



an e egis company

بروجاكس للتدريب والتطوير
Projacs Training and Development

HVAC - District Cooling Plant – Design, Operations and Maintenance

– تقنيات محطات تبريد المناطق –
التصميم، التشغيل والصيانة

27 September – 01 October 2020

Dubai / United Arab Emirates

A Member of:



PROJACS ACADEMY



ProjacsAcademy.com



Introduction

The goal of this course is to introduce the engineers & technicians working in the field of HVAC to the basic & advanced topics of the subject. Also to illustrate the steps to establish a new HVAC project will be displayed and discussed in details. The strategy of selecting different HVAC equipment and the basics of the design of the utilities such as pumps & fans will be explained. The most important causes of failures and troubleshooting in either operation or design will be displayed.

Course Outline

Day 1:

- Psychrometric & psychometric processes
 - Moist air
 - Thermodynamic of moist air
 - Properties of moist air
 - Psychrometric chart
 - Processes of moist air.
- Air Distribution Systems.
 - Air Flow in Ducts
 - Types of Air Ducts
 - Duct sizing Method
 - Air diffusion units
 - Air distribution methods- selection of outlets.

Day 2:

- Zones
 - What is a Zone?
 - Zoning Design
 - Controlling the Zone
- Single Zone Air Handlers and Unitary Equipment
 - Examples of Buildings with Single-Zone Package
 - Air-Handling Unit Components
 - The Refrigeration Cycle
 - System Performance Requirements
 - Rooftop Units
 - Split Systems
- Multiple Zone Air Systems
 - Single-Duct, Zoned-Reheat, Constant-Volume Systems
 - Single-Duct, Variable-Air-Volume Systems (VAV)
 - Bypass Box Systems
 - Constant-Volume, Dual-Duct, All-Air Systems
 - Multizone Systems
- Three-Deck Multizone Systems
 - Dual-Duct, Variable-Air-Volume Systems
 - Dual-Path Outside-Air Systems

Day 3:

- Pumps and fans
 - Flow in pipes
 - Fluid static & motion
 - Centrifugal pumps
 - Characteristic curves of pumps
 - Propeller fans and axial flow fans
 - Centrifugal fans
 - Characteristic curves of Centrifugal fans
 - Selection of fans
- Piping Design
 - pipe sizes for water heating
 - pipe sizes for low pressure steam heating
 - pipe sizes for high pressure steam

Day 4:

- Air Conditioning systems
 - All air systems
 - Air - water systems
 - All water systems
- Air Conditioning Equipment
 - Water Chillers
 - Air handling units
 - Fan coil Units
 - Direct Expansion Air conditioning units
 - Selection of Air Conditioning Units

Day 5:

- Typical Air Conditioning Project.

Training Method

- Pre-assessment
- Live group instruction
- Use of real-world examples, case studies and exercises
- Interactive participation and discussion
- Power point presentation, LCD and flip chart
- Group activities and tests
- Each participant receives a binder containing a copy of the presentation slides and handouts
- Post-assessment

Program Support

This program is supported by interactive discussions, role-play, case studies and highlight the techniques available to the participants.

Schedule

The course agenda will be as follows:

- | | |
|---------------------|------------------|
| • Technical Session | 08.30-10.00 am |
| • Coffee Break | 10.00-10.15 am |
| • Technical Session | 10.15-12.15 noon |
| • Coffee Break | 12.15-12.45 pm |
| • Technical Session | 12.45-02.30 pm |
| • Course Ends | 02.30 pm |

Course Fees*

- **2,950 USD**
**VAT is Excluded If Applicable*

مقدمة

الهدف من هذه الدورة هو تعريف المهندسين والفنيين العاملين في مجال التكييف بالمواضيع الأساسية والمتقدمة للخطوات لإنشاء مشروع HVAC. وسيتم شرح استراتيجية اختيار معدات التكييف المختلفة، وأساسيات تصميم المرافق مثل المضخات والمراوح. وسوف يتم عرض أهم أسباب الفشل والمشاكل في أي عملية أو تصميم محطات التبريد.