



**Building energy Management Systems (BeMS)** can be found in most commercial buildings today from large hospitals, commercial offices, hotels right through to smaller facilities such as schools, retail outlets and fast food restaurants. BeMS are seen by most clients as critical to maximising the energy efficiency of such facilities. However, they also require some specialist skills to operate, manage and maintain as well the application knowledge to support this in the field of **Heating Ventilating and Air Conditioning (HVAC)**.

We have recognised the skills gap in this area and have developed a series of eLearning courses that are focused on how the HVAC and BeMS work together to drive efficiencies and occupant comfort levels. The courses are targeted at facility managers, maintenance engineers and technicians and will ensure that you are maximising the value from your investment in BeMS through your staff or service provider.

In a typical commercial building, Heating Ventilation and Air Conditioning consume approximately **40% of the total energy usage**. Of this around **25% is wasted energy** that can be eliminated through optimisation of the BeMS. The courses give you an insight to using your BeMS to maximise efficiency, even modest improvements may yield substantial energy savings and attractive paybacks.

## Understanding BeMS and making a positive impact on building performance

### Online eLearning

If you are a **Facility Manager, an Electrical / Mechanical / Maintenance Engineer** or someone wishing to find out more, we have developed a series of modules that cover BeMS Basics, Cooling, Heating and Air Conditioning.

The courses are a plain English introduction to some of the terminology and applications used by **BeMS engineers, and BeMS operators**.

Each course provides a clear introduction to the component parts of a Building energy Management System. This includes a commentary on some of the acronyms and vernacular used by controls engineers. Using actual plant schematics, and real-life situations the course ends with a simple test to validate the learning achieved.

[optimisedlearning.com](http://optimisedlearning.com)

## Key Benefits

-  Allows engineers to absorb training on their own time, leaving valuable classroom time for more skill-building activities
-  Saves money by reducing the travel and work-stoppage costs
-  Matches engineer skill level
-  Flexible options on courses - eLearning, Face to Face or Blended
-  Fully customised to suit your organisation's branding
-  Powerful assessment capabilities
-  SCORM Compliant
-  Delivers a Return On Investment for clients in days / weeks

# UNDERSTANDING BeMS LEVEL 1 COURSES

## BASICS

### FUNDAMENTALS

Building Characteristics  
Buildings Loads  
Simple Control Theory

### CONTROLLERS

Inputs & Outputs  
Hardware Platform  
The Application

### ENERGY CONTROLS

Front End Supervisor  
Time Schedules  
Optimisation  
Weather Compensation

### ARCHITECTURE

Communication Protocols  
Basic Networks  
Internet of Things

## HEATING

### HOT WATER GENERATION

Heating Pumps & Plant  
Solar Power & Biomass Boilers  
Combined Heat & Power

### HOT WATER DISTRIBUTION

Heating Circuits  
District Heating  
System Header

### ENERGY CONTROLS

Weather Compensation  
Boiler Sequencing  
Flow Limiting & Boost  
Frost Protection & System Alarms

### HEATING SYSTEM DEVICES

Valves & Pumps  
Sensor Positioning  
Control of the Pressurisation Unit

## COOLING

### CHILLED WATER GENERATION

Refrigerant Law & Cooling Plant  
Compression & Absorption Chiller  
Variable Refrigeration Flows

### CHILLED WATER DISTRIBUTION

Cooling Circuits  
Chiller & Cooling Towers  
Dry Air Cooling

### ENERGY CONTROLS

Identifying Savings  
Chilled Water Reset & Sequencing  
Extended Draw Down  
Relational Control & Set Points

### TERMINAL UNITS

Chilled Beams Active & Passive  
Split Air Conditioning

## AIR CONDITIONING

### AIR HANDLING UNITS

Construction & Types of AHU  
Heat Recovery  
Humidification & Dehumidification

### AIR DISTRIBUTION

Fire & Smoke  
Displacement Air Conditioning  
Natural Ventilation

### ENERGY CONTROLS

Outside Air Compensation  
Low Limit Control & Sensors  
Demand Based Air Quality  
Night Purging

### TERMINAL UNITS

Fan Coil Units  
Variable Air Volume Boxes  
Room Controls

## Blended Learning

We also offer a “blended” approach to learning, where an element of the traditional face-to-face instruction is replaced by online elearning. This approach allows us to cover a great deal in a short amount of time and provides the engineer with an optimised approach to learning by initially accomplishing the online groundwork in preparation for the face-to-face course, which gives them time to reflect their findings with colleagues.

Our Blended BeMS courses start with “PART ONE”, which provides each student with a clear concise introduction to the component parts of a Building energy Management System in an interactive 45-minute eLearning experience. This includes a commentary on some of the acronyms and vernacular used by controls engineers.

For PART TWO students gather to discuss their findings and dive deeper in to the fundamentals of a BeMS. Navigating a building HVAC system with controls applications. Returning to the Energy Managers office looking at what can be achieved by optimising the Building energy Management System supervisor software, including how to better to understand alarms, and the importance of seasonal adjustments.

## Face-to-Face Learning

The benefits of Face-to-Face Learning are beyond the good lunches! It means engineers can focus, engage with other delegates as well as our facilitator who has over 25 years experience within the Building Controls Industry. It also gives engineer to have a one to one session if any problem arises.

We hold our courses around the country but predominantly in London, hosted at the Ability Projects London Showroom, the facility is 250 yards from the Holloway Road Tube Station.

For between 6 and 12 candidates we can visit your premises and tailor the course’s exactly to your needs.

90%

less energy is consumed by engineers learning through online training

85%

fewer emissions are produced per engineer by blended training

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