

**Course Overview:**

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.

**Course Objective:**

- To teach participants the basic principles of HVAC
- To provide participants with an understanding of the Vapour Compression Refrigeration Cycle
- To explain the purpose of the most common system components
- To provide a thorough explanation of Air Handling units and the processes taking place
- To give participants an understanding of heat pump systems and components
- To provide the knowledge necessary for participants to make a logical selection of equipment
- To provide participants with the knowledge necessary to maintain a variety of types of air conditioning plant and to be able to make correct fault diagnosis and effect repairs
- Provide participants with the ability to confidently deal with outside air-conditioning contractors.
- To ensure that participants are able to witness system commissioning, testing and maintenance

**Course Outline:**

- INTRODUCTION TO HVAC
- WHAT IS AIR-CONDITIONING
- HEAT TRANSMISSION IN BUILDING STRUCTURES.
- SECONDARY SYSTEM COMPONENTS
- CENTRAL SYSTEMS
- MAJOR HVAC SYSTEM TYPES
- ALL-AIR SYSTEMS
- SYSTEM CONTROLS
- INTRODUCTION AND COMMON BASICS OF PLUMBING SYSTEMS
- SERVICE WATER HEATING SYSTEMS
- PIPE SIZING
- WATER HEATING EFFICIENCIES AND DESIGN CONSIDERATIONS
- STEAM AND CONDENSATE PIPING
- FUEL GAS PIPING
- TYPES OF PUMPS
- ENERGY CONSERVATION IN WATER SYSTEMS DESIGN
- MAINTENANCE PLANE PREPARATION OUTLINE

**Training Language:**

EN / AR

**Training Methodology:**

- Presentation & Slides
- Audio Visual Aids
- Interactive Discussion
- Participatory Exercise
- Action Learning
- Class Activities
- Case Studies
- Workshops
- Simulation

**Who Should Attend:**

The course should benefit engineering personnel responsible for Mechanical systems