

Customer information sheet

Electrical Testing and Fault Finding for Heat Pumps Technicians

NICEIC package includes:

- training learner guides
- PowerPoints
- visual aids
- assessment material.

Code	Core assessments	Practical provisions
Unit 1	Electrical fundamentals	Further details can be found on the package guidance doc.
Unit 2	Electrical safety essentials	
Unit 3	How heat pump systems work	
Unit 4	Fault diagnostics for heat pump systems	

Introduction

This training and assessment programme has been designed and developed by NICEIC Certification for existing and newly qualified heat pump installation and maintenance engineers. The heat pump installation sector is growing rapidly within the UK and many fossil fuel engineers are transitioning to the technology.

As the installation of heat pumps increase in the customer environment, the demand for servicing and especially repair will grow rapidly. NICEIC Certification have identified this as a potential skills gap within the newly qualified heat pump installer workforce. Many newly qualified heat pump engineers have been trained and deemed competent in installation and commissioning techniques, with minimum understanding of mechanical and electrical design schematics and principles of operation. This training and assessment programme is aiming to offer those engineers, the first stage development for understanding the required knowledge and application techniques to address the skills gap.

Contents

The training and assessment programme has four units of accreditation, which the learner must attain for the award of a certificate of competence which are:

- Unit 1: Electrical fundamentals.
- Unit 2: Electrical safety essentials.
- Unit 3: How heat pump systems work.
- Unit 4: Fault diagnostics for heat pump systems.

Attendees will learn about electrical science fundamentals, electrical health and safety, mechanical and electrical design schematics for heat pump control systems and the knowledge, understanding and application of fault diagnostics and repair. All learnings will be applied to heat pump system technology.

Training providers will apply the scope and deliver the learning with the support materials provided with the training and assessment package to include:

- Unit 1: Presentation pack.
- Unit 1: Learner guide.
- Unit 2: Presentation pack.
- Unit 2: Learner guide.
- Unit 3: Presentation pack.
- Unit 3: Learner guide.
- Unit 4: Presentation pack.
- Unit 4: Learner guide.
- End of Programme theory assessment (OB1).
- End of Programme practical assessment workbook (PAW1).
- End of Programme practical performance assessment (PP1).

In addition, there is the normal documentation for learner application to the programme, recording achievement, referencing the subject matter and internally quality assuring the certification process for the learner prior to transmitting to NICEIC Certification for Document Review (Decision Making).

Programme limitations

The learning programme is designed to give heat pump engineers the ability to appreciate the safety requirements when fault finding on different designs of mechanical and electrical control systems associated with heat pump installations.

It is not a heat pump sector entry route, as the learners applying for the training and assessment programme shall have already attained the prerequisite competence of installation, commissioning and maintenance.

The course is also not intended to train heat pump engineers to become qualified electricians, this is not possible in such a short time, but it is possible to give those engineers the knowledge to work safely on electrical systems and fault diagnose and repair without putting themselves or others at risk.

If there is any doubt as to an electrical safety issue always refer this to a suitably skilled and competent electrical professional.

Learner pre- requisites

- Applicant learners require to hold as a minimum, a recognised heat pump installation and maintenance certificate, with knowledge, understanding and experience of wet central heating emitter systems, controls and components.

The content of the training and assessment programme contains designs that include gas central heating boilers working in conjunction with heat pumps. This is for understanding hybrid mechanical and electrical design schematics.

We stress that any certificate awarded does include any competence in downstream gas installation and/or maintenance.

Certificate of competence

A certificate of competence will be issued if a learner can meet the requirements laid down within this document.

Certificates of competence will be valid for a period of five-years and contain the date of expiry.

Guidance doc. centre provisions

The following guidance outlines the general provisions required by a provider to set up to operate the NICEIC Certification "Electrical Testing and Fault Finding for Heat Pump Technicians" (ETFHPT) training and assessment programme. Providers must undertake an approval process and be issued with a NICEIC Certification "Approved Centre Scope of Approval Certificate" prior to delivering any programme.

It is recommended that this guidance be used in conjunction with setting up the facility.

Each provider will be unique in the way it presents its practical provision and as a result the programme guides and presentations may not be ideally tailored regarding the provider's style of delivery. It is acceptable for the sequence of course content to be delivered in a way that "suits" the actual provision/layout at an individual providers' facility. However, such changes must be minimal, and any major alterations made only with the written permission of NICEIC Certification.

Theory provisions	Initial
The classroom or resource room shall be in a suitable and quiet location.	✓
Adequate space and layout that benefits and encourages a conducive learning environment.	✓
Appropriate space between learners when undertaking tests (1 metre).	✓
A clock should be in full view.	✓
Adequate lighting levels (minimum 500 lux) must be provided.	✓
Adequate heating and environmental comfort levels.	✓
Teaching aids to include NICEIC Learner Guides and normative documents.	✓
Teaching aids to include NICEIC power-point presentations.	✓
Teaching aids to include flip charts, pen boards, projectors and reference materials.	✓
Classroom risk assessed for health, safety and environment conformance.	✓
Practical provisions	
The practical training/assessment requires provision of electrical, gas and water services.	✓
Sufficient quantity and range of heat pump installations and equipment.	✓
An installed and fully operational ASHP (Floor Mounted, Wall Mounted) for training.	✓
This installation shall be configured to accommodate training and assessment conditions.	✓
ASHP and emitter systems to be configured to include:	✓
<ul style="list-style-type: none"> • Time and temperature controls (hot water and central heating). • Zone control systems for hot water and central heating • Manufacturers control packs, for example wiring centres and interface centres. • Standard methods of wiring configuration (heat pump and wet emitter systems). • Standard methods of mechanical configuration (heat pump and wet emitter systems). 	
Additional portable rig is a recommendation for training sessions.	✓