Course Title	TEMA Shell & Tube Heat Exchanger : Design Installation, Testing, Maintenance & Repair	
Credit Hours	**Venue**	**Date**
25 H	Dubai - UAE	29th Dec. 2025 – 2nd Jan. , 2026

Objectives

- ✓ **The main objective of Shell and Tube Heat Exchangers training course is to equip the attendees with a thorough understanding of shell and tube heat exchangers, including their design principles, operation, maintenance, and troubleshooting .**
- ✓ **Upon completion of the course, participants will be able to:**
  - Familiarize participants with the concepts and technical terms of the codes.
  - Know the basic concepts of the codes and their design fundamentals.
  - Understand salient features and differences between codes and standards.
  - Know the design of pressure parts and major components.
  - Understand the problems in exchangers in-service & corrosion-related issues.
  - Learn the maintenance aspects of shell & tube exchangers.
  - Get introduced to the repair techniques and considerations.
  - Discover the fabrication requirements, assembly, and welding requirements.
  - Understand NDE, inspection procedures, and pressure testing.

The Delegates

- ✓ **The course is tailored for engineers in various roles, such as mechanical design, operations, maintenance, and inspection professionals such as:**
  - Design Engineers/Managers
  - Mechanical Engineers/Managers
  - Maintenance Engineers/Managers
  - QAQC Engineers/Managers
  - Inspection Engineers/Managers.
  - Reliability Engineers/Managers

Contents

- **Day 1**
  - Importance of Heat Transfer
  - Categories of heat exchangers such as Plate Type/ Double Pipe/ Cooling Towers/ Air Cooled Exchangers
  - Modes of heat transfer such as conduction/ convection/ radiation.
  - Introduction to Fluid Flow, velocities, and Pressure Loss.
  - Applicability of relevant codes under ASME/ TEMA/ API.
  - Introduction and Considerations in Thermal Design
  - Material selection criteria from ASME Section II.
- **Day 2**
  - Heat Exchanger Terminology as per TEMA/ ASME.
  - Types such as Fixed/ Floating/ U tube sheet and applications.
  - Shell-And-Tube Heat Exchanger parts and detailed function.
  - Mechanical design & thickness calculations as per ASME-VIII (Internal/ External pressure) for shells/ bonnets/ tubes.
  - Minimum thickness criteria from TEMA.
  - Tube Layouts and Number of Tubes in specified Shell Diameter (for ease of maintenance)
  - Exercise on (basic) thermal design of the exchanger
- **Day 3**
  - Thickness calculation for Tube sheet (Bending/ Shear) from TEMA.

- Minimum requirement criteria for baffles/ tie-rods/ tubes/ flanges/ impingement plates/ etc.
- Baffles clearance and spacing with consideration to flow-induced vibrations.
- Tube Layouts and Number of Tubes in specified Shell Diameter (for ease of maintenance)
- TEMA Standard References.
- General Introduction to API Standard for Petroleum and Natural Gas Industries
- Case study/ exercise on a mechanical design using TEMA/ ASME criteria

Day 4

- Inspection considerations (Radiography/ Ultrasonic/etc.)
- Heat Exchanger Hydrostatic test/ Pneumatic test.
- General reference from ASME Section-V and ASME Section-IX.
- Corrosion and Fouling in Heat Exchangers
- Maintenance and Cleaning Methods
- Preventive & Corrective Maintenance.
- Effects of tube failure/ bad design on the operation of the exchanger.
- Concept of MAWP.

Day 5

- Repair minimum requirement criteria from ASME PCC-2.
- Re-tubing/ tube pulling/ plugging (friction/ mechanical plugs) of tubes
- A case study from ASME PCC-2 philosophy.
- Final heat exchanger selection based on
- Type of Duty
- Operating Limitation
- Materials of Construction
- Safety and Reliability
- Design Methods
- Inspection of new Heat Exchangers during fabrication
- Dimensions and Weight
- Cost
- Delivery
- Review of a real-life typical fabrication assembly drawing/ calculations/ specification datasheet.

Course summary .

Discount	Language	Fees
10% in case of Three P. (or more)	English & Arabic	USD : 5400 $

Timetable	How to Register ?	Other Dates
09:00 Am : 11:00 Am (1st Section) 11:00 Am : 11:15 Am (Break 1) 11:15 Am : 12:45 Pm (2nd Section) 12:45 Pm : 01:00 Pm (Break 2) 01:00 Pm : 02:00 Pm (3rd Section)	www.titlehr.com Info@titlehr.com Tell | 00971559687070	8 – 12 March , 2025