

ONLINE COURSE OVERVIEW

Course Title	ESSENTIAL HVAC CONTROL AND OPTIMISATION
Course Aim	Heating, ventilation and air conditioning (HVAC) systems are an essential part of most modern buildings and can consume a large part of any energy used. This course aims to inform participants about the most widely used form of HVAC, their basic control and potential methods for optimising their operation for the least energy use while maintaining the comfort within buildings.
Course Description	This course will describe the basic operation and control of systems such as boilers, air handlers, fan coil units, chillers, pumping systems and air conditioning and relate them to energy consumption. It will then describe potential control methodologies that can be used for optimisation such as speed, flow and differential temperature which can be used to optimise their use for lowest energy consumption while maintaining adequate temperatures and comfort levels. This will also include how many of these systems can be controlled via a BMS. It will also cover the implementation and correct use of variable speed drives across the range of HVAC systems. The course will also touch on the renewable versions of some of the HVAC equipment such as biomass boilers and heat pumps.
Course Outcomes	<p>The course will help you to:</p> <ul style="list-style-type: none"> • Understand the operation and energy use of the main types of HVAC • Identify the standard control philosophies which tend to be used for the equipment • Understand potential optimisation methods to reduce energy cost of HVAC and improve its performance • Identify where to install variable speed drives on HVAC and optimize their use • Control through systems such as a BMS • Gain a basic understanding of biomass boiler use and heat pumps
Course Structure and Features	<p>This course is to be delivered as a 1-day virtual, tutor-led and participatory session through Zoom</p> <p>The course structure outlined below is indicative as some sections may be amended to assure the best outcomes for participants. Participants are encouraged to contribute with their own experiences and examples.</p> <p>The course material such as slide pack and any other necessary information will be issued by the course administrator ahead of the course.</p> <p>Course Structure:</p> <ol style="list-style-type: none"> 1. HVAC systems – overview 2. Heating systems – inc. boilers, indirect heat transfer, heat pumps and other systems 3. Domestic Hot Water systems



	<ol style="list-style-type: none"> 4. Cooling systems – inc. low energy cooling, mechanical cooling, chilled water systems 5. Heating and cooling control 6. Pumping systems and control 7. Ventilation systems – incl. Air Handling Units and control, Fan Coil Units, Air conditioning 8. Variable Speed Drives 9. Building Management Systems 10. Post-course assessment
<p>Who Should Attend the Course</p>	<p>This course is aimed at those who manage energy use in buildings and are exploring heating, ventilation and air conditioning (HVAC) systems and ways to optimise them. This course is aimed also at those who are new to energy management or interested in learning about the use of HVAC systems, their control and optimisation.</p> <p>As a guide, participants with the following job titles may be appropriate for the course:</p> <ul style="list-style-type: none"> • Energy trainees • Energy Engineers / Managers • Environmental Engineers / Managers • Sustainability Professionals • Building / Estates Engineers / Managers
<p>Prerequisites</p>	<p>The recommended requirements for admission are:</p> <ul style="list-style-type: none"> • Educated to a foundation degree / NVQ / Level 3+ apprenticeship standard or similar, or equivalent organisation-based energy management experience. Participants should have some familiarity with energy management processes and systems within an organisation, ideally for no less than 2 years. • For those whose first language is not English, and who have not undertaken a course of study where the principal medium of instruction is English, certificate of competency in one of the standard language tests (e.g. IELTS, TOEFL) will normally be required.
<p>Further Information</p>	<p><u>Post course assessment:</u> After the course, participants will have 7 days to complete an open book assessment to test their knowledge, understanding, and application of the contents covered in this course.</p> <p><u>Certification:</u> Participants who complete and pass the assessment will receive a certificate including 5 hours of Continuing Professional Development (CPD) recognition.</p>
<p>Other Related Training Courses</p>	<p>Energy Assessments, Monitoring, Targeting and Validation</p>

