

REGULATED QUALIFICATION FRAMEWORK (RQF)

QUALIFICATION SPECIFICATION

- **LCL Awards Level 3 Award in the Installation and Commissioning of Electric Vehicle Charging Equipment in Domestic, Commercial and Industrial locations.**

1. Objective:

This qualification is aimed at practicing electricians, electrical technicians and engineers with experience of electrical installations, and associated inspection and testing.

Electric Vehicles have an important role to play in meeting air quality legislation and the UK’s commitment to climate change targets. For this reason, the UK government is actively supporting the switch to electric vehicles.

This qualification covers the installation of dedicated conductive charging equipment for the charging of pure electric and plug-in hybrid electric road vehicles (PHEV) and includes the extended range of electric vehicles (E-REV). It covers the installation of both AC and DC charging equipment intended for plug-in electric vehicles (PEV) complying with BS EN 61851 and “The Code of Practice for Electric Vehicle Charging Equipment Installations”.

The target groups for the qualification are those learners who are;

- 1 Updating occupational competence, continuous professional development and or obtaining a licence to practice
- 2 Preparing for further learning or training and/or developing knowledge and or skills in a subject area who are existing workers in the occupation seeking to extend their range of work

2. Qualification Framework:

The qualification comprises of 1 mandatory Unit;

Unit Title	Unit Reference Number	Type of Unit	Level	Credit Rating
Installation and Commissioning of Electric Vehicle Charging Equipment	LCL-E3007	Knowledge & Performance	3	2

Qualification Structure:

- **LCL Awards Level 3 Award in the installation and commissioning of Electric Vehicle Charging Equipment in Domestic, Commercial and Industrial locations.**
- **QAN 603/4908/6**
- The Guided Learning Hours (GLH) are **16 hours**
- The Total Qualification Time (TQT) is **20 hours**
- The total credit required to achieve the qualification is **2**

3. Unit Grading Structure:

The learner is required to successfully pass 1 mandatory unit for this qualification to be awarded.

4. Unit specification:

Unit LCL-E3007: Installation, Service and Commissioning of Electric Vehicle Charging Equipment.

Learning Input 01: Know the key requirements for electric vehicle charging equipment (EVCE) installations.

The learner will demonstrate knowledge of the:

- 1.1 statutory and non-statutory requirements relating to EV charging equipment (EVCE) installations
- 1.2 registration organisations relating to EVCE installations

Learning Input 02: Know and identify Equipment of, and differences between, the four charging modes, and Wireless Power Transfer types (WPT).

The learner will demonstrate knowledge of the:

- 2.1 voltage and power parameters for charging modes 1 to 4
- 2.2 plugs, socket-outlets and vehicle connectors used in charging modes 1 to 4
- 2.3 advantages and disadvantages of charging modes 1 to 4
- 2.4 differences in EVCE features for charging modes 1 to 4
- 2.5 two general types of WPT charging
- 2.6 present limitations with and considerations for WPT charging

Learning Input 03: Understand the preparation for design and installation of EVCE.

The learner will demonstrate knowledge of:

- 3.1 what is required to be assessed before designing and installing EVCE
- 3.2 the considerations to be assessed relating to the location of EVCE
- 3.3 the design and installation requirements with respect to the electrical supply and earthing arrangement of the installation into which EVCE is to be installed.
- 3.4 the methods used for protection against electric shocks in EVCE installations, and identify any limitations or constraints imposed by Section 722 of BS 7671.
- 3.5 the circumstances where EVCE can be connected to the distributor's earthing terminal where the supply is TN-C-S (PME)
- 3.6 the requirements for separation of earthing systems where the EVCE has a different means of earthing to the rest of the installation.
- 3.7 the requirements for RCD protection for EVCE installation
- 3.8 the requirements for isolation and switching in EVCE installations
- 3.9 the external influences relating to the selection of EVCE
- 3.10 the assessments required in preparation to the installation of EVCE
- 3.11 the circumstances which may require prior notification and/or permission from the District Network Operator (DNO) before installation can commence.
- 3.12 The potential for EVCE units to communicate with non-EVCE electrical equipment and associated control and / or information systems

Learning Input 04: Be able to prepare to design and install EVCE.

The learner will be able to:

- 4.1 carry out assessments prior to installation
- 4.2 select an appropriate earthing arrangement given supply requirements and installation conditions
- 4.3 select suitable means of protection against electric shock given supply requirements and installation conditions
- 4.4 select appropriate cable to supply EVCE
- 4.5 select appropriate RCD protection for EVCE installation
- 4.6 apply design and installation requirements for specific types of installation locations

Learning Input 05: Be able to install EVCE in Dwellings, Commercial and Industrial Locations.

The learner will be able to:

- 5.1 apply procedures for managing health and safety during electrical installation work
- 5.2 complete information required for completion of checklist contained in the IET Code of Practice
- 5.3 select the appropriate cable and conductor termination methods
- 5.4 install EVCE in accordance with BS7671 and the IET Code of Practice

Learning Input 06: Understand requirements for initial verification and handover of an EVCE installation.

