Global Horizon
TRAINING CENTER

Training Course:
Fundamentals of HVAC

24 - 28 November 2024
Sharm El-Sheikh (Egypt)
Sheraton Sharm Hotel

Training Course:
Fundamentals of HVAC

Training Course code: EN234600 From: 24 - 28 November 2024 Venue: Sharm El-Sheikh (Egypt) - Sheraton Sharm Hotel
Training Course Fees: 4200 Euro

Introduction

Properly designed and operated HVAC systems are critical to support comfortable and healthy building indoor environments. This practical course will develop your knowledge of the principles of heating, ventilating, air-conditioning and refrigeration systems found in commercial building applications. Attend and learn more about HVAC technologies to help you better understand how and where they are applied.

Who Should Attend?

- Facility managers
- Facility engineers
- Architects
- Project managers with HVAC responsibilities
- Anyone needing an overview of HVAC systems

Course Outline of Fundamentals of HVAC

Introduction to HVAC

- The need for HVAC
- References, standards, and codes
- Terms, definitions, and units
- HVAC system type overview
- Ventilation and air quality
- Buildings and energy efficiency

Psychrometrics

- Properties of moist air
- Psychrometric chart
- Sensible and latent
- Combined processes
- Mixing of air streams

Heating and Cooling Loads

- Loads and energy
- Heat transfer
- Weather data
- Infiltration and ventilation

- Cooling load calculations

Refrigeration

- Definitions
- Refrigerant selection
- Safety considerations
- Pressure and enthalpy
- Phase change concepts
- Vapor compression cycle
- System components

All Air Systems

- Definition of all air systems
- Types of all supply and return air systems
    - Recirculating / Mixed Air Systems
    - Dedicated Outside Air DOAS Systems
    - Overhead / Dilution Type: Constant Volume CAV and Variable Volume VAV
    - Displacement / UFAD Type
- Types of exhaust systems
    - General - Toilet, etc.
    - Laboratory, process, or other specialty systems
- Types of central equipment
    - Packaged / Unitary systems
    - Split systems
    - Air handling units
    - Fans
- Types of terminal equipment
    - Air Terminal Units / VAV Boxes
    - Grilles, Registers, & Diffusers
- System Comparison - Advantages / Disadvantages
- Hybrid approaches
    - Applications / Examples

Hydronic Systems

- Definition of Hydronics
    - Comparison to air systems
- Types of hydronic systems
    - Heating Hot Water
    - Chilled Water
    - Condenser Water: Tower and Geo-exchange
    - Glycol Water
- Types of central equipment
    - Boilers
    - Chillers
    - Cooling Towers / Fluid Coolers
    - Pumps
    - Heat Exchangers
- Types of terminal equipment
    - Coils

- Unit Heaters
  - Fan Coil Units
  - Chilled Beams
  - Radiant
- System Comparison - Advantages / Disadvantages

Steam and Steam Condensate

- Definition of steam
  - Comparison to air and hydronic systems
  - ASME Codes / Safety
- Types of steam and condensate systems
  - Low Pressure
  - High Pressure
  - Condensate Collection: Gravity return, Pumped return, Vacuum
- Types of central equipment
  - Boilers
  - Heat Exchangers
  - Make-up water systems
- Types of terminal equipment
  - Coils
  - Humidifiers
  - Unit Heaters
  - Fan Coil Units
  - Radiant
- System Comparison - Advantages / Disadvantages
- Applications / Examples

Field Tour - Wisconsin Energy Institute

Controls: Building Automation Systems

- Definition / Purpose of Building Automation System BAS
- Types of HVAC control systems
  - Local
  - Centralized Building-wide
  - Pneumatic
  - Direct Digital Control
  - Pneumatic-Hybrid
  - Programmable Logic Control PLC
- Type of control equipment
  - Valves
  - Dampers
  - Actuators
  - Sensors and thermostats
- Types of Controls
  - Proportional/Modulating Control Concepts
  - Open/Closed Loop Control
- Wisconsin Energy Institute
  - Sequence of Operations
  - Mechanical Flow Diagrams

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Registration form on the Training Course: Fundamentals of HVAC

Training Course code: EN234600 From: 24 - 28 November 2024 Venue: Sharm El-Sheikh (Egypt) - Sheraton Sharm Hotel Training Course Fees: 4200 Euro

Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

Delegate Information

Full Name (Mr / Ms / Dr / Eng): .....
Position: .....
Telephone / Mobile: .....
Personal E-Mail: .....
Official E-Mail: .....

Company Information

Company Name: .....
Address: .....
City / Country: .....

Person Responsible for Training and Development

Full Name (Mr / Ms / Dr / Eng): .....
Position: .....
Telephone / Mobile: .....
Personal E-Mail: .....
Official E-Mail: .....

Payment Method

- ☐ Please find enclosed a cheque made payable to Global Horizon
- ☐ Please invoice me
- ☐ Please invoice my company

Easy Ways To Register

Telephone: +201095004484 to provisionally reserve your place.	Fax your completed registration form to: +20233379764	E-mail to us : info@gh4t.com or training@gh4t.com	Complete & return the booking form with cheque to:Global Horizon 3 Oudai street, Aldouki, Giza, Giza Governorate, Egypt.