Heat Exchangers:
Types, Applications, Design, Operation & Maintenance

Attaining High Performance and Preventing Failures of Heat Exchangers

13 - 17 September 2020
27 - 31 December 2020
Dubai, United Arab Emirates
WHY CHOOSE THIS TRAINING COURSE?

This AZTech training course will present the technical and operational features of Heat Exchangers of various designs (shell-and-tube (STHE), air-cooled (ACHE), plate (PHE) that play a vital role in thermal power plants and petrochemical and process industries. It has been realized that Engineers of diverse backgrounds and expertise need to develop a sound understanding of fundamental principles and interrelationship between various parameters that govern the well designed and operated heat exchangers.

This course will familiarise engineers and technicians with various codes and standards and best practices used for design, manufacture, operation and maintenance of heat exchangers. The emphasis in course will be on the best practices for efficient operation, inspection, maintenance and repair of widely used types of heat exchangers: shell and tube, air-cooled, plate compact types. Several workshops will be included with case studies and real examples from engineering practice that will enable the analysis of the root causes as a prerequisite for effective troubleshooting process.

This AZTech training course will feature:

- Heat Exchangers Design Characteristics
- Understanding of Heat Transfer principles
- International Codes and Standards for fabrication, operation and maintenance
- Problems in operation: Fouling and performance monitoring
- Inspection of corrosion, erosion and structural integrity

WHAT ARE THE GOALS?

By the end of this AZTech training course, participants will be able to:

- Understand design guidelines and specifications
- Analyse exchanger thermal and hydraulic operational parameters
- Determine the correct selection criteria for sizing of heat exchangers
- Identify the problems in operation that lead to performance deterioration
- Determine correct troubleshooting techniques

Analyze exchanger thermal and hydraulic operational parameters

HOW WILL THIS TRAINING COURSE BE PRESENTED?

This training course will be conducted along the workshop principles, with formal lectures, case studies and interactive worked examples. Relevant case studies and practical exercises will be provided to illustrate the application of main learning points presented in the lectures. There will be ample opportunities for discussion and sharing experience to ensure maximum understanding of material. The goals of each participant will be discussed to ensure fulfilling of their needs and refining the solutions to their specific problems.

www.aztechtraining.com

WHO IS THIS TRAINING COURSE FOR?

This AZTech training course is suitable to a wide range of technical professionals but will greatly benefit:

- Maintenance Professionals
- Inspection Personnel
- Process Supervisors
- Plant Operators
- Plant/Technical Managers

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THE COURSE CONTENT

Day One: Types and Applications of Heat Exchangers

- Heat Exchanger Types and Applications: Choice of Working Fluid
- Heat Transfer Fundamentals and Heat Transfer Rates
- Heat Exchanger Elements: Tube Bundles, Tube Sheets, Baffles and Nozzles
- TEMA Nomenclature of Shell & Tube Heat Exchangers (STHE)
- Air Cooled Heat Exchangers (ACHE) and Plate Heat Exchangers (PHE)
- Condensers, Evaporators and Reboilers

Day Two: Thermal and Hydraulic Design of Heat Exchangers

- Flow vs. Temperature Difference in STHE
- Thermal Specification of Heat Exchangers: Sizing and Rating
- Hydraulic Design of STHE: Fluid velocity and Pumping Power Calculation
- Aerodynamic Design of ACHE: Sizing of Fans and Drive
- Sizing and Specifying of PHE Units: Compabloc Design
- Workshop: Case Studies, Examples & Solutions

Day Three: Mechanical Design of Heat Exchangers

- Mechanical Design of Heat Exchangers
- Calculation of Basic Elements of STHE
- Piping Loads on Exchanger Nozzles
- Material selection and Construction of Heat Exchangers
- Fabrication Technologies of Heat Exchangers
- Workshop: Case Studies, Examples & Solutions

Day Four: Operation and Maintenance of Heat Exchangers

- Fouling and scaling in tubes and shells: Problem Solutions and Remedies
- Inspection Techniques of Vital Elements of Heat Exchangers
- Corrosion & Erosion Reduction Techniques, Fitness for Service Analysis (FFS)
- Control in Operation: Tube Vibration & Troubleshooting
- Cleaning, Maintenance and Repair Techniques: Tube Plugging and Re-tubing
- Workshop: Case Studies, Examples & Solutions

Day Five: Performance Enhancement and Optimisation of Heat Exchangers

- Performance Monitoring and Testing
- Performance Validation
- Heat Transfer Augmentation Techniques
- Tubes with external and internal fins
- Heat Integration Basics: Pinch Technology
- Workshop: Case Studies, Examples and Solutions
HOTEL ACCOMMODATION
Hotel accommodation is not included in the Registration Fee. A reduced corporate rate and a limited number of rooms are available for attendees wishing to stay at the hotel venue. Please make your request for accommodation at least 3 weeks prior to the commencement of the course.

CANCELLATION & SUBSTITUTION
You must notify the Registrar of cancellations at least 2 weeks before a scheduled seminar in order to be eligible for a credit. If you cannot attend, you may send a replacement from your organisation at no charge. There is a $250 handling charge for all cancellations or rescheduling. We reserve the right to cancel a seminar due to low enrollment. All registrants will be notified in advance and a full refund will be provided upon request.

EVENT DISCLAIMER
We reserve the right to cancel or postpone a seminar or related event, change venue, substitution of the Instructor and alter the course content at our sole discretion. If this occurs, our responsibility is limited to a refund of any registration fee(s) already paid. We are not responsible for airline tickets, hotels costs, other tickets or payments, or any similar fee penalties or related or unrelated losses, costs and/or expenses registrant may incur or have incurred as a result of any trip cancellations or changes.

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CERTIFICATION
AZTech Certificate of Completion for delegates who attend and complete the training course

4 WAYS TO REGISTER
Toll Free: 800-AZTECH
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*This fee is inclusive of Documentation, Lunch and Refreshments and exclusive of 5% UAE VAT