

#### This training 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 training 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

### Who is this Training Course for?

**This course is suitable to a wide range of Technical Professionals but will greatly benefit:**

- Engineers in disciplines Process, Mechanical, Project acting as specialist or generalist.
- Design Specialist in heat exchanger to extend their knowledge HTRI specific
- Engineers in various disciplines; Maintenance, Turn-Around, & Cost Estimating

## **How will this Training Course be Presented?**

This course will utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes presenting a large amount of photographs and graphics. The Instructor will bring the fabricator's workshop to the course so attendees will experience all intermediate stages of heat exchanger fabrication. Case study solutions should be presented by the attendees in front of the class and have to perform an HTRI rating on their own. The Instructor will guide and facilitate learning using a wide variety of methods including direct input, discussions, case studies and pair and group work.

## **The Course Content**

### **Day One: 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 Two: 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 Three: Vibration Analysis and HTRI / TEMA Case Studies**

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

### **Day Four: Air Cooled & Compact Heat Exchangers**

- Air Cooled & Economizer Type
- Double Pipe, Hairpin
- Plate & Frame, Spiral Plate & Spiral Coil
- Welded Plate (Printed Circuit, Packinox, Braze Aluminum)
- Submerged & Waterbath Type

- Open Rack Vaporizer, Case Studies on Selection

## **Day Five: HTRI Thermal Design Aspects Condensers & Reboilers**

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



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