



Course Title: Introduction to HVAC design

Course overview:

This intensive course covers a broad topic of HVAC. It is aimed at mechanical engineers with good understanding of thermo- and fluid- dynamics but little experience in HVAC design. The course starts by looking at the need for HVAC and typical applications. We then review each of the key parts of the discipline: Ventilation, Heating, Cooling, Dehumidification, Refrigeration as well as control and instrumentation.

As all our courses this one aims at equipping engineers with practical knowledge and techniques that help them design safe and efficient systems. Throughout the course we take time for practical exercises to give attendees hands on experience of calculations and design, which helps increase understanding.

At the end we look at the common standards applicable to HVAC and discuss several specialist subjects that from various industries, primarily: offshore, marine and industrial / process.

Length	3 days
Aimed at	Engineers, Designers, Project Managers
Discipline	Piping
Delivery	Lectures + Practical Exercises
Cost delivery on client site Estimate	£5800 Based on 8 attendees Enquire for quote
Cost at a scheduled event	£680 (See calendar)



Course Outline

- Introductions
 - Need for HVAC
 - Functions of HVAC
- Ventilation
 - Open / closed / recirculation systems
 - Ducts
 - Fans
 - Supply extract
 - Filters
 - Flow calculations
 - Air changes
 - Pressurisation
 - Control and balancing
 - Instrumentation
 - Fire risk
- Heating and cooling
 - Heating options
 - Cooling options
 - Free cooling
 - ATU
 - Standalone coolers
 - Chill water vs DX
 - Typical solutions for
 - Server rooms
 - Utility rooms
 - Workshops
 - Public spaces
 - Accommodation
 - Dealing with hot spots
 - Air handling unit
 - Preheating / precooling
- Refrigeration
 - Cycle
 - Refrigerant
 - Common use, future developments
 - Chill water system
- Trade-offs and practical considerations
- HVAC control and HMI requirements
 - Instrumentation
- HVAC standards
- Special considerations
 - Hazardous zones
 - Inert gas and HVAC
 - Penetrations
 - Maintenance
 - Offshore
 - Marine
 - Buildings
 - Battery room ventilation
 - Nuclear ventilation requirements