The learner will demonstrate knowledge of the:

- 6.1 information required to complete the Electrical Installation Certificate for EVCE installation
- 6.2 requirements for visual inspection of the installation
- 6.3 test methods for circuits supplying EVCE
- 6.4 test methods and acceptance criteria for earth electrodes
- 6.5 information the client must be provided to ensure the EVCE can be operated safely
- 6.6 process and requirements for notification to the Distribution Network Operator (DNO)

Learning Input 07: Be able to conduct inspection and testing, and complete handover to client.

The learner will be able to:

- 7.1 perform visual inspections that are conducted during initial verification
- 7.2 perform appropriate tests for circuits supplying EVCE
- 7.3 complete Electrical Installation Certificate and relevant forms from Appendix B or Appendix D of the IET Code of Practice.
- 7.4 advise the client of correct and safe operation and use of EVCE installation

5. National Occupational Standards: None

6. RQF Descriptor Level 3.

Knowledge descriptor: (the learner can)

- *Has factual, procedural and theoretical knowledge and understanding of a subject or field of work to complete tasks and address problems that while well-defined, may be complex and non-routine.*
- *Can interpret and evaluate relevant information and ideas.*
- *Is aware of the nature of the area of study or work.*
- *Is aware of different perspectives or approaches within the area of study or work.*

Skills Descriptor (the learner can)

- *Identify, select and use appropriate cognitive and practical skills, methods and procedures to address problems that while well defined, may be complex and non-routine.*
- *Use appropriate investigation to inform actions.*
- *Review how effective methods and actions have been.*

7. Prior knowledge, skills or understanding which the learner is required to have before taking the qualification. (Pre-requisites).

None

8. Units which a learner must have completed before the qualification will be awarded.

Learners must complete the one mandatory unit before the qualification will be awarded. See Section 4.0 above.

9. Other requirements which a learner must have satisfied before the learner will be assessed or before the qualification will be awarded.

None

10. The method of any assessment and any associated requirement relating to it.

Performance assessments will be conducted within a realistic working environment within an approved assessment centre or location. Knowledge and Understanding assessments will comprise of both multiple choice, multiple response and short response style questions which are conducted in controlled examination conditions within an approved centre or location. Learners must answer correctly 75% of the knowledge assessment criteria and 100% of the practical assessment criteria to achieve a grade of pass for this qualification to be awarded

11. The design and delivery of the examination associated with these units are based on the following documents;

1. IET Code of Practice for Electric Vehicle Charging Equipment Installation, 3rd Edition
2. BS7671: Requirements for electrical installations.
3. IET On-Site Guide,

12. The criteria against which learners' level of attainment will be measured.

The Learning Outcomes and Assessment Criteria against which learners' level of attainment will be measured are detailed in Section 4 of this specification.

13. Specimen assessment materials: Not Applicable**14. Specified levels of attainment:** Learners must achieve an overall pass for the qualification to be awarded.**15. Other information:** None

SSAs: 5.2 Construction

Review Date 31st August 2024

Assessment and Examination Terminology

AC – Approved Centre; an examination conducted either at the approved centre or a location approved by the centre, using staff approved by the centre to conduct the examination.

CBSR – Closed Book Short Response; Short response written questions will be set by the awarding organisation and administered and marked locally at the approved centre by approved markers. Learners will be prohibited from using industry normative or informative documents.

CE – Customer Evidence; evidence provided by a customer in the form of a written witness statement confirming a competent performance by the learner. That evidence may also be provided by an employing supervisor or manager of the learner. Witness statements that relate to a technical competence will only be accepted from a person technically competent in that particular activity to provide the statement.

IK – Inferred Knowledge; inferred knowledge is assessed as part of a performance assessment by a centre approved assessor. To deem the learner as having sufficient knowledge the learner must satisfactorily pass the performance assessment.

LE – Learner Evidence; learner generated evidence is for example documented recordings of readings, calculations or the production of a risk assessment or other procedural document.

MC – Multiple Choice; set by the awarding organisation and administered and marked locally or electronically. Learners will be able to answer multi-choice questions using reference to appropriate industry normative or informative sources.

O/L – On-line: a secure web-based assessment system (XAMS)

OP – Observed Performance; the assessment of a learner's performance by an approved assessor either in the learner's work place or at the approved centre or a location approved by the centre.

OQ – Oral Questions; oral questions may be asked by an assessor as part of a performance assessment or knowledge examination to confirm the understanding of the criteria by the learner.

PA – Performance Assessment; a performance assessment conducted either in the learner's work place or at the approved centre or a location approved by the centre.

RWE – Realistic Work Environment; an area at the approved centre or a location approved by the centre which replicates and has the features of a Work Place. The learner must not be permitted to be familiar with the simulated environment prior to undertaking assessment.

WP – Work Place; is the naturally occurring environment in which the learner works, typically that would be in a customer's premise where work is being paid for by the customer.