Projacs
an egis company
بروجاكس للتدريب والتطوير
Projacs Training and Development

Tactics of Mechanical Installation: HVAC, Elevators, Fire Alarm, Pumps, Isolation Materials, etc.

تقنيات متقدمة للتركيبات الميكانيكية في المباني: تكييف، مصاعد، مضخات، مواد عزل، ألخ...

11 – 15 July 2021

Dubai / United Arab Emirates

PROJACS ACADEMY

ProjacsAcademy.com

Introduction

Upon completion of this course, participants will have a thorough understanding of the fundamental concepts of Mechanical installations techniques. Participants will have in-depth knowledge of HVAC, Elevators, Fire fighting and fire alarm systems, Pumps, Drainage system, Heating system , isolation materials inside the buildings, equipment selection, proper operation, trouble shooting through presentation of actual case studies.

Participants will divide into two or three groups and each group will receive a project and at the end of this course, each group will present their project design.

Who Should Attend?

The course should benefit engineering personnel responsible for Mechanical systems.

Course Outline

Day 1

Fire fighting and Fire Alarm systems

1.What is the fire

2. What is the fire fighting system

3.Classification of occupancies

4.Dead end points

5.Travel distances

6.Types of sprinkler systems

7.Types of sprinklers

8.Dry pipe sprinkler system

9.Deluge & Pre-action system

10.Refrigerated spaces

11.Commercial type cooking equipment

12.Wet-pipe sprinkler system

13.Basic Design of Sprinkler systems

14.How to design a project

15.Sprinkler distribution inside the places

16.Water network distribution & sizing

17.Hydraulic calculation procedures and fire fighting program

18.Training on how to use hydraulic calculation program

19.Installation

20.Testing and Commissioning

Introduction to HVAC

- What is Air-Conditioning?
- The Major processes of Air-Conditioning
- The Major applications of Air-Conditioning
- Selection of a system
- The Major HVAC system Types
    - Heat transmission in building structures.
    - Environmental Health and Indoor Air Quality
    - Indoor air quality effects on comfort and health
    - Equipment and design strategies for improving and maintaining acceptable indoor air quality
    - Cooling Towers

Secondary system components

- Duct and Pipe systems
- Fans and Pumps

Day 2

Central Systems

- Major HVAC system types
- Application of a basic central system
- Selection of system components
- Heating exchangers and cooling coils
- Variable Refrigerant Volume system (VRV)
- Adsorption system

All-Air systems

- Introduction to All-Air systems
- Single-duct, Single zone or Zoned reheat, Constant volume systems
- Variable Air Volume
- Dual duct system
- Three deck multi zone system

System Controls

- Control fundamentals
- Types of control action
- Air system procedures & air measurement .
- Water systems data .
- Test procedures.

Actual Project Case study

Day 3

INTRODUCTION AND COMMON BASICS OF PLUMBING SYSTEMS

- Classification of water networks and its components.
- Performance parameters.
- Solvent system
- Cold water systems
- Design of Water networks.

Service water heating systems

- Methods of heat development
- Equipment thermal design parameter and basic types

Pipe sizing

- Supply pipe system
- Return piping system
- Water pressure-kitchen hot water supply

Day 4

Water heating efficiencies and design considerations

- Water quality, corrosion and scale
- Hot water utilization temperatures
- Hot water from storage tanks and storage systems
- Safety devices for hot water supply systems

- Estimate the hot water requirements and sizing the storage-type equipment for residential, commercial, industrial, institutional buildings

Steam and condensate piping

- Water hammer
- Heat-up method
- Sizing the traps
- Installation
- Air venting

Fuel gas piping

- Definitions
- Appliances

Day 5

Pumps

- *Types of pumps*
- *Pump performance*
- *Characteristic curves*
- *Fault diagnosis and trouble shooting.*
- *Cavitations and NPSH.*
- *Water hammer calculations*
- *Installation and operating problems*

Energy conservation in water systems design

- **Definitions**
  - Performance efficiency
  - Saving energy

Maintenance plane preparation outline

- Field check list
- Hydraulic pressure test procedures
- Flushing techniques

Case study

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, and 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*

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

مقدمة

عند الانتهاء من هذا البرنامج، سوف يتكون فهم شامل لدى المشاركين حول المفاهيم الجوهرية لتقنيات التركيبات الميكانيكية. وسوف يتكون لدى المشاركين معرفة عميقة حول انظمة التدفئة والتهوية والتكييف والمصانع ومكافحة الحريق وانظمة الانذار من الحريق والمضخات وانظمة الصرف ونظام التدفئة ومواد العزل داخل المباني واختيار المعدات والتشغيل الصحيح وحل المشاكل من خلال تقديم دراسات حالة فعلية. وسوف يتم تقسيم المشاركين الى مجموعتين او ثلاثة وسوف تحصل كل مجموعة على مشروع وفي نهاية هذا البرنامج، سوف تقدم كل مجموعة مشروع التصميم الخاص بها.

الحضور

يفيد هذا البرنامج الموظفين الهندسيين المسئولين عن الأنظمة الميكانيكية.