TECHNICAL EDUCATION ACADEMY

School of Engineering

COURSE PROGRAMME

000558

MECH059 - Heat Engineering and Heat Exchange Units

The "Heat Engineering and Heat Exchange Units" training program is designed to provide fundamental knowledge in heat transfer and the design of heat exchange systems.



Learn from the Best in the Business!

Course overview

Intermediate level

Why take this course

The "Heat Engineering and Heat Exchange Units" training program is designed to provide fundamental knowledge in heat transfer and the design of heat exchange systems. Participants will learn the principles of heat transfer, including conduction, convection, and radiation, as well as various types of heat exchange equipment such as different types of heat exchangers. The course includes an overview of the applications and designs of heat exchange apparatus, as well as methods for calculating and selecting suitable equipment for various thermal engineering tasks

Who it is for and how it helps

The "Heat Engineering and Heat Exchange Units" course is intended for professionals in various fields related to energy, heat engineering, and chemical technology. Specifically, this course can be beneficial and is recommended for:

• Engineers and Designers: Professional engineers and designers working in the fields of energy, heat exchange, and the design and maintenance of heat exchange systems will find this course useful for deepening their knowledge and skills.

• Energy and Energy Efficiency Specialists: Those involved in the efficient use of energy and reducing heat losses will gain valuable information and tools for optimizing heat exchange systems.

• Chemical and Manufacturing Industry Specialists: Individuals working in the chemical and manufacturing industries, where heat exchange plays a crucial role in processes, will benefit from a better understanding and management of the thermal engineering aspects of their work.

• General Audience: Anyone interested in or working with heat exchange processes and heat exchange equipment in various technical and industrial fields

What you will learn

- Understand the principles of heat transfer through conduction, convection, and radiation, and analyze and calculate heat exchange under various conditions
- Comprehend fundamental thermal engineering processes and heat transfer methods, enabling them to solve engineering problems more efficiently
- Identify and describe various types of heat exchange apparatus, their construction, and applications, aiding in the selection and design of appropriate equipment for specific tasks
- Perform calculations and select optimal heat exchange equipment based on process requirements and characteristics
- Improve efficiency and energy savings in systems where heat exchange plays a key role

Curriculum

Modules 01–03

01 Purpose and General Principles of Designing Heat Exchange Units

- Introduction: Heat Conductivity, Role of Heat and Mass Transfer Processes, Concepts of Conduction, Convective Heat Exchange, Radiative Heat Exchange
- Basic Concepts: Temperature Field, Temperature Gradient, Heat Flow, Heat Flux Density, Temperature Field, Steady-State Conduction through Single and Multilayered Flat and Cylindrical Walls
- Conduction through Single-Layer Flat Wall, Conduction through Multilayered Flat Wall

02 Types and Classification of Industrial Heat Exchange Equipment

- Concepts, Definitions, and Classification of Industrial Heat Exchange Equipment
- Thermal Processes and Apparatus
- Classification of Heat Exchangers (Shell and Tube Heat Exchangers, Double-Pipe Heat Exchangers, Plate Heat Exchangers, Spiral Heat Exchangers), Images of Heat Exchangers, "Heat Exchanger Designs"

03 Heat Exchange Apparatus and Their Designs: Overview and Calculation

- Recuperative Vapor-Liquid Heat Exchangers: Applications and Designs
- Recuperative Liquid-Liquid Heat Exchangers: Applications and Designs
- Recuperative Gas-Liquid Heat Exchangers: Applications and Structural Features, Apparatus Designs
- Recuperative Gas-Gas Heat Exchangers: Applications and Designs
- Regenerative Heat Exchangers: Applications and Designs
- Mixing Heat Exchangers: Applications and Designs
- Regenerative Heat Exchangers and Installations: Designs of Regenerative Heat Exchangers and Installations, Heat Exchange in a Layer
- Prospective Designs of Heat Exchange Devices Used in Various Power Installations
- Calculation and Selection of Heat Exchange Equipment

Participation and contacts

Joining the programme

Contact the Academy and quote course code 000558 to confirm dates, delivery format, prices and enrolment terms.

Training for your team

Tell us your business goals, the roles and number of participants, and your preferred dates and location. This will help us discuss the right training option.

Preparing for the programme

The published programme does not specify any prerequisites. Contact us before enrolling to confirm how to prepare.

Discuss your training needs

mail@tecedu.org
www.tecedu.academy

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