



NARGAN
ACADEMY



Thermal Design of the Air-coolers

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WHY CHOOSE THIS TRAINING COURSE?

This course is intended to provide an overview on design aspects and effective parameters on thermal design concepts of air-cooled exchangers (ACHes).

During this course, trainees will be familiar with heat transfer principals, various international codes and standards, the type and components of ACHes, computer-aided design methods, and effective factors in order to achieve an optimized design and well-operated heat exchangers focusing on the mechanical and practical aspects.

Several workshops are also included with various real ACHE examples in order to provide a better understanding of interaction between thermal and mechanical design. Conducting thermal design using relevant software will enable the possibility of analysis and troubleshooting practices.

COURSE SYLLABUS (25 HOURS)

- Introduction to ACHes
- Applications of ACHes in industry (containing advantages and disadvantages)
- Exchanger geometry parts and their effect on the thermal design
- Construction/mechanical considerations in ACHes design
- Aerodynamic Design
- Running and analyzing a sample of single phases case
- Running and analyzing a sample of two phases case

WHO IS THIS TRAINING COURSE FOR?

No difference, if you're a process engineer, a mechanical engineer who's looking for a job, or even an undergraduate student. By participating in this course, you'll achieve competitive advantages in your career field.

The profile of participants includes:

- Process and mechanical engineers
- The fresh graduates in the field of oil, chemical, petrochemical and mechanical engineering.

Prerequisites:

General and appropriate knowledge of Fluid Mechanics, Thermodynamics and Heat Transfer.

WHAT ARE THE GOALS?

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

- Know the tasks of thermal designer, process engineers and other engaged departments (Mechanic, Piping, etc.),
- Check Input/output data for thermal design in the relevant software,
- Determine the correct sizing criteria,
- Design and sizing a new exchanger as a novice thermal designer,
- Analyze the performance of an existing exchanger,
- make familiar with troubleshooting techniques and find the appropriate remedy action,
- Check vendor technical proposal and Documents



Azita Salehi Golsefidi

- Process Department thermal design unit head at Nargan Company with more than 24 years' experience in the thermal design.
- Having experience cooperating in a manufacturer factory as thermal and mechanical designer and also factory technical head.
- Professionally qualified in thermal design of double pipe, hairpin and shell and tube heat exchangers in more than 50 projects and technical proposals.
- Professionally qualified in checking of the vendor thermal design and documents for heat exchangers (air-cooled, plate and frame, shell and tube and so on) in more than 30 projects.
- Teaching courses including shell and tube/air-cooled heat exchangers in Nargan Co. and the other ones.
- Working as a senior process engineer in the several projects of Nargan Co.

THE COURSE CONTENT

Day One

- Plant cooling requirements
- Air vs. water cooling
- Natural vs. forced draft
- ACHE for the process industry

Day Two

- ACHE configurations
- Identification of major components
- Tube bundle construction
- Typical fabrication sequence

Day Three

- Aerodynamic Design

Day Four

- Thermal Design Considerations

Day Five

- ACHE Control
- Samples