



المركز العالمي للتدريب والتطوير
International Centre For Training & Development



MUE169

Design & Selection of Air-Conditioning Units (Practical Applications)



ACTVET
Abu Dhabi Centre for
Technical and Vocational
Education and Training
مركز أبوظبي
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Course Introduction:

This course 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 nuance design choices, indoor air quality, load calculations and heating/ventilation and air-conditioning systems. The course is introducing many important subjects: The details of terminologies, psychometric processes, heat load calculations, selection of appropriate equipment/system, Installation procedure of equipment's, its maintenance and troubleshooting.

The course provides overview of operation and maintenance (O&M) programs specially designed to enhance HVAC systems without sign cant capital investment. The intent of this paper is not to provide hardcore maintenance or troubleshooting aspects but an insight to O&M practices that can ensure the best performance and comfort for your system.

Special examples are provided for typical HVAC troubleshooting problems that have occurred in the Instructor's experience. It is essential that participants have a fundamental understanding of the subject matter if they are to successfully design to avoid problems, as well as diagnose HVAC problems when they occur

Course Objectives:

Due to the on-going advances in HVAC system, 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 course is introducing this specialized program concentrating on two important subjects, the details of heat load calculations, selection of appropriate equipment/system and the design of the ducts and piping networks, in addition to installation and maintenance and trouble shootings.

Upon successful completion of this course, the delegates will be able to:

- ✓ Learn Fundamental of HVAC including primary and secondary equipment means of distribution, space and load determination, and operating strategy, performance rating terms, function of components
- ✓ Understand the basic selection criteria for heating system and factors considered when designing commercial heating systems
- ✓ Understand and apply the psychometric chart
- ✓ Design for good air quality
- ✓ 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

Who Should Attend?

The course is intended for use primarily to the students, end users, operators, architects, contractors and HVAC designers.

Course Outline:

Day 1:

- An introduction to heating, ventilation and air conditioning systems
- Basic criteria of heat transfer and ventilation
- Molleir charts and thermodynamic principles
- Basic cycles and calculation of performance and effectiveness

Day 2:

- Basic components of a complete system
- Understanding of airflow and affecting parameters
- Evaporator construction details
- Condenser construction details

Day 3:

- Capillary action and expansion valves
- Compressor construction details
- Cycle coefficient of performance
- Lubrication system

Day 4:

- Thermo-states and method of control.
- Control equipment
- Reverse systems
- Measuring techniques and methods of control

Day 5:

- Sticho-metric chart
- Operation of a cycle
- Maintenance of a cycle and maintenance philosophy.
- Case studies

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

Course Fees:

To be advised as per the course location. This rate includes participant's manual, and-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee/Tea
08:20 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Coffee/Tea/Snacks)
13:30 - 15:00	Last Session

