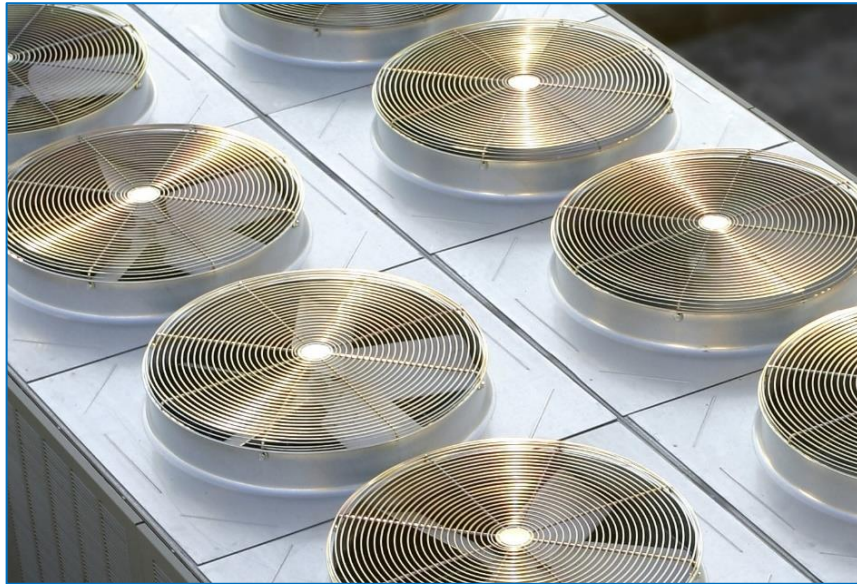




MU059:

Advanced Heating, Ventilation and Air-Conditioning (HVAC) Systems: *Operations & Troubleshooting Technology*

Training Description:

This course is designed for engineers and technicians from a wide range of abilities and backgrounds and will provide an excellent introduction to the fundamentals of Heating, Ventilation and Air-conditioning. It commences with a review of psychometric charts and then examines the factors that influence design choices, indoor air quality, load calculations and heating/ventilation and air-conditioning systems. Numerous tips and tricks throughout the program make it very practical and topical to your applications.

Either it is a small warehouse or a complex hi-rise building, there is an increasing demand by owners and Engineers to design and install the HVAC & R systems in a more efficient and cost-effective manner. Due to the on-going advances in HVAC & R technology, this demand is becoming a must and often controlled by new governmental regulations and engineering codes.

Realizing this need and the importance of the subject,

- The details of heat load calculations, selection of appropriate equipment/system and the design of the ducts and piping networks
- A comprehensive design case study of a complete cold store including heat loads of individual rooms and the total cold store, selection of the appropriate equipment, design of the best layout including handling areas
- By the end of this program, participants will have enough knowledge to implement their daily assignments correctly and professionally

Training Objectives:

The aim of this intensive course is to provide the participants with a complete and up-to-date overview of the area of Heating, Ventilation and Air-conditioning (HVAC). It commences with a review of psychometric charts and then examines the factors that influence design choices, indoor air quality, load calculations and heating/ventilation and air-conditioning systems. Numerous tips and tricks throughout the program make it very practical and topical to your applications.

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

- ✓ Maintain and troubleshoot HVAC systems
- ✓ Understand and apply the psychometric chart
- ✓ Design for good air quality
- ✓ Perform basic load calculations
- ✓ Initiate an effective inspection and maintenance program
- ✓ Minimize forced outages and prevent serious damage to HVAC equipment
- ✓ Provide an overview of the legislative requirements plus the essential steps and responsibilities for the maintenance and repair of HVAC Systems
- ✓ Outline the technologies available for the efficient energy management using HVAC systems

Training Designed for:

This course is intended for all Maintenance Engineers, Staff Plant Engineers, Mechanical Engineers, Design Engineers, Electrical Engineers, Consulting Engineers, Inspection and Repair Managers, Supervisors, Operation, Maintenance and Technicians and others Technical Staff.

Training Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

- ❖ PRE-TEST
- ❖ HVAC Design, Maintain and troubleshoot
- ❖ Heat load of a room
- ❖ Heat load of a multi room complex
- ❖ The cooling capacity
- ❖ The airflow rate
- ❖ The fresh air requirements
- ❖ The DX systems
- ❖ The chilled water systems
- ❖ Chilled water flow rates & piping sizing

DAY TWO:

- ❖ HVAC Design
- ❖ Chilled water pumps selection
- ❖ Building Management System and Control System
- ❖ DX system piping sizing
- ❖ Typical piping connections "DX units, chillers, pumps, AHU's and FCU's"
- ❖ Insulation thickness & the criteria for condensation prevention
- ❖ Duct sizing
- ❖ Air filtration

DAY THREE:

- ❖ Maintain and troubleshoot & Cold stores design
- ❖ The behavior of the fruit/vegetable after harvesting
- ❖ How cold stores can extend the life of the products
- ❖ How to decide the cold room dimensions
- ❖ The heat load of the cold room (Chilling, frozen products, Potato and Onions)

DAY FOUR:

- ❖ Cold stores design
- ❖ Pre-cooling. "Wet cooling"
- ❖ Selection of the refrigeration system components
- ❖ The insulation panels and doors
- ❖ The docks "Levelers, shelters and doors"
- ❖ Ventilation

- ❖ Reference data and tables

DAY FIVE:

- ❖ Operation and Maintenance
- ❖ Documentation
- ❖ As built hand over package documentation after completion of installation
- ❖ Records and book keeping
- ❖ PMR forms "Preventive maintenance routines"
- ❖ Questions and answers
- ❖ Case study
- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:

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