

# Energy Efficient Chilled Water Systems Design

As concerns for energy conservation and efficiency have increased, so has the emphasis on the knowledge of how to efficiently operate a facility’s cooling systems. Due to the many variables in a system of this complexity it is difficult to understand the interaction of all the components. This course works to break down the components and how to most efficiently operate them. VFD’s will be discussed as well as pump sizing and piping layout. Using the information presented during this course, you will develop an understanding of cooling systems and how to most efficiently operate them. Anyone who works on or near the mechanical systems and cooling systems in a facility should attend this course.

Course Duration: 8 hours

**CHILLED WATER BASICS**

- Sources of chilled water
- Centrifugal pump basics
- Pump curves

**BASIC HYDRONIC DESIGN PROCEDURES**

- Coil selection
- Control valve selection
- Piping layout

**AIR MANAGEMENT IN CHILLED WATER SYSTEMS**

- System pressurization
- Air separation principles
- Compression tank sizing/location

**PROPER PUMPING**

- Pump selection
- Avoiding pump problems

**VARIABLE SPEED SYSTEMS**

- Variable speed basics
- Theoretical and realistic savings
- The “control curve”
- Variable head loss ratio

**REDUCING COST THROUGH VARIABLE SPEED**

- Proper Application
- Common Mistakes

**PUMPS & FLOW**

- Variable flow primary only systems
- Variations on primary-secondary pumping
- Primary/Secondary/Tertiary pumping
- Primary-Secondary Zone pumping
- Various Example problems