2 Day`s Training program on

HVAC SYSTEMS: DESIGN, OPERATIONS & MAINTENANCE

28-29 July (Monday and Tuesday) 2025 at Mumbai

Training Program Objective and Description:

With the increase in global competition and awareness about energy conservation and management new concepts such as Green Buildings and District Cooling have emerged as an essential development.

HVAC & R (Heating, Ventilation, Air Conditioning, and Refrigeration) systems are the back bone in all industries including Oil &Gas, Petrochemical, Power, Chemical, Water, Waste Water, Pharmaceuticals, Process, Food & Beverages etc.

This is an introductory course to provide exposure to the basic concepts of HVAC Design, Engineering, Operations and Maintenance. It will enhance the theoretical as well as practical concepts related to Heating, Ventilation and Air Conditioning Systems (HVAC). Basics of Electrical and control devices relevant to the HVAC systems are also covered.

The program also covers energy auditing and conservation in HVAC systems including Energy Saving Opportunities etc.

Upon completion of this course the participant will be able to:

- Understand fundamentals of HVAC systems
- Learn HVAC Design Fundamentals
- Know importance of Air Quality
- Learn the Cooling Systems
- Understand the Air Ventilation Systems
- Learn the Design, Selection, Operations and Maintenance of HVAC systems
- Get the insight to the design philosophy behind an HVAC system which will help them not only in proper maintenance of the equipment but also will enable them to do the proper selection of the applicable HVAC system and sizing of its main components. In addition they will be able to identify energy saving opportunities in the systems they maintain.

Who Should Attend?

All practicing Engineers, DET, GET, O&M professionals; others who willing to get knowledge regarding mechanical maintenance.

Program Contents:

· Introduction
· History of HVAC, HVAC Fundamentals, HVAC Systems: Low Side & High Side
· Different type of air-conditioning methods (Chiller, Ductable, Package, Split, VRF)
· HVAC Design Basics
· Heat load calculations and selection for HVAC units
· Selection criteria of different air-conditioning methods
· Psychrometric charts for HVAC
· Heating and dehumidification process in HVAC system
· Evaporators, Absorbers, Condensers, Compressors, Chillers, Cooling Towers
· Equipment for Cooling source
· Selection of Cooling Equipment – Use of different refrigerants
· Operation & Maintenance Of Cooling Equipment
· Equipment for Ventilation source
· Selection of Ventilation Equipment
· Operation & Maintenance Of Ventilation Equipment
· Importance of Air Quality- effect on Humans, Process & Machinery

· Environmental Impact due various equipment / material used HVAC Systems
· Special coverage on sustainability points for HVAC - materials, heat load optimization, day lighting, ducting arrangement, refrigerant for chiller, heat recovery options, CO2 monitoring etc.
· Electrical major items related to HVAC systems e.g. Electric Motors, VFD etc.
· Control systems in HVAC
· Points to be taken care during erection / installation / commissioning
· Commissioning tests
· PM methods / frequency / check points

· Energy saving opportunities in HVAC Systems – In Building Heat load minimization

· In process heat load minimization and at the Refrigeration and Air conditioning plant areas.

· Latest innovation for energy savings in air conditioning

Post Course Test

CASE STUDIES: REAL LIFE APPLICATIONS WILL BE PRESENTED

Certification: Every particiapant will be awarded a course participation certificate.

Delivery Methodology (Strategy):

- Introduction and Objective Setting
- Pre and Post Test,
- Knowledge Presentations,
- Assignments & Exercise,
- Feedback and Assessment
- Discussion and Interaction
- Delivery 9:30 AM to 17:30 PM

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Registration:

Dates of the program: 28-29 July (Monday and Tuesday) 2025 at Mumbai.

Participation fees: Rs. 25000/- Per participant (GST@18% extra, Includes Lunch, Snacks Tea for both Days).

Payment: 100% in advance in Favor of "Centre for Industrial Solutions and Advanced Training" Payable at Nagpur, Maharashtra, India.

Bank: IDBI, Sadar, Nagpur, Maharashtra 440018, India; Account No: 0509 1020 0000 3353; IFSC Code: IBKL0000648; MICR Code 440259006; GST Details 27ABBPW5589J1ZV.

Contact for any In-house Training Program at your plant or location.

With Best Regards and Thanks,

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