



HEAT EXCHANGERS DESIGN, SELECTION, ASME SECTION VIII REQUIREMENTS AND TEMA CODE



COURSE OVERVIEW

This intensive course provides a thorough understanding of heat exchanger design principles, selection criteria, fabrication standards, and inspection requirements based on ASME Section VIII and the TEMA (Tubular Exchanger Manufacturers Association) code. The training focuses on various types of heat exchangers, thermal and mechanical design considerations, and practical applications in industrial environments. Participants will learn to evaluate specifications, conduct sizing and rating calculations, and ensure compliance with recognized codes and standards for reliable and safe operation.

DATES, VENUES AND FEES



17 – 21 August 2025 - Dubai

(5 Days)

Fees

US\$ 4500

Note: Fee is per participant + 5% VAT (if applicable).

Groups from the same company can enjoy a **discounted** price.

WHO SHOULD ATTEND?

This course is appropriate for a wide range of professionals but not limited to:

- Mechanical, process, and design engineers
- Plant and maintenance engineers
- Project and reliability engineers
- Technical managers and supervisors
- Quality and inspection personnel
- Anyone involved in specifying, designing, operating, or maintaining heat exchangers

CONTACT US NOW

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ACCREDITATION



This training course is certified by CPD.

The CPD Certification Service is the leading independent CPD accreditation institution operating across industry sectors to complement the Continuing Professional Development policies of professional institutes and academic bodies. The CPD Certification Service provides support, advice, and recognised independent CPD accreditation compatible with global CPD principles. CPD is the term used to describe the learning activities professionals engage in to develop and enhance their abilities and keep skills and knowledge up to date. CPD Units are only awarded to programmes after each programme is scrutinised to ensure integrity and quality according to CPD standards and benchmarks.

COURSE CERTIFICATE

MSTC certificate will be issued to all attendees completing a minimum of 80% of the total tuition hours of the course.

CPD internationally recognized certificate will be issued for all participants who will meet the course requirements. CPD certificates will be issued within a month of the successful completion of the course.

TRAINING METHODOLOGY

- Expert-led sessions with dynamic visual aids
- Comprehensive course manual to support practical application and reinforcement
- Interactive discussions addressing participants' real-world projects and challenges
- Insightful case studies and proven best practices to enhance learning

LEARNING OBJECTIVES

By the end of this course, participants should be able to:

- Understand the fundamentals of heat transfer and heat exchanger operation
- Identify and select the appropriate type of heat exchanger for specific applications
- Perform thermal and mechanical design calculations
- Apply ASME Section VIII Div. 1 rules related to pressure vessels
- Interpret and apply TEMA classifications, nomenclature, and mechanical standards
- Evaluate inspection, testing, and maintenance procedures for heat exchangers
- Ensure compliance with industry standards and improve system efficiency and safety

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COURSE OUTLINE

DAY 1

Fundamentals of Heat Transfer and Heat Exchangers

- Pre test
- Basic principles of heat transfer: conduction, convection, radiation
- Types and classifications of heat exchangers
- Shell and tube, plate, air-cooled, and compact heat exchangers
- Applications in various industries (oil & gas, power, chemical, etc.)
- Thermal design basics and operating parameters

DAY 2

Thermal and Mechanical Design Considerations

- Thermal design methods: LMTD and effectiveness-NTU
- Sizing and rating of shell and tube heat exchangers
- Tube layouts and baffle design
- Flow-induced vibration and fouling factors
- Design software tools and case studies

DAY 3

ASME Section VIII – Pressure Vessel Code Requirements

- Overview of ASME Section VIII Division 1
- Design pressure and temperature
- Material selection and allowable stresses
- Design and calculation of pressure parts (shell, tubesheet, nozzles)
- Welding, fabrication, and inspection requirements
- Pressure testing and certification

DAY 4

TEMA Standards and Mechanical Design Rules

- TEMA classifications: Types A, B, and C
- TEMA nomenclature and exchanger components
- Mechanical design of tubesheets, expansion joints, and support structures
- TEMA tolerances, clearance, and design recommendations
- Case study

DAY 5

Selection, Inspection, and Maintenance

- Heat exchanger selection for specific processes
- Inspection techniques: visual, hydrotest, NDT
- Common failure modes and root cause analysis
- Cleaning, maintenance, and performance monitoring
- Group exercise
- Summary, Q&A, and Post test

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